Yoobee Colleges
Bachelor of Software Engineering
CS105 Development Principles II (C++)
Lab 3 (Week 4)

Scenario:

Suppose that you are part of a team which is creating a game universe for an Alien based game.

The Alien class in the game will store height, weight, and gender of some existing Aliens and will use operator overloading to perform breeding among Aliens using the overloading of following operator:

- + operator will mean "breeding" keeping the following rules in mind:
  - *Weight of offspring = (sum of parents' weight)/2*
  - *Height of offspring = (sum of parents' heights)/2*
  - *Gender = Use 50% chance for female and 50% chance for male (rand() function can be used)*
- Additionally, the Alien class will perform the overloading of following operators for comparing prestige between any two given Aliens.
  - == and !=
  - > and >=
  - < and <=
- Also, the following operator can be overload for assignment of one Alien object to another Alien object.
  - =

The Alien class will have the following data members and member functions.

The Alien Class:

- The Alien class contains weight, height, and gender.

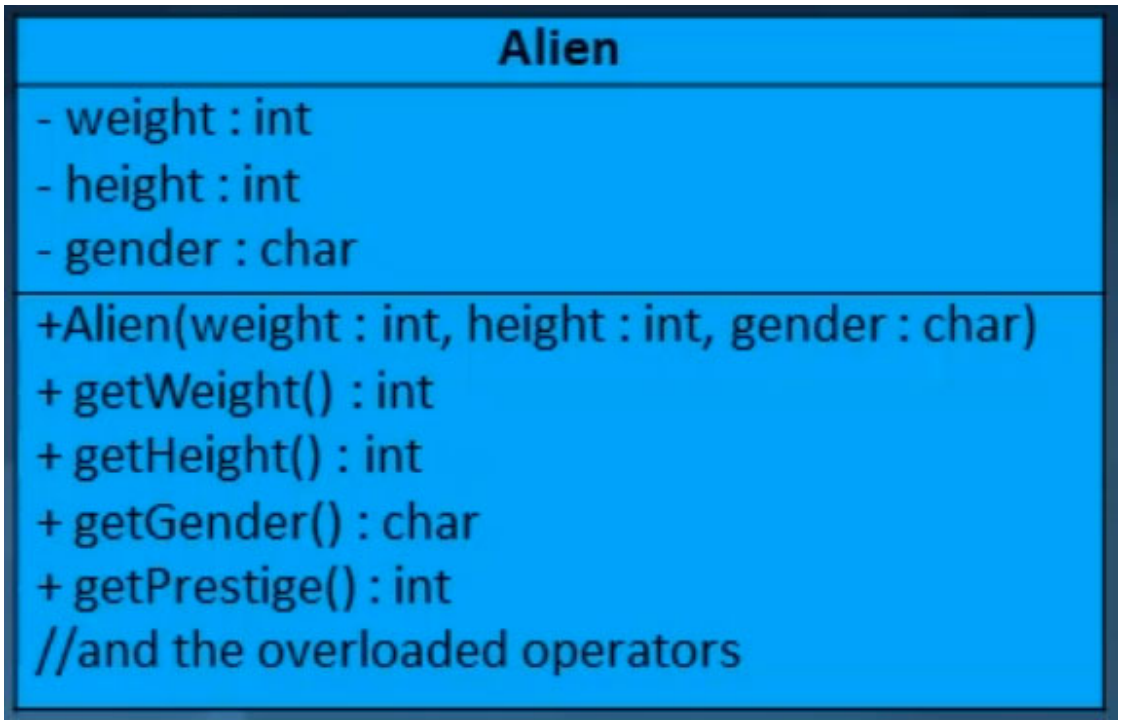
- It provides a constructor with three parameters corresponding to all the three data members.

- It provides getter member functions for all the three data members.

- Additionally, there is another member function called getPrestige() which uses the following formula to calculate a prestige value for every alien.

    - *Prestige is calculated as: p = height * weight * genderPoints*
    - *where genderPoints for male = 2 and for female = 3.*

  The class diagram is given below.



The main function:
Inside the main function, you should allow the user to create Alien 1 (a male), Alien 2 (a female), Alien 3 (a male), Alien 4 (a female). Initialization can be used for Aliens or a menu can be created for Alien creation.

Additionally, you should create offspring called Alien 5 from Alien 1 and Alien 2 and another offspring called Alien 6 from Alien 3 and Alien 4.

Once all the alien characters are created, you should compare the “prestige” of offspring Alien 5 and Alien 6 using the following overloaded operators:

- Alien 5 == Alien 6
- Alien 5 != Alien 6
- Alien 5 > Alien 6
- Alien 5 < Alien 6
- Alien 5 >= Alien 6
- Alien 5 <= Alien 6

Sample Output:

Submission:

- Compressed C++ Project folder.

Rubrics

- Best practices (Use of appropriate C++ syntax for creation of Alien class, and appropriate comments). = 1.0
- Creating the Alien class and its implementation = 3.0
- Creating the operator overloading functions for the given operators = 4.0
- Initializing Alien objects with suitable data and comparing prestige of offspring = 2.0

Total **= 10**
