TASK: 1

Input student names and grades

Store data using ArrayLists

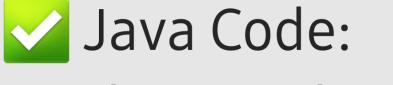
Calculate and display:

Average grade

Highest grade

Lowest grade

Show a summary report of all students and their grades



StudentGradeTracker.java

import java.util.ArrayList; import java.util.Scanner;

public class
StudentGradeTracker {

static class Student {
 String name;
 double grade;

Student(String name, double grade) { this.name = name;

```
this.grade = grade;
}
```

```
public static void
main(String[] args) {
    ArrayList<Student>
students = new
ArrayList<>();
    Scanner scanner = new
Scanner(System.in);
```

System.out.println("===

```
Student Grade Tracker ===");
```

boolean running = true;

while (running) {

```
System.out.print("Choose
an option (1-3): ");
    int choice =
scanner.nextInt();
    scanner.nextLine(); //
consume newline
```

```
switch (choice) { case 1:
```

System.out.print("Enter student name: ");

```
String name = scanner.nextLine();
```

System.out.println("Invalid grade. Please enter a value between 0 and 100.");

```
students.add(new
Student(name, grade));
System.out.println("Student
added.");
          break;
        case 2:
          if
(students.isEmpty()) {
```

} else {

```
System.out.println("No student data available.");
} else {
```

```
printSummaryReport(stude
nts);
```

break;

case 3: running = false;

```
System.out.println("Exiting the program.");

break;
```

default:

```
System.out.println("Invalid choice. Please select from 1-3.");
}
```

```
scanner.close();
```

}

```
private static void
printSummaryReport(Array
List<Student> students) {
```

```
System.out.println("\n===
Summary Report ===");
    double total = 0;
    double highest =
Double.MIN_VALUE;
    double lowest =
Double.MAX_VALUE;
```

```
String topStudent = "";
String lowStudent = "";
```

```
for (Student s :
students) {
```

```
System.out.printf("%-20s: %.2f\n", s.name, s.grade); total += s.grade;
```

```
if (s.grade > highest) {
  highest = s.grade;
  topStudent =
```

```
s.name;
      if (s.grade < lowest) {
        lowest = s.grade;
        lowStudent =
s.name;
```

double average = total /
students.size();

```
System.out.printf("\nAverage); e Grade: %.2f\n", average);
```

```
System.out.printf("Highest Grade: %.2f (%s)\n", highest, topStudent);
```

```
System.out.printf("Lowest
Grade: %.2f (%s)\n",
lowest, lowStudent);
}
```



How to Run the Program:

1. Save the code in a file named StudentGradeTracker.java

2. Compile it:

javac StudentGradeTracker.java

3. Run it:

java StudentGradeTracker

=== Student Grade Tracker ===

- 1. Add student
- 2. Show summary report
- 3. Exit

Choose an option (1-3): 1

Enter student name: Alice

Enter student grade

(0-100): 85

Student added.

- 1. Add student
- 2. Show summary report
- 3. Exit

Choose an option (1-3): 1

Enter student name: Bob

Enter student grade

(0-100): 92

Student added.

- 1. Add student
- 2. Show summary report
- 3. Exit

Choose an option (1-3): 2

=== Summary Report ===

Alice : 85.00

Bob : 92.00

Average Grade: 88.50

Highest Grade: 92.00 (Bob)

Lowest Grade: 85.00 (Alice)