Programming Assignment Unit 8

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CS 1102: Programming 1

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```java
package textio;
import java.util.Arrays;
import java.util.List;
import java.util.function.Function;
import java.util.stream.Collectors;

class Employee {
    private String name;
    private int age;
    private String department;
    private double salary;

    public Employee(String name, int age, String department, double salary) {
        this.name = name;
        this.age = age;
        this.department = department;
        this.salary = salary;
    }

    public String getName() {
        return name;
    }

    public int getAge() {
        return age;
    }

    public String getDepartment() {
        return department;
    }

    public double getSalary() {
        return salary;
    }

    @Override
    public String toString() {
        return "Employee{name='" + name + "', age=" + age + ", department='" + department
+ "', salary=" + salary + '}';
    }
}

public class EmployeeData {

    public static void main(String[] args) {
        // Creating a sample dataset
        List<Employee> employees = Arrays.asList(
                new Employee("John", 28, "HR", 50000),
                new Employee("Alice", 35, "Engineering", 75000),
                new Employee("Bob", 40, "Finance", 60000),
                new Employee("Eva", 25, "Marketing", 55000)
                // Add more employees as needed
        );

        // Step 1: Read the dataset and store it in a collection
        List<String> concatenatedStrings = employees.stream()
                // Step 2: Use the Function interface to concatenate name and department
                .map(concatenateNameAndDepartment())
                // Step 3: Generate a new collection with the concatenated strings
                .collect(Collectors.toList());

        // Print the concatenated strings
        System.out.println("Concatenated Strings: " + concatenatedStrings);

        // Step 4: Find the average salary of all employees
        double averageSalary = employees.stream()
                .mapToDouble(Employee::getSalary)
                .average()
                .orElse(0.0);

        System.out.println("Average Salary of Employees: " + averageSalary);

        // Step 5: Incorporate a filter function to include only employees above a
certain age threshold
        int ageThreshold = 30;
        List<Employee> aboveThresholdEmployees = employees.stream()
                .filter(employee -> employee.getAge() > ageThreshold)
                .collect(Collectors.toList());

        System.out.println("Employees above " + ageThreshold + " years old: " +
aboveThresholdEmployees);
    }

    // Function to concatenate name and department
    private static Function<Employee, String> concatenateNameAndDepartment() {
        return employee -> employee.getName() + " - " + employee.getDepartment();
    }
}
```

Console

```
Concatenated Strings: [John - HR, Alice - Engineering, Bob - Finance, Eva -
Marketing]
Average Salary of Employees: 60000.0
Employees above 30 years old: [Employee{name='Alice', age=35,
department='Engineering', salary=75000.0}, Employee{name='Bob', age=40,
department='Finance', salary=60000.0}]
```