**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)

**ANALYSIS:**

1. Project topic AND description: This project will be an implementation of a machine learning-based recommendation system. This will allow a user to input information about their favorite board games and then it will find similar games and suggest them as the next to purchase. The first step will be to compare a wide sample of board games from boardgamegeek.com then the users’ input will be compared against the clusters using linear regression. This program aims to have a user enjoy a suggested game more than 75% of the time. The client is a fictional tabletop game store called ‘Nights of the Round’. This company has long been in the business of board games but would like to give their sales staff more accurate suggestions to pass to the customer. This will increase customer satisfaction and give Nights of the Round a significant advantage in the market since no other company has this software.
2. Project purpose/goals: The purpose of this project is to provide Boardgame sales staff a tool to more often successfully suggest a game to Customers. Increasing customer satisfaction with the sales team.
3. Descriptive methods: This project will use Principle Component Analysis as its descriptive method to identify the games most closely related to one another.
4. Prescriptive method: I will be using linear regression to assess what games will be most desirable to the customer based on their preferences.

**DESIGN and DEVELOPMENT:**

1. Computer science application type (select one):

* Mobile (indicate Apple or Android)
* Web
* Stand-Alone

1. Programming/development language(s) you will use: I will be using Python and many data libraries such as NumPy and Matplotlib for the data aspect. The Dashboard will be built in Tkinter. I will be using a combination of VSCode and Jupyter  
   Notebooks for development.
2. Operating System(s)/Platform(s) you will use: Windows 10
3. Database Management System you will use: N/A. all data will be hosted locally and stored in CSV format
4. Estimated number of hours for the following:
   * 1. Planning and Design: 20
     2. Development: 40
     3. Documentation: 20
     4. Total: 80
5. Projected completion date: 8-31-21

**IMPLEMENTATION and EVALUATION:**

1. Describe how you will approach the execution of your project:
   1. Data has been compiled from boardgamegeek.com
   2. The data will be cleaned and formatted for analysis
   3. A model will be created with a subset of the data
   4. I will test the model’s accuracy using the subset of data that was left from step (c.)
   5. Finally created the graphical interface for the end-user to interact with the data.

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

**STUDENT SIGNATURE**

**\_Justin A. Hodge\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**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:**