

# CSE2031

## Lab 4 Summer 2016 Practice Questions

Here are some practice questions to test your C abilities

1. Write a program that displays an isosceles triangle that made of '\*'. The program reads an integer from the standard input. Then it displays on the standard output a triangle with the base equal to  $n$  \*. The row above that have  $n-2$  \*s and so on until the first row contains either 1 or 2 \*s (depending on  $n$  being odd or even).

The figure below shows the

```
  *
 * *
* * *
* * * *
* * * * *
```

triangle with  $n = 7$ .

2. Write a program that displays a rectangle on the screen. The program reads from the standard input three parameters, width, height, and a character. Then it displays a rectangle with width and height using the read character. For example, if the input 7 5 x. The output should be

```
XXXXXXX
X       X
X       X
X       X
X       X
XXXXXXX
```

3. Write a program that encodes a message. The message is read from the standard input. The key is an integer ( $k$ ). The program arranges the message in a  $r \times k$  rectangle. Then the program displays the message column by column. For example, if the key is 22 and the message is

If you are looking for ransom, I can tell you I don't have money. But what I do have are a very particular set of skills, skills I have acquired over a very long career. Skills that make me a nightmare for people like you.

The program arranges it in a  $r \times 22$  matrix (the number of columns is 22)

If you are looking for  
ransom, I can tell yo  
u I don't have money.  
But what I do have are  
a very particular set  
of skills, skills I h  
ave acquired over a ve  
ry long career. Skills  
that make me a nightm  
are for people like yo  
u.

Then, the output is displayed column by column

I uB ar au  
fr uaovytr.  
aIt fe he  
and so on

4. Can you think of a decoder program for the previous encoder?