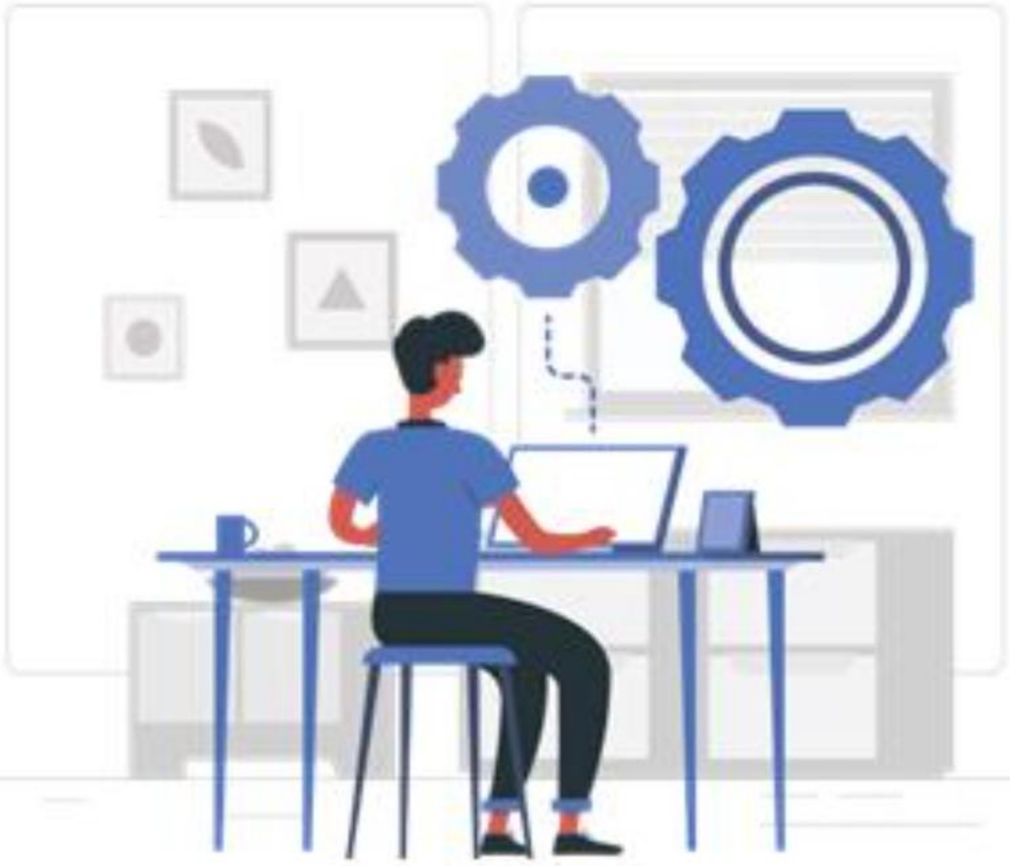

Practice

Manipulate Objects Using Unordered Collections and Construct Objects as a Key Value Pair

Practice

- Student Average Marks

PRACTICE

Student Average Marks

Kathy is a teacher who wants to test her students' skills. She asked her students to work on the set and map objects.

Set and Map objects will hold a few students’ objects.
Help her students to achieve the task listed on the next slide.

Instructions for the Practice

- Click on the boilerplate.
- Fork the boilerplate using the fork button 

- Select your namespace to fork the project.
- Clone the project into your local system.
- Open the project in the IntelliJ IDE.
- Work on the solution.
- Execute the test cases given in the test folder.
- Push the solution to git.

Tasks

- Define the Student class with attributes like `name, rollNo, totalMarks`.
- Generate getter and setter methods for all the attributes.
- Create a parameterized constructor with all the attributes.
- Override the `toString()` method.
- Define the `StudentService` class with the below-mentioned functionalities:
  - Sort the students based on their names.
  - Calculate the average marks and return the map with the names and average marks.

Tasks (Cont'd)

- In the `StudentService` class:
  - Write the `getAllStudentData()` method to,

```
public static Set<Student> getAllStudentData()
```

    - Declare a Set of Student objects
    - Define Student objects by making a call to the parameterized constructor and adding them to the Set defined.
    - Return the Set object.

Tasks (cont'd)

- In the `StudentService` class:
  - Write the logic to sort all the students' names in alphabetical order and return a new set with the sorted names using the below method.

```
public static Set<String> getAllStudentNameInSorted(Set<Student> studentSet)
```

  - Use an iterator to iterate through the Set object.
  - Use the `TreeSet` object, since the it will return a sorted list of.

Tasks (cont'd)

- In the `StudentService` class:
  - Write a method to calculate the average of student marks as shown below,

```
public static Map<String,Integer> calculateAverage(Set<Student> studentSet)
```

  - Create a Map object of type string (key) and integer (value).
  - Store all the students' names and their average marks as key and value pairs in the map and return the map.
  - Use iterator to iterate through the Set object.