Des Moines Area Community College

CIS189 Final Project

**Description:**

For your final project, you will have the choice between coming up with your own project idea or working through an assigned project. Your project will be required to achieve a minimum viable product (MVP) that includes several of the topics we’ve covered this semester. Your grade for the project will be based on several criteria, including your proposal statement, code cleanliness, unit test coverage, project difficulty, and video project presentation (or project output write-up).

**Required functionality for creating your own project:**

You must include the following functionality in your project:

* A GUI component
* Multiple user created functions (or methods)
* Unit testing
* Exception Handling (Try/Except)
* Some sort of user input, including input validation
* Some sort of output
* A class

You must include **eight** of the following in your project:

* Decision Structure: If, if-else, if-elif
* Looping Structure: For/while loop
* File I/O
* Inner function
* Function with arbitrary arguments: \*args/\*\*kwargs
* Collection: List/tuple
* Collection: Set/dictionary
* Collection: Array
* Case-switch statement
* Datetime
* Python Module or Package
* Data Scraper
* Object Oriented Functionality including constructors/methods/objects
* Object Oriented Program inheritance/polymorphism including base-derived class
* Database connectivity

**Possible project ideas (in no particular difficulty order):**

* Anagram Solver
  + - Use Python and a dictionary file to find all the single-word anagrams for a given English word or single name
    - Advanced option: multiple word anagrams using a name as the source
* Hangman game with a GUI
* Prove the Monte Hall Problem by running it many times.
  + - Create a GUI to ‘play’ the game
* Morse code translator
  + - User clicks in a Morse pattern and the program outputs it in text
* Simple Battleship game
  + - Can be 1 or 2 players
* Units conversion program
  + - Celsius – Fahrenheit – Kelvin
    - Inches-feet-meters
    - … etc.
    - This isn’t super complicated so the UI should be pretty good

**Assigned Project:**

While I strongly prefer you using a project idea of your own, if you don’t want to go that route, you can build this:

ECOMMERCE ORDER PROCESS

* MVP
  + A customer can be created
  + A cart exists that can contain items with prices for a customer
  + An item can be added to a cart
  + Multiple items can be added to a cart
  + A cart can be checked out for a customer:
    - This includes all items currently in the cart
    - Completed purchase should include tax and order total
* Post - MVP
  + Cart State - A current state of the cart should be accessible
  + Pseudo Store - A store of items available for purchase exists
  + Pseudo Store - Via a GUI, items available can be seen
  + Cart State - Via a GUI, a user should be able to select an item to purchase
  + Cart State - Via a GUI, a user should be able to see the current items in the cart with prices
  + Multiples - Multiples of an item to put in the cart
  + Multiples - Via a GUI, a user can select multiples of an item to put in the cart
  + Multiples - The current state of the cart should contain multiples of an item
  + Multiples - Via a GUI, the current state of the cart should show multiples of an item
  + Deletions - Items can be deleted from the cart
  + Deletions - Via a GUI, a user can delete items from the cart
  + Coupons - Any item in the cart can be discounted using a % coupon
  + Coupons - Via a GUI, a user can apply a % coupon
  + Coupons - A % coupon code can be used and validated before applying to an item
  + Coupons - Via a GUI, a user can enter a % coupon code that is validated before applying to an item
  + Etc.

**Project Deliverables:**

For this project, you’ll have a few different deliverables

1. Project proposal – You’ll be creating a formal(ish) project proposal that includes a project description, a prioritized list project expectations (MVP) and potential functionality (post launch type functionality).
2. Project progress report – Part of the way through the project period, you’ll turn in a project progress report detailing … your progress. This includes where you originally expected to be at this point in the project as well as current status. It will also include an update on the final expected project scope
3. Project submission – You’ll submit your final project upon completion
4. Project presentation – You’ll create a video presentation to show your glorious project in completed form. You’ll post your presentation in a discussion board forum for your fellow students (and instructor) to revel in. I’ll also accept a written project output paper in the place of your presentation.