(1) Write a program that take two integers from the user and print the results of this equation:
Result = ((num1 + num2) * 3) – 10

*main.c

```c
#include <stdio.h>
#include <stdlib.h>

int main()
{
    int number1,number2,result;
    printf("please enter two numbers : ");//2 3
    scanf("%d %d",&number1,&number2);
    result=(float)((number1+number2)*3)-10; //result =5
    printf("_____\n");
    printf("the result of ((%d+%d)*3)-10 = %d",number1,number2,result);


    return 0;
}
```

```
"D:\ITI 2023_2024\C Programming\Assigments\assigmentOnePT1\bin\Debug\assigmentOnePT1.exe"
please enter two numbers : 2 3
_____
the result of ((2+3)*3)-10 = 5
Process returned 0 (0x0)   execution time : 1.102 s
Press any key to continue.
```

2)Write a program that print your name and your grade in a new line.

main.c

```c
#include <stdio.h>
#include <stdlib.h>

int main()
{
    printf("\n my name is : Nouran Tarek \n and my grade is : 3.29 ");

    return 0;
}
```

```
"D:\ITI 2023_2024\C Programming\Assigments\assigmentOnePT2\bin\Debug\assigmentOnePT2.exe"
 my name is : Nouran Tarek
 and my grade is : 3.29
Process returned 0 (0x0)   execution time : 0.045 s
Press any key to continue.
```

(3) Write a program for converting temperature from degrees Celsius to degrees Fahrenheit ,given the formula :F = C x 9/5+32

main.c

```c
#include <stdio.h>
#include <stdlib.h>

int main()
{
    //F = C x 95+32
    float degreeInCelsius ,degreeInFahrenheit;
    printf("please enter the degree in Celsius \n");
    scanf("%f",&degreeInCelsius);
    degreeInFahrenheit=degreeInCelsius*9/5+32;
    printf("_____\n");
    printf("%f in Fahrenheit is %f \n",degreeInCelsius,degreeInFahrenheit);
    printf("_____\n");
    return 0;
}
```

"D:\ITI 2023_2024\C Programming\Assigments\assigmentOnePT3\bin\Debug\assigmentOnePT3.exe"

```
please enter the degree in Celsius
22.5
_____
22.500000 in Fahrenheit is 72.500000
_____

Process returned 0 (0x0)   execution time : 1.338 s
Press any key to continue.
```

(4) Write a program that reads the radius of a circle and calculates the area and circumference then prints the results.

*main.c

```c
#include <stdio.h>
#include <stdlib.h>
#include <math.h>
int main()
{
    double radius,area,circumference;
    printf("please enter the radius of the circle \n");
    scanf("%lf",&radius);
    area=M_PI*radius*radius;
    circumference=2*M_PI*radius;
    printf("_____\n");
    printf("area of a circle with a %lf radius is %lf  \n",radius,area);
    printf("circumference of a circle with a %lf radius is %lf  \n",radius,circumference);
    printf("_____\n");
    return 0;
}
```

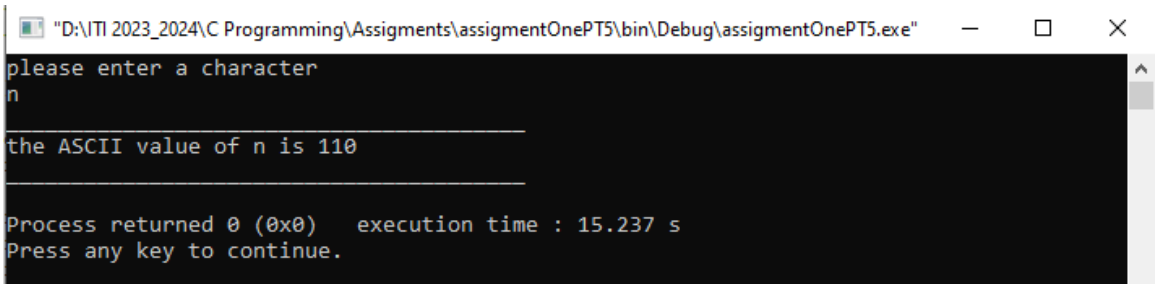
"D:\ITI 2023_2024\C Programming\Assigments\assigmentOnePT4\bin\Debug\assigmentOnePT4.exe"

```
please enter the radius of the circle
3
_____
area of a circle with a 3.000000 radius is 28.274334
circumference of a circle with a 3.000000 radius is 18.849556
_____

Process returned 0 (0x0)   execution time : 0.423 s
Press any key to continue.
```

(5) Write a program to print the ASCII value of a character input by the user.

*main.c

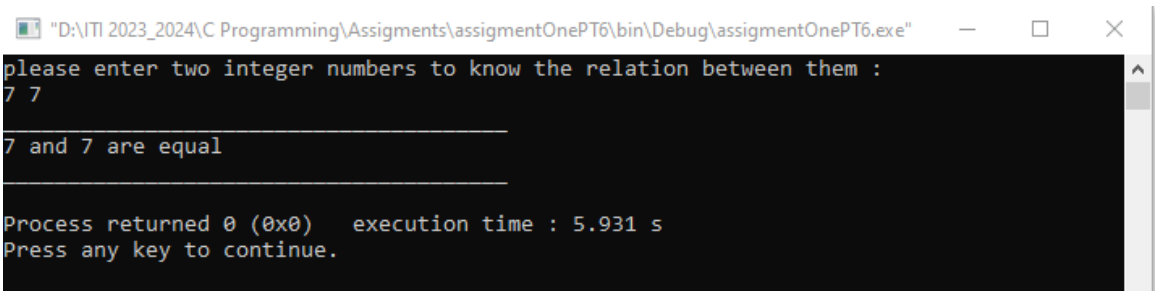
```c
#include <stdio.h>
#include <stdlib.h>

int main()
{
    char character;
    printf("please enter a character \n");
    scanf(" %c",&character);
    printf("_____\n");
    printf("the ASCII value of %c is %d \n",character,character);
    printf("_____\n");


    return 0;
}
```

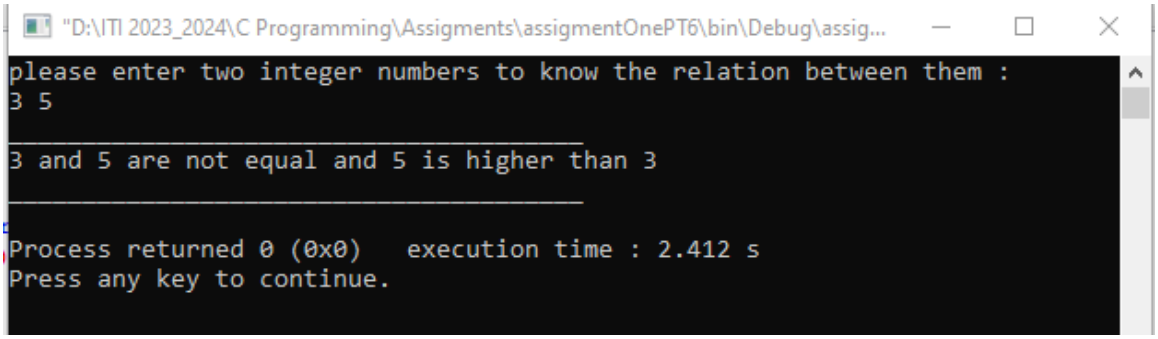


(6) Write a program that print the relation between two integer number if those numbers are equal, not equal and which one contain the higher value.

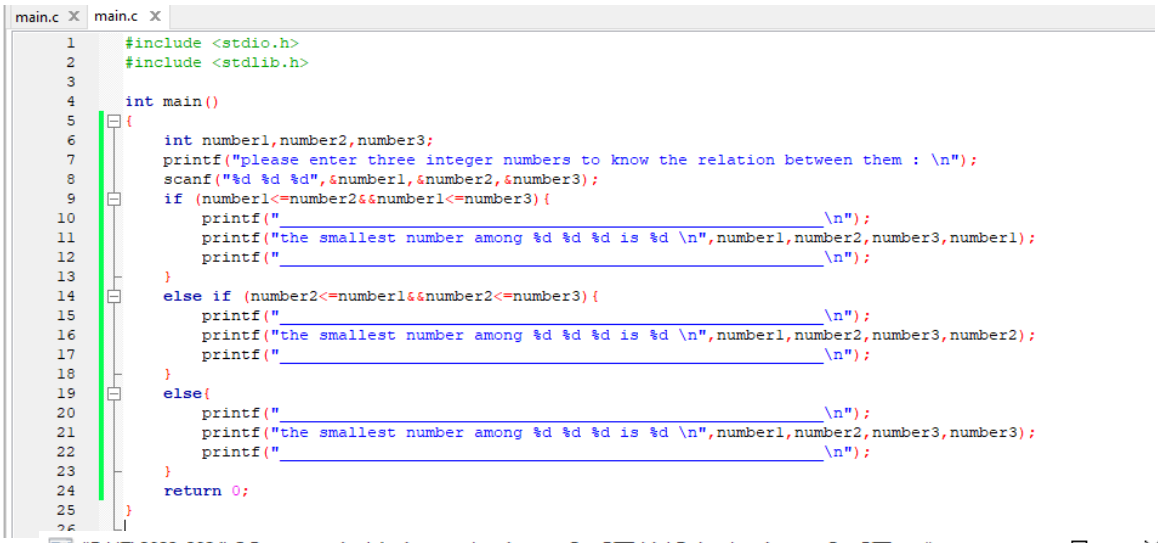
*main.c

```c
#include <stdio.h>
#include <stdlib.h>

int main()
{
    int number1 ,number2;
    printf("please enter two integer numbers to know the relation between them : \n");
    scanf("%d %d",&number1,&number2);
    if(number1!=number2){
        if(number1>number2){
            printf("_____\n");
            printf("%d and %d are not equal and %d is higher than %d \n",number1,number2,number1,number2);
            printf("_____\n");
        }
        else {
            printf("_____\n");
            printf("%d and %d are not equal and %d is higher than %d \n",number1,number2,number2,number1);
            printf("_____\n");
        }
    }
    else{
        printf("_____\n");
        printf("%d and %d are equal \n",number1,number2);
        printf("_____\n");
    }

    return 0;
}
```

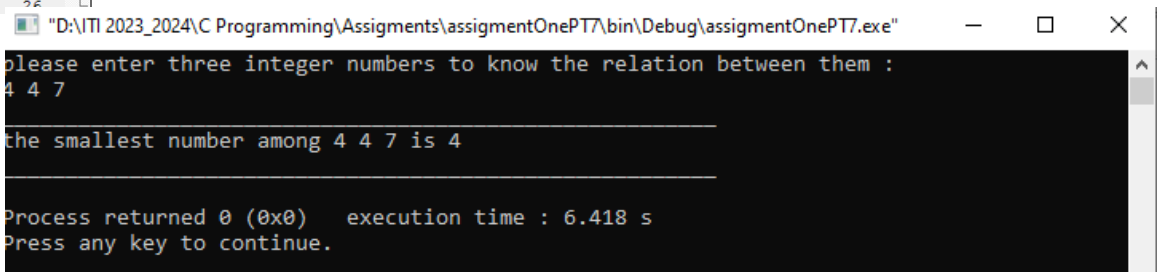


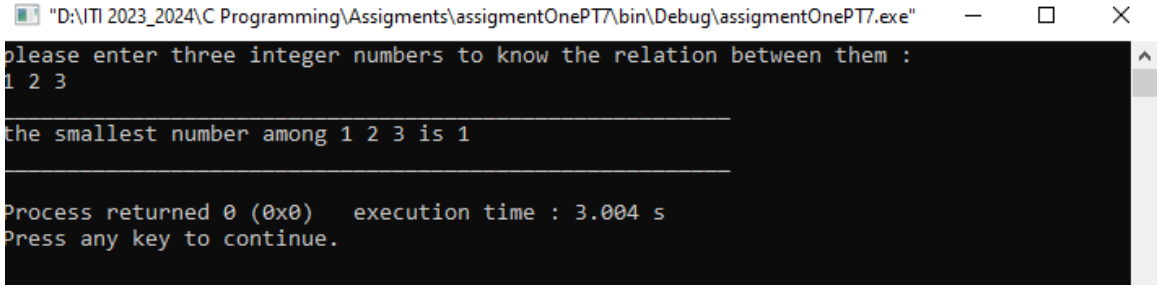


(7) Write a program that takes three integers, and prints out the smallest number.



```c
#include <stdio.h>
#include <stdlib.h>

int main()
{
    int number1,number2,number3;
    printf("please enter three integer numbers to know the relation between them : \n");
    scanf("%d %d %d",&number1,&number2,&number3);
    if (number1<=number2&&number1<=number3){
        printf("_____\n");
        printf("the smallest number among %d %d %d is %d \n",number1,number2,number3,number1);
        printf("_____\n");
    }
    else if (number2<=number1&&number2<=number3){
        printf("_____\n");
        printf("the smallest number among %d %d %d is %d \n",number1,number2,number3,number2);
        printf("_____\n");
    }
    else{
        printf("_____\n");
        printf("the smallest number among %d %d %d is %d \n",number1,number2,number3,number3);
        printf("_____\n");
    }
    return 0;
}
```





(8) Write a program that reads a positive integer andchecks if it is a perfect square.

*main.c

```c
#include <stdio.h>
#include <stdlib.h>

int main()
{
    int number ,i,isPerfect=0;
    printf("please enter a positive number to check : \n");
    scanf("%d",&number);

    if (number<1){
        printf("sorry this is not a positive number try again .. : \n");
    }
    else {
        for (i=1;i*i<=number;i++){
            if (i*i==number){
                    isPerfect=1;
            }
        }
        if (isPerfect){
                printf("_____\n");
                printf("%d is is a perfect square\n",number);
        }
        else {
                printf("_____\n");
                printf("unfortunately %d is not a perfect square\n",number);
        }

    }
    return 0;
}
```

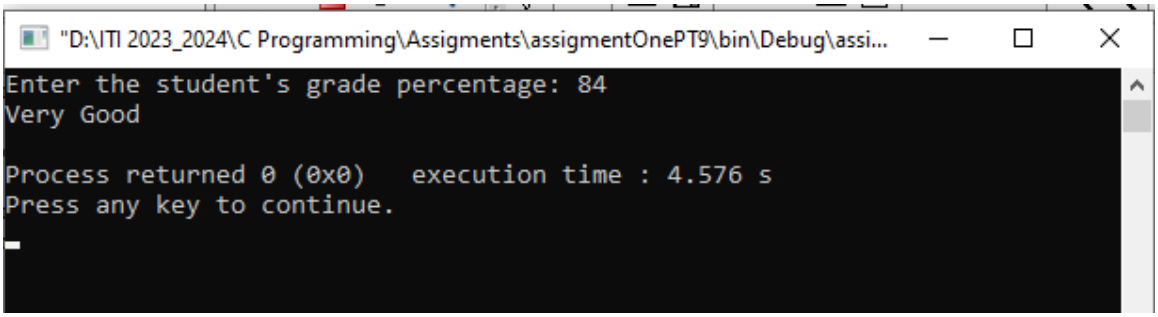
```
"D:\ITI 2023_2024\C Programming\Assigments\assigmentOnePt8\bin\Debug\assigmentOnePt8.exe"
please enter a positive number to check :
9

_____
9 is is a perfect square

Process returned 0 (0x0)   execution time : 0.572 s
Press any key to continue.
```

```
"D:\ITI 2023_2024\C Programming\Assigments\assigmentOnePt8\bin\Debug\assigmentOnePt8.exe"
please enter a positive number to check :
3

_____
unfortunately 3 is not a perfect square

Process returned 0 (0x0)   execution time : 0.643 s
Press any key to continue.
```

(9) Write a program that reads a student grade percentageand prints "Excellent" if his grade is greater than or equal85, "Very Good" for 75 or greater; "Good" for 65, "Pass"for 50, "Fail" for less than 50.

main.c

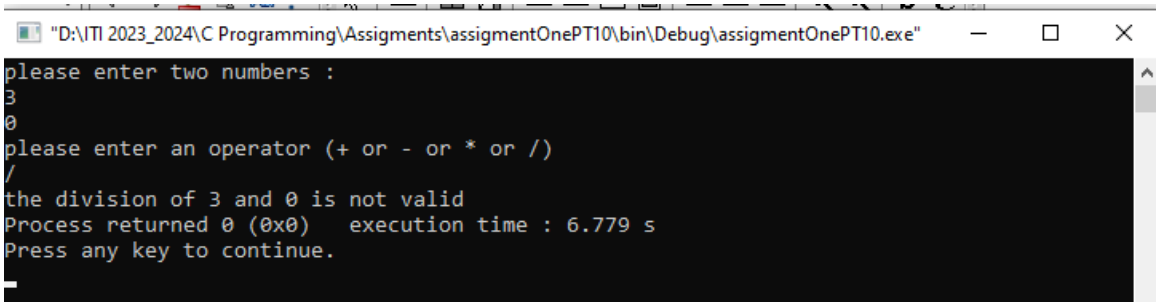
```c
int main()
{
    int grade;

    printf("Enter the student's grade percentage: ");
    scanf("%d", &grade);
    if (grade == 50) {
        printf("Pass\n");
    } else if (grade >= 65&&grade<75) {
        printf("Good\n");
    } else if (grade >= 75&&grade<85) {
        printf("Very Good\n");
    } else if (grade >= 85) {
        printf("Excellent\n");
    } else {
        printf("Fail\n");
    }

    return 0;
}
```

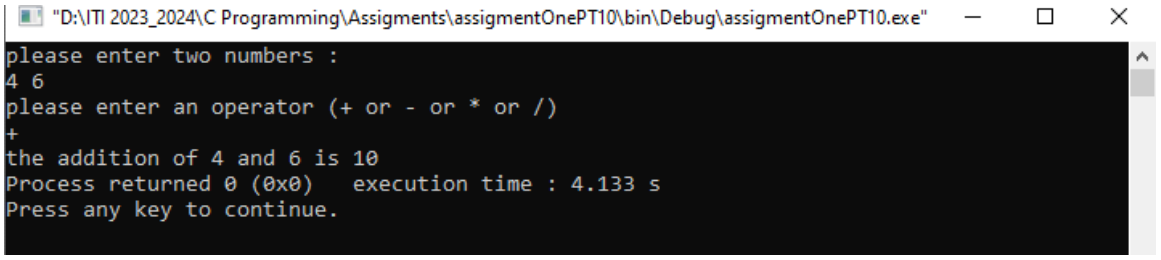


(10) Write a program to make a simple calculator usingswitch-case. The calculator takes the operation(+ or –

main.c

```c
    int n1,n2;
    char operator1;
    printf("please enter two numbers : \n");
    scanf("%d %d",&n1,&n2);
    printf("please enter an operator (+ or - or * or /) \n");
    scanf(" %c",&operator1);
    switch(operator1){
    case '+':
        printf("the addition of %d and %d is %d",n1,n2,n1+n2);
        break;
    case '-':
        printf("the subtraction of %d and %d is %d",n1,n2,n1-n2);
        break;
    case '*':
        printf("the multiplication of %d and %d is %d",n1,n2,n1*n2);
        break;
    case '/':
        if(n2==0){
           printf("the division of %d and %d is not valid",n1,n2);
        }
        else {
        printf("the divition of %d and %d is %d",n1,n2,(float)n1/n2);

        }
        break;
    default:
        printf("please try to put valid operator :) ");
    }
    return 0;
}
```

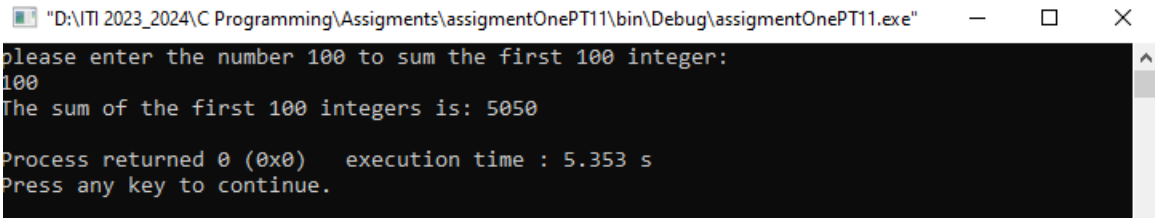


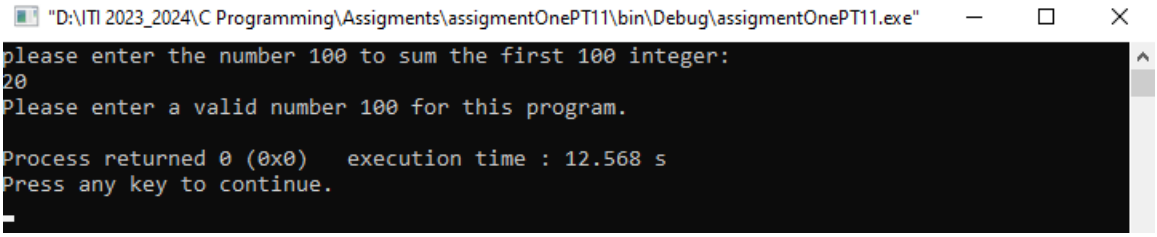


(11) Print sum of first 100 integers. (With data validation)

main.c

```c
#include <stdio.h>
#include <stdlib.h>

int main()
{
    int number,sum = 0;
    printf("please enter the number 100 to sum the first 100 integer: \n");
    scanf("%d", &number);

    if (number!=100) {
        printf("Please enter a valid number 100 for this program.\n");
    } else{
        for (int i = 1; i <= number; i++) {
            sum += i;
        }

        printf("The sum of the first %d integers is: %d\n", number, sum);
    }

    return 0;
}
```





(12) Write a program that reads a positive integer and computes the factorial.

*main.c

```c
#include <stdio.h>
#include <stdlib.h>

int main()
{
    int number ,i ;
    unsigned int factorial=1;
    printf("please enter positive number: \n");
    scanf("%d", &number);
    if (number >0){
        for(i=1;i<=number;i++){
            factorial*=i;
        }
        printf("the factorial of %d is %u: \n",number,factorial);
    }
    else {
            printf("this is not positive number please try to enter positive number: \n");
    }
    return 0;
}
```

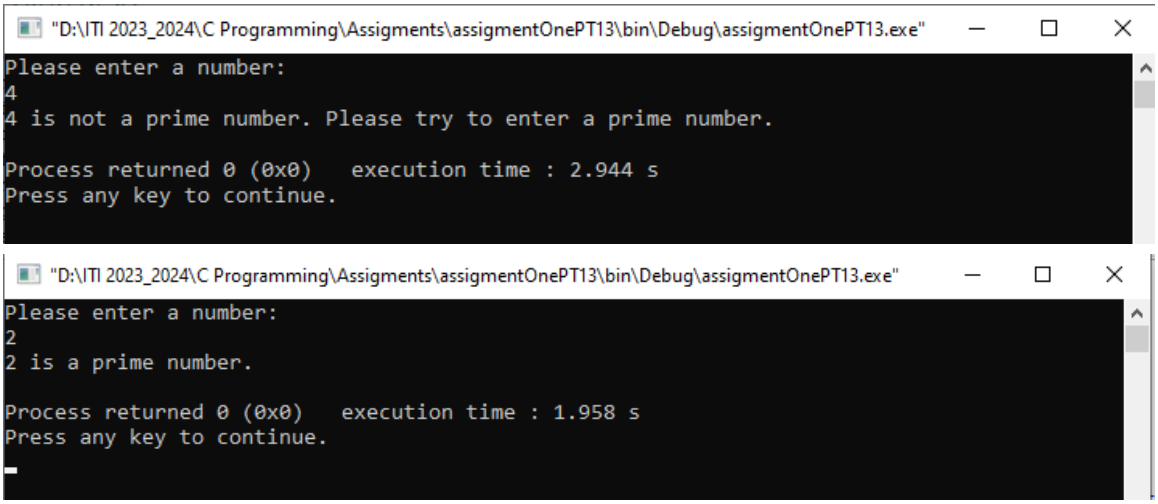
```
"D:\ITI 2023_2024\C Programming\Assigments\assigmentOnePT12\bin\Debug\assigmentOnePT12.exe"
please enter positive number:
-3
this is not positive number please try to enter positive number:

Process returned 0 (0x0)   execution time : 1.803 s
Press any key to continue.
```

```
"D:\ITI 2023_2024\C Programming\Assigments\assigmentOnePT12\bin\Debug\assigmentOnePT12.exe"
please enter positive number:
5
the factorial of 5 is 120:

Process returned 0 (0x0)   execution time : 0.515 s
Press any key to continue.
```

(13) Write a program that reads a positive integer and checks if it is a prime.

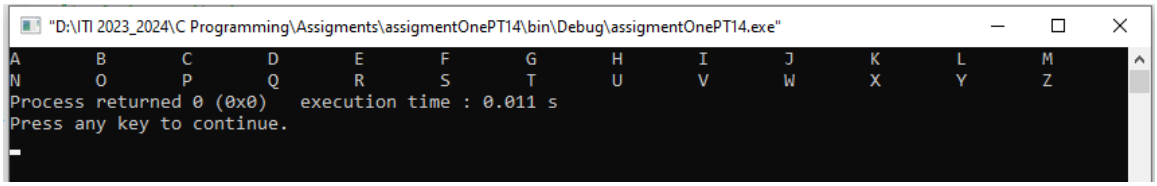
main.c

```c
#include <stdio.h>
#include <stdlib.h>

int main() {
    int number, i;
    int isPrime = 1;
    printf("Please enter a number: \n");
    scanf("%d", &number);
    if (number <= 1) {
        printf("This is not a prime number. Please enter a positive integer greater than 1.\n");
    } else {
        for (i=2;i*i<= number;i++) {
            if (number%i== 0) {
                isPrime=0;
                break;
            }
        }
        if (isPrime) {
            printf("%d is a prime number.\n", number);
        } else {
            printf("%d is not a prime number. Please try to enter a prime number.\n",number);
        }
    }

    return 0;
}
```



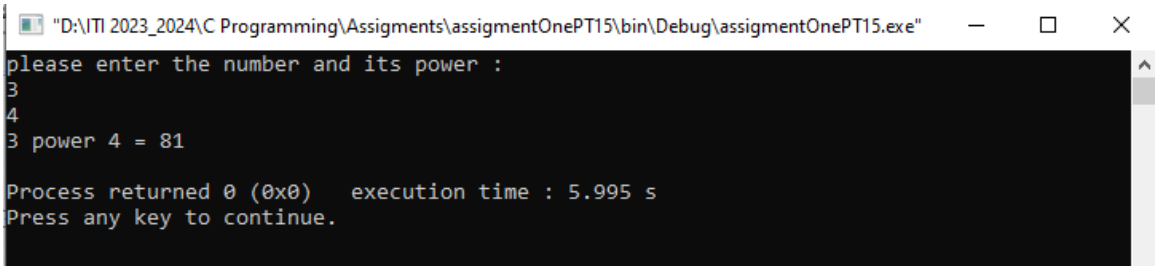
(14) Write a program to display English alphabets from A to Z.

```c
#include <stdio.h>
#include <stdlib.h>

int main()
{
    char character;
    for(character='A';character<='Z';character++){
        printf("%c \t",character);
    }

    return 0;
}
```

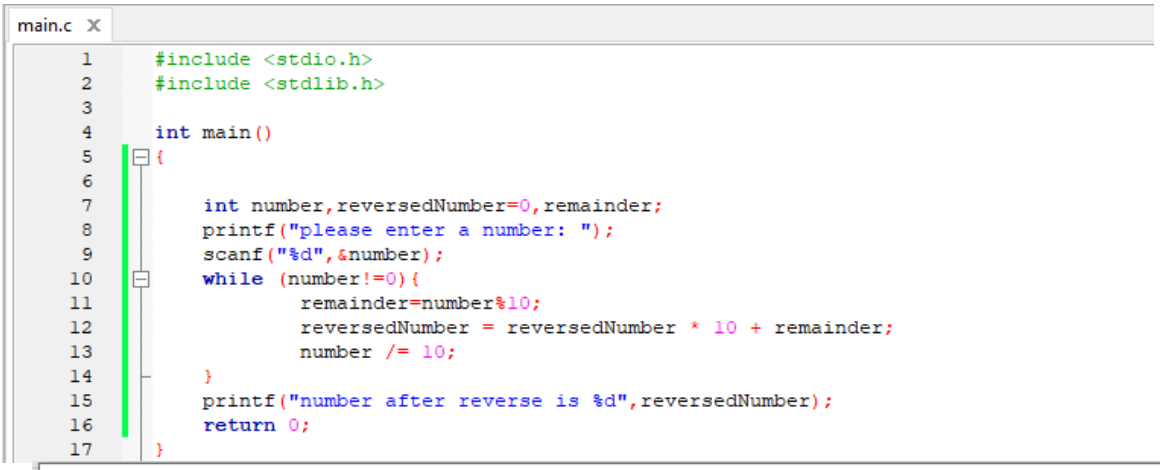


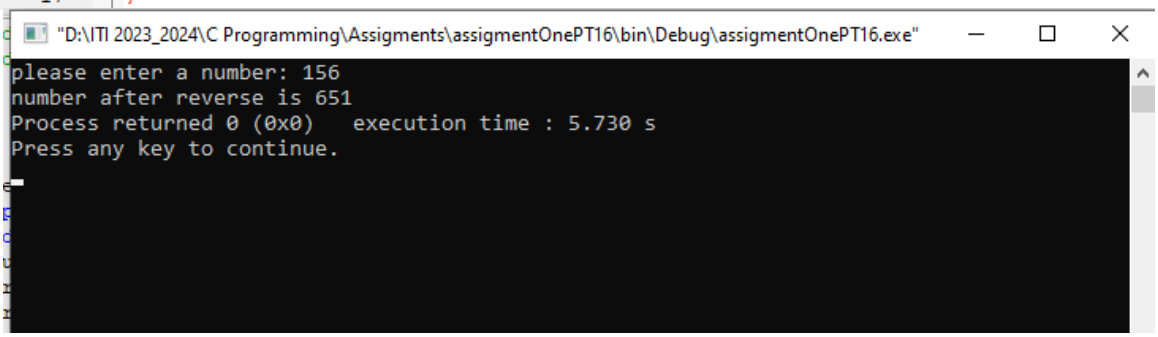
(15) Write a program to calculate the power of a number. The number and its power are input from user.

```c
#include <stdio.h>
#include <stdlib.h>
#include <math.h>

int main()
{
    int number ,power,result;
    printf("please enter the number and its power : \n");
    scanf("%d %d",&number,&power);
    if(power==0){
            printf("%d power %d = 1 \n",number,power);
    }
    else {
        result =pow(number,power);
        printf("%d power %d = %d \n",number,power,result);
    }
    return 0;
}
```

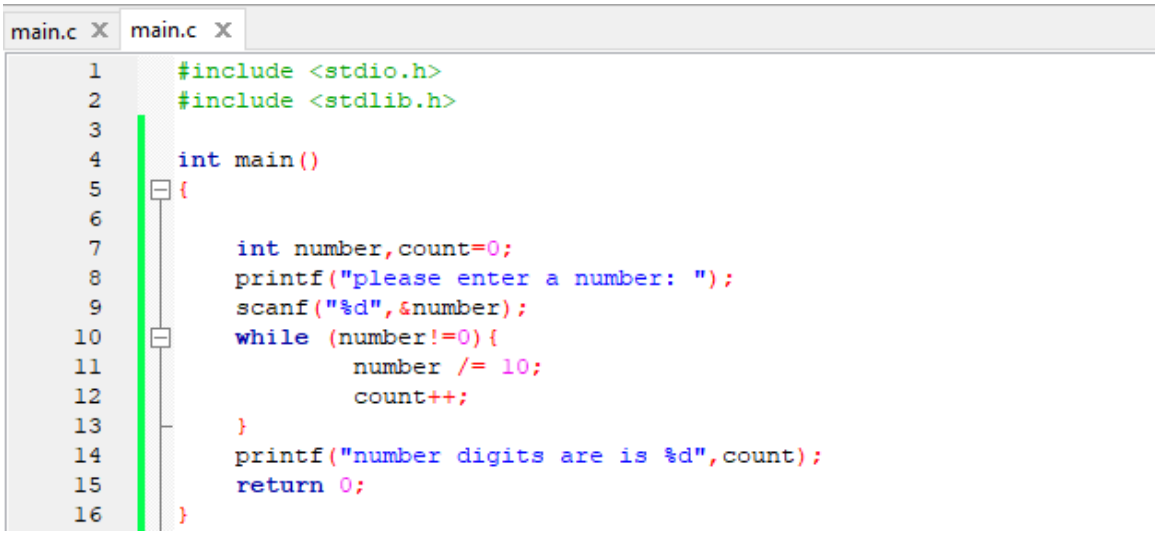


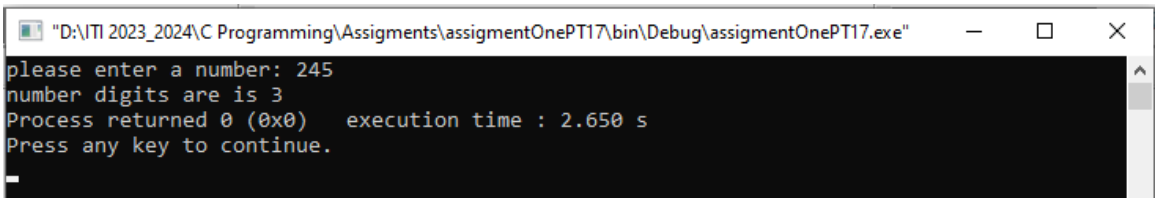
(16) Write a program to reverse a number.





17) Write a program to count number of digits in a decimal number.

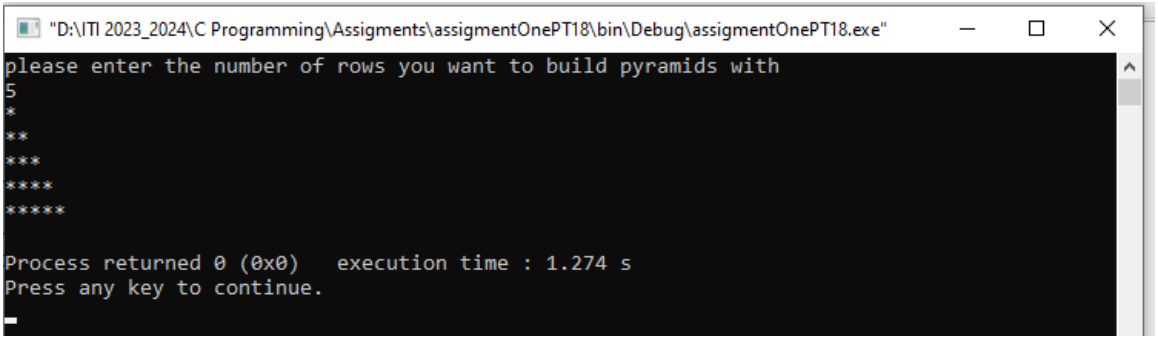




(18) Write a program to display half pyramid using stars pattern.

main.c

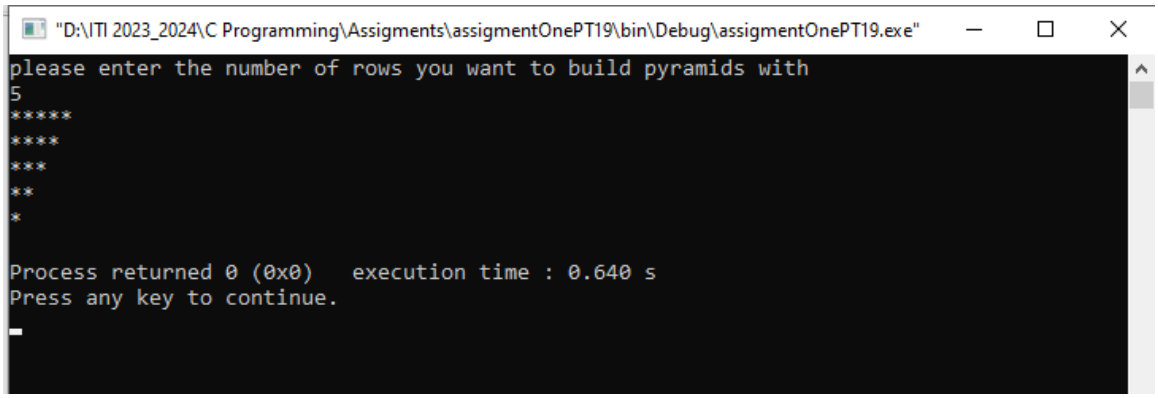
```c
#include <stdio.h>
#include <stdlib.h>

int main()
{
    int i ,j ,rows;
    printf("please enter the number of rows you want to build pyramids with \n");
    scanf("%d",&rows);
    for(i=1;j<=rows;i++){
        for(j=1;j<=i;j++){
            printf("*");
        }
        printf("\n");
    }
        return 0;
}
```



(19) Write a program to display inverted half pyramid using stars pattern.

main.c | main.c

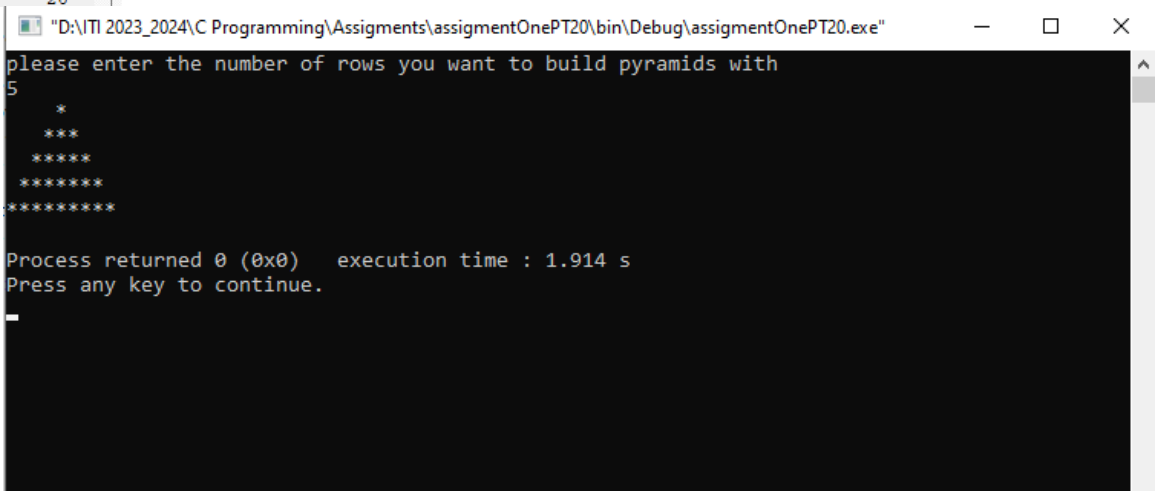
```c
#include <stdio.h>
#include <stdlib.h>

int main()
{
    int i ,j ,rows;
    printf("please enter the number of rows you want to build pyramids with \n");
    scanf("%d",&rows);
    for(i=rows;i>=1;i--){
        for(j=1;j<=i;j++){
            printf("*");
        }
        printf("\n");
    }
        return 0;
}
```



(20) Write a program to display a full pyramid using stars pattern.

main.c

```c
#include <stdio.h>
#include <stdlib.h>

int main()
{
    int i ,j ,k,rows;
    printf("please enter the number of rows you want to build pyramids with \n");
    scanf("%d",&rows);
    for(i=1;i<=rows;i++){
        for(j=1;j<=rows-i;j++){
            printf(" ");
        }
        for(k=1;k<=(2*i-1);k++){
            printf("*");
        }
        printf("\n");
    }
```



(21) Write a program to display cross or X-shape using stars pattern.

main.c

```c
#include <stdio.h>
#include <stdlib.h>

int main()
{
 int row,column,totalRows;
    printf("please enter the number of rows you want to build X-shape with \n");
    scanf("%d",&totalRows);
    for(row=0;row<totalRows;row++){
        for(column=0;column<totalRows;column++){
                if(row==column || (row+column)==(totalRows-1)){
                        printf("*");
                }
                else {
                    printf(" ");
                }
        }
        printf("\n");
    }

}
```

```
"D:\ITI 2023_2024\C Programming\Assigments\assigmentOnePT21\bin\Debug\assigmentOnePT21.exe"
please enter the number of rows you want to build X-shape with
10
*         *
 *       *
  *     *
   *   *
    ** 
    **
   *   *
  *     *
 *       *
*         *

Process returned 0 (0x0)   execution time : 0.935 s
Press any key to continue.
```