

Experiment - 6

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Branch: BE-CSE

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Subject Name: Project Based Learning in Java

Subject Code: 23CSH-304

UID: 23BCS12648

Section/Group: KRG-2B

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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

```