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 area to 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 student's responsibility.

INFORM INSTRUCTOR:

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

ANALYSIS:

1. **Project topic AND description:** ABC Financial needs a tool to assist in making cryptocurrency investment decisions. This project will create a data product for classifying future Bitcoin values based on current data.

2. **Project purpose/goals:** Project purpose/goals: Provide a Bitcoin analysis tool ABC employees can use to aid Bitcoin investment decision-making.

3. **Descriptive methods:** Visualizations, such as correlation matrices and histograms, will be used to investigate the data. Also, feature selection techniques such as variance threshold and univariate feature selection might be used for dimension reduction. A confusion matrix will be used to visualize model performance.

4. **Non-descriptive method:** A machine learning model will be developed to predict future Bitcoin investments based on current data. Predictions will be projected dollar value (using a regression algorithm such as linear or decision tree regression), or the model will predict whether an investment will be profitable (using a classification algorithm such as naive Bayes or logistic regression).

DESIGN and DEVELOPMENT:

1. **Computer science application type (select one):**
   - Stand-Alone

2. **Programming/development language(s) you will use:**
   - Python

3. **Operating System(s)/Platform(s) you will use:**
   - Windows 10 (but the app will run on any Python-compatible OS).

4. **Database Management System you will use (if applicable):**
   - NA

5. **Estimated number of hours for the following:**
   i. Planning and Design: 20
   ii. Development: 25
   iii. Documentation: 10
   iv. Total: 55

6. **Projected completion date:**
    - After 10/21/2015

IMPLEMENTATION and EVALUATION:

1. **Describe how you will approach the execution of your project:**
   1. We will meet with the end users of the proposed product and gather all the requirements.
   2. Splitting the data into training and testing sets, we will then train and test various methods until a robust model is developed.
   3. The user interface code will then be written, allowing the user to make predictions on new data.
   4. Once the code is complete, supporting documentation will be written, and a working version of the data product will be given to the end users.
   5. As the end users test the product, any bugs, inadequate features, or other errors will be fixed as needed.

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

STUDENT SIGNATURE

_____*Marty McFly*_____

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

COURSE INSTRUCTOR'S SIGNATURE:

_____

COURSE INSTRUCTOR APPROVAL DATE:

November 5 1955

---

s