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
```