COMP 2247   **Fall 2022**   **Assignment 9**   **Total 20 points (plus 10 points extra credit)**
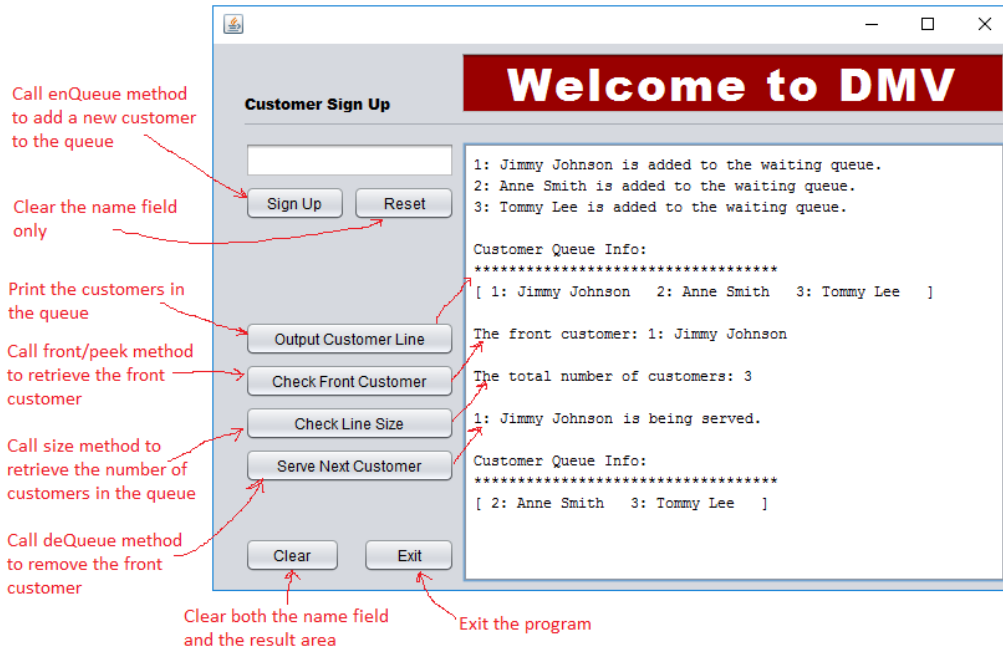
Choose one of two programs. 10 points extra points credit if you do both.

1. Write a program that simulates the customer waiting line at a DMV office. Empty Queue Exceptions should be handled appropriately.
   (You don't need to write GUI program.)

2. Write a client program which implements the **Cesar Cipher with Repeating Key** encryption algorithm as follows:
   - A message is encoded by shifting each letter in the message by a different amount using a list of key values.

   - If the message is longer than the list of key values, we just start using the key over again from the beginning (**The list of key values must be organized in a queue data structure**).

   - For example, the message is "knowledge", and the key values are 3 1 7 4 2 5. Then the first character is shifted by 3, the second character by 1, and so on. After shifting the sixth character by 5, we start using the key over again.

Original Message:	k	n	o	w	l	e	d	g	e
Key Values:	3	1	7	4	2	5	3	1	7
Encoded Message:	n	o	v	a	n	j	g	h	l

The encryption program should do the following:

   - Prompt the user to enter a list of key values and store them in a queue data structure.

   - Use a `JFileChooser` object to locate the data file "`OriginalText.txt`" and read in the text, then encrypt the original text, and save the encrypted text in an output file (`EncryptedText.txt`).

   - Make sure the ASCII value resulting from encryption falls between 32 and 126 (printable characters). For example, if the program adds 8 to 122 (ASCII code for 'z'), it should "wrap around" to 36.

Due: Wednesday, 11/30/22