Programming 3

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Notice: Your ID and name should be printed before the outputs of all programs.

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1. First, write a function

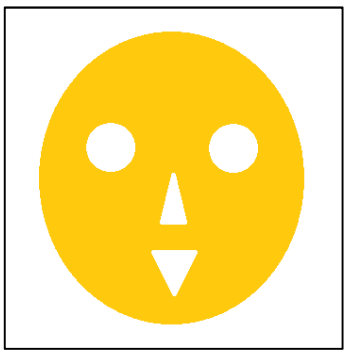
   class Solution { public int solution(int[] A); }

   that, given a zero-indexed array A consisting of N integers, returns the number of distinct values in array A. For example, given array A consisting of six elements such that:

   A[0] = 5 A[1] = 1 A[2] = 1 A[3] = 5 A[4] = 7 A[5] = 1

   the function should return 3, because there are 3 distinct values appearing in array A, namely 1, 5 and 7. Finally, write a simple program that tests your function.

2. Draw a face that represents your feeling. You can make your eyes, nose, mouth and face using different GUI methods. For example, if you feel happy, your face can be drawn as follows.



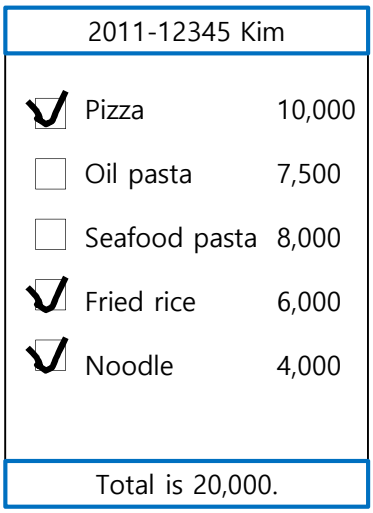
3. Write your own chat client and server programs by using the codes in the textbook. Your program should satisfy the following requirements.

   A. Your chat client program should provide some GUI.

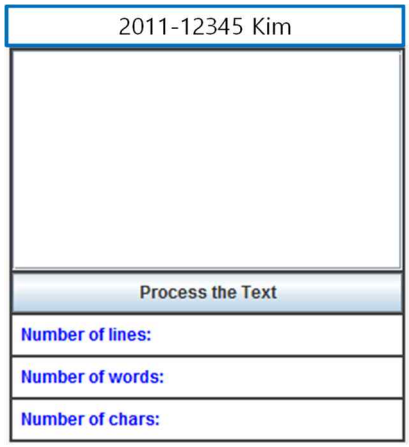
   B. Your chat client program should use some multithreading.

   C. Compared to the codes in textbook, your program should be improved in several ways. For example, the participants could be identified by name, one person could send a private message to another person, etc. (Note: Explain the points you improved in your document.)

4. Write a GUI program that is used to order something in the restaurant. Your program should show some items such as Pizza, Oil pasta, Seafood pasta, Fried rice, and Noodle with their prices. If you choose some items and then push a button, the total price should be calculated. Here is an example of this program.



5. Write a panel with a JTextArea where the user can enter some text. The panel should have a button. When the user clicks on the button, the panel should count the number of lines in the user's input, the number of words in the user's input, and the number of characters in the user's input. This information should be displayed on three labels in the panel. Scrollbars should appear when the user types more text than will fit in the available area. Here is an example of this program.



6. Write a program that prints a list of files in a directory specified by the user. Some files in the directory might themselves be directories, and the subdirectories can themselves contain directories. In other words, your program should list all the files in a directory and all its subdirectories, to any level of nesting.