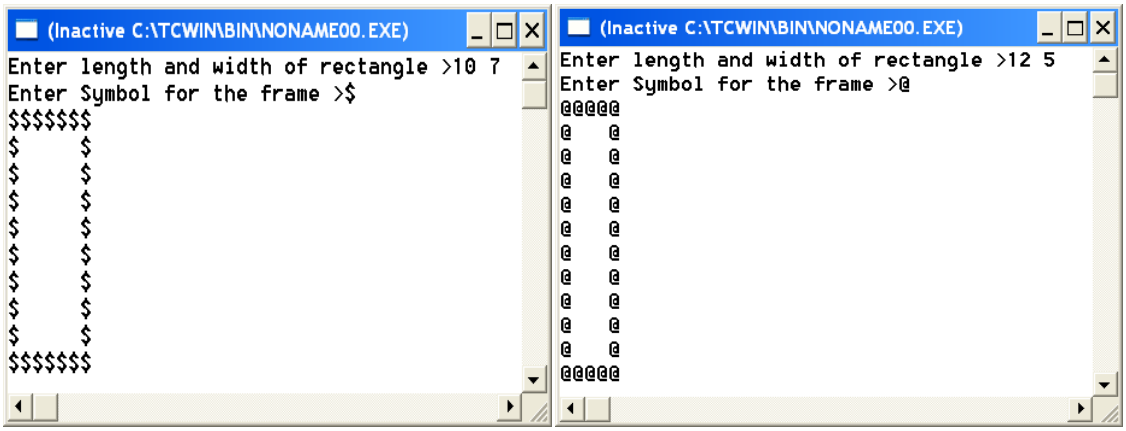
EXERCISE

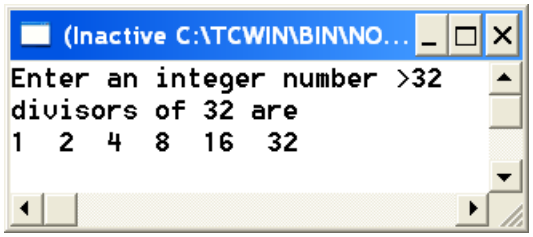
```
//draws a rectangle using functions
#include <stdio.h>
#include <iostream>
using namespace std;
void draw_solid_line(int size);
void draw_hollow_line(int size);
void draw_rectangle(int len, int wide);

int main(void) {
   int length, width;

   cout<<"Enter length and width of rectangle >";
   cin>>length;
   cin>>length>>width;

   draw_rectangle(length, width);

   return 0;
}
void draw_solid_line(int size) {
    //Write your Code Here
}
void draw_hollow_line(int size) {
    //Write your Code Here
}
void draw_rectangle(int len, int wide) {
    int i;
    draw_solid_line(wide);
    if (len > 2) {
```

```
    for (i=1; i<=len - 2; i++)
      draw_hollow_line(wide);
  }
  draw_solid_line(wide);
}
```

1. Modify above code to get following output.



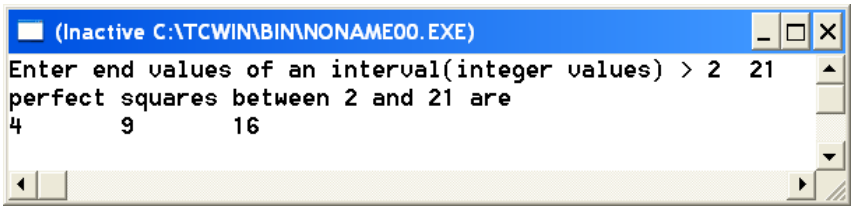
2. Write function divisors that receive an integer number and return its divisors using pointer array on main including 1 and itself.



3. Write a logical function perfect_Square that receives a positive integer number and checks if it is a perfect square or not.

Note: perfect square numbers are 4, 9,16,25,36 etc….

Write a main function that makes use of the perfect_Square function to find and print all perfect squares between n1 and n2. n1 and n2 are end values of a range introduced by the user.



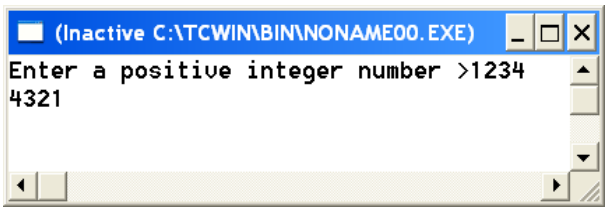
4. Write a logical function, is_prime, that takes an integer number and determines if the number is prime or not.

Note: A prime number is one that does not have proper factors.
Write a main function that makes use of the is_prime function to find and print all the prime numbers from 2 to 100.

5. Write a program that computes the area and perimeter of a rectangle using 2 functions. One function is used to read the width and length, and the other to compute the area and perimeter. Write a main function to test your functions.

6. Write a function that receives a time in seconds and returns the equivalent time in hours, minutes, and seconds. Write a main function to test your function. For example if the received time is 4000 seconds, the function returns 1 hour, 6 minutes, and 40 seconds.
Use integer division and remainder.

7. Write a recursive function that receives a positive integer number and prints it on the screen in reverse order as shown below. Write a main function for testing.



8. Write a recursive function countdigits that receives an integer number and returns how many digits it contains. Write a main function to read an integer number and tests the written function countdigits.
Input: 12345
Output: 5 Digits

9. Write a function that reverses the elements of an array. In other words, the last element must become the first; the second from last must become the second and so on. The function must accept only one pointer value and return void.

10. Write a program that will read 10 integers from the keyboard and place them in an array. The program then will sort the array into ascending and descending order and print the sorted list. The program must not change the original array or create any other integer arrays.
Hint: It requires two pointer arrays.