King Fahd University of Petroleum & Minerals
Information and Computer Science Department
ICS 103: Computer Programming in C (2-3-3) [Term 092]
Homework Assignment #2 [Due Friday April 9 before midnight]

➢ Instructions
- Create **three** program files named q1.cpp, q2.cpp and q3.cpp (the files you save from Dev++ or turbo compiler).
- Zip the 3 files in one file named hw1_*yourID*.zip and upload it in WebCT. Make surev that you include cpp files containing source code and not executable files i.e. files with exe extension.
- No group work is allowed. The homework solution has to be your own work. Any cheating will lead to severe consequences.

Question 1: (15 points)
Write a c program that, using **nested loops**, displays the following pattern shown below. Your program takes from the user the number of rows as input.

Notice the case of the letters from capital to small.

```
D:\ics-103\092\workarea\hw2ex1.exe

Enter number of rows >6
A
Ab
AbC
AbCd
AbCdE
AbCdEf
Press any key to continue . . .
```

```
D:\ics-103\092\workarea\hw2ex1.exe

Enter number of rows >9
A
Ab
AbC
AbCd
AbCdE
AbCdEf
AbCdEfG
AbCdEfGh
AbCdEfGhI
Press any key to continue . . .
```

Question 2: (15 points)
Write a program that asks the user to type some text. Then it will count different types of characters and display the result as sown in the sample run below.
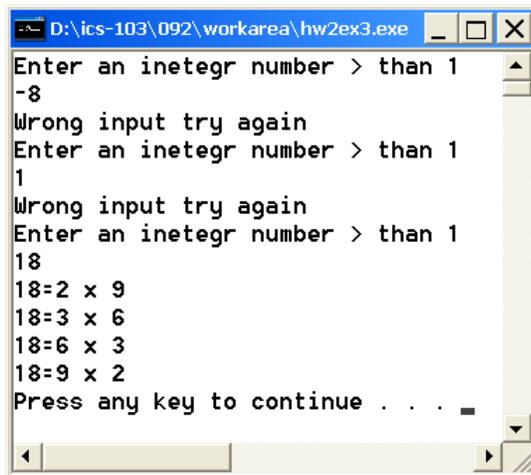
```
D:\ics-103\092\workarea\hw2ex2.exe

Type some text
This HW2 is ABout Loops ANd Selction 092 @#$
Capital letters=9
Small Letters =20
digits  =4
Other characters=11
Press any key to continue . . .
```
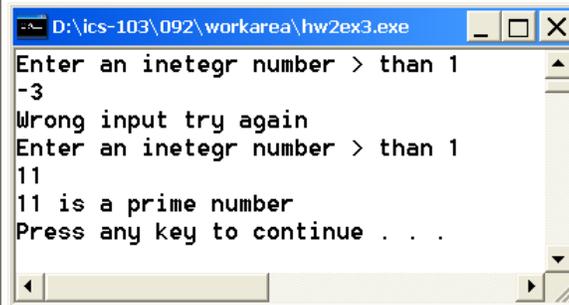
Question 3: (20 points)
Write a c program to prompt the user for an integer number greater than 1. Use do-while loop to make sure that the user enters a valid number.

After that, your program displays the typed number as a product of 2 factors (all possible factors greater than 1).

If the number cannot be represented as a product of 2 factors, display that is a prime number.
A prime number is an integer number greater than 1 which has no other factor except itself and
1.

```
D:\ics-103\092\workarea\hw2ex3.exe
Enter an inetegr number > than 1
-8
Wrong input try again
Enter an inetegr number > than 1
1
Wrong input try again
Enter an inetegr number > than 1
18
18=2 x 9
18=3 x 6
18=6 x 3
18=9 x 2
Press any key to continue . . . _
```

```
D:\ics-103\092\workarea\hw2ex3.exe
Enter an inetegr number > than 1
-3
Wrong input try again
Enter an inetegr number > than 1
11
11 is a prime number
Press any key to continue . . .
```