Assignment 4

Deadline : 02/ 23/ 2018 24:00

1. Find the error in the following code and explain in few lines why it is wrong. (Score 1)

   Here is the code.

```
public class Book{
    int size;
    int price;
    String name;

    public Book(int size){
        this.size = size;
    }

    public Book(int size, int price, String name){
        super();
        this.size = size;
        this.price = price;
        this.name = name;
    }

    public Book(int price){
        this.price = price;
    }

    public setName(String name){
        return name;
    }
}
```

2. Find the error in the following code and explain in few lines why it is wrong. (Score 1)

   Here is the code.

```
class Clock{
    String time;

    void getTime(){
        return time;
    }

    void setTime(String t){
        time = t ;
    }
}
```

…

3. (scores 1)

1)What will be the output of the following program?

```
enum Levels
{
        TOP, MEDIEUM(10), BOTTOM(20, 30);

        int i, j;

        private Levels()
        {

        }

        private Levels(int i)
        {
                this.i = i;
        }

        private Levels(int i, int j)
        {
                this.i = i;

                this.j = j;
        }
}
public class MainClass
{
        public static void main(String[] args)
        {
                System.out.println(Levels.TOP.i);

                System.out.println(Levels.TOP.j);

                System.out.println(Levels.MEDIEUM.i);

                System.out.println(Levels.MEDIEUM.j);

                System.out.println(Levels.BOTTOM.i);

                System.out.println(Levels.BOTTOM.j);
        }
}
```

2)Can you find out the error in the below code?

```
enum Enums
{
        ONE, TWO, THREE, ONE, FOUR;
}
```

4.Given a string containing just the characters `'('`, `')'`, `'{'`, `'}'`, `'['` and `']'`, determine if the input string is valid. (2 scores)

The brackets must close in the correct order, `"()"` and `"()[]{}"` are all valid but `"(]"` and `"([)]"` are not.

There is the prototype you can work with. Please remember to write the whole class including main function .

```
class Solution {

    public boolean isValid(String s) {


}
```

5. Implement a class called Tool. It should have an int field called strength and a char field called type. You may make them either private or protected. The Tool class should also contain the function void setStrength(int), which sets the strength for the Tool. (1 score)

Create 3 more classes called Rock, Paper, and Scissors, which inherit from Tool. Each of these classes will need a constructor which will take in an int that is used to initialise the strength field. The constructor should also initialise the type field using ‘r’ for Rock, ‘p’ for Paper, and ’s' for Scissors. (2 scores)

These classes will also need a public function bool fight(Tool) that compares their strengths in the following way:
Rock’s strength is doubled (temporarily) when fighting scissors, but halved (temporarily) when fighting paper. In the same way, paper has the advantage against rock, and scissors against paper. The strength field shouldn’t change in the function, which returns true if the original class wins in strength and false otherwise. You may also include any extra auxiliary functions and/or fields in any of these classes. Run the program without changing the main function, and verify that the results are correct. (2 scores)

```
class Tool{

    //add your code here
}

/*

    Implement class Scissors

*/

/*

    Implement class Paper

*/

/*

    Implement class Rock

*/

class RockPaperScissorsGame{

    public static void main(String args[]){

        Scissors s = new Scissors(5);
        Paper p = new Paper(7);
        Rock r = new Rock(15);

        System.out.println(s.fight(p) + " , "+ p.fight(s) );
        System.out.println(p.fight(r) + " , "+ r.fight(p) );
        System.out.println(r.fight(s) + " , "+ s.fight(r) );

    }
}
```

Extra credit

In a string composed of `'L'`, `'R'`, and `'X'` characters, like `"RXXLRXRXL"`, a move consists of either replacing one occurrence of `"XL"` with `"LX"`, or replacing one occurrence of `"RX"` with `"XR"`. Given the starting string `start` and the ending string `end`, return `True` if and only if there exists a sequence of moves to transform one string to the other.(2 scores)

Example:

```
Input: start = "RXXLRXRXL", end = "XRLXXRRLX"
Output: True
Explanation:
We can transform start to end following these steps:
RXXLRXRXL ->
XRXLRXRXL ->
XRLXRXRXL ->
XRLXXRRXL ->
XRLXXRRLX
```