Yoobee Colleges
Bachelor of Software Engineering
CS105 Development Principles II (C++)
Lab 2 (Week 3)

Scenario:

Suppose that you are part of a team which is creating a role-playing game (RPG). You have been asked to create the foundational classes to represent player characters, that is, the entity within the game that the user of the game software controls.

The Player Base Class:
- The Player base class contains name, race, hitPoints, and magicPoints data members for the players.
- It provides a constructor with four parameters corresponding to all of the four data members.
- It provides getters and setters member functions for all the four data members.
- These four data members will be common to all Player objects.
- The Player class will contain an attack() member function that returns "No attack method defined yet!".
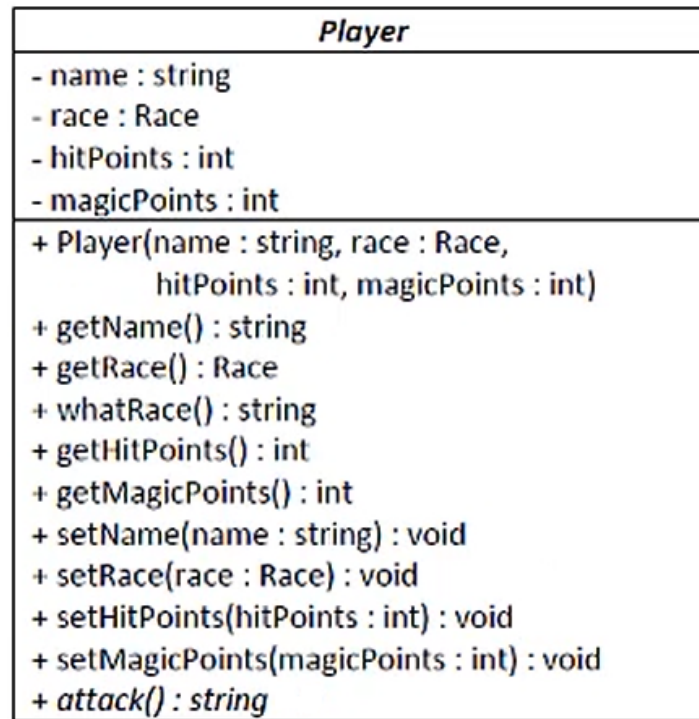 *Note: The derived classes will override this attack() member function to define specific attack methods for Warrior, Priest, and Mage derived classes as given in next sub-section.*

The enum type:
- The race can be represented by an enumerated type using enum with the following values:
  - HUMAN
  - ELF
  - DWARF
  - ORC
  - TROLL

Note: The enum may be code inside Player.h which will ensure all derived classes have access to it.

In the following is a UML class diagram only for the player base class.

Player
- name : string
- race : Race
- hitPoints : int
- magicPoints : int
+ Player(name : string, race : Race, hitPoints : int, magicPoints : int)
+ getName() : string
+ getRace() : Race
+ whatRace() : string
+ getHitPoints() : int
+ getMagicPoints() : int
+ setName(name : string) : void
+ setRace(race : Race) : void
+ setHitPoints(hitPoints : int) : void
+ setMagicPoints(magicPoints : int) : void
+ attack() : string

The Three Derived Classes:
Following are the specific player types that will be derived classes of the Player class:

- **Warrior**
  - 200 hitPoints, 0 magicPoints
  - Their attack method should return "I will destroy you with my sword!"
- **Priest**
  - 100 hitPoints, 200 magicPoints
  - Their attack method should return "I will assault you with holy wrath!"
- **Mage**
  - 200 hitPoints, 0 magicPoints
  - Their attack method should return "I will crush you with my arcane missiles!"

The main function:

Inside the main function, you should allow the user to create different kinds of player objects, allowing them to select the derived class which you can request from the user using a simple menu. You should also let the user select the race for their player as well. Additionallym you can ask the user to assign a name to the player as well.

Store players created by the user in three different vectors namely warrior, priest, and mage. Once you are done with the creation of player objects, iterate through all three vectors and print out the player details along with their attack methods, names, and race.

Sample Output:

```
        CHARCTER CREATION
Which of the following would you like?
        1. Create a Warrior!
        2. Create a Priest!
        3. Create a Mage!
        4. Finish creating player characters!
1

Which race do you want?
        1. Human!
        2. Elf!
        3. Dwarf!
        4. Orc!
        5. Troll!
1
What would you like to name your character?Alex
        CHARCTER CREATION
Which of the following would you like?
        1. Create a Warrior!
        2. Create a Priest!
        3. Create a Mage!
        4. Finish creating player characters!
2

Which race do you want?
        1. Human!
        2. Elf!
        3. Dwarf!
        4. Orc!
        5. Troll!
2
What would you like to name your character?Mark
        CHARCTER CREATION
Which of the following would you like?
        1. Create a Warrior!
        2. Create a Priest!
        3. Create a Mage!
        4. Finish creating player characters!
3

Which race do you want?
        1. Human!
        2. Elf!
        3. Dwarf!
        4. Orc!
        5. Troll!
3
What would you like to name your character?Raghii
        CHARCTER CREATION
Which of the following would you like?
        1. Create a Warrior!
        2. Create a Priest!
        3. Create a Mage!
        4. Finish creating player characters!
```

```
CHARCTER CREATION
Which of the following would you like?
        1. Create a Warrior!
        2. Create a Priest!
        3. Create a Mage!
        4. Finish creating player characters!
4

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WARRIORS LIST:
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I am a warrior with name Alex and with race Human and my attack is : I will destroy you with my sword, foul demon!

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PRIESTS LIST:
---------------
I am a priest with name Mark and with race Elf and my attack is : I will assault you with Holy Wrath!

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MAGE LIST:
---------------
I am a mage with name Raghii and with race Dwarf and my attack is : I will crush you with the power of my arcane missile
s!

Character Creation Done!.....
You can now move to next level!
C:\Users\97009\source\repos\Lab2CS105\Debug\Lab2CS105.exe (process 10280) exited with code 0.
Press any key to close this window . . .
```

Submission:

- Compressed C++ Project folder.

Rubrics

- Best practices (Use of appropriate C++ syntax for creation of base class and derived classes, access specifiers, use of enum, and appropriate comments)   = 0.5

- Creating the base class and its implementation   = 0.5

- Creating the three derived classes and their implementation   = 0.5

- Creating a suitable main menu and other related functions to achieve the desired output   = 1.0

Total   **= 2.5**