CO222: Programming Methodology

Lab: 06

Deadline: Feb 28nd 2016 @ 11.55PM

In today's lab you are going to implement the earliest & simplest cipher called **Caesar Cipher**, which each letter in a text is shifted by a certain number of places down/up in the alphabet. For example, with a shift of 1, A would be replaced by B, B would become C, and so on.

Write a program (**E13XXXcaesar.c**) which performs the Caesar encryption for a text. Your program should prompt the user, enter the shift, then enter the text, and finally output the encoded text.

For example,

```
./caesar
Enter shift: 1
Enter text:
HAI
Here is the encoded text:
IBJ

./caesar
Enter shift: -5
Enter text:
Hello!
How are you?
Here is the encoded text:
Czggj!
Cjr vmz tjp?
```

You must wrtie these three functions to achieve this task.

- int rotateright(int ch)
  which rotates a specified alphabetic character one step to the right, and returns the new character. Non-alphabetic characters should be returned without change.

- int rotateleft(int ch)
  which performs the inverse of rotate_right().

- int encode(int ch, int shift)
  which performs the Caesar encryption for a single character by rotating the specified number of times (shift). The function should repeatedly call rotateright() or rotateleft() depending on whether shift is positive or negative. (If shift is zero, the original character should be returned.)