CS217 - Object-oriented Programming (OOP)

Assignment # 1

Max Points: 20   **Due Date:** Friday, March 12, 2021, 11 a.m.

Carefully read the following instructions!

- It should be clear that your assignment would not get any credit if the assignment is submitted after the due date. No assignment will be accepted after the due date.
- Strict action will be taken if submitted solution is copied from any other student.
- If you people find any mistake or confusion in assignment (Question statement), please consult before the deadline. After the deadline no queries will be entertained in this regard.
- For any query, feel free to email at: **basit.jasani@nu.edu.pk**
- **Submission:** Submission will only be accepted through GOOGLE CLASSROOM. Submit all your codes in a single folder name it as your Student ID **"KXX-XXXX"**. The folder will contain two text files as *Q1.txt and Q2.txt* with proper commenting of the code.

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Question # 1

"Universe7 is the leading exporter of Senzu Beans and has set up offices in different regions of the country. Each office is managed by a head and has a daily expenditure (electricity consumption etc). The day to day operations in the regional office include printing the profit and expense for the day."

Tasks:

1. Identify all the entities.
2. Shortlist the entities according to their relevance.
3. Write proper C++ code to show all the classes, variables, constructors and functions present in the given scenario. You don't need to provide any implementation for the functions.

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Question # 2: Movie Rating System

Consider a class Movie that contains information about a movie. The class has the following attributes:

- **The movie name**
- **The MPAA rating (for example, G, PG, PG-13, r)**
- **The number of people that have rated this movie as a 1 (Terrible)**
- **The number of people that have rated this movie as a 2 (Bad)**
- **The number of people that have rated this movie as a 3 (oK)**
- **The number of people that have rated this movie as a 4 (Good)**
- **The number of people that have rated this movie as a 5 (Great)**

Implement the class with accessor and mutator functions for the movie name and MPAA rating. Write a function addRating that takes an integer as an input parameter. The function should verify that the parameter is a number between 1 and 5, and if so, increment the number of people rating the movie that match the input parameter. For example, if 3 is the input parameter, then the number of people that rated the movie as a 3 should be incremented by 1. Write another function, getAverage, that returns the average value for all of the movie ratings. Finally, add a constructor that allows the programmer to create the object with a specified name and MPAA rating. The number of people rating the movie should be set to 0 in the constructor. Test the class by writing a main function that creates at least two movie objects, adds at least five ratings for each movie, and outputs the movie name, MPAA rating, and average rating for each movie object.

************************************* **Good Luck** *************************************