



COLLEGE OF COMPUTER AND INFORMATION SCIENCE

Academic Year 2022 – 2023

CS199F (CS PRACTICUM) FINAL REPORT

Submitted by

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Submitted to

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Submitted to the Faculty of Mapúa Malayan Colleges Laguna
In Partial Fulfillment of the Requirements for the Degree of

Bachelor of Science in Computer Science

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Introduction

This report will detail my activities and achievements during my practicum, divided into three sections corresponding to the three major parts of my practicum. Each section will begin with an overview of the company, followed by a discussion of the tasks and assignments I undertook. Next, I will be providing key numbers on that section of my practicum which will be followed by the timeline of activities. The timeline will show the tasks I have accomplished, and when I have started and finished those tasks. I will then be presenting the outputs that I have created for that segment of my practicum. Lastly, I will provide a synthesis for each section, encompassing my insights, lessons learned, realizations, and concluding remarks

LinkedIn Learning Required Modules

LinkedIn

LinkedIn began in co-founder Reid Hoffman's living room in 2002 and was officially launched on May 5, 2003. Today, LinkedIn leads a diversified business with revenues from membership subscriptions, advertising sales and recruitment solutions under the leadership of Ryan Roslansky. In December 2016, Microsoft completed its acquisition of LinkedIn, bringing together the world's leading professional cloud and the world's leading professional network.¹

LinkedIn Learning

LinkedIn Learning is an online educational platform that helps you discover and develop business, technology-related, and creative skills through expert-led course videos. With more than 5,000 courses and personalized recommendations, you can discover, complete, and track courses related to your field and interests.²

Nature of Assignments

Assignment	Description
Lecture Videos	Lecture videos were the primary way of delivering lessons. These videos are delivered by subject matter experts and were usually 5 to 10 minutes long.
Quizzes	Quizzes were given at the end of each module to assess my knowledge of the topics covered in the module. The quizzes were mainly comprised of either multiple-choice or true/false questions. Quizzes could also be taken multiple times with the highest score being recorded.
Assessments	Assessments were given at the end of each course to assess my knowledge of the topics covered in the course.

Total Hours Rendered

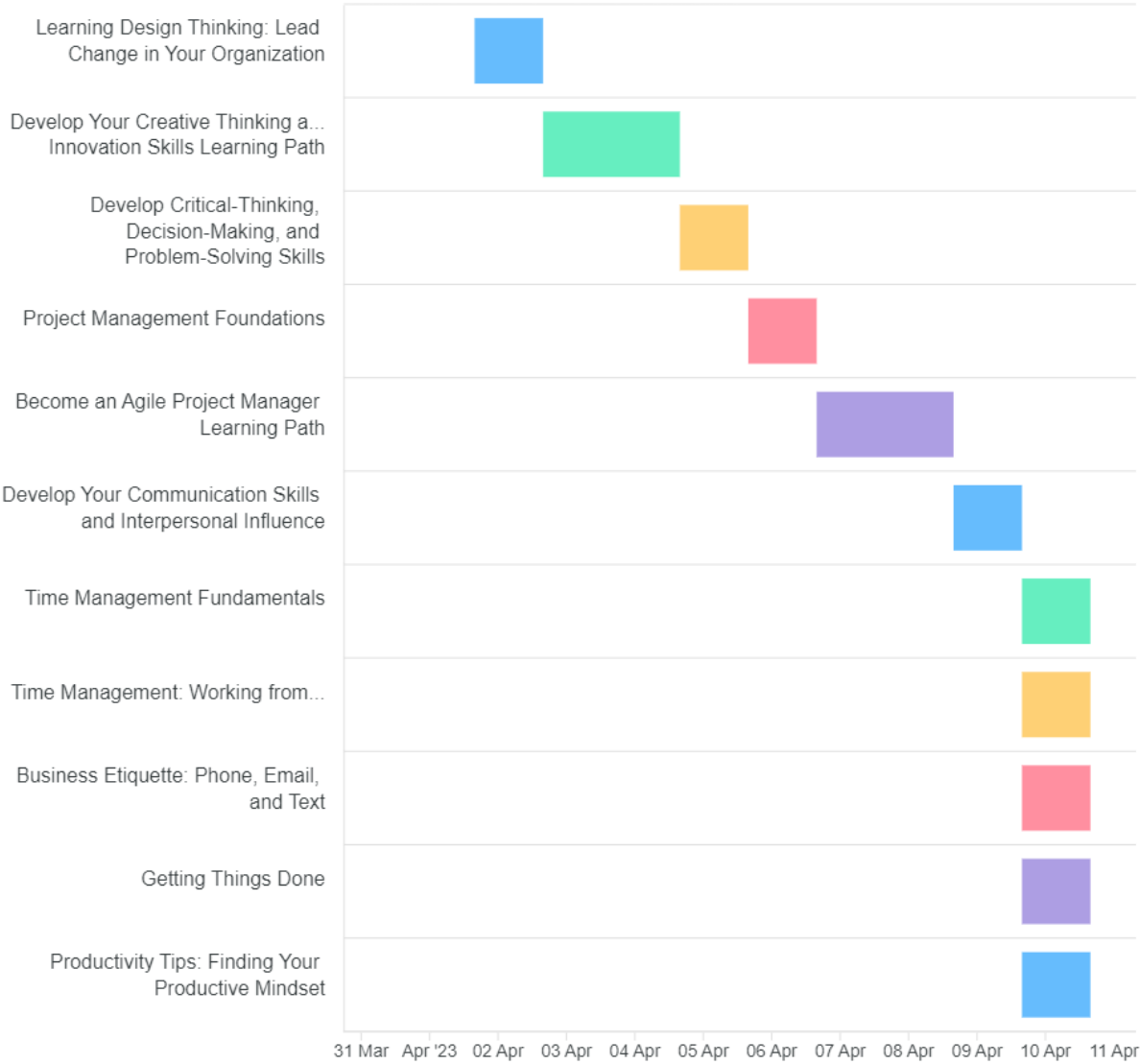
Engagement Hours: 45

Credit Hours: 90

¹ From <https://about.linkedin.com/>

² From <https://www.linkedin.com/help/learning/answer/a700789/linkedin-learning-overview?lang=en>

Timeline of Activities



Outputs

Certificate

Name: Learning Design Thinking: Lead Change in Your Organization Certificate of Completion

Date Received: April 3, 2023

Certificate:



Scan to view the certificate

Certificate

Name: Develop Your Creative Thinking and Innovation Skills Learning Path Certificate of Completion

Date Received: April 5, 2023

Certificate:



Scan to view the certificate

Certificate

Name: Develop Critical-Thinking, Decision-Making, and Problem-Solving Skills Certificate of Completion

Date Received: April 6, 2023

Certificate:



Scan to view the certificate

Certificate

Name: Project Management Foundations Certificate of Completion

Date Received: April 7, 2023

Certificate:



Scan to view the certificate

Certificate

Name: Getting Started as an Agile Project Manager Learning Path Certificate of Completion

Date Received: April 9, 2023

Certificate:



Scan to view the certificate

Certificate

Name: Develop Your Communication Skills and Interpersonal Influence Certificate of Completion

Date Received: April 10, 2023

Certificate:



Scan to view the certificate

Certificate

Name: Time Management Fundamentals Certificate of Completion

Date Received: April 11, 2023

Certificate:



Scan to view the certificate

Certificate

Name: Time Management: Working from Home Certificate of Completion

Date Received: April 11, 2023

Certificate:



Scan to view the certificate

Certificate

Name: Business Etiquette: Phone, Email, and Text Certificate of Completion

Date Received: April 11, 2023

Certificate:



Scan to view the certificate

Certificate

Name: Getting Things Done Certificate of Completion

Date Received: April 11, 2023

Certificate:



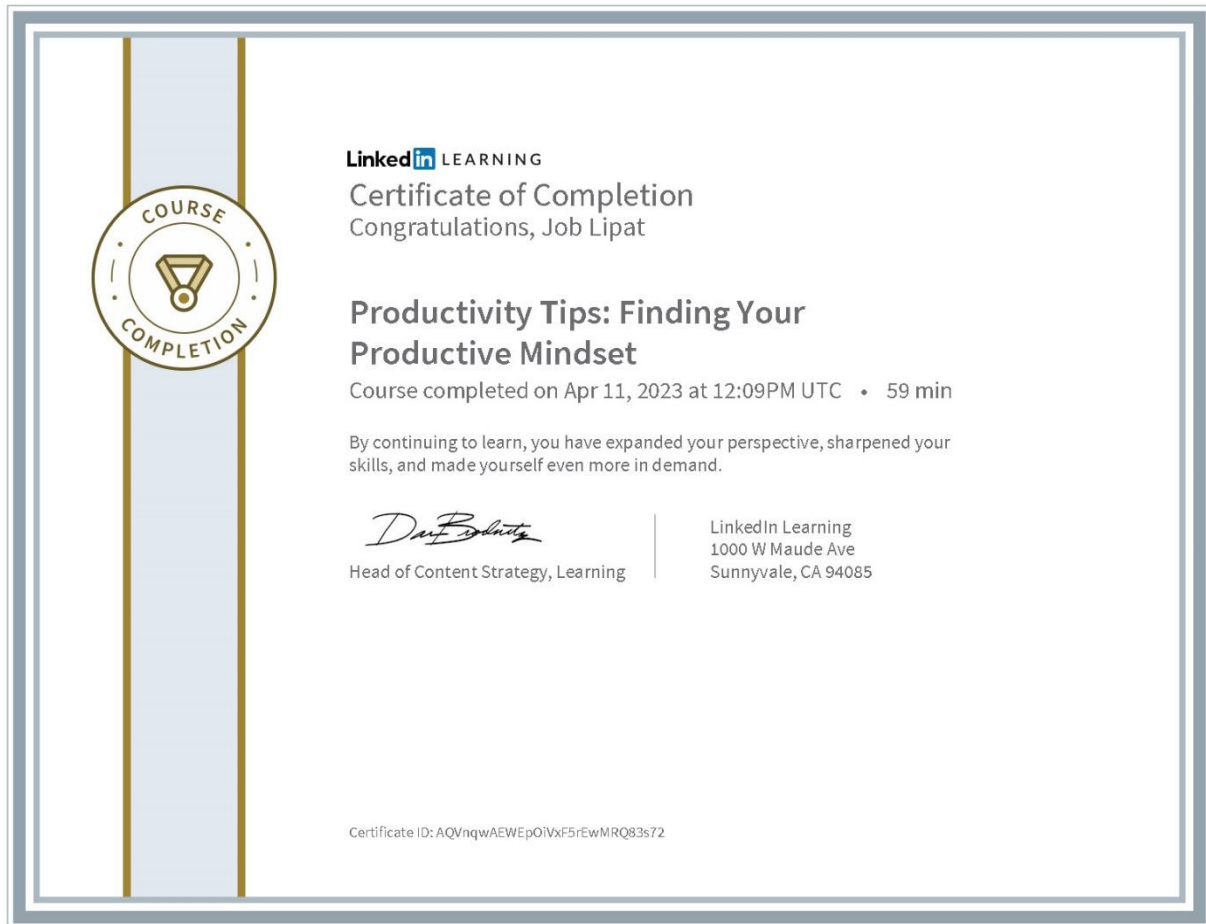
Scan to view the certificate

Certificate

Name: Productivity Tips: Finding Your Productive Mindset Certificate of Completion

Date Received: April 11, 2023

Certificate:



Scan to view the certificate

Synthesis

For the first part of my practicum, I had to take online courses in LinkedIn Learning. Through the courses, I have learned various soft skills that would help me as a future software engineer.

For the design thinking module, I have learned what it takes to create innovative solutions. From the courses, I learned that innovation starts with critical thinking. As defined by Mike Figliuolo, one of the instructors of the courses, critical thinking is the ability to think of the correct decision given bottlenecks, problems, and limited time. Critical thinking is one of the main components of creativity. As defined by Stefan Mumaw, creativity is the ability to create solutions that are both novel and relevant. However, being creative is not enough in the industry. We must also put our creative ideas into practice by being innovative.

As for the project management module, I have learned the process of how to turn ideas into reality. The undertaking of turning an idea to reality is called a project. More formally, a project is a temporary endeavor that has a specific and unique goal, and usually a budget. There are typically two methods for managing projects. There is the traditional way of project management, and there is agile project management. For software projects, agile project management is usually used as it enables the team to quickly deliver value and change depending on the needs of the user.

As for the workplace management module, I have learned how I should act in the workplace. The module covers three primary skills. The first is communication in the workplace. Through the courses, I learned how to communicate better with other people. In addition to this, I have learned the proper etiquette when calling, emailing, and texting. The second skill I have learned to improve is time management. Through the courses, I have learned how to maximize my calendar, and I have learned ways to balance work and personal time. Lastly, the module has helped me be more productive. I have learned that productivity goes hand in hand with time management. The better you are at time management, the more productive you are. In addition to this, I have learned better ways and better tools to keep track of tasks that I need to accomplish.

Overall, the experience of improving my soft skills through LinkedIn learning brought a fresh perspective. As a software engineer, soft skills are often overlooked as there is so much to learn in our field. Soft skills are either overlooked or ignored so we often get stuck in our own ways. However, through these modules, I have been able to gain new perspectives, tools, and techniques to improve my soft skills.

IBM DevOps and Software Engineering Professional Certificate

Coursera

Coursera was founded by Daphne Koller and Andrew Ng in 2012 with a vision of providing life-transforming learning experiences to learners around the world. Today, Coursera is a global platform for online learning and career development that offers anyone, anywhere, access to online courses and degrees from leading universities and companies.

Coursera received B Corp certification in February 2021, which means that we have a legal duty not only to our shareholders but to also make a positive impact on society more broadly, as we continue our efforts to reduce barriers to world-class education for all.³

IBM

IBM integrates technology and expertise, providing infrastructure, software (including market-leading Red Hat) and consulting services for clients as they pursue the digital transformation of the world's mission-critical businesses.

IBM DevOps and Software Engineering Professional Certificate

The IBM DevOps and Software Engineering Professional Certificate can help you launch your career with technical skills valued by IT employers. This self-paced certificate program of online courses, built for beginners, will equip you with the key DevOps concepts and technical know-how to build your Software Development skills and knowledge with DevOps practices, tools, and technologies. By the end of this program, you will be prepared for an entry-level role in Software Engineering with an organization of DevOps practitioners.

³ From <https://about.coursera.org/>

Nature of Assignments

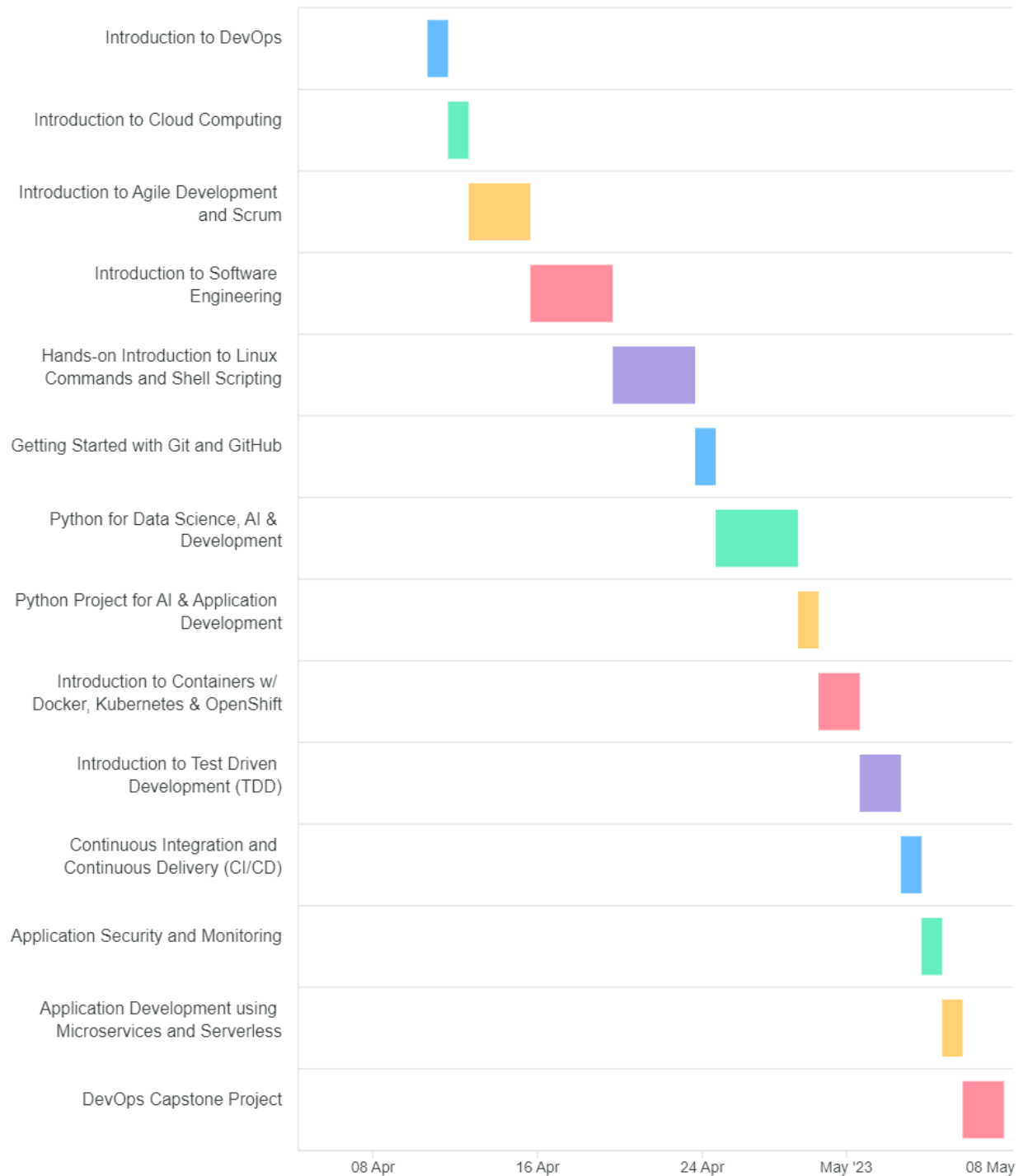
Assignment	Description
Lecture videos	Lecture videos were the primary way of delivering lessons. These videos are delivered by subject matter experts and were usually 5 to 10 minutes long.
Hands-on laboratory	Hands on laboratories allow us try out what I have learned in the lecture videos through the hands-on laboratory. The laboratory consisted of a series of steps that I had to follow through the Theia Cloud IDE.
Readings	Readings were also provided to elaborate on certain topics of the courses.
Interactive Modules	Interactive modules were also provided to help in reviewing the concepts taught in the lecture videos.
Quizzes	Quizzes were given at the end of each module to assess my knowledge of the topics covered in the module. The quizzes were mainly comprised of either multiple choice or true/false questions. Quizzes could also be taken multiple times with the highest score being recorded.
Capstone	The final part of the certification is a capstone where I had to demonstrate all the concepts that I have learned in the 13 courses.

Total Hours Rendered

Engagement Hours: 165

Credit Hours: 330

Timeline of Activities



Outputs

Project

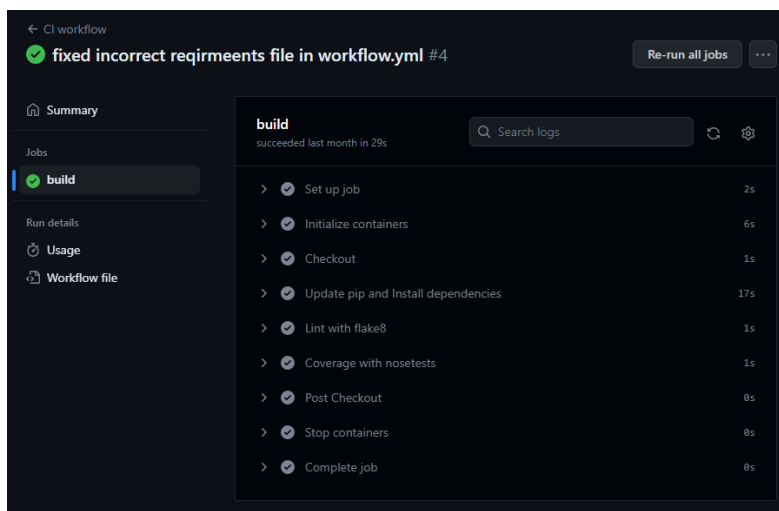
Name: IBM CI/CD Project

Description: In this project, I had to create a CI/CD pipeline using GitHub Actions. The CI/CD pipeline must be able to install dependencies, lint code using flake8, run tests using nosetests, and generate code coverage. The pipeline must able run every time there is a pull request to the main branch.

Link: <https://github.com/LipatJob/ibm-cicd-project>

Discussion:

Screenshots:



```
1  name: CI workflow
2
3  on:
4    push:
5      branches: [main]
6    pull_request:
7      branches: [main]
8
9  jobs:
10   build:
11     runs-on: ubuntu-latest
12     container: python:3.9-slim
13     steps:
14       - name: Checkout
15         uses: actions/checkout@v3
16
17       - name: Update pip and Install dependencies
18         run: |
19           python -m pip install --upgrade pip
20           pip install -r requirements.txt
21
22       - name: Lint with flake8
23         run: |
24           flake8 service --count --select=E9,F63,F7,F82 --show-source --statistics
25           flake8 service --count --max-complexity=10 --max-line-length=127 --statistics
26
27       - name: Coverage with nosetests
28         run: nosetests -v --with-spec --spec-color --with-coverage --cover-package=app
```

Project

Name: Product Price Comparison Application

Description: In this project, I had to create an application that allows the user to compare the price of a product across different vendors. The application must be containerized using Docker and must be deployed to ibmcloud.

Screenshots:

```
ibmcloud ce project current
theia@theiadocker-lipatjobj:/home/project$ ibmcloud ce project current
Getting the current project context...
OK

Name:      Code Engine - sn-labs-lipatjobj
ID:        20e63db8-9281-4f83-83da-97a37671516c
Subdomain: 124vp5luocr7
Domain:    us-south.codeengine.appdomain.cloud
Region:    us-south

Kubernetes Config:
Context:    124vp5luocr7
Environment Variable: export KUBECONFIG="/home/theia/.bluemix/plugins/code-engine/Code Engine - sn-labs-lipatjobj-20e63db8-9281-4f83-83da-97a37671516c.yaml"
theia@theiadocker-lipatjobj:/home/project$ ibmcloud ce application create --name prodlist --image us.icr.io/${SN_ICR_NAMESPACE}/prodlist --registry-secret icr-secret --port 5000 --build-context-dir products_list --build-source https://github.com/ibm-developer-skills-network/dealer_evaluation_backend.git
Creating application 'prodlist'...
Submitting build run 'prodlist-run-230506-130154201'...
Creating image 'us.icr.io/sn-labs-lipatjobj/prodlist:230506-1701-dasip'...
Waiting for build run to complete...
Build run status: 'Running'
Build run completed successfully.
Run 'ibmcloud ce buildrun get -n prodlist-run-230506-130154201' to check the build run status.
Waiting for application 'prodlist' to become ready.
Configuration 'prodlist' is waiting for a Revision to become ready.
Ingress has not yet been reconciled.
Waiting for load balancer to be ready.
Run 'ibmcloud ce application get -n prodlist' to check the application status.
OK

https://prodlist.124vp5luocr7.us-south.codeengine.appdomain.cloud
theia@theiadocker-lipatjobj:/home/project$
```

Products price comparison

Headphones ▾

Binglee ▾

Headphones costs \$30 at Binglee

Products price comparison

Headphones ▾

All Dealers ▾

Binglee	\$30
DXC Electronics	\$20
Bobay	\$20

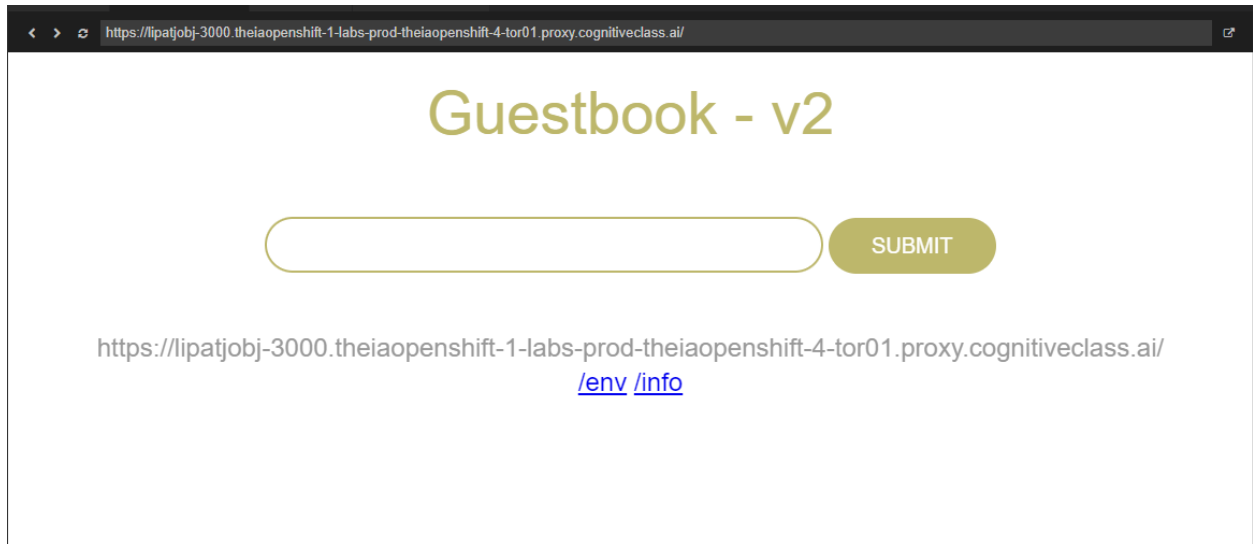
Project

Name: Serverless Guestbook Application

Description: A guestbook application that uses serverless infrastructure. Deployed using Docker and Kubernetes.

Link: <https://github.com/LipatJob/ibm-serverless-guestbook>

Screenshots:



```
See 'kubectl rollout --help' for usage.
theia@theiaopenshift-lipatjobj:/home/project$ kubectl rollout history deployments guestbook --revision=2
deployment.apps/guestbook with revision #2
Pod Template:
  Labels:      app=guestbook
              pod-template-hash=7fb445d77d
  Containers:
    guestbook:
      Image:      us.icr.io/sn-labs-lipatjobj/guestbook:v1
      Port:       3000/TCP
      Host Port:  0/TCP
      Limits:
        cpu:      5m
      Requests:
        cpu:      2m
      Environment: <none>
      Mounts:      <none>
      Volumes:     <none>

theia@theiaopenshift-lipatjobj:/home/project$
```

Project

Name: Backup Shell Script

Description: A script that allows the user to back up their files into ZIP files. Done for the final project of the IBM shell scripting course.

Link: <https://github.com/LipatJob/ibm-backup-shell-script>

Screenshots:

```
theia@theiadocker-lipatjobj:/home/project$ ls -l
total 16
-rw-r--r-- 1 theia users 4422 Apr 24 09:55 backup-1682344552.tar.gz
-rwxr-xr-x 1 theia users 1335 Apr 24 09:52 backup.sh
drwxr-sr-x 2 theia users 4096 Apr 24 09:55 important-documents
theia@theiadocker-lipatjobj:/home/project$
```

```
theia@theiadocker-lipatjobj:/home/project$ crontab -l
# Edit this file to introduce tasks to be run by cron.
#
# Each task to run has to be defined through a single line
# indicating with different fields when the task will be run
# and what command to run for the task
#
# To define the time you can provide concrete values for
# minute (m), hour (h), day of month (dom), month (mon),
# and day of week (dow) or use '*' in these fields (for 'any').#
# Notice that tasks will be started based on the cron's system
# daemon's notion of time and timezones.
#
# Output of the crontab jobs (including errors) is sent through
# email to the user the crontab file belongs to (unless redirected).
#
# For example, you can run a backup of all your user accounts
# at 5 a.m every week with:
# 0 5 * * 1 tar -zcf /var/backups/home.tgz /home/
#
# For more information see the manual pages of crontab(5) and cron(8)
#
# m h dom mon dow  command
0 0 */1 * * /usr/local/bin/backup.sh /home/project/important-documents /home/project

theia@theiadocker-lipatjobj:/home/project$
```

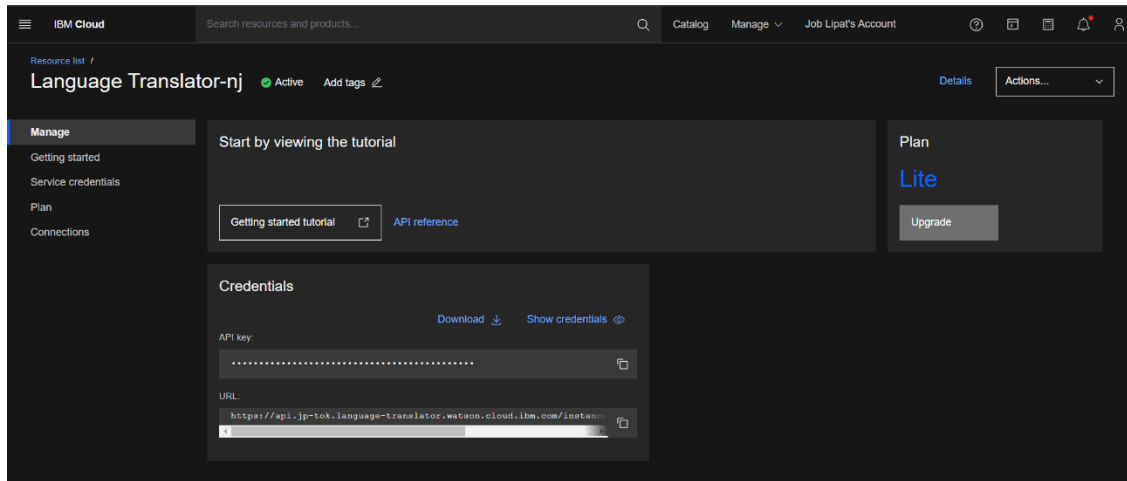
Project

Name: Flask French to English Translator

Description: A Flask application that uses the IBM translator service to translate English to French and vice versa.

Link: <https://github.com/LipatJob/ibm-flask-english-french>

Screenshots:



Text to be translated

Hello

Translate to French

Translate to English

Bonjour

Text to be translated

Bonjour

Translate to French

Translate to English

Hello

Project

Name: Flask Account Management Service

Description: A RESTful API built using Flask that allows users to manage accounts. Demonstrates software development practices such as BDD/TDD, Containerization using Docker and Kubernetes, and Continuous Integration and Delivery.

Link: <https://github.com/LipatJob/ibm-flask-english-french>

Screenshots:

```
(venv) theia:project$ curl -i -X POST http://127.0.0.1:5000/accounts \
> -H "Content-Type: application/json" \
> -d '{"name":"John Doe","email":"john@doe.com","address":"123 Main St.","phone_number":"555-1212"}'
HTTP/1.1 201 CREATED
Server: gunicorn
Date: Sun, 07 May 2023 05:45:52 GMT
Connection: close
Content-Type: application/json
Content-Length: 128
Location: /

{"address":"123 Main St.,"date_joined":"2023-05-07","email":"john@doe.com","id":1,"name":"John Doe","phone_number":"555-1212"}
(venv) theia:project$
```

```
(venv) theia:project$ curl -i -X GET http://127.0.0.1:5000/accounts/1
HTTP/1.1 200 OK
Server: gunicorn
Date: Sun, 07 May 2023 05:46:58 GMT
Connection: close
Content-Type: application/json
Content-Length: 128

{"address":"123 Main St.,"date_joined":"2023-05-07","email":"john@doe.com","id":1,"name":"John Doe","phone_number":"555-1212"}
(venv) theia:project$
```

```
(venv) theia:project$ curl -i -X GET http://127.0.0.1:5000/accounts
HTTP/1.1 200 OK
Server: gunicorn
Date: Sun, 07 May 2023 05:46:25 GMT
Connection: close
Content-Type: application/json
Content-Length: 130

[{"address":"123 Main St.,"date_joined":"2023-05-07","email":"john@doe.com","id":1,"name":"John Doe","phone_number":"555-1212"}]
(venv) theia:project$
```

```
(venv) theia:project$ curl -i -X GET http://127.0.0.1:5000/accounts
HTTP/1.1 200 OK
Server: gunicorn
Date: Sun, 07 May 2023 05:46:25 GMT
Connection: close
Content-Type: application/json
Content-Length: 130

[{"address":"123 Main St.,"date_joined":"2023-05-07","email":"john@doe.com","id":1,"name":"John Doe","phone_number":"555-1212"}]
(venv) theia:project$
```

```
(venv) theia:project$ curl -i -X DELETE http://127.0.0.1:5000/accounts/1
HTTP/1.1 204 NO CONTENT
Server: gunicorn
Date: Sun, 07 May 2023 05:47:45 GMT
Connection: close
Content-Type: text/html; charset=utf-8

(venv) theia:project$
```

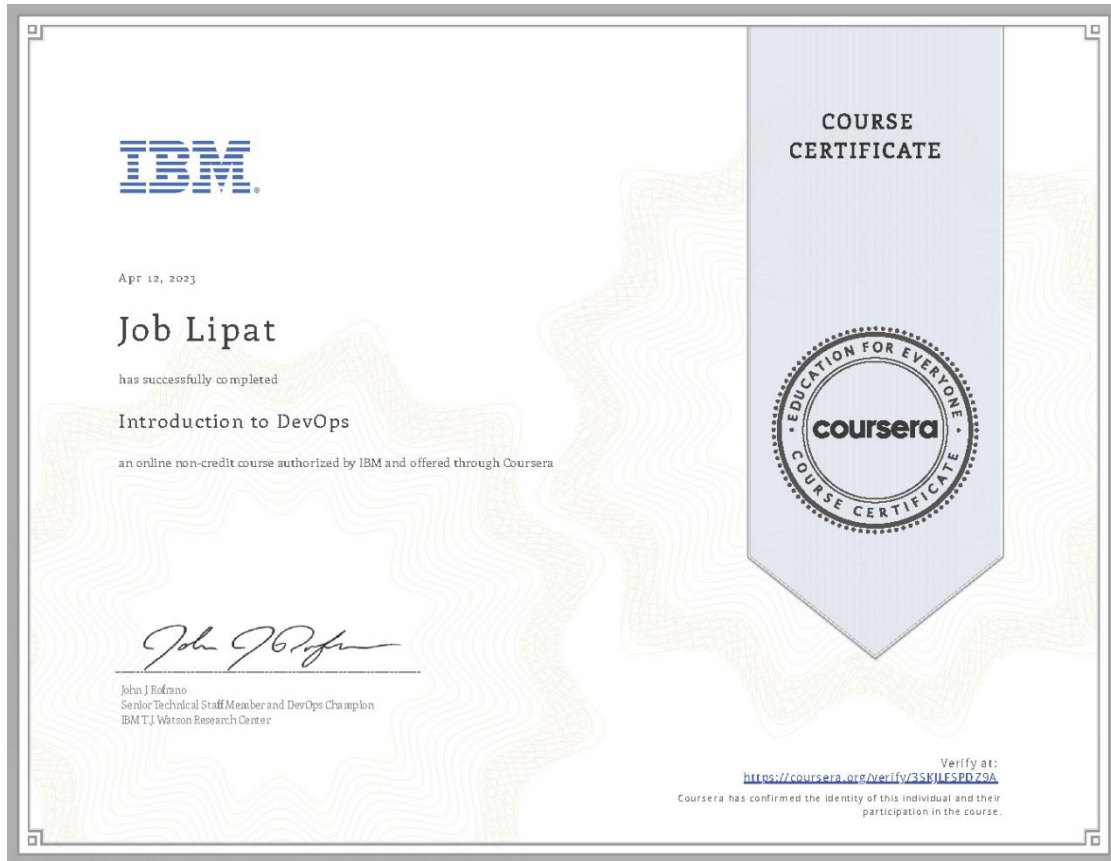
Certificate

Name: Introduction to DevOps Certificate of Completion

Date Received: April 12, 2023

Link: <https://www.coursera.org/account/accomplishments/certificate/3SKJLFSPDZ9A>

Certificate:



Scan to view the certificate

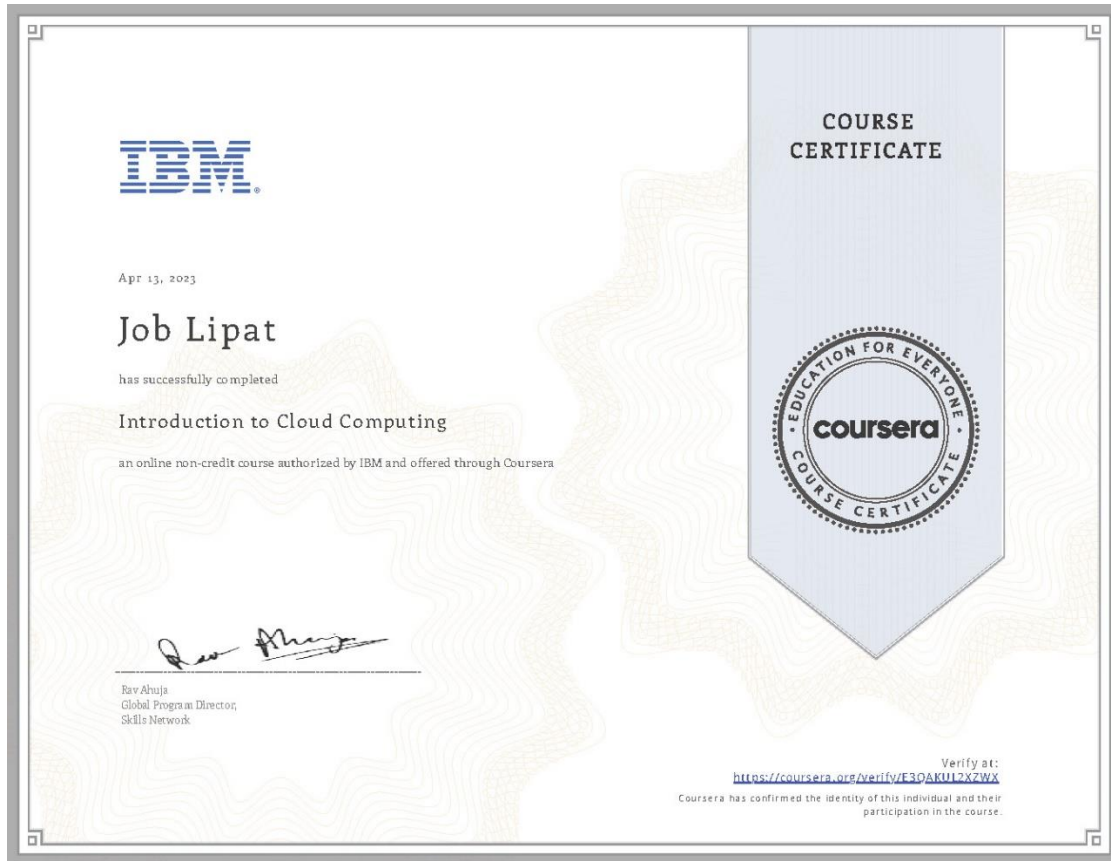
Certificate

Name: Introduction to Cloud Computing Certificate of Completion

Date Received: April 13, 2023

Link: <https://www.coursera.org/account/accomplishments/certificate/E3QAKUL2XZWX>

Certificate:



Scan to view the certificate

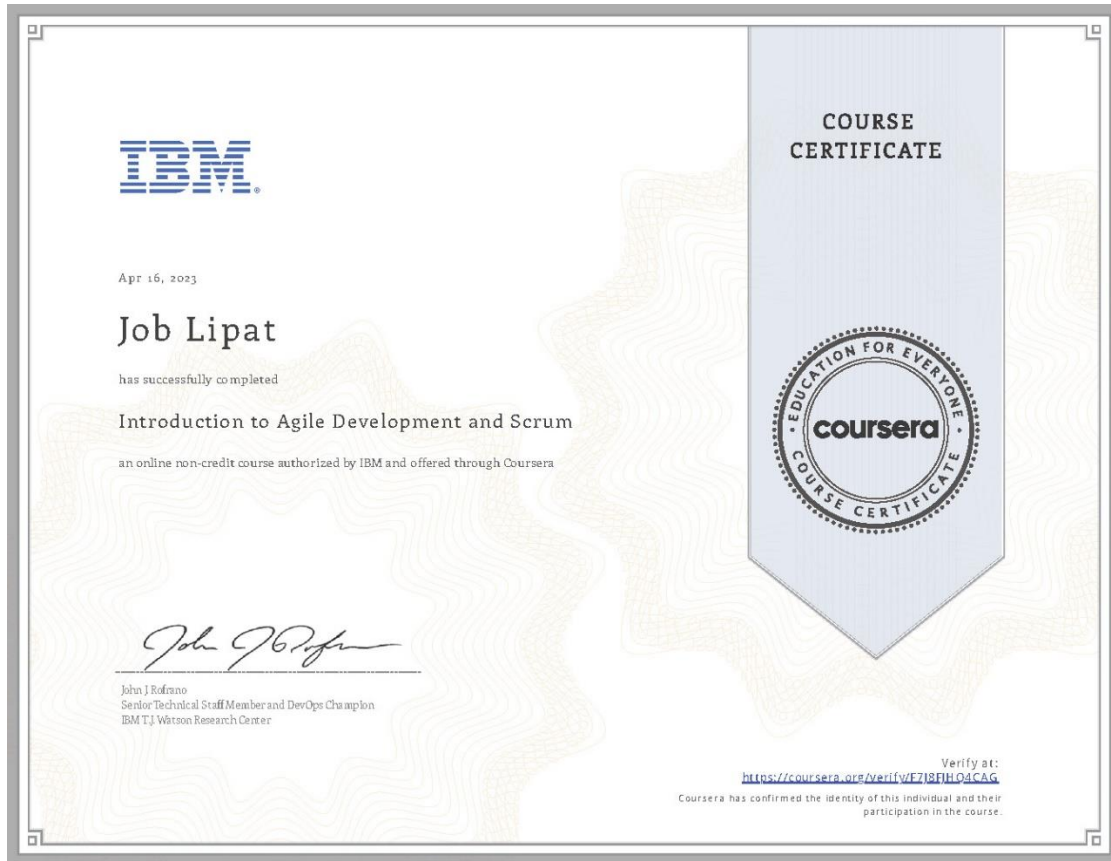
Certificate

Name: Introduction to Agile Development and Scrum Certificate of Completion

Date Received: April 16, 2023

Link: <https://www.coursera.org/account/accomplishments/certificate/F7J8FJHQ4CAG>

Certificate:



Scan to view the certificate

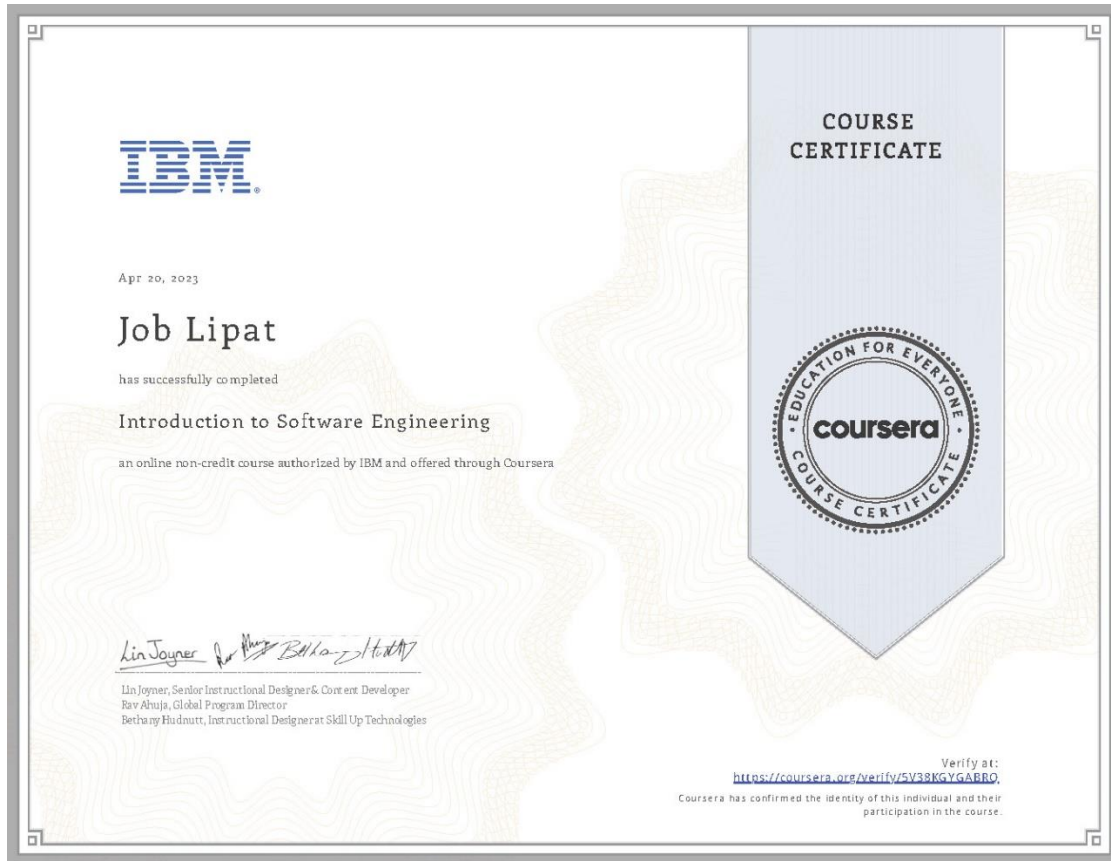
Certificate

Name: Introduction to Software Engineering Certificate of Completion

Date Received: April 20, 2023

Link: <https://www.coursera.org/account/accomplishments/certificate/5V38KGYGABRQ>

Certificate:



Scan to view the certificate

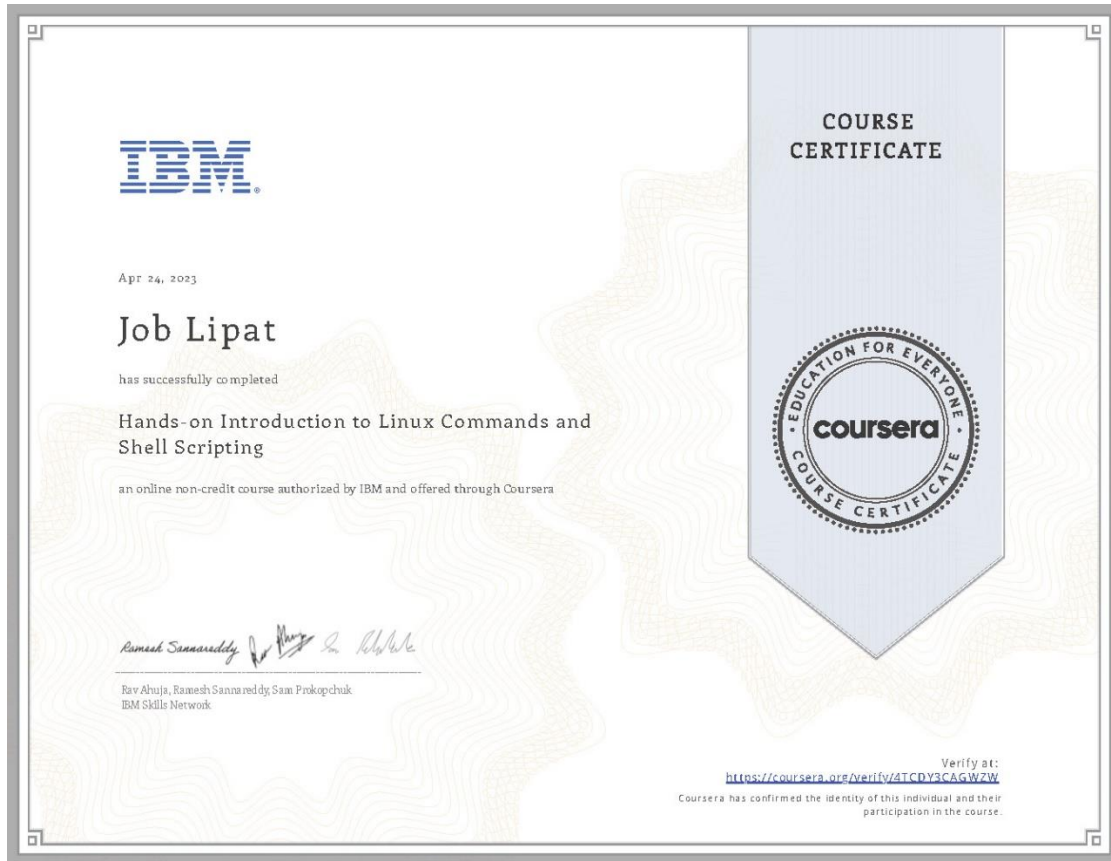
Certificate

Name: Hands-on Introduction to Linux Commands and Shell Scripting Certificate of Completion

Date Received: April 3, 2023

Link: <https://www.coursera.org/account/accomplishments/certificate/4TCDY3CAGWZW>

Certificate:



Scan to view the certificate

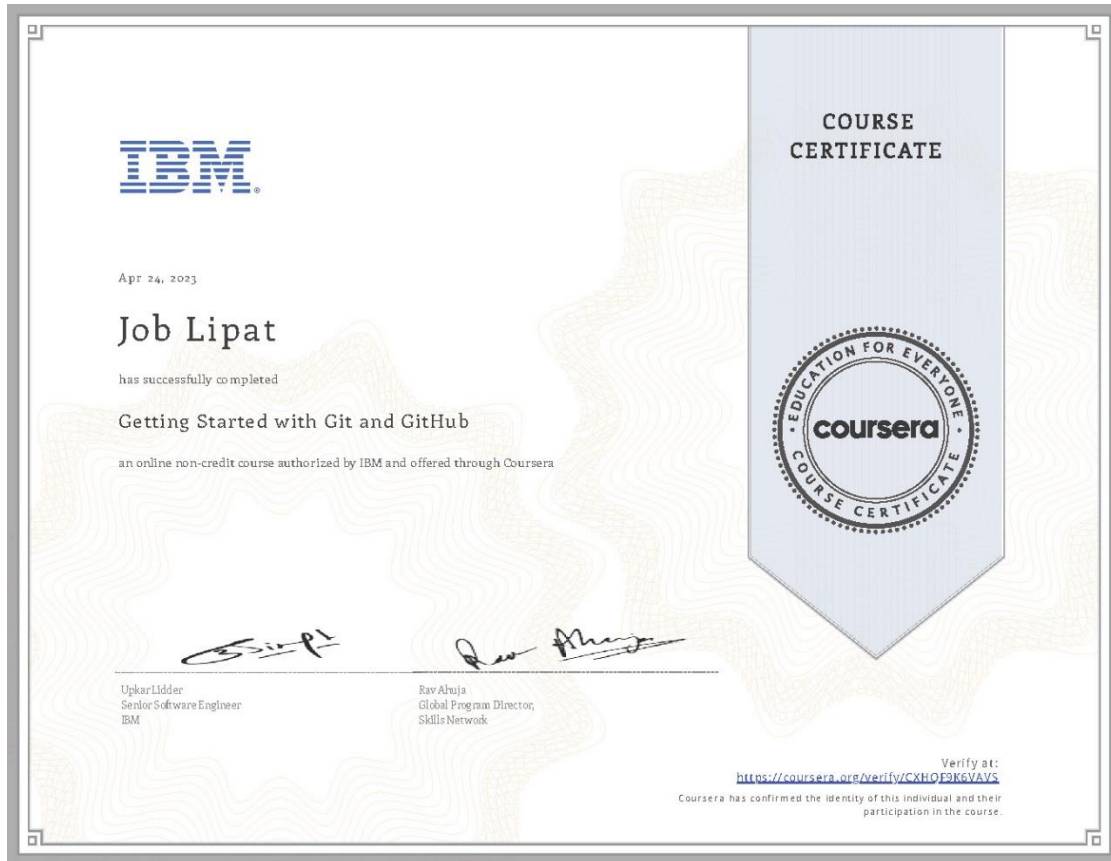
Certificate

Name: Getting Started with Git and GitHub Certificate of Completion

Date Received: April 24, 2023

Link: <https://www.coursera.org/account/accomplishments/certificate/CXHQF9K6VAVS>

Certificate:



Scan to view the certificate

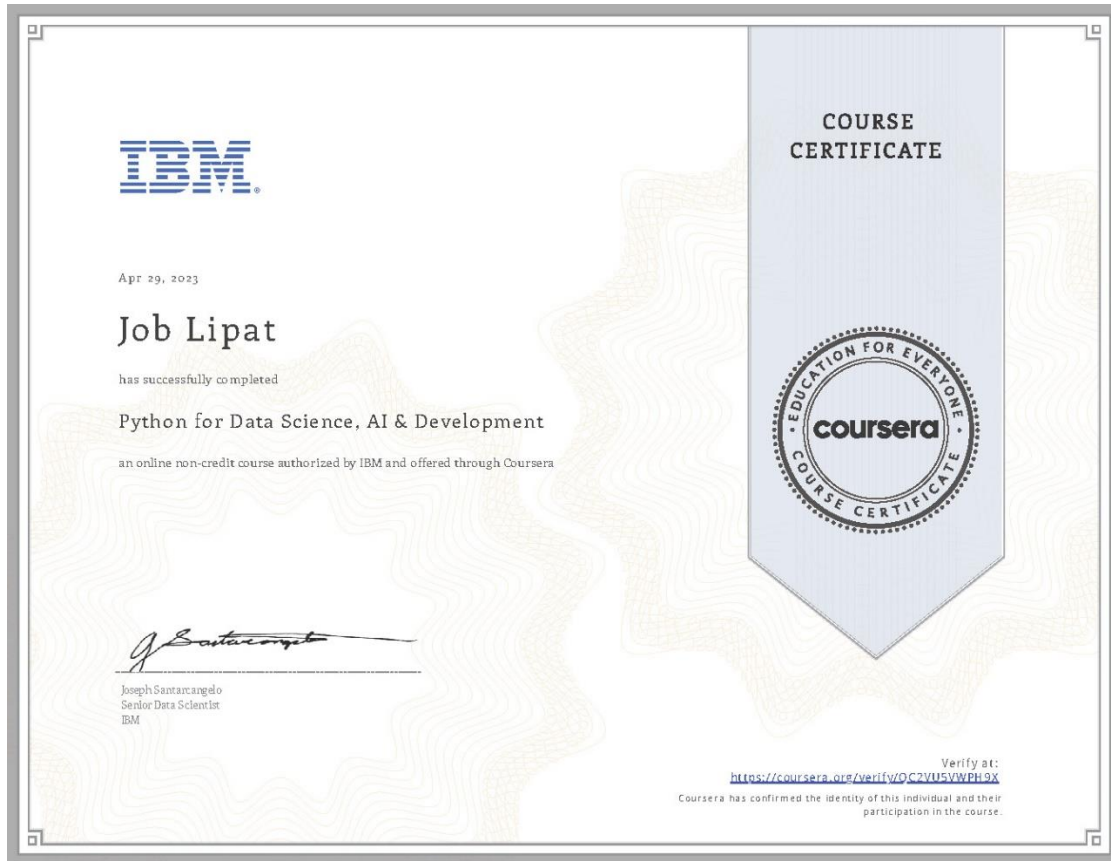
Certificate

Name: Python for Data Science, AI & Development Certificate of Completion

Date Received: April 29, 2023

Link: <https://www.coursera.org/account/accomplishments/certificate/QC2VU5VWPH9X>

Certificate:



Scan to view the certificate

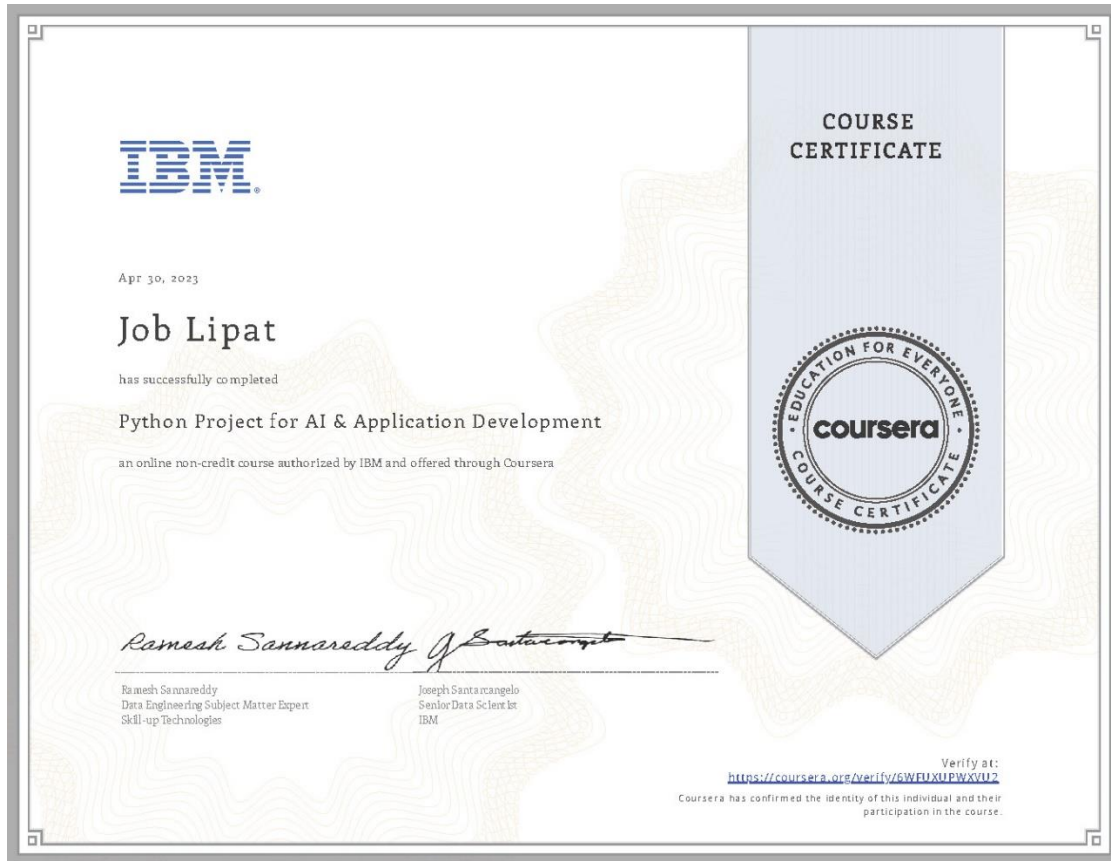
Certificate

Name: Python Project for AI & Application Development Certificate of Completion

Date Received: April 30, 2023

Link: <https://www.coursera.org/account/accomplishments/certificate/6WFUXUPWXVU2>

Certificate:



Scan to view the certificate

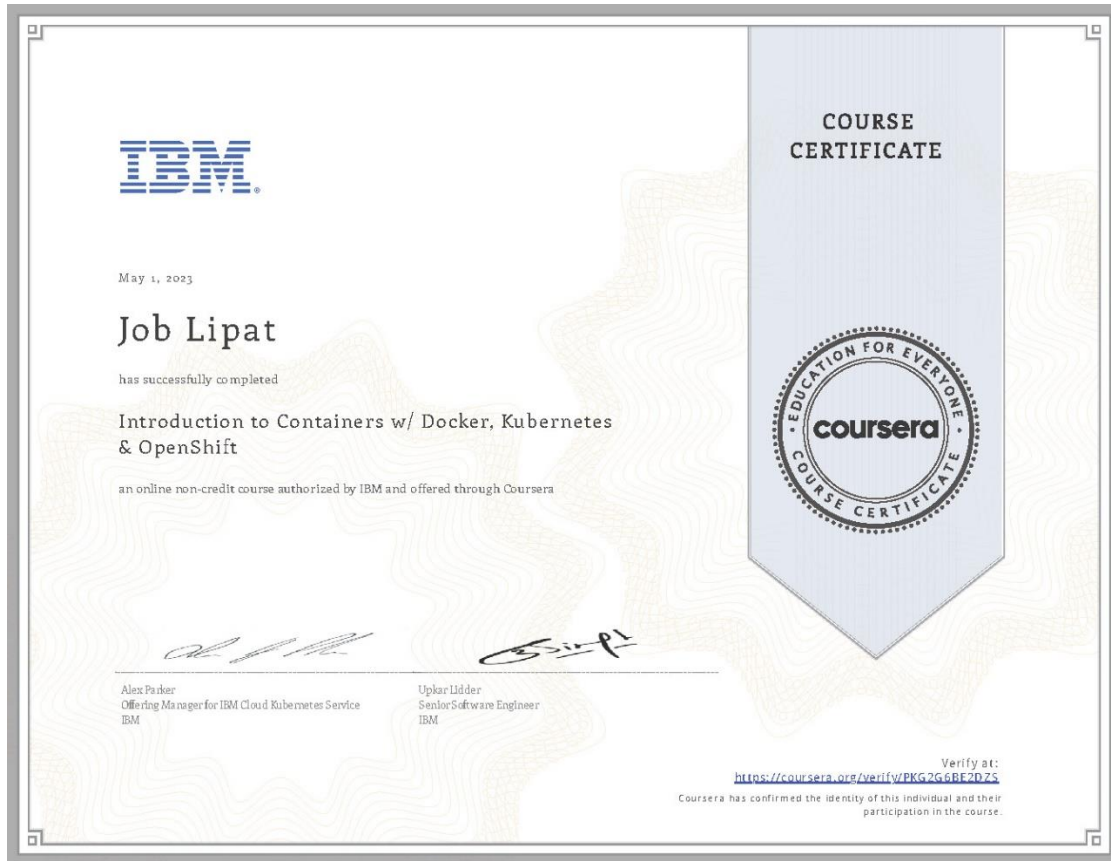
Certificate

Name: Introduction to Containers w/ Docker, Kubernetes & OpenShift Certificate of Completion

Date Received: May 1, 2023

Link: <https://www.coursera.org/account/accomplishments/certificate/PKG2G6BE2DZS>

Certificate:



Scan to view the certificate

Certificate

Name: Application Development using Microservices and Serverless Certificate of Completion

Date Received: May 6, 2023

Link: <https://www.coursera.org/account/accomplishments/certificate/JB7XRSAQNUEX>

Certificate:



Scan to view the certificate

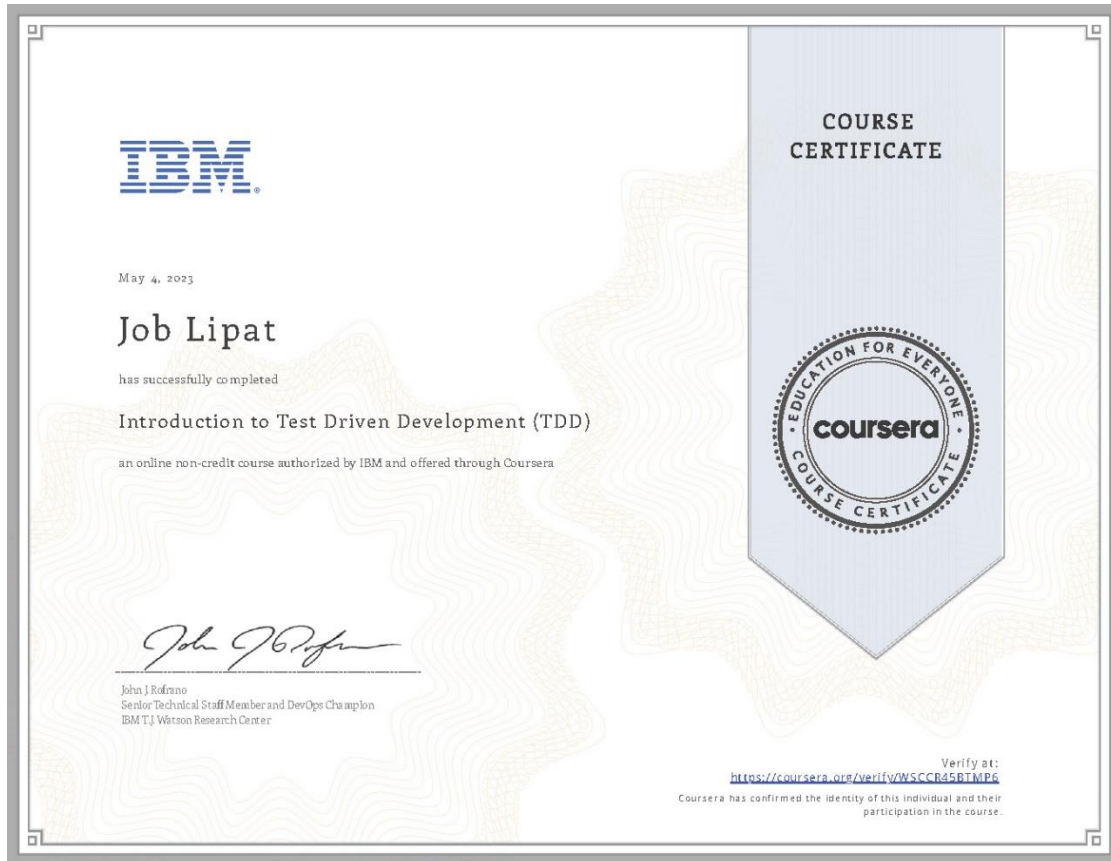
Certificate

Name: Introduction to Test Driven Development (TDD) Certificate of Completion

Date Received: May 4, 2023

Link: <https://www.coursera.org/account/accomplishments/certificate/WSCCR45BTMP6>

Certificate:



Scan to view the certificate

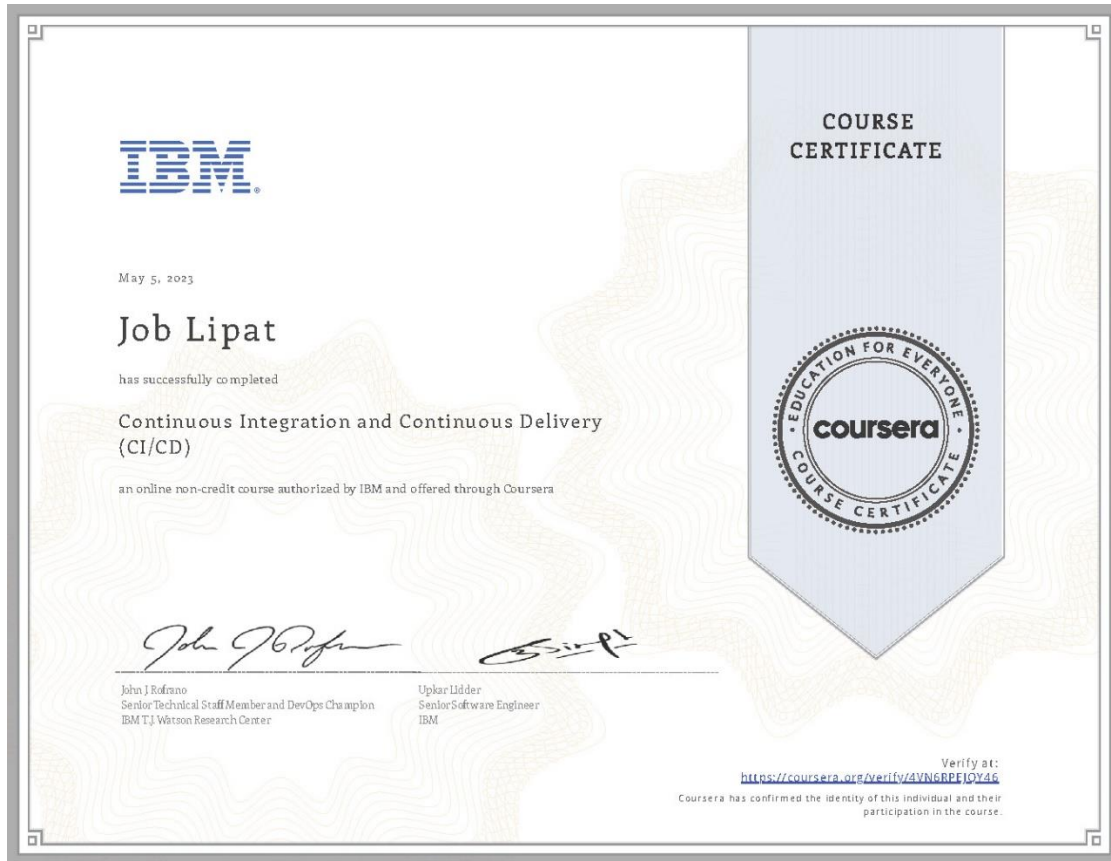
Certificate

Name: Continuous Integration and Continuous Delivery (CI/CD) Certificate of Completion

Date Received: April 3, 2023

Link: <https://www.coursera.org/account/accomplishments/certificate/4VN6RPEJQY46>

Certificate:



Scan to view the certificate

Certificate

Name: Application Security and Monitoring Certificate of Completion

Date Received: May 6, 2023

Link: <https://www.coursera.org/account/accomplishments/certificate/SMWFF6287W5K>

Certificate:



Scan to view the certificate

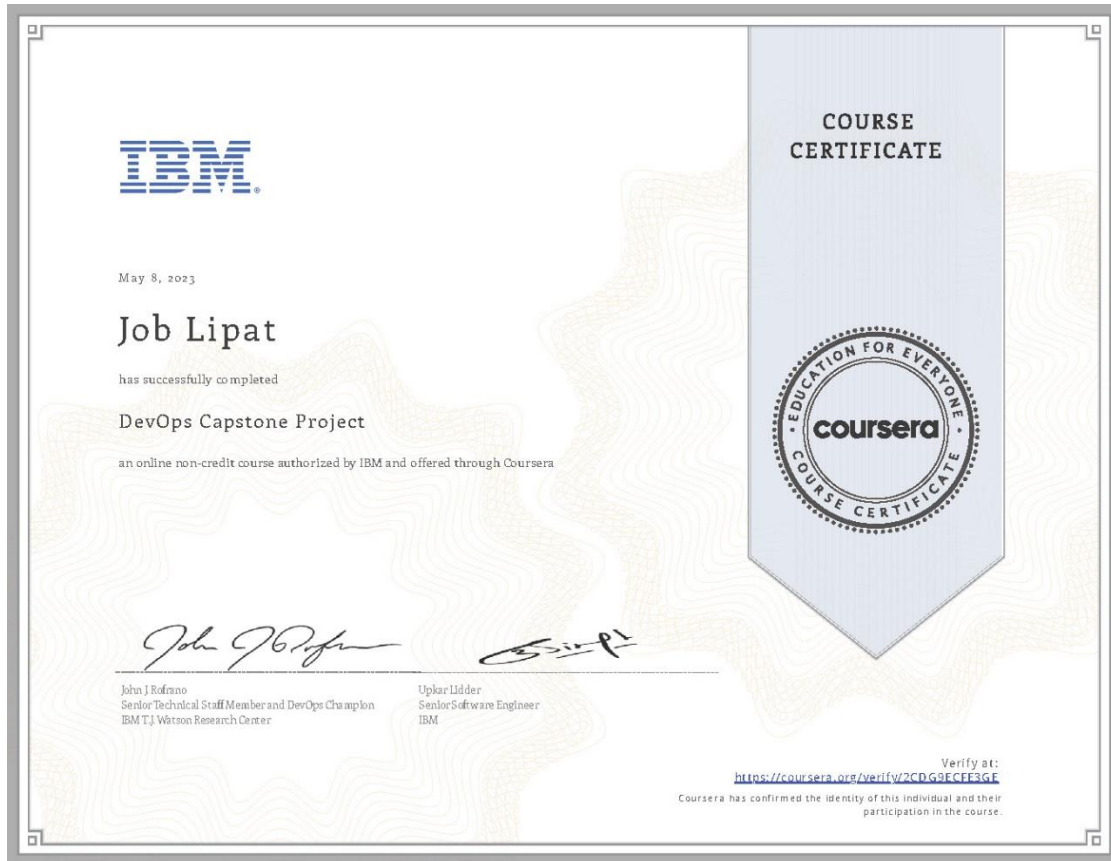
Certificate

Name: DevOps Capstone Project Certificate of Completion

Date Received: May 8, 2023

Link: <https://www.coursera.org/account/accomplishments/certificate/2CDG9ECFE3GE>

Certificate:



Scan to view the certificate

Synthesis

In the second part of my practicum, I had to get my IBM DevOps and Software Engineering Professional Certificate through Coursera. In this professional certification, I learned what it takes to be a modern software engineer. The topics that I have learned range from software engineering, DevOps, practices, and tools.

One huge focus of the professional certificate was on DevOps. To understand DevOps, we must first understand what Agile development is. As defined by John Rofrano, the instructor of the professional certificate, agile development is an iterative approach to development done by responsive teams whose purpose is to deliver value to the customer faster. DevOps on the other hand is the extension of the agile development environment to operations that aims to change the process of software delivery. The DevOps methodology tears down organizational silos including development and operations to enable the organization to deliver the software to the user in the best way possible. Through this organizations can leverage and enable disruptive technology.

The professional certificate also covered Software Engineering. Topics that were discussed include the software development lifecycle, the basics of programming, and software architecture design and patterns. While I am already quite familiar with these concepts, the certificate was able to refresh my knowledge of the basics of Software Engineering.

In addition to learning what software engineering and DevOps are, I have also learned the technologies that enable teams to create highly effective software. One of these is using Cloud technology. By using cloud technology, the hardware could be easily scaled up and down both horizontally and vertically all without needing to worry about the physical hardware. Another technology discussed is the use of containerization technology. Containers allow software to be run anywhere. Using a container orchestration tool like Kubernetes, software could scale up and down both horizontally and vertically.

Combining cloud and containerization technology allows both the hardware and software to scale. To fully leverage this capability, the microservices software architecture is used. Microservices is an approach to creating an application composed of many smaller services that are loosely coupled, independently deployable, and small. By decomposing software into smaller services, each service could be scaled and developed independently. An added benefit of this approach is that when one service fails, the others are not affected. The program must simply kill the container with the service and start a new one. Replica Sets also allow the service to have multiple instances of a service running which could take over the failing service, thus making the failure invisible to the user.

In developing microservice applications, there are various practices that are used to ensure high-quality software. One of these is test-driven development (TDD) and behavior-driven development (BDD). TDD is the practice of writing a test first for code you wish you have, then writing the code to make the tests pass. This ensures that the code you are writing is working as expected and ensures future changes don't break the code. BDD on the other hand describes the behavior of the system from the perspective of the user. This makes BDD great for integration testing. Both are needed to create high-quality software because BDD ensures that you are building the right things and TDD ensures that you are building the thing right.

Another practice done to ensure high quality software is Continuous Integration (CI) and Continuous Delivery (CD). Continuous integration is an automated process that allows developers to integrate their work into a repository. A CI pipeline automatically runs jobs such as building, testing, linting, security scanning. The pipeline ensures that the code is working and is of high quality all the time. On the other hand, continuous delivery is an automated process that deploys integrated code into a production-like environment. These processes are important to reduce integration risk, increase code quality, reduce deployment time, and enable faster reaction time to change.

Another practice done by software engineers that I have learned is measuring and monitoring. Measuring is the process of collecting metrics. On the other hand, monitoring is the process of keeping track of whether the metrics are within a certain threshold. This is important because, as explained by John Rofrano, you cannot improve what you cannot measure. These metrics are used to reason and judge the success of your progress. I have also learned how important it is to differentiate between vanity and actionable metrics. As software engineers, we must take actionable metrics and not vanity metrics. While vanity metrics may look appealing, they provide no insight into how the system is working. Instead, we should focus on actionable metrics because these produce value if we act on them.

Finally, I have also learned about the various tools used by modern software developers. These tools include Git and GitHub which are used for collaborating on code with other developers. Another tool that was introduced was the Linux shell. The Linux shell is used to manage files and the operating system. It is also important to learn as many developer tools have a command line interface accessible through the Linux shell. Additionally, I was also able to learn to use ZenHub which is an agile project management tool that allows you to keep track of user stories.

All in all, taking the IBM DevOps and Software Engineering Professional certificate has given me comprehensive knowledge of what it takes to be a modern software engineer. These include the tools, practices, and technology that enable software engineers to create high-quality and highly effective software.

Metacrafters

Metacrafters

Metacrafters is a learning platform with gamification designed to educate and engage builders of the metaverse to build on blockchains and AI technologies. We're gathering the experienced engineering practitioners to teach web3 frontend, smart contract development, AI, and more while earning rewards. We're also building an immersive world that the community can enjoy that brings the history and lore of blockchain to life. In Metacrafters, developers are the heroes — can transform into Master Crafters with blockchain credentials, all while earning supplemental income.⁴

Nature of Assignments

Assignment	Description
Lecture Videos	Lecture videos were the primary way of delivering lessons. These videos are delivered by subject matter experts and were usually 5 to 10 minutes long.
Readings	Readings were also provided to elaborate on certain topics of the courses
Quizzes	Quizzes were given at the end of each module to assess my knowledge of the topics covered in the module. The quizzes were mainly comprised of either multiple-choice or true/false questions. Quizzes could also be taken multiple times with the highest score being recorded.
Challenges	In between modules, challenges were provided so that we could test out the concepts that were discussed. These were not graded but the instructors highly encouraged us to complete them.
Projects	Projects were also given at the end of each module so that we could demonstrate our knowledge of the topics covered in the module. Once done with the project, the project needs to be uploaded to GitHub and a video walkthrough must be recorded using Loom.

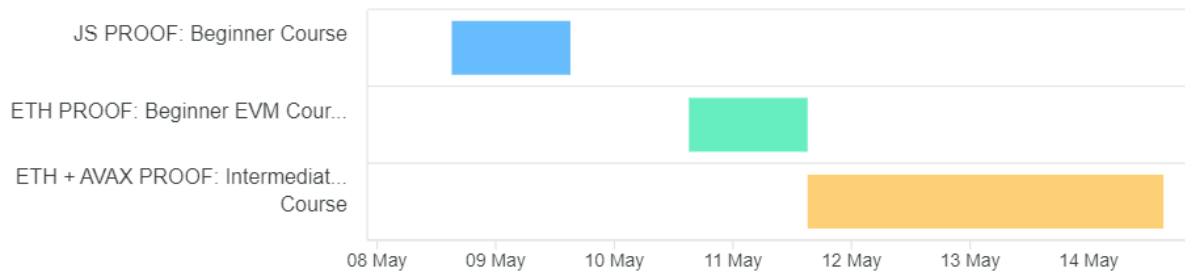
Total Hours Rendered

Engagement Hours: 67

Credit Hours: 134

⁴ From <https://metacrafters.super.site/>

Timeline of Activities



Outputs

Project

Name: Beginner JavaScript Project

Description: A simple Javascript application that emulates minting and burning tokens

Link: <https://github.com/lipatjj/Beginning-Javascript-1>

Video Discussion: <https://www.loom.com/share/235c497a0a2d4b3c8beeabc36ceb596c>

Screenshots:

```
● @LipatJob → /workspaces/Beginning-Javascript-1 (main) $ node playground.js
Minted: Sapphire
Minted: Ruby
Minted: Emerald
Id: 1
Name: Sapphire
Color: Blue
Owner Name: Joe Biden

Id: 2
Name: Ruby
Color: Red
Owner Name: Donald Trump

Id: 3
Name: Emerald
Color: Green
Owner Name: Barack Obama
```

Project

Name: Meta Medicine

Description: A decentralized application for trustable medicine prescriptions. The application allows doctors to create prescriptions in the blockchain. This prescription could be used by pharmacists to verify that the prescription is prescribed for the patient. Additionally, the application allows the patient to see the prescription using the generated prescription code.

Link: <https://github.com/LipatJob/meta-medicine>

Video Discussion: <https://www.loom.com/share/9aae01d4beab4bdb87f0fd8da4f1f585>

Screenshots:

Create Prescription

Patient Address
0xf39Fd6e51aad88F6F4ce6aB8827279cFfB92266

Valid Until
05/19/2023 09:15 PM

Instructions
take paracetamol 2 times day

Prescribe

Prescription Code
0x2ca9c3e9daacd33d2dde0cfb63c97b8423350d205447292e171c0fd99b8498af

View Prescription

Prescription Code
0x2ca9c3e9daacd33d2dde0cfb63c97b8423350d205447292e171c0fd99b8498af

View Prescription

Doctor Address
0xf39Fd6e51aad88F6F4ce6aB8827279cFfB92266

Patient Address
0xf39Fd6e51aad88F6F4ce6aB8827279cFfB92266

Valid Until
05/19/2023 09:15 PM

Instructions
take paracetamol 2 times day

Verify Prescription

Prescription Code
0x2ca9c3e9daacd33d2dde0cfb63c97b8423350d205447292e171c0fd99b8498af

View Prescription

Verified. This is the prescription of the wallet holder

Project

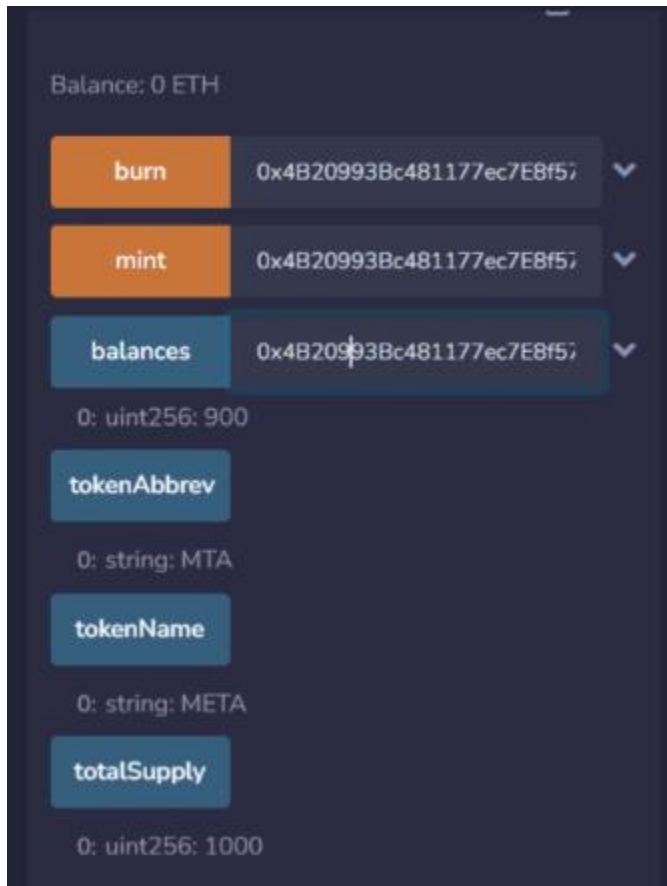
Name: Meta Token

Description: A smart contract written in solidity that allows the user to do two operations. The first operation allows the user to mint tokens which adds the specified number of tokens to their balance. The second allows the user to burn tokens which deducts the specified number of tokens from their balance.

Link: <https://github.com/LipatJob/meta-token>

Video Discussion: <https://www.loom.com/share/fae8ea8f08ed4a4182c4274ecca34bae>

Screenshots:



Project

Name: Job Coin

Description: A simple token implemented in Solidity that allows the user to get their balance, mint coins, burn coins and transfer coins to another account. A front end application is also written using react to interact with the smart contract.

Link: <https://github.com/LipatJob/job-coin>

Video Discussion: <https://www.loom.com/share/1da9df76b30d4a7d9017550cf2bb9bc1>

Screenshots:

The image displays four screenshots of a web application interface for 'Job Coin', arranged in a 2x2 grid. Each screenshot is enclosed in a light purple rounded rectangle.

- Top Left: Get Balance**
The title 'Get Balance' is in bold. Below it, the text 'Your balance is: 100' is displayed. At the bottom, there is a button labeled 'Get Balance'.
- Top Right: Mint Coins**
The title 'Mint Coins' is in bold. Below it, the label 'Amount to Mint' is followed by an input field containing the value '50'. At the bottom, there is a button labeled 'Mint'.
- Bottom Left: Transfer Coins**
The title 'Transfer Coins' is in bold. Below it, the label 'To Address' is followed by an input field containing the address '0x70997970C51812dc3A010C7d01b50e0d17dc79C8'. Below that, the label 'Amount' is followed by an input field containing the value '30'. At the bottom, there is a button labeled 'Transfer'.
- Bottom Right: Burn Coins**
The title 'Burn Coins' is in bold. Below it, the label 'Amount to Burn' is followed by an input field containing the value '20'. At the bottom, there is a button labeled 'Burn'.

Project

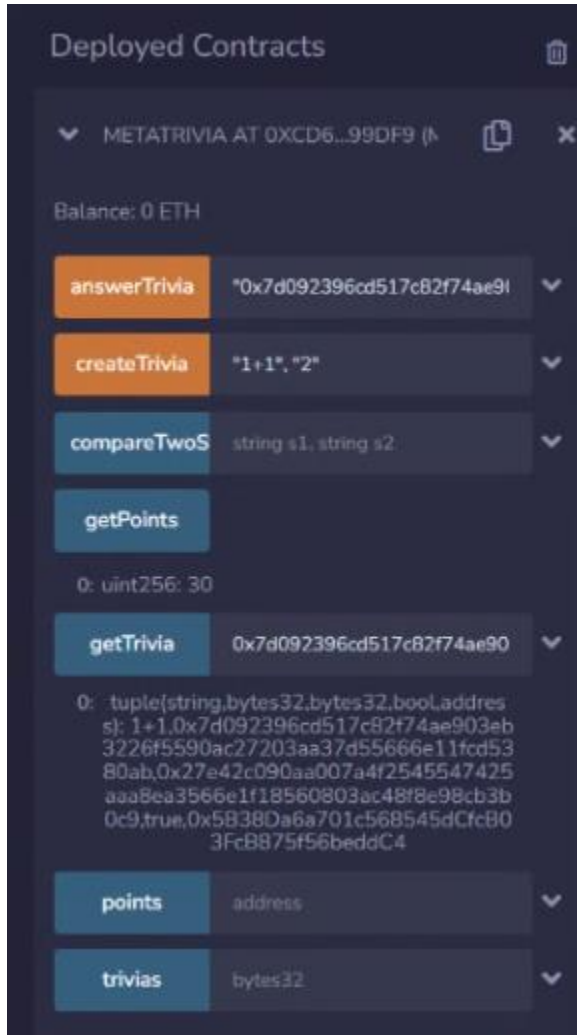
Name: MetaTrivia

Description: A decentralized trivia quiz where users get rewarded for creating and answering questions.

Link: <https://github.com/LipatJob/meta-trivia>

Video Discussion: <https://www.loom.com/share/bdb3448fda784b819d57e89ec4c9668f>

Screenshots:



Project

Name: Degen Token

Description: A smart contract that creates Degen Tokens (DGN), an ERC20 compatible token, for Degen Gaming.

Link: <https://github.com/LipatJob/degen-token>

Video Discussion: <https://www.loom.com/share/27a4726002884421a3125a7385398e4c>

Screenshots:

Token

Degen

Overview

ERC20

Total Supply:

280 DGN

Holders:

2 addresses

Transfers:

7

Profile Summary

Contract:

0xB86dea079dba5dBF7023CC1FA08f6761e9269043

Decimals:

18

Transfers

Holders

Contract

A total of 7 transactions found

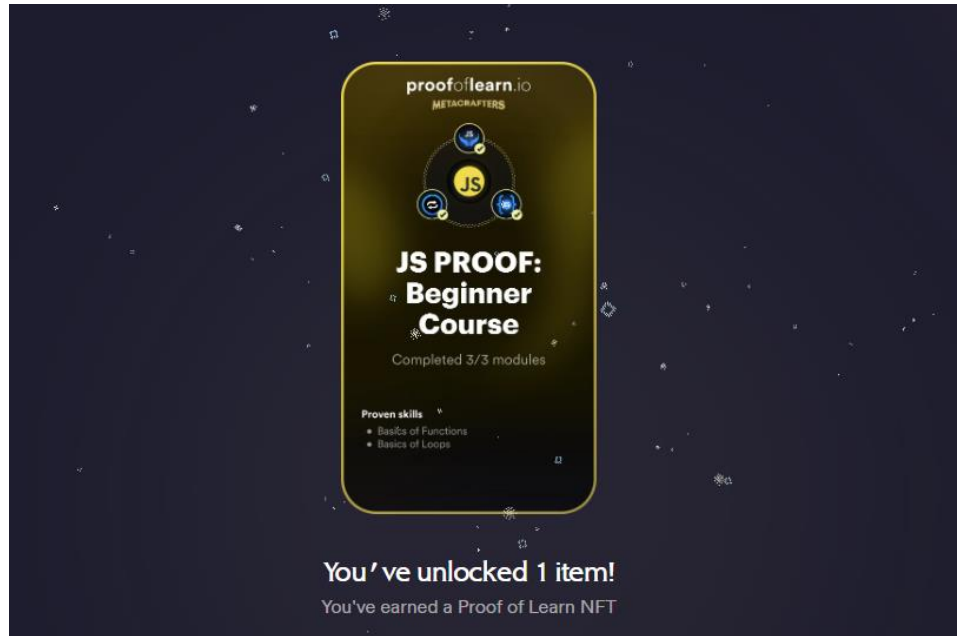
First<Page 1 of 1>Last

Txn Hash	Method	Age	From	To	Quantity
0x993656ee44acb9fd7...	Redeem Store It...	18 days 19 hrs ago	0xf39fd6e51aad88f64ce...	→ 0x70997970c51812dc3a...	50
0x38577e20f8c7020838f...	Transfer	18 days 19 hrs ago	0x70997970c51812dc3a...	→ 0xf39fd6e51aad88f64ce...	20
0x22ea0853d37d692441...	Mint	18 days 19 hrs ago	0x000000000000000000...	→ 0xf39fd6e51aad88f64ce...	100
0x9b20d9730687f81577...	Burn	18 days 19 hrs ago	0x70997970c51812dc3a...	→ 0x000000000000000000...	20
0xcb5c127c182a340fd2e...	Mint	18 days 19 hrs ago	0x000000000000000000...	→ 0x70997970c51812dc3a...	100
0xe40c2751905bce2547...	Redeem Store It...	18 days 20 hrs ago	0x70997970c51812dc3a...	→ 0x70997970c51812dc3a...	50
0xb3242b849ef9ff65eef3...	Mint	18 days 20 hrs ago	0x000000000000000000...	→ 0x70997970c51812dc3a...	100

Proof of Learn

Name: JS PROOF: Beginner Course Proof of Learn

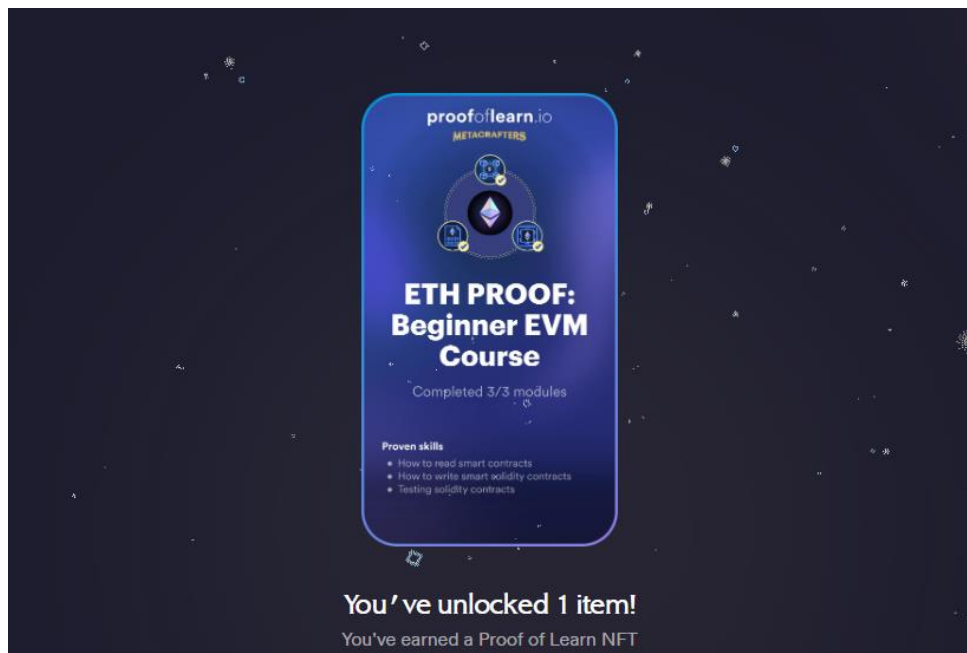
Screenshot:



Proof of Learn

Name: ETH PROOF: Beginner EVM Course Proof of Learn

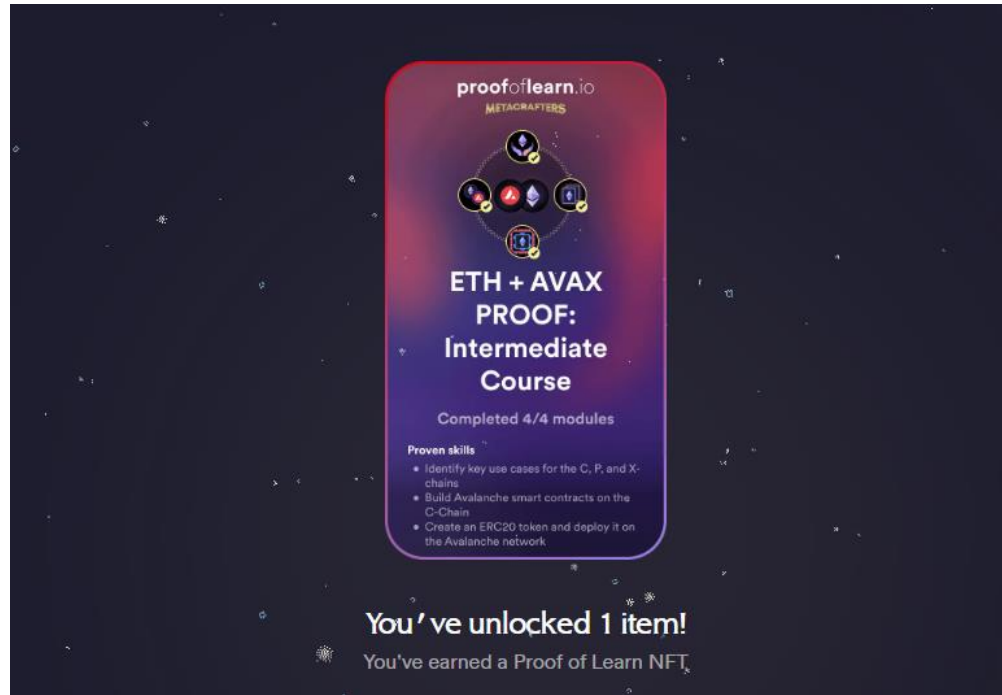
Screenshot:



Proof of Learn

Name: ETH + AVAX PROOF: Intermediate EVM Course Proof of Learn

Screenshot:



Synthesis

In the final part of my practicum, I had to take three courses in Metacrafters. These courses include a beginner JavaScript course, a beginner Solidity course, and an intermediate Solidity and Avalanche course.

The first course I took was the beginner course on JavaScript. Since I am already familiar with JavaScript, the course was mostly a review for me. However, despite this, I was able to pick up a couple of new things about the JavaScript programming language such as type coercion. All in all, the course was a good refresher on programming with JavaScript.

The second course I took was the beginner solidity course. The course was mostly a review because I have already done some development of solidity in the past. However, despite being familiar with solidity, I still found a couple of new things to learn about the language. The course ended with a project where I needed to create a smart contract that allows users to mint and burn coins. Overall, I gained a deeper understanding of the syntax of solidity through this course.

The third and final course was the intermediate Solidity and Avalanche course. The course discussed more advanced topics in the Solidity programming language such as functions, proxy contracts, and front-end integration. The course also discussed fallback and payable functions, abstract contracts and interfaces, ERC Contracts, and deploying contracts to the Avalanche C Chain.

I have also created four projects for the intermediate solidity and avalanche course. For the first project, I created a smart contract called MetaTrivia which is a trivia game on the blockchain where users gain points by creating and answering trivia. For the second project, I created a smart contract that allows pharmacists to verify the authenticity of prescriptions created by doctors. For the third project of the course, I created a token called job-coin that allows the user to get their balance, mint coins, burn coins, and transfer coins to another account. For the final project of the course, I created an ERC20 token called Degen Token.

All in all, taking the Metacrafters was a great opportunity to learn more about blockchain technology. At the start, I thought that I was not going to learn much since I already had experience with developing blockchain technology. To my surprise, I was able to learn a lot more, and I have gained a deeper appreciation of how blockchain technology could be useful. Moreover, I was also able to create projects that demonstrate my knowledge and skills in blockchain technology.

Overall Synthesis

My practicum was primarily divided in three parts. The first part was my required modules that I had to take in LinkedIn Learning. The second part was the IBM DevOps and Software Engineering professional certificate which I had to take in Coursera. The third and final parts were the three modules I had to take in Metacrafters.

Through the three parts of my practicum, I have also learned a lot of new knowledge and skills that I can apply once I am in the workplace. Through my required modules, I have learned how to improve my soft skills including my creativity, critical thinking, project management, and time management. I have learned more about software engineering and DevOps through my professional certificate. I have also learned more about blockchain and smart contracts throughout the course in Metacrafters.

These skills and knowledge would be especially useful for me once I become a part of the workforce as a Junior Software Engineer. For example, as a software engineer, I will be working in a team, and creativity, critical thinking, and communication will be especially useful. The practices and technologies such as test-driven development, CI/CD, and microservices will be especially useful as these are commonly used in the industry. Learning about blockchain and smart contracts also opens more possibilities for innovation and employment.

Through the courses, I have also realized how much more there is to learn. Most of these, we will not be able to learn just by following instructions and watching video lectures. These could only be learned by experiencing them and by actually doing them. However, despite the overwhelming amount of untapped knowledge out there, I am more confident in my skills, and I now have a better idea of which areas I need to improve on.

I also honestly did not expect that learning the modules would be as hard as it was. At first, I thought that if I just need to make some time to watch the modules, I would be doing fine. However, I quickly realized that just allocating time for watching the modules is not enough since I also had to absorb the lessons from the modules. By rushing through the modules, I was able to get a lot done, but I couldn't learn as much as I want to.

From this experience, I learned how important it is to pace yourself when you are doing work. While it may be tempting to accomplish work all in one go, this increases the risk of having low-quality outputs. In addition to this, I also realized that pacing work improves health. By allocating time, I was able to avoid burning out and I was able to make time for self-care.

All in all, I found the experience of doing this practicum an eye-opener. It opened my eyes to new practices, technologies, and tools. I was able to gain a deeper understanding of these through the courses I have taken. Most importantly, my eyes were also opened to the areas I could improve to become a complete Software Engineer.

Appendix A

Competency-Based CV

Job J. Lipat

lipatjobj@gmail.com | 0921 070 6048 | linkedin.com/in/joblipat | lipatjob.github.io

SUMMARY

As a computer science student, I have experience in back-end and front-end development, project management, and machine learning. I have developed projects using frameworks such as React, Vue.js, and Svelte, created data visualizations using ApexCharts and ChartJs, and used frameworks like ASP.NET Core, Express.js, and Laravel to create RESTful APIs. My technical skills include knowledge of C#, Python, Java, and JavaScript, and I have used technologies such as Node.js, React.js, and SQL Server. I have also trained computer vision models using PyTorch and developed models for gesture detection and natural language processing using TensorFlow.

SKILLS

Back End Development

- Used frameworks such as ASP.NET Core, Express.js, and Laravel to create RESTful APIs
- Queried and manipulated databases using MS SQL, My SQL, Prisma, Entity Framework, and GraphQL
- Involved in software design and architecture of multiple projects

Machine Learning

- Trained a computer vision model that detects how many people are inside a room using PyTorch
- Developed a model that detects Gestures using TensorFlow
- Developed natural language processing models that predict the grades of essays

Project Management

- Lead different teams through the planning, analysis, design, and implementation of various projects
- Enforced agile practices and principles as a scrum master in different projects
- Collaborated with the project sponsors and stakeholders regularly for progress updates
- Used tools such as Trello, Jira, and GitHub Issues for managing project deliverables

Front End Development

- Developed multiple projects using front-end frameworks including React, Vue.js, and Svelte
- Used CSS frameworks such as SASS, TailwindCSS and Bootstrap
- Created dashboard data visualizations using ApexCharts and ChartJs

EDUCATION

Mapua Malayan Colleges Laguna

Bachelor of Science in Computer Science

August 2019 – Present

- Full Academic Scholar, Dean's Lister, and President's Lister for 3 years
- Expected to graduate in June 2023 (Expected to graduate Summa Cum Laude)
- Running General Weighted Average of 1.06

Information and Communications Technology

June 2017 – June 2019

- Graduated Senior High School with Honors
- "Best in Work Immersion Award" given by SHS Principal on June 21, 2019

PROJECTS

SeatSave

June 2022

A website where visitors of Mapua MCL's library may find and reserve a seat

- Lead a scrum team through the planning, analysis, and design of the application
- Implemented features in C# using ASP.NET WebAPI, Entity Framework, and JavaScript using React

Sparse

March 2022

A website where visitors of Mapua MCL's Library could see how likely they will be able to find a seat.

- Developed a computer vision model using PyTorch that can count people inside the library
- Integrated the computer vision model to a website using ASP.NET WebForms
- Published and presented a paper at RSU International Research Conference 2022

EXPERIENCE

Programming Mentor

December 2021 – Present

Freelance

- Taught the basics of programming to college and senior high school students
- Taught basic game development using Unity

Senior High School On-the-Job Trainee

March 2019 – May 2019

Mapua Malayan Colleges Laguna

- Addressed the gap in the manual scholarship validation process
- Developed a web application for uploading and validating student scholarship requirements

AFFILIATIONS

Mapua MCL ACM Student Chapter

August 2019 – Present

An organization that aims to promote a greater interest in modern computing and its applications

- President during A.Y. 2020 to 2021 and RND Committee Chair during A.Y. 2021 to 2022
- Organized various activities that aim to help the social and academic well-being of members
- Spearhead the peer mentoring activities of the organization

Mapua MCL CCIS Student Council

August 2020 – August 2021

The student council of Mapua Malayan Colleges Laguna's College of Computer and Information Science

- Secretary for Audit during A.Y. 2020 to 2021
- Helped organize various events and activities of the student council
- In charge of evaluating the finances of the organization and keeping various documents organized

Junior MCL ACM Student Chapter

November 2018 – June 2019

The senior high school counterpart of Mapua MCL ACM Student Chapter

- Founder and President during A.Y. 2018 to 2019
- Organized a programming competition for ICT students of Mapua Malayan Colleges Laguna
- Co-organized Hour of Code 2018 with the college counterpart of the organization

ACHIEVEMENTS

- **IBM DevOps and Software Engineering Professional Certificate** – May 10, 2023
- **Samsung Create 2023 Finalist** – May 9, 2023
- **Algolympics 2023 Finalist** – March 25, 2023

Appendix B

Practicum Acceptance



Malayan Colleges Laguna
A MAPUA SCHOOL

REVISION NO.: 00
REVISION DATE: May 10, 2016

PRACTICUM CONFIRMATION AND ACCEPTANCE FORM

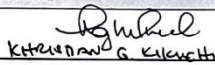
IMPORTANT INFORMATION

- STUDENTS ACCEPTED FOR PRACTICUM IN A HOST COMPANY WILL HAVE TO ACCOMPLISH THIS FORM.
- ASK THE PRACTICUM SUPERVISOR/ COMPANY REPRESENTATIVE TO FILL IN THE DETAILS OF THE TRAINING.
- SUBMIT TO THE PRACTICUM ADVISER/COORDINATOR PRIOR TO THE START OF TRAINING.

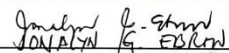
NAME OF STUDENT	Job J. Lipat	STUDENT NUMBER	2019164406
COURSE CODE	CS199F	SY/TERM ENROLLED	S.Y. 2022 to 2023 / 3rd Term

This is to certify that Job Lipat (name of student-trainee) has been accepted for practicum at Mapua Malayan Colleges Laguna - Pulo-Diezmo Road, Cabuyao, 4025 Laguna, Cabuyao, Philippines (name and address of establishment) and will be attached to the College of Computer and Information Science department/s for a minimum of, but not limited to 324 hours. Training will commence on April 3, 2023 and is expected to end on June 1, 2023. Attached is the list of requirements.

COMPANY REPRESENTATIVE

 Katerina G. Kiketh Signature over Printed Name	 DEN Official Designation
CCU Department	 Email and Contact Number/s

NOTED BY

 Jonathan G. Ederon Signature over printed name of Practicum Coordinator	03-30-2023 Date
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COPY: (1) STUDENT; (2) HOST COMPANY; (3) PRACTICUM COORDINATOR

FORM OVPAA 030B

THIS FORM IS AVAILABLE AT THE OVPAA.

Appendix C

Liability Waiver



Malayan Colleges Laguna
A MAPUA SCHOOL

REVISION NO. 00
REVISION DATE May 10, 2016

STUDENT TRAINING AGREEMENT AND LIABILITY WAIVER

IMPORTANT INFORMATION

- THIS FORM IS TO BE ACCOMPLISHED AND SUBMITTED BY STUDENT TRAINEE TO THE PRACTICUM ADVISER BEFORE STARTING THE PRACTICUM
- READ AND UNDERSTAND THE PROVISIONS OF THIS AGREEMENT AND WAIVER
- ENSURE THAT ALL SIGNATORIES SIGN THE FORM

I, Job J. Lipat, and a student of MALAYAN COLLEGES LAGUNA (hereinafter referred to as "MCL", do hereby voluntarily undergo on-the-job training at Mapua Malayan Colleges Laguna, hereinafter referred to as the "Host Company", located at Pulo-Diezmo Road, Cabuyao, 4025 Laguna, Cabuyao, Philippines, under the following terms and conditions:

a. That the practicum training will commence on April 3, 2023 and ends on June 1, 2023 and will have to complete a minimum of 324 hours required for the on-the-job training;

b. That I shall observe proper decorum and act professionally at all times and abide by the Company's rules and regulations and comply with those imposed for the training program, otherwise, I shall be excluded from further participation;

c. That in the course of my training program, I may have access to information which may be of confidential in nature and proprietary to the Company, for which I may be required to execute a confidentiality and non-disclosure agreement as a prerequisite to my participation in the training program;

d. That the time I will spend on the training program in the completion of my on-the-job training requirements will not and should not be interpreted or construed as working hours and should be regarded as non-compensable. Provided that, the Company may, as a unilateral act of liberality or generosity on their part, provide me with meal, travel, transportation allowances, accommodations, etc.;

e. That I fully understand that notwithstanding the allowances enumerated in the preceding section which I may receive, there exists no labor-management and/or employer/employee relationship between me and the Company where I will undergo my training;

f. That I shall exercise due care and diligence in the tasks assigned to me and personally be made answerable for any and all liabilities for damage to property or injury to third person, which may be occasioned by my intentional or negligent acts during the course of my on-the-job training;

g. That I shall likewise hold the Host Company and MCL free and harmless from any and all liability and responsibility for any sickness or injury to myself and third parties and damage to property which I may sustain and/or may occur at any time during the training program, including time spent in traveling to and from any and all premises and locations where I may be required to go to as part of my training program;

h. That the Company reserves the right to discontinue my training on reasonable grounds upon written notice to MCL and myself. Additionally, in the event my training program is discontinued for reasons attributable only to myself, I may be made to reimburse the Host Company for all the allowances, stipends, etc., which I may have received from them during and prior to the termination of my training program;

i. That in addition to my liability under section *g* and for the pre-termination of my training program provided for under section *h* hereof, I may be subjected further to disciplinary action in accordance with the school's student manual and/or be a ground for disqualification from graduation;

Signed on this 30th day of March.

Job J. Lipat

Signature over printed name of Student Trainee

WITH OUR CONSENT:

Signature over printed name of Parent/Guardian
(for minors only)

NOTED BY:

Donalyn G. Eslan
Printed Name and Signature of Practicum Adviser/ Coordinator

Kenneth A. Kiketh
Printed Name and Signature of Host Company Representative

Appendix D

Practicum Learning Module Path Proposal



CS PRACTICUM X LEARNING PATH PROPOSAL

COMPLETE NAME : Job Lipat
STUDENT NUMBER : 2019164406

PROGRAM : B.S. Computer Science

IDENTIFIED LEARNING MODULES

A. Required Learning Modules

1. Design Thinking Learning Module (Total Engagement Hours: 15 hours Total Credit Hours: 30 hours)
 - a. Learning Design Thinking: Lead Change in Your Organization by Turi McKinley (2h 8m)
 - b. Develop Your Creative Thinking and Innovation Skills Learning Path 8 courses (8h)
 - c. Develop Critical-Thinking, Decision-Making, and Problem-Solving Skills 6 courses (5h)
2. Project Management Learning Module (Total Engagement Hours: 15 hours Total Credit Hours: 30 hours)
 - a. Project Management Foundations by Bonnie Biafore (3h 20m)
 - b. Become an Agile Project Manager Learning Path 9 courses (12h)
3. Workplace Management Learning Module (Total Engagement Hours: 15 hours Total Credit Hours: 30 hours)
 - a. Develop Your Communication Skills and Interpersonal Influence 9 courses (8h)
 - b. 5S Workplace Productivity by Gemba Academy (1h 36m)
 - c. Time Management Fundamentals by Dave Crenshaw (2h 53m)
 - d. Time Management: Working from Home by Dave Crenshaw (1h 25m)
 - e. Business Etiquette: Phone, Email, and Text by Suzanna Kaye (58m)

Mapua Institute of Technology at Laguna · College of Computer and Information Science · E.T. Yuchengco College of Business · Mapua-PTC College of Maritime Education and Training
College of Arts and Science · Institute for Excellence in Continuing Education and Lifelong Learning · MCL Senior High School

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B. Specialization Learning Modules

- IBM DevOps and Software Engineering Professional Certificate (Total Engagement Hours: 165 hours, Total Credit Hours: 330 hours)
 - a. Introduction to DevOps (9 hours)
 - b. Introduction to Cloud Computing (12 hours)
 - c. Introduction to Agile Development and Scrum (9 hours)
 - d. Introduction to Software Engineering (14 hours)
 - e. Hands-on Introduction to Linux Commands and Shell Scripting (12 hours)
 - f. Getting Started with Git and GitHub (8 hours)
 - g. Python for Data Science, AI & Development (20 hours)
 - h. Python Project for AI & Application Development (7 hours)
 - i. Introduction to Containers w/ Docker, Kubernetes & OpenShift (13 hours)
 - j. Application Development using Microservices and Serverless (14 hours)
 - k. Introduction to Test Driven Development (TDD) (10 hours)
 - l. Continuous Integration and Continuous Delivery (CI/CD) (10 hour)
 - m. Application Security and Monitoring (14 hours)
 - n. DevOps Capstone Project (13 hours)

PREPARED BY:


Job Lipat / March 30, 2023

Signature over Printed Name / Date

APPROVED BY:


Khristian Kikuchi / March 30, 2023

Signature over Printed Name / Date

Appendix E

Complete Weekly Journal



REVISION NO.: 00
REVISION DATE: May 10, 2016

DAILY JOURNAL

IMPORTANT INFORMATION

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DATE	March 16, 2023 to March 22, 2023	AREA ASSIGNMENT	N.A.
TASK	Apply to HTEs	SHIFT/TIME	N.A.

March 16, 2023 (Thursday). I had my Accenture behavioral interview. The interview went well. I was able to answer all the questions, and I seemed to impress the person interviewing. I was told that I passed the interview and I will be going through the shortlisting process. They are going to be emailing me within 2 weeks from today about the final results. In the meantime, they sent me the list of requirements that I need to accomplish during the shortlisting process.

March 17, 2023 (Friday). Today I had my iRipple Behavioral Interview. I wasn't expecting the interview because it was already 5:30 PM when the employer called. Despite that, I was able to answer the questions of the interviewer properly, and I was set to have an interview with the team lead on Monday.

March 20, 2023 (Monday). Today I went to the Career Readiness Toolkit seminar of MCL. The speaker talked about how to set up my LinkedIn Profile and how to answer interview questions. After the seminar, I added more information in my LinkedIn Profile. The tips on answering interview questions were also pretty useful. I got a couple of ideas on how to improve my answers in my previous interviews. I didn't receive any calls from the team lead from iRipple because I was told that he was busy.

March 21, 2023 (Tuesday). Today I emailed my application to Fastrack. Since it's nearing the deadline and I haven't gotten a company yet, I have decided to email Fastrack. I hope they will reply to my email soon.

March 22, 2023 (Wednesday). Today I attended the "iConnect Marketplace of Opportunities" event at MCL. In the event, there were multiple companies that talked about what they are doing and about the internship opportunities they were offering. One company that caught my eye was Manulife. Their internship program seemed interesting so I submitted my application to them through email.



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DAILY JOURNAL

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DATE	March 23, 2023 to March 29, 2023	AREA ASSIGNMENT	N.A.
TASK	Apply to HTEs	SHIFT/TIME	N.A.

March 23, 2023 (Thursday). Since I haven't gotten a company yet, I submitted my application to the companies that talked during the event yesterday. The companies that I emailed include ChrisImm Sentimo Kumon, TDK, ATEC, Ampleon.

March 24, 2023 (Friday). Today I had my online assessment for Fasttrack. The assessment was similar to the one I had for the Psychological exam I did before the term started. However, it was not as hard since I had more time to answer the questions. Overall, I think I did well and I even had time to spare to review my questions.

March 27, 2023 (Monday). During the weekend, I was informed that I passed the online assessment and my behavioral interview is scheduled today. The interview went smoothly as I was able to properly answer all questions and the employer seemed impressed. At the end of the interview I asked how I did on my interview and if there is any way I could improve. I was told that I should tailor my answers to the position I am trying to apply for. While they liked my answers, they told me that I highlighted my project management skills too much even though I am applying for a technical position. I think this is a valuable lesson for me and I will be tailor my answers better in the future.

March 28, 2023 (Tuesday). Today, I got the news that I passed the behavioral interview. I was told that there is going to be an orientation tomorrow. In the orientation, they are going to talk more about the tracks they are offering and the internship program in general.

March 29, 2023 (Wednesday). Today I attended the orientation for Fasttrack's internship program. They talked about what Fasttrack does, the internship program, and the tracks they are offering. They also told us that we should submit our acceptance form through email to finalize our decision on joining the internship program. However, I wasn't too keen on the tracks they were offering since they mostly revolved around SAP. Because of this, I am considering doing the learning path instead.



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DATE	March 30, 2023 to April 5, 2023	AREA ASSIGNMENT	Learning Path
TASK	Finish Required Modules	SHIFT/TIME	N.A.

March 30, 2023 (Thursday). Today I finally decided that I am going to be doing the learning path instead of doing my internship on an HTE. I chose to do the learning path because I didn't like the internship program of Fasttrack. In addition to this, If I were to try other companies, I wouldn't be able to finish my internship on time and I would risk getting an INC grade.

The learning path course I chose on top of the required modules is the IBM DevOps and Software Engineering Professional Certificate on Coursera. I chose this course because it includes courses that I am interested in. These courses include Software Engineering, Microservices, Docker, Kubernetes, Test Driven Development, DevOps and CI/CD.. I also talked to Sir Elvis from the IEXCELL office to inquire about the LinkedIn learning path.

March 31, 2023 (Friday). Today I got access to LinkedIn Learning. In preparation for the learning path, I prepared my calendar to plot out what courses I should be taking per day. I have also compiled the courses I should take in LinkedIn Learning to avoid the hassle of trying to find them later. In addition to that, I have prepared my notes so that I won't be wasting time organizing my notes later on.

April 3, 2023 (Monday). Today I have finished the "Learning Design Thinking: Lead Change in Your Organization" course. The course talked about design thinking and that it's an approach towards problem solving that takes human empathy front and center. I hope to be able to apply this approach to one of my projects in the future.

April 4, 2023 (Tuesday). Today I started the "Develop Your Creative Thinking and Innovation Skills" learning path. The learning path contained courses that discussed various techniques on how to become more creative and innovative. I was able to complete the first four out of the seven courses. I hope to be able to finish the rest tomorrow.

April 5, 2023 (Wednesday). Today I finished Develop Your Creative Thinking and Innovation Skills learning path. One course in the learning path that stood out to me was the "Develop your Creative Thinking and Innovation Skills" course. I really enjoyed the activities that the instructor prepared.



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DATE	April 6, 2023 to April 12, 2023	AREA ASSIGNMENT	Learning Path
TASK	Finish Required Modules	SHIFT/TIME	N.A.

April 11, 2023 (Tuesday) During the weekend, Holy week and holiday, I was able to finish a whole bunch of courses. The courses that I have finished include Develop Critical Thinking;

Decision-Making, and Problem-Solving Skills; Finished Project Management Foundations; Getting Started as an Agile Project Manager; Develop Your Communication Skills and

Interpersonal Influence.

Today I have also finished a couple of shorter courses. These include Time Management Fundamentals; Time Management: Working from Home; Productivity Tips: Finding Your

Productive Mindset; Finished Getting Things Done; Business Etiquette: Phone, Email, and Text.

April 12, 2023 (Wednesday) Today, I started on the IBM DevOps and Software Engineering Professional Certificate on Coursera. I started with the Introduction to DevOps course. The

course talked about what DevOps is, its principles, and practices. I learned that DevOps extends agile by including the operations team in the agile team. This allows the whole

organization to be agile and not just the development team. I also liked how the instructor delivered the course. His lively presentation hooked me into the discussion.



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DATE	April 13, 2023 to April 19, 2023	AREA ASSIGNMENT	Learning Path
TASK	Finish Specialization Modules	SHIFT/TIME	N.A.

April 13, 2023 (Thursday). Today, I finished the "Introduction to Cloud Computing" course. The delivery of the course is not as good as the introduction to DevOps course but I still learned a lot. I learned about why cloud computing is important, the cloud computing models, the components of cloud computing, and trends and practices in cloud computing.

April 14, 2023 (Friday). Today I started with the "Introduction to Agile Development and Scrum" course. I only got through the first module of the course which is an introduction to Agile and Scrum. It discussed the Agile Philosophy, Scrum Methodology, and agile organizations. I wasn't able to finish because I had to attend a seminar for my CS Field Trip course. The seminar was about Augmented Reality as Sir Jordan Deja was the speaker. While the seminar was not part of my learning path proposal, I found it interesting and worth mentioning in this journal.

April 17, 2023 (Monday). During the weekend, I finished the rest of the "Introduction to Agile Development and Scrum" course. The second module talked about agile planning which included user stories and sprint planning. The third module talked about the daily execution of scrum which includes the actual development workflow, sprint reviews, sprint retrospectives, and measurement. Overall, my knowledge on agile development and the scrum methodology was refreshed through the course.

Today, I didn't get to do much because I had to do our ITSO visit for our IT Field Trip course. However, during the ITSO visit, I asked a couple of questions about what I learned so far in my professional certificate. I asked questions about how they were using cloud computing, virtualization technology and about their software projects. After doing the ITSO visit, I finished tasks for our Thesis that needed to be accomplished on campus so I didn't have any time to progress on my learning path.

April 18, 2023 (Tuesday). Today I was able to make a little progress on the "Introduction to Software Engineering Course". I was able to learn about the software development life cycle and software development. However, I wasn't able to progress further because I had to go to school for the GDAP Roadshow dry run.

April 19, 2023 (Wednesday). Today I wasn't able to make any progress on my learning path because I had to facilitate the GDAP Roadshow. In the GDAP roadshow, there were multiple speakers who talked about game development. Even though game development is not part of my learning path, I appreciated their talk and thought it was worth mentioning in my journal. Tomorrow, I plan to finish the "Introduction to Software Engineering Course".



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DATE	April 20, 2023 to April 6, 2023	AREA ASSIGNMENT	Learning Path
TASK	Finish Specialization Modules	SHIFT/TIME	N.A.

April 20, 2023 (Thursday). Today I finished the "Introduction to Software Engineering" course. The third module was a refresher on the basics of programming. The fourth module was about software architecture, design, and patterns. The last module was about job opportunities and skill sets in software engineering. Throughout the courses, there were snippets of videos where real software engineers talked about their experience which gave me deeper insights about how professional software engineers worked. Overall, the course deepened my understanding of software engineering even though I was already familiar with it. Furthermore, I was also able to understand the nuances of software engineering better.

April 24, 2023 (Monday). Today I finished the "Hands-on Introduction to Linux Commands and Shell Scripting" course. At the start, I expected that I would finish the course quickly as I already knew my way around the command line. However, to my surprise, I was able to learn a lot of useful bits of knowledge that I didn't know before. There include the pipe operator, grep, tar, variables among others. Overall, through the course, I became more confident around the command line.

April 25, 2023 (Tuesday). Today, I finished the "Getting Started with Git and GitHub" course. The course was mostly a review as I already knew how to use git and github. The course talked about the basic commands of git such as add, commit, push, pull and fetch. It walked through creating a repository in Github and how to push changes to the repository.

April 26, 2023 (Wednesday). Today, I wasn't able to work on my learning path as I was working on my Hackathon Project for CCIS week. The project I was working on was an augmented navigation based campus navigation system for Mapua MCL.



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DATE	April 27, 2023 to May 3, 2023	AREA ASSIGNMENT	Learning Path
TASK	Finish Specialization Modules	SHIFT/TIME	N.A.

April 27, 2023 (Thursday). Today, I also wasn't able to work on my learning path because I continued on working on my Hackathon project for CCIS week. In the morning, I finished some of my modules and I taught my groupmates how to use unity and its augmented reality library. In the afternoon, I attended the dry run for CodeX 2023 as the actual event was going to happen tomorrow. In the end, we were able to finish our project although I had to lose a bit of sleep.

April 28, 2023 (Friday). Today I wasn't able to make progress on my learning path because I facilitated for CodeX 2023. I plan to get back on track by finishing the next two courses during the weekend. These courses are the "Python for Data Science, AI & Development" and "Python Project for AI & Application Development".

May 2, 2023 (Tuesday). This weekend, I was able to finish the "Python for Data Science, AI & Development" and "Python Project for AI & Application Development" courses. The two courses were mostly just a review on python which I am already familiar with.

Today I finished the "Introduction to Containers w/ Docker, Kubernetes & OpenShift" course. I struggled a bit with this course a bit because I am new to containerization technology. Despite this, I found the technology to be really interesting, and in the end I was able to learn a lot of valuable skills. I learned how to create containers using docker, and use kubernetes to orchestrate and horizontally scale applications.

May 3, 2023 (Wednesday). Today I started on the "Introduction to Test Driven Development" course. However, I wasn't able to complete the course as I had to focus on creating the extended abstract of our thesis. I plan to finish the rest of the course tomorrow.



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DATE	May 4, 2023 to May 10, 2023	AREA ASSIGNMENT	Learning Path
TASK	Finish Specialization Modules	SHIFT/TIME	N.A.

May 4, 2023 (Thursday). Today I finished the "Introduction to Test Driven Development (TDD)" course. The course discussed test driven development which is a method in software engineering where the developer writes the test first before writing the code. This was one of my favorite courses so far as it enforces the developer to view the unit in terms of the user of the code which promotes good code practices.

May 5, 2023 (Friday). Today I finished the "Continuous Integration and Continuous Delivery (CI/CD)" course. The course discussed what continuous integration and continuous delivery is, why it is needed, and their differences. The course also discussed the various tools used for continuous integration and continuous delivery. For continuous integration, the course discussed Github workflow which allows tasks such as running unit tests and linting every time the developer makes a pull request. For continuous delivery, the course discussed Tekton which allows the developers to run unit tests and linting before the code is deployed to the microservice cluster.

May 8, 2023 (Monday). During the weekend, I completed two courses. The first one is "Application Security and Monitoring" which discusses DevSecOps and various tools and methods to monitor and secure applications. The second course I completed was "Application Development using Microservices and Serverless". The course discusses microservices, 12 factor app methodology, and serverless technology. Today, I have made progress on the last course in the professional certificate which is the DevOps capstone project. In the project, I need to create a RESTful API and apply the various tools and methods that I have learned in the past modules. I have accomplished half of the tasks and I hope to finish the remaining tasks tomorrow.

May 9, 2023 (Tuesday). Today, I have finished the DevOps capstone project. In the project I was able to demonstrate my skills in Agile Development, Python programming, Git and Github, Cloud Computing, Shell Scripting, Containerization Technology, Test Driven Development, and Application Security and Monitoring, and CI/CD. Having finished the DevOps capstone project, I have now completed the IBM DevOps and Software Engineering Professional Certificate. Looking back at the previous week, I have learned a lot about DevOps and have gained a deeper understanding of software engineering. In addition to the professional certificate, I believe that I was able to improve my time management skills. Even though the courses were time consuming I was able to manage my time so that I still have time to work on my other subjects and extracurricular activities. Overall, I believe that I have learned a lot of valuable skills from the certificate and I know that I will be holding on to them throughout my professional life.

May 10, 2023 (Wednesday). Today, I have finished the beginner javascript course for Metacrafters. The course was just a review on the basics of Javascript which I am already familiar with. The course ended with a project where I have to use javascript to create an application that simulates the minting of tokens.



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DATE	May 11, 2023 to May 17, 2023	AREA ASSIGNMENT	Learning Path
TASK	Finish Metacrafters and Create Portfolio	SHIFT/TIME	N.A.

May 11, 2023 (Thursday). Today I have finished the beginner solidity course. The course was mostly a review because I have already done some development of solidity in the past. However, despite being familiar with solidity, I still found a couple of new things to learn about the language. The course ended with a project where I needed to create a smart contract that allows users to mint and burn coins. Overall, I gained a deeper understanding of the syntax of solidity.

May 12, 2023 (Friday). Today I have started with the intermediate solidity and avalanche course. The course discussed more advanced topics in the Solidity programming language such as proxy contracts, and front end integration. I was able to finish the first two projects. For the first project, I created a smart contract called MetaTrivia which is a trivia game on the blockchain where users gain points by creating and answering trivia. For the second project, I created a smart contract that allows pharmacists to verify the authenticity of prescriptions created by doctors.

May 15, 2023 (Monday). Today I have finished the intermediate solidity and avalanche course. I was able to learn more advanced topics in the Solidity programming language including fallback and payable functions, abstract contracts and interfaces, ERC Contracts, and deploying contracts to the Avalanche C Chain. For the third project of the course I created a token called job-coin that allows the user to get their balance, mint coins, burn coins and transfer coins to another account. For the final project of the course, I created an ERC20 token called degen token. Having completed the three courses, I have accomplished all requirements for Metacrafters.

May 16, 2023 (Tuesday). Today I have started working on my portfolio. I have already done the design of the portfolio previously so I focused on implementing the design of my portfolio. Tomorrow I plan to deploy and get feedback from other people.

May 17, 2023 (Wednesday). Today, I have finished developing my portfolio website. The first task I had to do was to make the website responsive. To accomplish this, I stored the screen sizes as SCSS variables and used media queries. Now that I have finished with my portfolio website, the second task I did was to get feedback from my friends on how to improve the design of the website. My friends gave me a lot of useful feedback. They mentioned that I shouldn't use pure whites, and pure blacks; I should increase the size of my texts, adjust the project section. After adjusting the website based on the feedback of my friends, I fixed the parts that weren't responsive because of the changes in the website. I then generated content for the website by replacing placeholder projects with real project information. Finally, I deployed the website to GitHub pages. The website could be accessed through <https://lipatjob.github.io/>. After deploying the website I have started on the Module 3 assessment which I plan to finish tomorrow.


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