1. Generic Class

Getting Student Information using Generic Class

A **generic type** is a class or interface that is parameterized over types. In this challenge, you have to create two generic classes for an **Array List**. There are three classes, **StudentClass**, **StudentList**, and **ScoreList**.

In **StudentClass**, there is a **getQuery()** function that contains the input data. In **getQuery (String studentData, String query)**, **studentData** is a dataset that differs based on the query type. Q**uery** is the conditional string to perform an operation.

There are five types of queries:

Query Type 1:
Find student names beginning with a particular letter.

Query Type 2:
Find students who have a specific blood group that is given in the input.

Query Type 3:
Find the number of students who scored higher than the specified threshold score.

Query Type 4:
Find the average of student marks.

Query Type 5:
Find the average of student CGPA values.

*Note: In **studentData,** student data is separated by space (" "). In a **query** string, query data is separated by comma (","). The first character refers to the query type, and the second character refers to the conditional string (based on the query type).*

For Query Type 1:

Sample input:
studentData = Raja Ravi Vinay Rahul Arun
query = 1,r

Sample output:
Raja
Ravi
Rahul

Note: The output for query type 1 should end with a new line character.

For Query Type 2:

Sample input:

studentData = Raja Ravi Vinay Rahul Arun
query = 2,B- AB- B+ O+ B+,B+

Sample output :
Vinay
Arun

Note: The output for query type 2 should end with a new line character.
*Explanation: In the studentData, "**Raja Ravi Vinay Rahul Arun"** are student names. In the query, "**2"** is query type and "**B- AB- B+ O+ B+"** are the respective blood groups of student names and **B+** is the blood group we have to find. Hence **Vinay** and **Arun** are the students who have "**B+"** blood group.*

For Query Type 3:

Sample input:
studentData = 96 78 93 45 90 42 69
query = 3,90

Sample output:
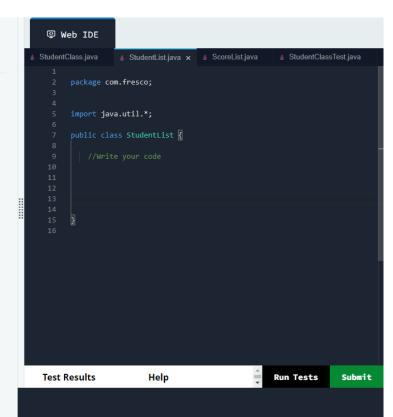3 students scored 90 above

For Query Type 4:

Sample input:
studentData = 96 78 93 45 90 42 69
query = 4

Sample output:
73.29

```java
package com.fresco;


import java.util.*;


public class StudentList {

    //Write your code



}
```

For Query Type 5:

Sample input:
studentData = 5.6 6.7 8.9 5.8
query = 5

Sample output:
6.75

In the **StudentList** class, you have to implement the functionalities for the first three types of queries using an Array List. Type should be generic. Create 6 methods.

In the **ScoreList** Class, you have to implement the functionalities of the next two types of queries using an Array List. Type should be generic. It must extend from the Numbers class, and restrict the type (int, float, double, and long). Create 4 methods.

The first three methods are common for both classes:

1. void addElement(Type) – Must reflect the **add()** function of the Array List.
2. void removeElement(Type) - Must reflect the **remove()** function of the Array List.
3. Type getElement(int) – Must reflect the **get()** function of the Array List.

In **StudentList**,

4. beginsWith(String) – Must return the names of students starting with the specified letter, for the names in the list.
5. bloodGroupOf(String[],String) – Must return the names of students with the specified blood group, for the names in the list.
6. int thresholdScore(int) – Must return the count of the number of students whose score is higher than the specified threshold score, for the scores in the list.

In **ScoreList**,

4. double averageValues() – Must return the average of the set of values in the list.

Note: The methods mentioned above should be defined as public methods.