CENG218 Homework 4

In this homework, you are expected to implement a simple program that can encrypt and decrypt given texts using a key value. The program is expected to read a phrase from the user and an integer key, for example:

```
Phrase: THISISASAMPLETEXT
KEY:    12345
```

For encryption, the program must shift each letter forwards according to the matching key digit (e.g. T+1=U, H+2=J, Z+1=A, etc). Note that they key can be shorter than the phrase; the key must be repeated to the length of the phrase in such cases:

```
Phrase: THISISASAMPLETEXT
KEY:    12345123451234512
Result: UJLWNTCVERQNHXJYV
```

For encryption, the program must shift each letter backwards according to the matching key digit (e.g. U-1=T, J-2=H, A-1=Z, etc):

```
Phrase: UWGZCZGZHUUNEKKHI
KEY:    2361
Result: STAYAWAYFROMCHEGG
```

You are expected to use queue codes provided in the lecture. You must use two queues; one for storing characters of the phrase and one for storing digits of the key. When executed, your program must display a short menu and ask the user which operation to perform:

```
1. Encrypt Text
2. Decrypt Text
3. Exit
Your choice: 1
Enter your text: CANKAYAUNIVERSITY
Enter your key: 1997
Encrypted text: DJWRBHJBORELSBRAZ

1. Encrypt Text
2. Decrypt Text
3. Exit
Your choice: 2
Enter your text: FBBCTBTVKVVZGT
Enter your key: 218
Decrypted text: DATASTRUCTURES

1. Encrypt Text
2. Decrypt Text
3. Exit
Your choice: 3
Bye!
```