**Computer Science Capstone Topic Approval Form**

The purpose of this document is to help you clearly explain your capstone topic, project scope, and timeline. Identify each of these areas so that you will have a complete and realistic overview of your project. Your course instructor cannot sign off on your project topic without this information*.*

*Note: You must fill out and submit this form. Space beneath each number will expand as needed.*

*Any cost associated with developing the application will be the responsibility of the student.*

**INFORM INSTRUCTOR:**

Potential use of proprietary company information: (Y/N)

No, it is using an open-source data set

**ANALYSIS:**

1. Project topic AND description:
   1. The topic of my project is ultimately dealing with the cyberattacks caught by honeypots within the AWS environment. On cloud servers, there are thousands of attacks attempted every day. This is especially true for AWS cloud servers due to the fact that AWS services a higher percentage of the internet than other cloud servicers. Honeypots are used to set a trap of sorts for cyberattacks, they are also designed for data insights into the caught attacks.
2. Project purpose/goals:
   1. The goal of the project is to see what are the most common attacks caught by the honeypots. This will inform companies of the attack vectors they need to be most resilient to. With the landscape of cyberattacks constantly changing, the purpose is to provide a method for companies to get the information to inform their cybersecurity strategies while managing a high level for long term scalability.
3. Descriptive methods:
   1. There would need to be measures for frequency of different attacks, since that would be helpful in allowing the user to truly understand what has occurred in prior attacks. Some basic statistical analysis would be included such as the average number of attacks in a day and the most common attack type. With the main portion of the data is categorical, many statistical methods are not useful such as the median and mode. The standard deviation for both the number of attacks in a day and the number of attacks in a particular category would help give a better understanding of the spread in attacks. This would help companies identify just how likely or unlikely a particular attack type is. It would also help them understand how common or uncommon the number of attacks they are seeing is.
4. Prescriptive method:
   1. Due to the nature of the data, you want to ultimately inform companies of what is expected as far as cybersecurity attacks. This fundamentally is what allows them to prepare instead of simply react. Fundamentally, there is a series of patterns of attacks, so a good prescriptive method would be a machine learning model focused on pattern recognition. This will allow for predictions based on either long term, vague patterns such as what appears to be in the process of becoming the most common attack, or predictions based on more specific patterns before a particular attack type. A machine learning system based on pattern recognition only using the original AWS honeypot data would be valuable in a more generalized way. The system would be able to be adapted to a company’s more specific needs based on also feeding in as recent of possible of the company’s data.

**DESIGN and DEVELOPMENT:**

1. Computer science application type (select one):

* Stand-Alone

1. Programming/development language(s) you will use:
   1. Java, MySQL, and JavaFX
2. Operating System(s)/Platform(s) you will use:
   1. MacOS
3. Database Management System you will use:
   1. MySQL
4. Estimated number of hours for the following:
   * 1. Planning and Design: 66 hours
     2. Development: 33 hours
     3. Documentation: 27 hours
     4. Total: 126 hours
5. Projected completion date: April 26th

**IMPLEMENTATION and EVALUATION:**

1. Describe how you will approach the execution of your project:

One key element to how I plan on executing the project is thourough planning. I have already broken the project into the elements to get done each day, estimating roughly 6 hours of work a day as well as planning in any days off or breaks. The timeline is all documented as it would be by the project manager in an industry project.

This will also be approached im a more classic waterfall methodology than an agile methodology, although it will have some minor agile pieces added in. The vast majority of the planning will be done before starting on the technical, development work. That being said, whenever things change in while the development is underway, a more agile approach will be used, returning to planning to adjust and adapt as needed. Documentation will be completed at the end of the project. During every phase of the project, the documentation on the requirements and rubic will be the ultimate guide for completion and acceptance criteria.

* **This project does not involve human subjects research and is exempt from WGU IRB review.**

**STUDENT SIGNATURE**

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**By signing and submitting this form, you acknowledge** any cost associated with development and execution of the application will be your (the student) responsibility.

**COURSE INSTRUCTOR’S NAME:**

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**COURSE INSTRUCTOR APPROVAL DATE:**