**University of Rajshahi**

Department of Computer Science and Engineering

Part- II, Semester – Odd, Final Exam – 2021

Course: CSE2142 (Software Development Lab I)

##### Download the following Project or StudentList.java and students.txt data file from the following link

##### [https://github.com/omarfaruqe/CSE2142](https://github.com/omarfaruqe/CSE2142SDLExam2019)

##### if you have ssh configured

##### git clone git@github.com:omarfaruqe/CSE2142.git

##### if you don’t have ssh configured, use https instead

##### git clone https://github.com/omarfaruqe/CSE2142.git

##### or if you don’t have internet connection, please write the StudentList.java code.

**Data File name**

students.txt

**File Contents (Initial Stage)**

Student1, Student2, Student3, Student4

Data file and java file should be in same location.

**Steps #0** (Initial Stage as in question. Check the output whether it matches with the output given here. If your output doesn’t match, please correct your program so that it produce exactly the same output given here.)

**Run #1** $java StudentList a

Loading data ...

Student1

Student2

Student3

Student4

Data Loaded.

**Run #2** $java StudentList r

Loading data ...

Student3

Data Loaded.

**Run #3** $java StudentList r

Loading data ...

Student1

Data Loaded.

**Run #4** $java StudentList c

Loading data ...

2 word(s) found

Data Loaded.

**Run #5** $java StudentList ?Student1

Loading data ...

We found it!

Data Loaded.

**Run #6** $java StudentList +Another

Loading data ...

Data Loaded.

File Contents (After running)

Student1, Student2, Student3, Student4 ,Another

List last updated on 2019-07-25 2:10:58 PM

In case you write the code by yourself instead of downloading, you need to initialize a git repository on your project. You should create git branch for every step with the name of the step, work on that particular step, commit the code with appropriate commit message and finally merge your branch to the master. For better understanding, write the commit message same as the task on each steps. And check every time you change something, you didn’t break anything by going through Run #1 to Run #6 and it matches the output.

1. Update code style for better consistency.
2. Application now terminates early if the number of arguments passed into it is wrong, fix it.
3. Makes improvements to variable names
4. Refactors duplicate file read and write logic into methods
5. Replaces string literals with constants, storing those constants in a new class called Constants.java
6. Remove Temporary variables
7. Eliminates the ‘done’ control-flow variable. Adds better response for search operation.
8. Simplifies the logic behind the count operation
9. Adds handling for case when user enters invalid arguments
10. Add more comments and makes more naming improvements.

//File Name StudentList.java

**import** java.io.\*;

**import** java.text.\*;

**import** java.util.\*;

**public** **class** StudentList {

**public** **static** **void** main(String[] args) {

// Check arguments

**if**(args[0].equals("a")) {

System.***out***.println("Loading data ...");

**try** {

BufferedReader s = **new** BufferedReader(

**new** InputStreamReader(

**new** FileInputStream("students.txt")));

String r = s.readLine(); String i[] = r.split(",");

**for**(String j : i) { System.***out***.println(j); }

} **catch** (Exception e){}

System.***out***.println("Data Loaded.");

}

**else** **if**(args[0].equals("r"))

{

System.***out***.println("Loading data ...");

**try** {

BufferedReader s = **new** BufferedReader(

**new** InputStreamReader(

**new** FileInputStream("students.txt")));

String r = s.readLine(); System.***out***.println(r);

String i[] = r.split(",");

Random x = **new** Random();

**int** y = x.nextInt();

System.***out***.println(i[y]);

} **catch** (Exception e){}

System.***out***.println("Data Loaded.");

}

**else** **if**(args[0].contains("+")){

System.***out***.println("Loading data ...");

**try** {

BufferedWriter s = **new** BufferedWriter(

**new** FileWriter("students.txt", **true**));

String t = args[0].substring(1);

Date d = **new** Date();

String df = "dd/mm/yyyy-hh:mm:ss a";

DateFormat dateFormat = **new** SimpleDateFormat(df);

String fd= dateFormat.format(d);

s.write(", "+t+"\nList last updated on "+fd);

s.close();

} **catch** (Exception e){}

System.***out***.println("Data Loaded.");

}

**else** **if**(args[0].contains("?"))

{

System.***out***.println("Loading data ...");

**try** {

BufferedReader s = **new** BufferedReader(

**new** InputStreamReader(

**new** FileInputStream("students.txt")));

String r = s.readLine();

String i[] = r.split(",");

**boolean** done = **false**;

String t = args[0].substring(1);

**for**(**int** idx = 0; idx<i.length && !done; idx++) {

**if**(i[idx].equals(t)) {

System.***out***.println("We found it!");

done=**true**;

}

}

} **catch** (Exception e){}

System.***out***.println("Data Loaded.");

}

**else** **if**(args[0].contains("c"))

{

System.***out***.println("Loading data ...");

**try** {

BufferedReader s = **new** BufferedReader(

**new** InputStreamReader(

**new** FileInputStream("students.txt")));

String D = s.readLine();

**char** a[] = D.toCharArray();

**boolean** in\_word = **false**;

**int** count=0;

**for**(**char** c:a) {

**if**(c ==' ')

{

**if** (!in\_word) { count++; in\_word =**true**; }

**else** { in\_word=**false**;}

}

}

System.***out***.println(count +" word(s) found " + a.length);

} **catch** (Exception e){}

System.***out***.println("Data Loaded.");

}

}

}