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Batch: B

Experiment Number: 7

Problem Statement:

Define a class Cricketer which has:-

Attributes:-

- player_name
- runs_hit
- innings_count
- not_out_count
- batting_avg

Methods:-get_avg

Make a cricket team with 11 cricketers. For each cricketer, find his batting average. Handle all different errors while calculating this. Also, make a method which will find the list of cricketers in ascending order of their batting average and also display the cricketer stats in this order.

If the average of the batting average of the entire team is less than 20 runs then throw a user-defined exception.

Note- handle errors like `ArrayIndexOutOfBoundsException`, `ArithmeticException`, `ArrayStoreException`, `NumberFormatException`, etc

Code:

```
import java.util.*;
class SortbyBattingAvg implements Comparator<cricketer> {
    public int compare(cricketer a, cricketer b)
    {
        return (int)a.batting_avg - (int)b.batting_avg;
    }
}

class PoorBattingAvgException extends Exception {
    public PoorBattingAvgException(String errorMessage) {
        super(errorMessage);
    }
}

public class cricketer {

    String name;
    int runs_hit, innings_count, not_out_count;
    float batting_avg;
    cricketer(String name, int runs_hit, int innings_count, int not_out_count){
        this.name = name;
        this.runs_hit = runs_hit;
        this.innings_count = innings_count;
        this.not_out_count = not_out_count;
        this.batting_avg = 0;
    }

    public float get_avg() {
        float val = 0;
        try{
            val = (int) this.runs_hit / (this.innings_count - this.not_out_count );
        }
        catch (ArithmeticException e) {
            System.out.println("\nFollowing exception occurred : " + e + "\n");
        }
        return val;
    }

    public static void display(cricketer[] players){

        Arrays.sort(players, new SortbyBattingAvg());
        for(int i=0;i<players.length; i++){

            System.out.println("Name : " + players[i].name); System.out.println("Total Runs : " +
            players[i].runs_hit);
            System.out.println("Innings : " +
            players[i].innings_count);
            System.out.println("Not Out Count : " +
```

```

        players[i].not_out_count);
        System.out.println("Batting Average : " +
        players[i].batting_avg);
        System.out.println();
    }

}

public static int get_random(int max, int min){

    return (int) ((Math.random() * (max - min)) + min);
}

public static void main(String args[]){
    Scanner sc = new Scanner(System.in);
    System.out.println("Feed Team strength : ");
    int n = sc.nextInt();
    Object[] player = new cricketer[11];
    try{
        player[0] = 10;
    }
    catch(ArrayStoreException e){
        System.out.println("\nFollowing exception occurred : " + e + "\n");
    }

    cricketer[] players = new cricketer[11];
    try{
        int i;
        for(i=0; i<10; i++){
            players[i] = new cricketer("Player " + String.valueOf(i+1), get_random(1001, 1),
get_random(51, 25), get_random(25, 1));
            players[i].batting_avg = players[i].get_avg();
        }
        players[i] = new cricketer("Player 10",
get_random(1001, 1), get_random(51, 25), get_random(25, 1)); try{
            players[i].batting_avg =
Integer.parseInt(String.valueOf(players[i].get_avg()));
        }
        catch(NumberFormatException e){
            System.out.println("\nFollowing exception occurred : " + e + "\n");
        }
        players[i] = new cricketer("Player " + String.valueOf(i+1), get_random(1001, 1), 10,
10); players[i].batting_avg = players[i].get_avg();
        players[n] = new cricketer("Player " + String.valueOf(n), get_random(1001, 1), 13, 14);
        players[n].batting_avg = players[i].get_avg();
    }

    catch(ArrayIndexOutOfBoundsException e){
        System.out.println("\nFollowing exception occurred : " + e + "\n");
    }
}

```

```

    }
    display(players);
    int i;
    float avg, total_avg = 0.0f;
    for(i=0; i<11; i++){
        total_avg += players[i].batting_avg;
    }
    avg = total_avg / n;
    // avg = 10.0f;
    System.out.println("Batting Average of entire team "+ avg);

    try{
        if(avg > 20){
            System.out.println("Average : " + avg);
        }

        else{
            throw new PoorBattingAvgException("Batting average of the team is less than 20");
        }
    }
    catch(PoorBattingAvgException e){
        System.out.println("\nFollowing exception occurred : " + e + "\n");
    }
    sc.close();
}

}

```

Output:

```
Name : Player 1
Total Runs : 9
Innings : 25
Not Out Count : 14
Batting Average : 0.0

Name : Player 11
Total Runs : 880
Innings : 10
Not Out Count : 10
Batting Average : 0.0

Name : Player 2
Total Runs : 66
Innings : 39
Not Out Count : 2
Batting Average : 1.0

Name : Player 8
Total Runs : 178
Innings : 47
Not Out Count : 19
Batting Average : 6.0

Name : Player 5
Total Runs : 638
Innings : 45
Not Out Count : 2
Batting Average : 14.0

Name : Player 4
Total Runs : 740
Innings : 50
Not Out Count : 12
Batting Average : 19.0

Name : Player 9
Total Runs : 688
Innings : 47
Not Out Count : 20
Batting Average : 25.0

Name : Player 7
Total Runs : 928
Innings : 39
Not Out Count : 6
Batting Average : 28.0

Name : Player 6
Total Runs : 496
Innings : 33
Not Out Count : 18
Batting Average : 33.0
```

```
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Total Runs : 638
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Batting Average : 14.0

Name : Player 4
Total Runs : 740
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Not Out Count : 20
Batting Average : 25.0

Name : Player 7
Total Runs : 928
Innings : 39
Not Out Count : 6
Batting Average : 28.0

Name : Player 6
Total Runs : 496
Innings : 33
Not Out Count : 18
Batting Average : 33.0

Name : Player 10
Total Runs : 331
Innings : 32
Not Out Count : 22
Batting Average : 33.0

Name : Player 3
Total Runs : 540
Innings : 37
Not Out Count : 22
Batting Average : 36.0

Batting Average of entire team 1.4885496

Following exception occurred : PoorBattingAvgException: Batting average of the team is less than 20
```