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Index No: - 210329E

Formative assessment - 1

(01)

- **Identify objects, their states, and behavior in this scenario.**

Objects	States	Behaviors
Swimming Pool	• swim lanes	• -
Swimmers	• Gender • Color of the clothes • Name	• Swimming • Touching the touchpad • Wearing a clothe
Pavilion	• -	• -
Spectators	• Name	• -
Judges	• Name • Whistle	• Blowing the whistle
Supporting Staff	• Name	• -
Touch Pads	• Location • Whether it is touched or not	• Notifying the finishing time
Score Board	• Finishing Times	• Comparing finishing time • Identifying the order of finishing • Displaying information

❖ **Advanced task – identify relationships among these objects.**

- When Judges blow whistle, Swimmers start swimming.

- When Touchpad is touched it notifies the finishing time to Scoreboard.

- Swimmers swim in a swimming pool.

- Swimmers, Spectators, supporting staff watch the finishing times in scoreboard.

(02) Identify the "Objects" and their attributes from the above scenario description.

objects	Attributes
Newspaper	• No.of news articles
News Article	• Paragraphs of text • Images • Headline • Byline • Tagline • Data-stamp
Text	• Font type • Font size • Font color • Background color • Bold type face • Italic type face • Underlined type face
Paragraph	• Number of lines of text

(03) Write a simple program to capture this information.

```
import java.util.ArrayList;
import java.util.Scanner;
public class SwimmingCompetition {

     static int Id= 1;
     String name;
     int id_no;


    public void Scoreboard(String name, int id_no) {
        System.out.println("(ID NO : "+ id_no +") " + " " + name + "  is
watching the scoreboard.");
    }


    public static void main(String[] args) {

        //Taking User Inputs

        Scanner Scanner = new Scanner(System.in);

        System.out.println("Enter The Number Of Swimmers:- ");
        int no_swimmers = Scanner.nextInt();

        System.out.println("Enter The Number Of Spectators:- ");
        int no_spectators = Scanner.nextInt();

        System.out.println("Enter The Number Of Judges:- ");
        int no_judges = Scanner.nextInt();

        System.out.println("Enter The Number Of staff:- ");
        int no_staff  = Scanner.nextInt();



        // Creating array lists to store the objects

        ArrayList<Swimmer> swimmers = new ArrayList<>();
        ArrayList<Spectator> spectators = new ArrayList<>();
        ArrayList<Judge> judges = new ArrayList<>();
        ArrayList<Supporting_Staff> staff = new ArrayList<>();


        //Creating relavent  objects and add them to the relavent  array
lists

        for (int i = 1; i <= no_swimmers; i++) {
            swimmers.add(new Swimmer("swimmer" + i));
        }

        for (int i = 1; i <= no_spectators; i++) {
            spectators.add(new Spectator("spectator" + i));
        }
```

```
        for (int i = 1; i <= no_judges; i++) {
            judges.add(new Judge("judger" + i));
        }

        for (int i = 1; i <= no_staff; i++) {
            staff.add(new Supporting_Staff("supporting staff" + i));
        }


        //Testing by calling relavent method whether programme is running or
not

        for (Swimmer x : swimmers){
            x.swim(x.name);
        }
        for (Spectator y : spectators){
            y.Scoreboard(y.name,y.id_no);
        }

        for (Judge z : judges){
            z.blow(z.name);
        }

        for (Supporting_Staff p :  staff){
            p.Scoreboard(p.name,p.id_no);
        }


    }


    static class Swimmer extends SwimmingCompetition {
        public Swimmer(String name) {
            this.name = name;
            this.id_no = Id++;
        }

        public void swim(String name) {
            System.out.println("(ID NO : "+id_no+") " + " " + name + "  is
swimming");
        }
    }

    static class Spectator extends SwimmingCompetition {
        public Spectator(String name) {
            this.name = name;
            this.id_no =Id++;
        }
    }

    static class Judge extends SwimmingCompetition {
        public Judge(String name) {
            this.name = name;
            this.id_no = Id++;
        }
        public void blow(String name) {
```

```
            System.out.println("(ID NO : "+ id_no +") " + " " + name + "  is
blowing the whistle.");

        }
    }

    static class Supporting_Staff extends SwimmingCompetition {
        public Supporting_Staff(String name) {
            this.name = name;
            this.id_no = Id++;
        }
    }
}
```

Method: -

1. **First copy the above code into a text file(notepad) within a folder.**
2. **Then Save that file as a java file by renaming the file name as SwimmingCompetition.java.**
3. **Then using the cmd within that folder,run the program as follows to take a similar output as below by giving relevant inputs.**

```
C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.19045.2728]
(c) Microsoft Corporation. All rights reserved.

C:\Users\YASIRU\Desktop\Yas>javac SwimmingCompetition.java

C:\Users\YASIRU\Desktop\Yas>java SwimmingCompetition
Enter The Number Of Swimmers:-
8
Enter The Number Of Spectators:-
6
Enter The Number Of Judges:-
4
Enter The Number Of staff:-
2
(ID NO : 1)  swimmer1  is swimming
(ID NO : 2)  swimmer2  is swimming
(ID NO : 3)  swimmer3  is swimming
(ID NO : 4)  swimmer4  is swimming
(ID NO : 5)  swimmer5  is swimming
(ID NO : 6)  swimmer6  is swimming
(ID NO : 7)  swimmer7  is swimming
(ID NO : 8)  swimmer8  is swimming
(ID NO : 9)  spectator1  is watching the scoreboard.
(ID NO : 10)  spectator2  is watching the scoreboard.
(ID NO : 11)  spectator3  is watching the scoreboard.
(ID NO : 12)  spectator4  is watching the scoreboard.
(ID NO : 13)  spectator5  is watching the scoreboard.
(ID NO : 14)  spectator6  is watching the scoreboard.
(ID NO : 15)  judger1  is blowing the whistle.
(ID NO : 16)  judger2  is blowing the whistle.
(ID NO : 17)  judger3  is blowing the whistle.
(ID NO : 18)  judger4  is blowing the whistle.
(ID NO : 19)  supporting staff1  is watching the scoreboard.
(ID NO : 20)  supporting staff2  is watching the scoreboard.

C:\Users\YASIRU\Desktop\Yas>
```