Project Reflection

**Generative AI: Navigating Short-Term Skepticism and Long-Term Promise**

Group Number: PG-Group 11

Unit: COIT20265

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# Tasks Completed

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| **Task** | **Description** | **Deliverable(s)** |
| Collaborative Training and Awareness Program | I established and conducted a training that would help enhance the awareness and appreciate the GenAI tools among the intended projects. This entailed developing relevant training tools, offering training sessions, and practicing with the audience in order to assess their understanding and abilities to apply the tools. | The training materials and the feedback report from other stakeholders |
| Agile Methodology for Gen AI Tool | In everyday work I adopted the Agile methodology where the development of any tool is done in cycles, with constant reassessing of the work. This includes laying down sprints, daily stand-ups, and changes in the project tasks as received from the team or problems as the team challenges them. | Development of an agile project plan and documentation of the sprint review. |
| Integrating Chatbot into Website | I was accountable and contributed for the technical implementation of the GenAI chatbot into the Watertunnel Carwash website. This involved setting up APIs which are responsible for the communication between the chatbot and the backend of a website as well as handling integration problems. | Integrated chatbot feature on the website |
| Website Design and Development | I assisted in the planning and construction of the website for the Watertunnel Carwash, partaking in navigation, look and feel as well as specifics of the architecture. Part of my responsibilities consisted in improving site efficiency and making sure design fits the goals of the project. | Finished website design documentation and progressing website |
| Updated Project Plan | I kept the project calendar up to date by regularly mapping out the project based on the current status, the timeline as well as other measures of the project. According to the work being done on the project, I had to consult my team to monitor performance, assess potential challenges, and flex instead timelines to maintain the project on an upward progression. | Updated project plan document |
| Development of AI Vulnerability Detection Tool | Regarding the specific contributions, I was the one who motivated and spearheaded the creation of the AI vulnerability detection tool, as well as wrote most of code in Python, plus tested it to see if the tool works as expected. Next, I desired for the script to have the capability of recognizing weaknesses in the website and I documented thoroughly for further usage. | Complete AI vulnerability detection tool and a well-written, technical documentation |

# Newly Developed Skills

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| **Skills** | **Related Task** | **Justification** |
| Technical Proficiency in Python | Creation AI Vulnerability detection tool. | The overall coding ability was developed to design better algorithms to scan for the points of susceptibilities and thus the efficiency of the tool was boosted. |
| Cloud Deployment Knowledge | Deploying AI Tool into AWS | Knowledge of AWS services helped me to deploy and configure the original A tool for its high availability and substantive scalability. |
| Agile Project Management Skills | Agile Methodology for Gen AI tool | The adoption of Agile practices resulted in an enhancement of overall teamwork and flexibility in regard to productivity and efficiency in regard to the project objective and timeline. |
| Problem-Solving Abilities | Integrating Chatbot Into Website | Used problem-solving skills in order to work on the integration issues to guarantee the proper operation of the chatbot. |
| Web Development Skills | Website Design and Development | Building the website on WordPress also helped improve my web development skills and, thus, design an intuitive user interface that directs users to the chatbot and GenAI tool. |
| Problem-Solving | Challenges during Deployment | Hence, deployment of applications on AWS improved problem solving skills because of the uncertainties that were encountered during the process of deployment. |
| Collaboration and Communication | Throughout all project tasks | This increased my communication skills so I could be effective in sharing ideas with a team as well as contribute towards developing a positive team culture while undertaking most of the duties in groups or teams. |

# Application of Existing Skills

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| **Skills** | **Related Task** | **Justification** |
| Python Programming | Development of AI Vulnerability Detection Tool | I was also familiar with Python prior to this project, which enabled me to quickly write the AI tool code and and introduce and solve problems more rapidly. |
| AWS Deployment | Deploying AI Tool into AWS | Corner knowledge of AWS was pretty beneficial as I had to deploy, configure abd allocate proper resources and changes were easy to manage. |
| Web Development (WordPress) | Website Design and Development | This familiarity helped me design and develop the project Website from scratch and make it user friendly /up to project specifications. |
| Project Management | Agile Methodology for GenAI Tool | My previous experience in project management enabled the use of Agile methods of operation to ensure I provided the necessary updates and also ensured the project incorporated close collaboration among the team. |
| Communication Skills | Collaborative Training and Awareness Program | Good communication allowed me to explain technical information to nontechnical team members and make them realize the objectives of the project and the tasks that should be accomplished by each of them. |
| Problem-Solving Skills | Integrating Chatbot into Website | My analytic and problem solving skills could therefore overcome some of the challenges that came about when embedding the chatbot to the functionality of the website. |
| Research Skills | |  | | --- | |  |  |  | | --- | | Conducting Industry Analysis | | The professional investigation relevant to this specialization provided an appropriate collection and analysis of industry data necessary for the establishment of the same project. |

# Contributions of Team Members

1. Pratik Singh Dhami
2. Bhuwan Thapa
3. Basanta Adhikari
4. Kiran Bhusal

I rated myself the highest because of the major contribution made in propelling the development of the AI Vulnerability Detection Tool. Not only was I involved in the code development and deployment of the tool but also I was also in charge of AWS cloud for availability and scalability of the system. Through my coding skills, I applied workable algorithms in Python which enhanced the specific tool’s capability by a great deal in detecting vulnerabilities.

In addition, it did not stop me from preparing detailed documentation on the entire process of deployment and training materials for the team making it a culture to share our knowledge with one another. This resulted in deepened comprehension of the project by the team as well as improving its performance.

Another valuable skill for me was the ability to communicate technical material to team members to organize them towards the project objectives. I think other members of the team could ponder on the fact that documentation and communicating are next to god in what I do because they formed a solid foundation for the success of the project and relations within the team.

# Reflections on Project Experience

In thinking of the lessons learnt in the process of executing the project which was centred on creating an AI vulnerability detection tool for websites, it is important to give an account of the knowledge gains and lessons learnt. The project was an excellent case of multiskilled learning as it demanded not only craftsmanship but creativity, teamwork, and problem-solving abilities. In different stages of the project, the most stimulating part was designing the AI tool. This was particularly fascinating because it enabled me to explore what machine learning is and how it can be applied in cybersecurity.

Developing a machine learning tool that was to be used to spot weak spots in a website required coming up with algorithm that was to be used to analyze traffic data that was of importance and on analyzing unusual traffic data that was of importance. This process was interesting as it connected book knowledge with actual work situations. During the development I got to observe the integration of AI into improving the level of security with focus on prevention and eradication of probable breaches or leaks. My prior learning in machine learning and cybersecurity help me grasp the algorithm in the tool and are efficient in implementing the tool to be accurate and reliable.

It was the same prior experiences that influenced the kind of input I gave to the project. Being an IT Support Officer give me practical exposure about the operating systems as well as different security measures of the networks. It played a big role in setting up the right environment through which the AI tool could be deployed on AWS EC2. Integration of operating systems and networks was made easier since I had the skills in solving problems with them as I was deploying them. In addition, my technical skills in data encryption and user access management became appropriate in making sure that the tool highlighted any potential weakness in applying data protection standards while, at the same time, preserving the privacy of the users.

The first major challenge I encountered during the project execution is compliance with data protection regulations during vulnerability scans. At first, I was slightly nervous about scanning a live website for vulnerabilities, the major concern to me being the legal issues. To this challenge, I conducted a comprehensive research on GDPR and other data protection laws so as to guide and put into practice the necessary measures. This was very informative as to the need to address legal and ethical issue in cybersecurity while developing tools and procedures.

Furthermore, the process of fine-tuning the tool to reduce false positives appeared to be the most intriguing and most significant part of the work. This task was most specifically associated with the nature of the algorithms used for machine learning and what kind of weaknesses we wanted to target. This cyclic process has had many rounds of testing and revisions throughout learning the trials and triumphs of the process of development. In the end, it improved my Codability skills in the case of machine learning and made me comprehend the significance of precision in vulnerabilities.

Staying ahead of the anticipated future endeavors in the careers section of cybersecurity, this project will be particularly useful as a knowledge and skill reference. Accompanied with experience in implementing AI tools and insights into regulatory rules makes me ready to face the issues that occur in this constantly developing area. The main lessons I have learned investing this amount of time in this project is that I should have focused on identifying key stakeholders to engage within the initial project stages. The solution of business stakeholders before designing the tool could also mean better fit in terms of usefulness and utility of the functionalities delivered by the tool in organizations hence improving on its utility and acceptance by the end users.

In conclusion, this project has trains practical skills of detecting vulnerabilities and strength the understanding of the importance of incorporating technical aspects with ethical consideration. The experiences of handling challenges and the improvement of the AI tool will be very helpful to me in the future in another cybersecurity goal. It is evident that technology, compliance, and collaboration are closely interwoven; thus, the exercise helped me to be ready for the diverse issues in this sphere.

# Portfolio Contribution

# What is more, in my public portfolio, I have chosen the Collaborative Training and Awareness Program as my main technical artifact. This was very important in filling a gap on the knowledge of GenAI tools in our organization. My responsibilities included creating comprehensive training materials such as slides for presentations, handouts and feedback forms that participants had to fill. I have conducted several workshops for both technical and non-technical persons to make sure that everyone understood the different AI tools used in cybersecurity. This artifact not only shows that I have the skills in instructional design and public speaking, but also indicate my passion in increasing awareness of cybersecurity in multicultural teams. Through creation of a collaborative culture, I supported the employees to be able to comprehend and apply GenAI tools to boost the organisation’s security.

# Another important technical accomplishment that I also added to my portfolio is the AI Vulnerability Detection Tool. This tool was developed to analyze the special web page for the presence of the vulnerability and the level of threat of the application using the machine learning computational methods. I coded the algorithms in Python, incorporated several data inputs for proper vulnerability assessment, and indeed launched the tool on AWS EC2. This project has helped me gain the practical knowledge of cloud deployment especially through AWS Lambda on the aspect of serverless computing to ensure that the tool is optimized for scalability. In addition, I carefully recorded the tool’s strengths and weaknesses and offered a comprehensive risk management report that would help in future improvements.

# These two artifacts demonstrate my technical competence, my problem solving skills as well as my capacity to engage in team work in the course of implementing challenging tasks. These are significant achievements in my career, which I have achieved in important areas such as cybersecurity, artificial intelligence, and cloud computing, thus they are an important part of the professional portfolio.

**E- Portifolio Link:**

# <https://portfolium.com/PratikSinghDHAMI/portfolio>

**Git Hub Link:**

[GitHub - kiransun/Generative-AI](https://github.com/kiransun/Generative-AI)