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Project Name : Medical Jeopardy!

Class: Summer 2020

Reflections on Project 1

Classes:

1. Player Class : Updates player stats, rounds played, manages player funds and allows player to select an opponent
2. Opponent Class : Tracks progress towards a medal from the opponent, manages opponent wait time and opponent accuracy
3. Game Class : Presents questions to player and grades answers from players and opponent
4. Hospital Class : Awards medals, awards black marks and tracks hospital grade
5. Medical Jeopardy : This is the class that brings all classes together and executes the game

How to test the project:

The user is given the choice to either start the game, read through the rules of the game or quit the game. If they type anything other than those choices, the program's while loop will ask them the question again.

Starting the game:

- The user determines a name for their character and determines a name for the hospital they will be managing.
- The user will be asked to select amongst three opponents : Professor Brainiac (Difficulty Level: Hard) , Physician Heartfilia (Difficulty Level : Medium) and Resident Sunshine (Difficulty Level : Easy).
- The difficulty levels are driven by opponent response time and opponent accuracy.
- If the user chooses anything other than the choices given, the program will ask the question again.
- Once an opponent is selected, no other opponent can be selected for the duration of the game unless the user quits and restarts the game.

There will be five MCQ questions per round. The player races against a computer opponent to provide the correct answer first.

- Answering a question correctly before the computer opponent results in the prize money being added to the players funds.
- Answering a question incorrectly before the computer opponent results in funds getting deducted from the players account.
- The player can choose amongst 4 answer choices for each question.

- Submitting a blank answer or anything other than the 4 choices (1,2,3 or 4) counts as an incorrect answer.
- If the opponent answers first and is correct, no change will be made to the player's funds regardless of the player's answer.
- If the opponent answers first and is incorrect, then the program looks at whether the player's answer is correct. If correct, funds are increased. If incorrect, funds are decreased.
- The player wins a round if they answer 3 questions correctly first or if they answer a question correctly after the computer has answered incorrectly.

At the end of each round:

- An inspector comes by to check if the player has negative funds. If yes, a black mark is given to the hospital. Once there are 3 black marks, the hospital gets downgraded by one level.
- Hospital grades range from A to F (best to worst).
- Once the grade reaches F, the game is over. The best possible grade is A.
- A special medal unique to each opponent is awarded to the player if they defeat the opponent in 3 rounds.
- A medal can only be used once and is automatically applied when the hospital's grade is below A.
- If the hospital's grade is already A, the spare medal gets stored for future use.
- Spare medals will be automatically applied in subsequent rounds when the hospital's grade goes below A.
- The player has only one chance to invest in their hospital at the end of each round.
- Each investment can only be in denominations of \$10,000 and will upgrade the hospital's grade by one level.
- The program will not allow any investments if the player has insufficient funds or if the hospital's grade is already A.
- The player's stats such as overall accuracy across all rounds played will be reported at the end of each round.
- The player will be asked if they want to continue playing the game at the end of each round.

What you completed and anything you did not complete in the project that you would finish later:

This is a training program I decided to create for my husband and his medical students when he told me that he will be taking on more training responsibilities at work.

The question and answer bank comes from the American College of Physicians website. Due to the lack of time, I did not have the opportunity to use a web scraper script. I did this manually by copying and pasting a limited selection of 150 Q&A into a list. I intend to try using a script later to extract and convert all Q&A from the website to make the program more challenging.

Additionally, I intend to try and convert this py script into an app that will be useable by his students from their phones in future.

Discuss challenges you faced and how you overcame them:

One of the most complex issues for me when writing the code for this project was how to execute the logic of having the computer compete against the human based on timing. I did some research online but struggled with whether it could be done via interruption of any ongoing script and have the computer announce the answer first. I realized that it is difficult to do and finally settled on letting the player answer regardless but have a grading system decide whether the player answered first or if the computer answered first.

Coding the Medical Jeopardy class to bring all classes together was also quite time-consuming but I got more familiar with it after a while.

References:

American College of Physicians Website : <https://ddm.acponline.org/>