DHA SUFFA UNIVERSITY
Department of Computer Science
Final-Semester Examination – Spring - 2023
(Object Oriented Programming Lab CS-1002L)

Class/Section: CS-2A
Course Instructor: **Ms. Sumera Rounaq**
Date & Time: 5th July 2023, 14:00 – 16:00
Student's Name: _____

Time allowed: 2 Hours
Max Marks: 30
Reg. No: _____

Instructions:

- Complete all questions and zip all **.java** files.
- Save your file as "**YourName-CS171xxx_Final**" and upload it on the LMS.

(10 Marks)

Q1.a) Write a program that takes a text file named "**README.txt**" as input. The program should sort all the words in the file alphabetically and keep track of the number of times each word occurs. Finally, it should save the output in a new text file called "**OUTCOME-1.txt**".

Q1.b) Write a program for the second list in which the words are sorted according to the number of times that they occurred in the files. The word that occurred most often should be listed first and saves the output in the "**OUTCOME-2.txt**".

(10 Marks)

Q2. A Phone Directory holds a list of names and associated phone numbers. But a phone directory is pretty useless unless the data in the directory can be saved permanently -- that is, in a file. Write a phone directory program that **keeps its list of names and phone numbers** in a file. The user of the program should be able **to look up a name** in the directory to find the associated phone number. The user should also be able **to make changes to the data** in the directory. Every time the program starts up, it should **read the data from the file**. Before the program terminates, if the **data has been changed while the program was running, the file should be re-written with the new data**.
Designing a user interface for the program is part of the exercise.
For your assistance sample applets are given in fig 1.

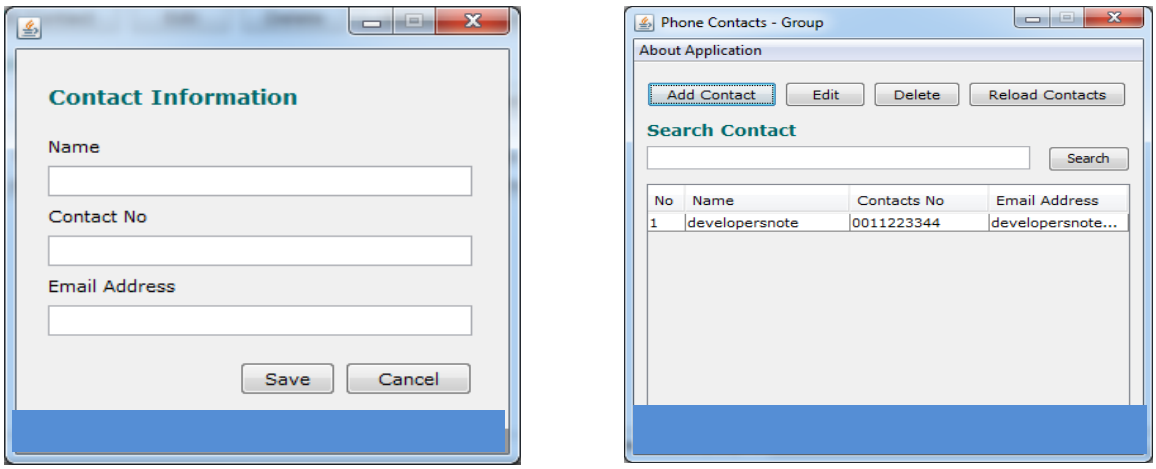

Fig 1- Sample Applets

Q3: **(10 Marks)**

Maria wants to appear in a competitive exam. To take the exam, there are following requirements:
Minimum age limit is X (i.e. Age should be greater than or equal to X).
Age should be strictly less than Y.
Maria's current Age is A. Find whether she is currently eligible to take the exam or not.

Note: Setting three constraints using user input through console.

Constraints:

$1 \leq T \leq 1000$
$20 \leq X < Y \leq 40$
$10 \leq A \leq 50$

Explanation:
Test case 1:
The age of Maria is **30**. Her age satisfies the minimum age limit as **30 ≥ 21**. Also, it is less than the upper limit as **30 < 34**. Thus, Maria is eligible to take the exam.

Test case 2:
The age of Maria is **31**. Her age satisfies the minimum age limit as **31 ≥ 25**. But, it is not less than the upper limit as **31 ≮ 31**. Thus, Maria is not eligible to take the exam.

Test case 3:
The age of Maria is **25**. Her age satisfies the minimum age limit as **25 ≥ 22.** Also, it is less than the upper limit as **25 < 29**. Thus, Maria is eligible to take the exam.

Test case 4:
The age of Maria is **15**. Her age does not satisfy the minimum age limit as **15 < 20**. Thus, Maria is not eligible to take the exam.