XIDIAN UNIVERSITY

SCHOOL OF COMPUTER SCIENCE AND TECHNOLOGY

Programming in Java

2019

Lab-3

Exercise:1: Sum of numbers

Write a program that asks the user for a positive nonzero integer value. The program should use a loop to get the sum of all the integers from 1 up to the number entered.

For example, if the user enters 50, the loop will find the sum of 1, 2, 3, 4, . . . 50.

[Hint: Use while or for loop]

```
run:
Enter a positive nonzero number: 0
Invalid. Enter a positive nonzero number: 5
The sum of all the integers from 1 through 5 is 15
BUILD SUCCESSFUL (total time: 21 seconds)
```

Exercise:2: Distance Traveled

The distance a vehicle travels can be calculated as follows:

Distance = Speed * Time

For example, if a train travels 40 Kilometers-per-hour for three hours, the distance traveled is 120 Kilometers. Write a program that asks for the speed of a vehicle (in Kilometers-per-hour) and the number of hours it has traveled. It should use a loop to display the distance a vehicle has traveled for each hour of a time period specified by the user.

For example, if a vehicle is traveling at 40 mph for a three-hour time period, it should display a report similar to the one that follows:

Hour	Distance Traveled
1	40
2	80
3	120

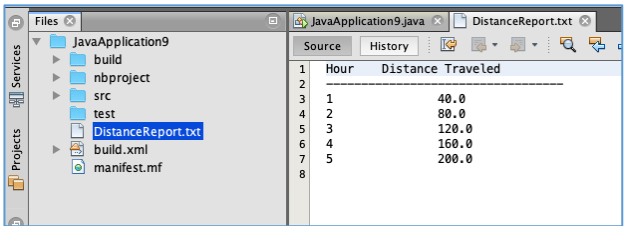
Input Validation: Do not accept a negative number for speed and do not accept any value less than 1 for time traveled.

```
run:
Enter the vehicle's speed: 40
Enter the number of hours the vehicle was in motion: 2
Hour    Distance Traveled
---------------------------------
1               40.0
2               80.0
BUILD SUCCESSFUL (total time: 9 seconds)
```

Exercise:3: Distance File

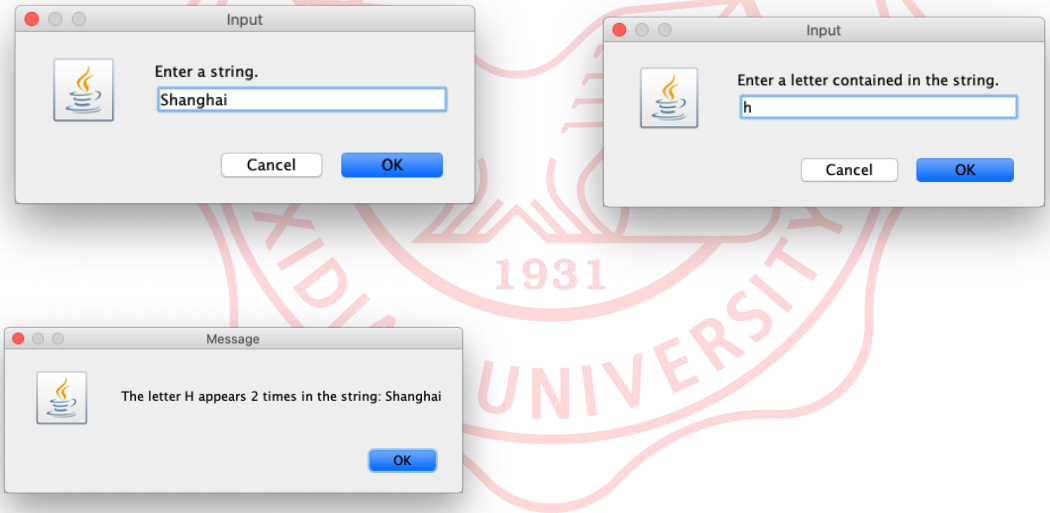
Modify the program you wrote for Exercise:2 (Distance Traveled) so it writes the report to a file instead of the screen.
Open the file in Notepad or another text editor to confirm the output.

```
run:
Enter the vehicle's speed: 40
Enter the number of hours the vehicle was in motion: 5
Report written to DistanceReport.txt.
BUILD SUCCESSFUL (total time: 6 seconds)
```



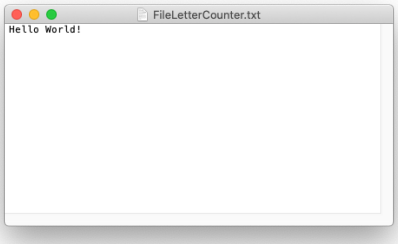
Exercise:4: Letter Counter

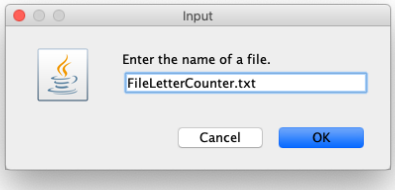
Write a program that asks the user to enter a string, and then asks the user to enter a character.
The program should count and display the number of times that the specified character appears in the string.
[Hint:toUpperCase()
letter = input.charAt(0)
if (strUpper.charAt(i) == letter)]

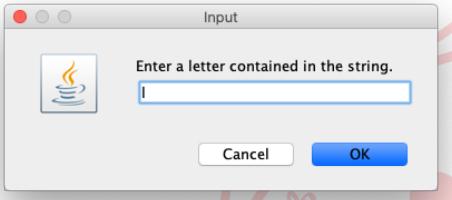


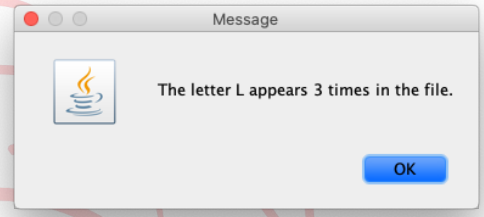
Exercise:5: File Letter Counter

Write a program that asks the user to enter the name of a file, and then asks the user to enter a character. The program should count and display the number of times that the specified character appears in the file. Use Notepad or another text editor to create a simple file that can be used to test the program.









Exercise:6: Largest and Smallest

Write a program with a loop that lets the user enter a series of integers. **The user should enter -99 to signal the end of the series.** After all the numbers have been entered, the program should display the largest and smallest numbers entered.

```
run:
Enter an integer, or -99 to quit: -99
You did not enter any numbers.
BUILD SUCCESSFUL (total time: 3 seconds)
```

```
run:
Enter an integer, or -99 to quit: 1
Enter an integer, or -99 to quit: -99
Largest: 1
Smallest: 1
BUILD SUCCESSFUL (total time: 9 seconds)
```

```
run:
Enter an integer, or -99 to quit: 1
Enter an integer, or -99 to quit: 5
Enter an integer, or -99 to quit: 8
Enter an integer, or -99 to quit: 12
Enter an integer, or -99 to quit: 90
Enter an integer, or -99 to quit: 9
Enter an integer, or -99 to quit: -99
Largest: 90
Smallest: 1
BUILD SUCCESSFUL (total time: 40 seconds)
```

Exercise:7: Dice game

Write a program that plays a simple dice game between the computer and the user. **When the program runs, a loop should repeat 10 times.** Each iteration of the loop should do the following:

- Generate a random integer in the range of 1 through 6. This is the value of the computer's die.
- Generate another random integer in the range of 1 through 6. This is the value of the user's die.
- The die with the highest value wins. (In case of a tie, there is no winner for that particular roll of the dice.)

As the loop iterates, the program should keep count of the number of times the computer wins, and the number of times that the user wins. After the loop performs all of its iterations, the program should display who was the grand winner, the computer or the user.
[Use "for" loop]

```
run:
Computer....6
User.........4
Ties.........0
The computer is the grand winner!
BUILD SUCCESSFUL (total time: 0 seconds)
```

Lab3: Deadline: 2019-11-11 (before 6pm) Submit: Lab3Submit.doc

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