

CENG 241 Lab 5

1- Write a C++ program that has a class for video games. This class has following attributes:

- Type(string), name(string), price(double), buy(bool)

You must declare attributes as private, so you need to call get and set functions to change values. You are required to create array of objects in your main function and fill the array with user inputs. Then, you need to display games. Games have discounting ratio according to their type. For:

- Action: %10
- Strategy %20
- Sport %30
- Adventure %25

After calculating the new price according to discount ratio, program will consider its worth to buy or not. If new price ≤ 150 , then buy must be "1". Otherwise, it must be "0".

Sample Output:

```
Enter Game Type, Name and Price: Action DevilMayCry 235
Enter Game Type, Name and Price: Sport NBA2k21 200
Game 1:
Name: DevilMayCry
Type: Action
Price: 235 Discounted Price: 211.5
Buy: 0
Game 2:
Name: NBA 2k21
Type: Sport
Price: 200 Discounted Price: 140.0
Buy:1
```

2- Write a C++ program to choose part-time working students according to the some criterias. You are required to create a class named "Student". Student class has following variables:

- **int** id, **string** name, **int** year, **float** gpa, **float** exam(must be inputted between 0 and 5),**float** total;
- Accordingly, you will have setter and getter methods for each class variable.
- Class has a default constructor to initialize class variables.
- You need to consider following formula to employ the student: $\frac{Exam \times gpa}{2}$

CENG 241 Lab 5

- You need to get 4 students information from the user and you need to have 4 objects representing each student. After that you will calculate the total points for each student. Then, program should print the student that has the highest point among them.

Sample Output:

```
Enter information for student(id name year gpa exam(must be in range 0-5)): 101 Kaan 3 3.34 4  
Enter information for student(id name year gpa exam(must be in range 0-5)): 102 Seda 2 3.55 2  
Enter information for student(id name year gpa exam(must be in range 0-5)): 103 Kerem 2 3.03 5  
Enter information for student(id name year gpa exam(must be in range 0-5)): 101 Canan 3 3.29 5  
  
Results-> Kaan:6.65, Seda:3.55, Kerem: 7.575, Canan: 8.225  
  
Canan has just employed .
```

3- Write a program in C++ to display area of rectangles. In this program you are required to have a rectangle class. In your main function, you need to have 3 object and 3 pointers to store them. You must fill the them according to the user inputs and must calculate the area and perimeter of each given rectangle. Then, program must print the total area and total perimeter of rectangles. As last, it is required to delete the objects that you have created before and print in the destructor method to show how many times desctructor method runs.

```
default constructor  
default constructor  
default constructor  
Enter length and breadth respectively: 12 3  
Enter length and breadth respectively: 4 7  
Enter length and breadth respectively: 15 2  
Area: 36  
Area: 28  
Area: 30  
  
Total Area: 94 Total Perimeter: 43  
destructor is executed for the object  
destructor is executed for the object  
destructor is executed for the object  
  
-----  
Process exited after 5.211 seconds with return value 0  
Press any key to continue . . .
```