Experiment - 6

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Subject Name: Project Based Learning in Java
Subject Code: 23CSH-304

1.Aim: Develop a Java program using lambda expressions and Stream operations to filter students scoring above 75%, sort them by marks, and display their names.

2.Objective: To apply filtering, sorting, and transformation operations using the Stream API in Java for concise and efficient data processing.

3.Apparatus / Input Used:

•Programming Language: Java (JDK 8 or above)

•IDE: Eclipse / IntelliJ / VS Code

•Classes & Methods Used: Stream, filter(), sorted(), map(), collect()

4. Procedure:

1. Define a Student class with fields: name, id, and marks.
2. Create a list of student objects.
3. Use Stream API to:
   - Filter students with marks greater than 75.
   - Sort them by marks in descending order.
   - Extract and display their names.
4. Display the final list of students who scored above 75%.

Program Code:

```
import java.util.*; import
java.util.stream.*;
```

```
    class Student {
        String name;
        int id;
        double
        marks;
        Student(String name, int id, double marks)
            { this.name = name; this.id = id;
            this.marks = marks;
    }

    public String toString() {
        return name + " - " + marks;
    }
}

public class StreamStudentFilter {
    public static void main(String[] args) {
            List<Student> students =
                Arrays.asList( new Student("Ravi",
                101, 85.5), new Student("Aditi",
                102, 92.0), new Student("Kiran",
                103, 78.0), new Student("Manoj",
                104, 68.0),
            new Student("Tina", 105, 72.5)
        );

        System.out.println("Students scoring above 75%:");
        List<String> topStudents = students.stream()
            .filter(s -> s.marks > 75)
            .sorted((s1, s2) -> Double.compare(s2.marks, s1.marks))
            .map(s -> s.name)
            .collect(Collectors.toList());

        topStudents.forEach(System.out::println);
    }
```

Sample Output:

Students scoring above 75%:
Aditi
Ravi
Kiran