

### Instructions on submitting the assignment:

1. Copy all the java classes into a single notepad file and rename it with your student id.
2. Upload to the course web for the relevant center link visible during the time frame.

**\*\* Students are strictly advised to following the submission guidelines. Any student answer which is not following the correct instructions when submitting, will not be assessed.**

**\*\*Please note that “Gradescope” will be used to check the plagiarism and the plagiarism benchmark will be 40%. (If the similarity report shows the code similarity percentage as 40% or above it will consider as copied.)**

This question is based on the **Object-Oriented Programming (OOP)** concepts. You are going to implement a code for a “MenInblack” video game. There is an Alien class to represent a monster and an AlienPack class that represents a pack including different types of aliens. MenInBlack class has different types of agents who is going to kill the aliens and obtain the scores.

- a) You can refer the output given in **Main** class and adjust your code accordingly.

```
public class Main {  
  
    public static void main(String args[]) {  
  
        //creating a alien pack with 5 different aliens  
        AlienPack pack1 = new AlienPack(5);  
        pack1.addAlien(new MarshmalloAlien(), 0);  
        pack1.addAlien(new OgreAlien(), 1);  
        pack1.addAlien(new OgreAlien(), 2);  
        pack1.addAlien(new SnakeAlien(), 3);  
        pack1.addAlien(new MarshmalloAlien(), 4);  
  
        MenInBlack AgentK = new MenInBlack(pack1);  
        AgentK.kill();  
        System.out.println("Your score is " + AgentK.getScore());  
    }  
}
```

put - Final2020 (run) % Test Results

run:  
Your score is 55  
BUILD SUCCESSFUL (total time: 0 seconds)

- i). Implement the **Alien** interface and declare **getScore()** method.

- ii). Create three classes called **MarshmalloAlien**, **OgreAlien** and **SnakeAlien** and implement the **Alien** interface in each class. MarshmalloAlien has 15, OgreAlien has 10 and SnakeAlien has 5 as their scores.
  - iii). Similarly create a class called **AlienPack** and implement the property of **aliens array (Alien[])**.
  - iv). Implement the **constructor** in the AlienPack class. Distinguish the number of aliens.
  - v). Implement the method called **addAlien** which accept a specific alien and the index.
  - vi). Implement the method called **getAliens()** which returns the alien array.
  - vii). Implement the **MenInBlack** class and implement the property of **score** and **alienpack(AlienPack)**.
  - viii). Implement the **constructor** in the MenInBlack class, which accept and initialize the alienpack. Make the starting agent score as zero.
  - ix). Implement the getters and setters for score and alienpack.
  - x). Implement the **kill()** method which kills the aliens in the alienpack and calculate the total score depending on each alien.
- b) “MenInblack” video game has another level where while the agent is killing the aliens, alien will do a damage for the agent and he will reduce the score accordingly.
- i). Implement the **MenInBlackLevel2** class which is a child of the **MenInBlack** class.
  - ii). Implement the **constructor** in the **MenInBlackLevel2** class, which accept and initialize the alienpack.
  - iii). Override the kill method where it calculate the total score depending on each alien. Additionally, generate a random number for each alien. Each time the random number is an ODD, the total score will be reduce by 2.  
*Hint: Math.random() \*10 will generate a random decimal number between 1 and 10.*