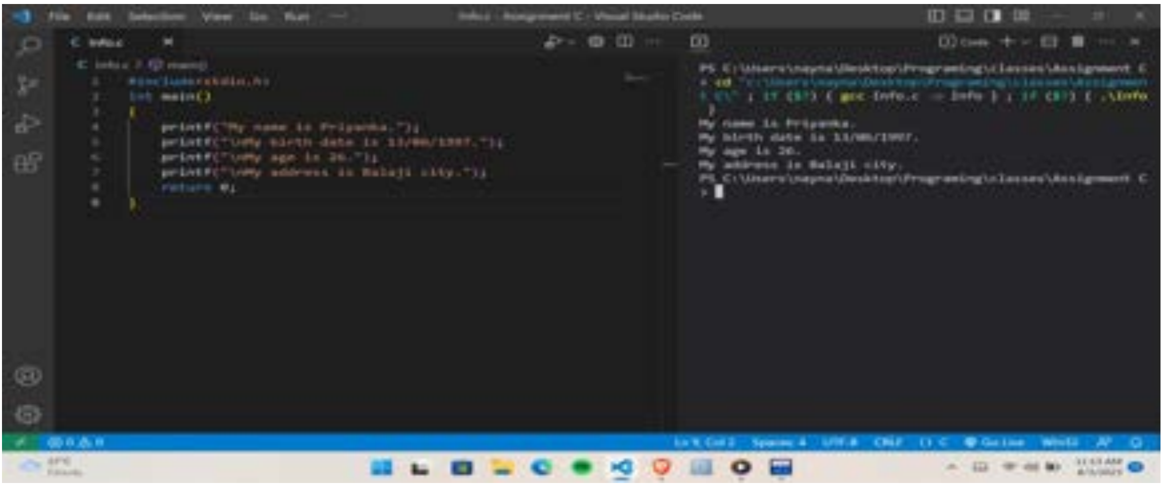
Assignment C

Module 3.1 --> C Language Fundamental

1> Display this information using printf.

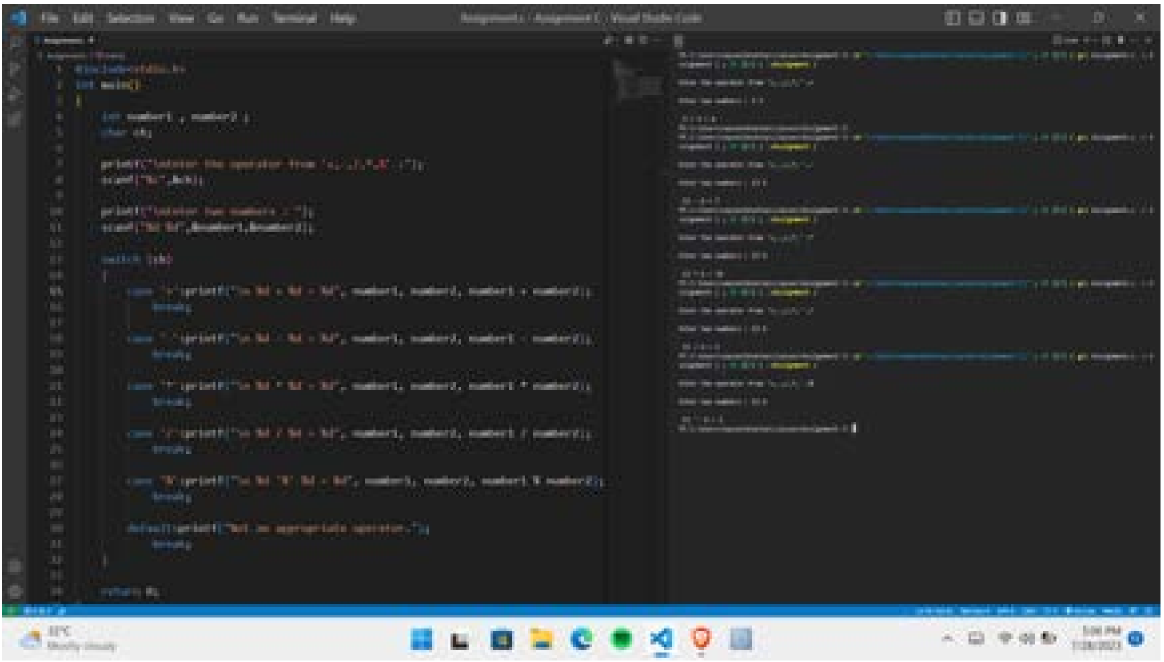
1.Your name, 2. Your Birth Date, 3. Your Age, 4. Your Address.

Ans. 

```c
#include<stdio.h>
int main()
{
    printf("My name is Priyanka.");
    printf("\nMy birth date is 13/08/1997.");
    printf("\nMy age is 26.");
    printf("\nMy address is Balaji city.");
    return 0;
}
```

```
PS C:\Users\nayna\Desktop\Programming\classes\Assignment C
> cd "c:\Users\nayna\Desktop\Programming\classes\Assignment C\" ; if ($?) { gcc Info.c -o Info } ; if ($?) { .\Info
 }
My name is Priyanka.
My birth date is 13/08/1997.
My age is 26.
My address is Balaji city.
PS C:\Users\nayna\Desktop\Programming\classes\Assignment C
>
```

2> Write a program to make Simple calculator (to make addition, subtraction, multiplication, division and modulo).

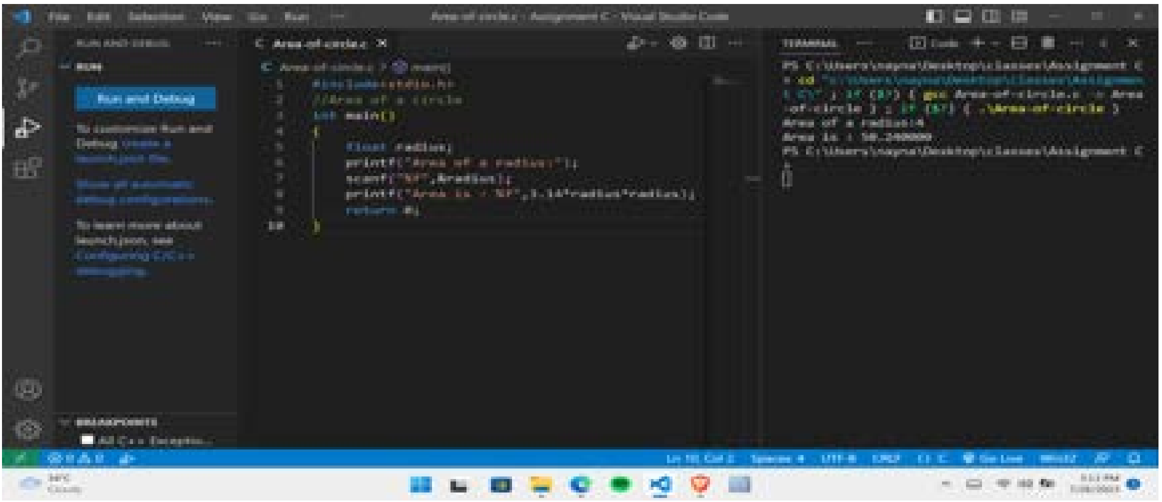
Ans. 

```c
#include<stdio.h>
int main()
{
    int number1 , number2 ;
    char ch;

    printf("\nEnter the operator from '+,-,/,*,%' :");
    scanf("%c",&ch);

    printf("\nEnter two numbers : ");
    scanf("%d %d",&number1,&number2);

    switch (ch)
    {
        case '+':printf("\n %d + %d = %d", number1, number2, number1 + number2);
            break;

        case '-':printf("\n %d - %d = %d", number1, number2, number1 - number2);
            break;

        case '*':printf("\n %d * %d = %d", number1, number2, number1 * number2);
            break;

        case '/':printf("\n %d / %d = %d", number1, number2, number1 / number2);
            break;

        case '%':printf("\n %d '%' %d = %d", number1, number2, number1 % number2);
            break;

        default:printf("Not an appropriate operator.");
            break;
    }

    return 0;
```

```
[illegible]
```

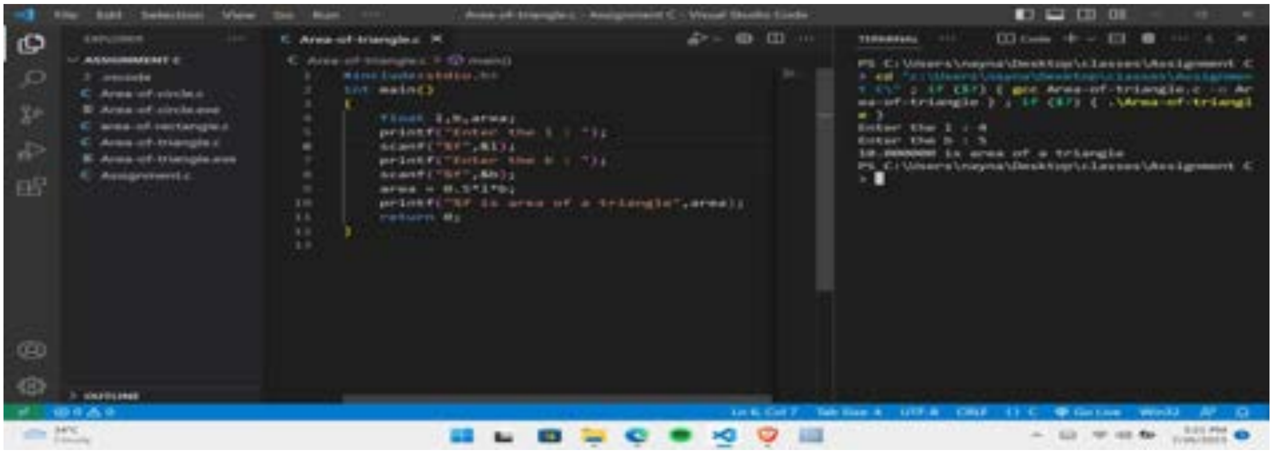
3> Write a program to find Area of circle, rectangle, and triangle.

Ans.



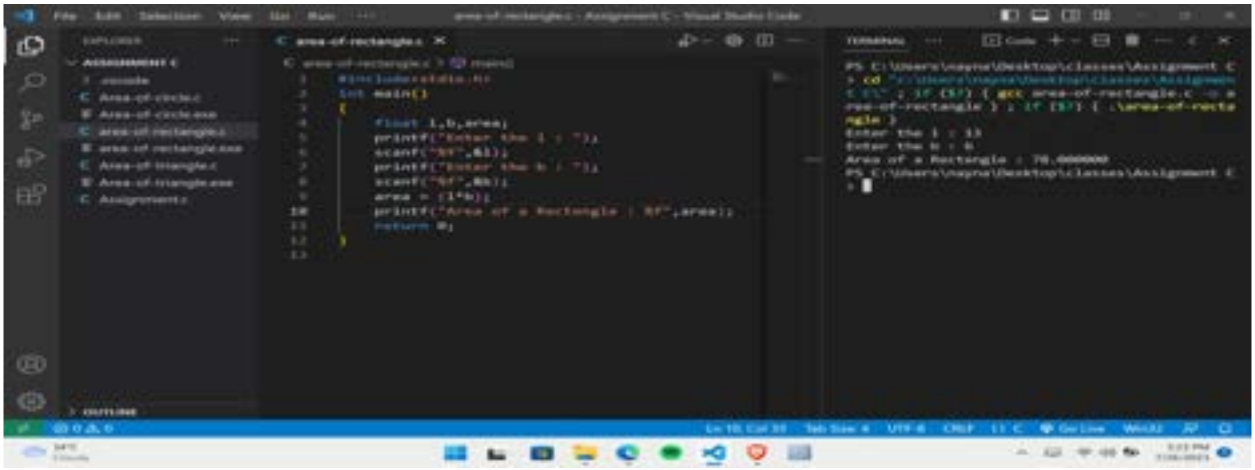
```c
#include<stdio.h>
//Area of a circle
int main()
{
    float radius;
    printf("Area of a radius:");
    scanf("%f",&radius);
    printf("Area is : %f",3.14*radius*radius);
    return 0;
}
```

```
PS C:\Users\nayna\Desktop\classes\Assignment C
> cd "c:\Users\nayna\Desktop\classes\Assignmen
t C\" ; if ($?) { gcc Area-of-circle.c -o Area
-of-circle } ; if ($?) { .\Area-of-circle }
Area of a radius:4
Area is : 50.240000
PS C:\Users\nayna\Desktop\classes\Assignment C
>
```



```c
#include<stdio.h>
int main()
{
    float l,b,area;
    printf("Enter the l : ");
    scanf("%f",&l);
    printf("Enter the b : ");
    scanf("%f",&b);
    area = 0.5*l*b;
    printf("%f is area of a triangle",area);
    return 0;
}
```

```
PS C:\Users\nayna\Desktop\classes\Assignment C
> cd "c:\Users\nayna\Desktop\classes\Assignmen
t C\" ; if ($?) { gcc Area-of-triangle.c -o Ar
ea-of-triangle } ; if ($?) { .\Area-of-triangl
e }
Enter the l : 4
Enter the b : 5
10.000000 is area of a triangle
PS C:\Users\nayna\Desktop\classes\Assignment C
>
```

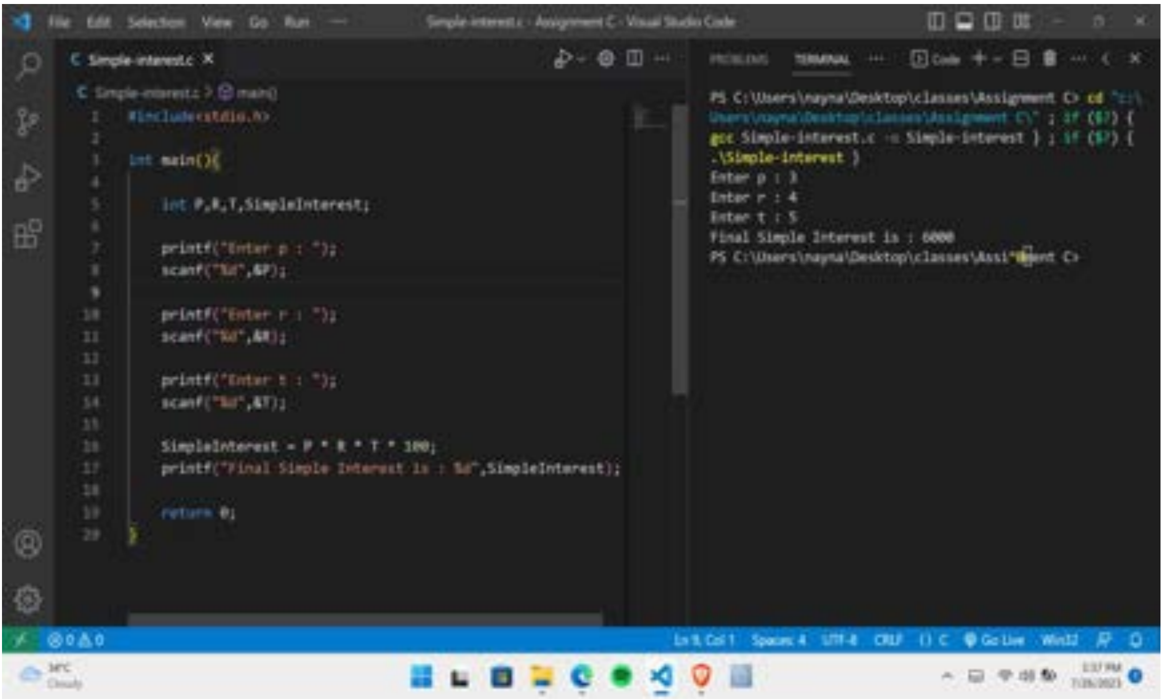


```c
#include<stdio.h>
int main()
{
    float l,b,area;
    printf("Enter the l : ");
    scanf("%f",&l);
    printf("Enter the b : ");
    scanf("%f",&b);
    area = (l*b);
    printf("Area of a Rectangle : %f",area);
    return 0;
}
```

```
PS C:\Users\nayna\Desktop\classes\Assignment C
> cd "c:\Users\nayna\Desktop\classes\Assignmen
t C\" ; if ($?) { gcc area-of-rectangle.c -o a
rea-of-rectangle } ; if ($?) { .\area-of-recta
ngle }
Enter the l : 13
Enter the b : 6
Area of a Rectangle : 78.000000
PS C:\Users\nayna\Desktop\classes\Assignment C
>
```

4> Write a program to find simple interest.

Ans.

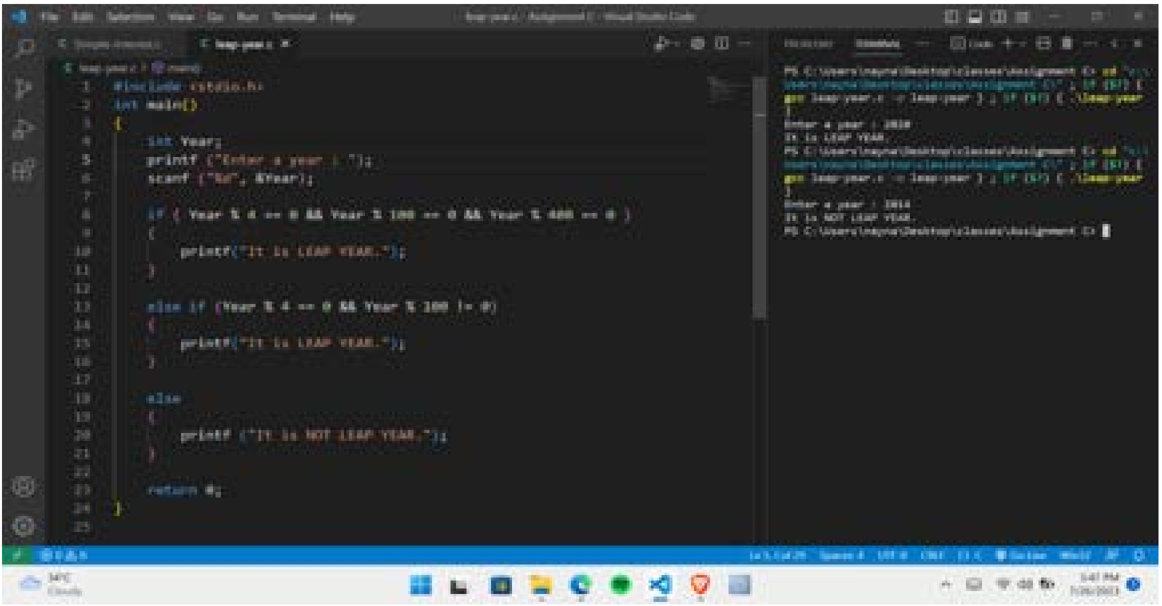


```c
#include<stdio.h>

int main(){

    int P,R,T,SimpleInterest;

    printf("Enter p : ");
    scanf("%d",&P);

    printf("Enter r : ");
    scanf("%d",&R);

    printf("Enter t : ");
    scanf("%d",&T);

    SimpleInterest = P * R * T * 100;
    printf("Final Simple Interest is : %d",SimpleInterest);

    return 0;
}
```

```
PS C:\Users\nayna\Desktop\classes\Assignment C> cd "c:\
Users\nayna\Desktop\classes\Assignment C\" ; if ($?) {
gcc Simple-interest.c -o Simple-interest } ; if ($?) {
.\Simple-interest }
Enter p : 3
Enter r : 4
Enter t : 5
Final Simple Interest is : 6000
PS C:\Users\nayna\Desktop\classes\Assignment C>
```

5> Write a program to check if the given year is a leap year or not.

Ans.

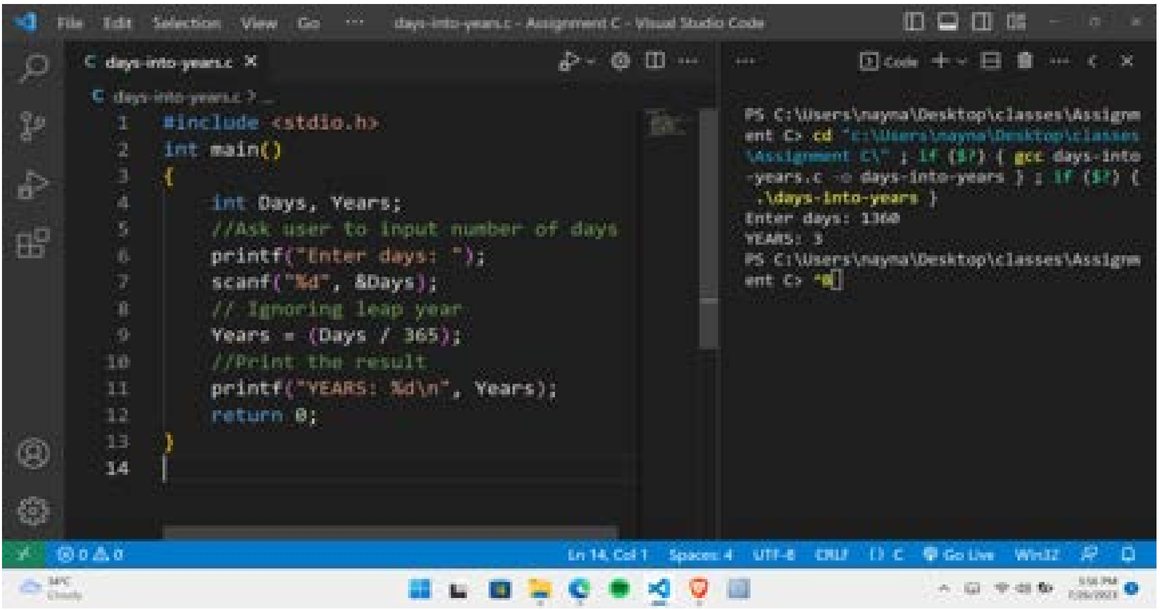


```c
#include <stdio.h>
int main()
{
    int Year;
    printf ("Enter a year : ");
    scanf ("%d", &Year);

    if ( Year % 4 == 0 && Year % 100 == 0 && Year % 400 == 0 )
    {
        printf("It is LEAP YEAR.");
    }

    else if (Year % 4 == 0 && Year % 100 != 0)
    {
        printf("It is LEAP YEAR.");
    }

    else
    {
        printf ("It is NOT LEAP YEAR.");
    }

    return 0;
}
```

```
PS C:\Users\nayna\Desktop\classes\Assignment C> cd "c:\
Users\nayna\Desktop\classes\Assignment C\" ; if ($?) {
gcc leap-year.c -o leap-year } ; if ($?) { .\leap-year
}
Enter a year : 2020
It is LEAP YEAR.
PS C:\Users\nayna\Desktop\classes\Assignment C> cd "c:\
Users\nayna\Desktop\classes\Assignment C\" ; if ($?) {
gcc leap-year.c -o leap-year } ; if ($?) { .\leap-year
}
Enter a year : 2014
It is NOT LEAP YEAR.
PS C:\Users\nayna\Desktop\classes\Assignment C>
```

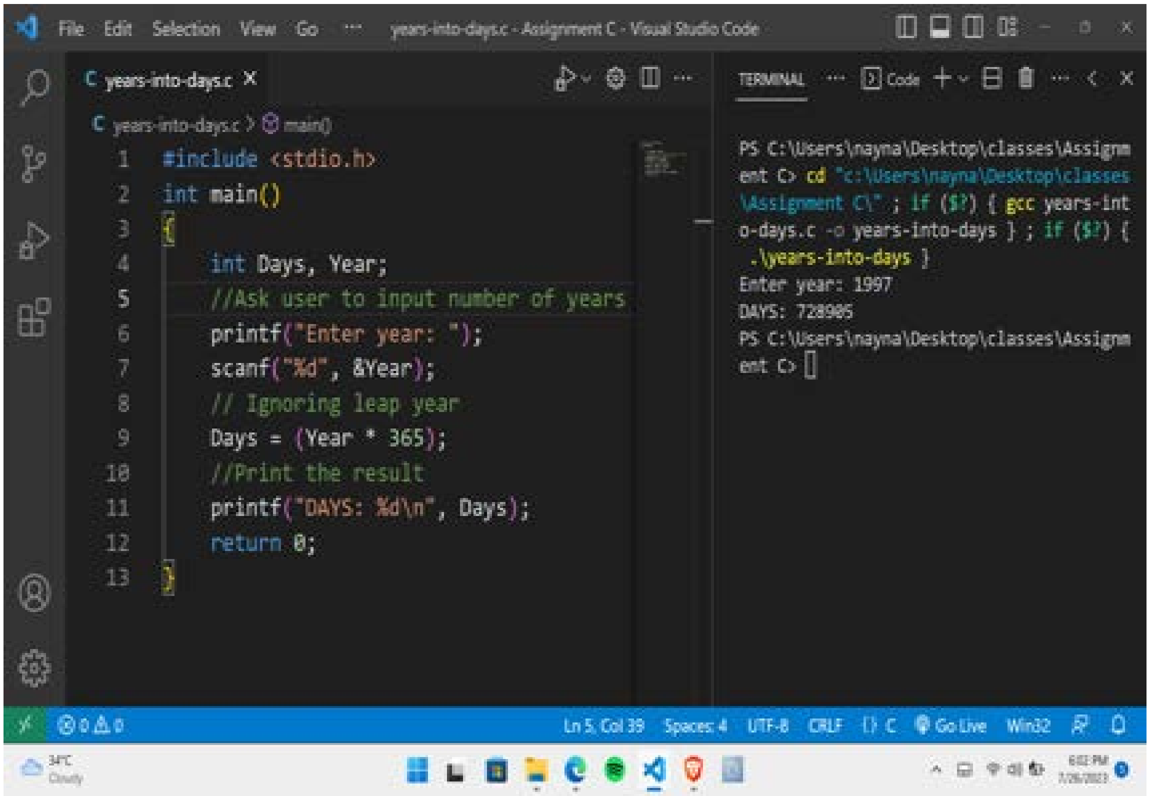
6> Write a program to convert years into days and days into years.

Ans.


File Edit Selection View Go ··· days-into-years.c - Assignment C - Visual Studio Code
C days-into-years.c ×
C days-into-years.c > ...
Code
Ln 14, Col 1 Spaces: 4 UTF-8 CRLF {} C Go Live Win32
34°C Cloudy
5:56 PM 7/26/2023

```c
#include <stdio.h>
int main()
{
    int Days, Years;
    //Ask user to input number of days
    printf("Enter days: ");
    scanf("%d", &Days);
    // Ignoring leap year
    Years = (Days / 365);
    //Print the result
    printf("YEARS: %d\n", Years);
    return 0;
}

```

```
PS C:\Users\nayna\Desktop\classes\Assignm
ent C> cd "c:\Users\nayna\Desktop\classes
\Assignment C\" ; if ($?) { gcc days-into
-years.c -o days-into-years } ; if ($?) {
 .\days-into-years }
Enter days: 1360
YEARS: 3
PS C:\Users\nayna\Desktop\classes\Assignm
ent C> ^@
```

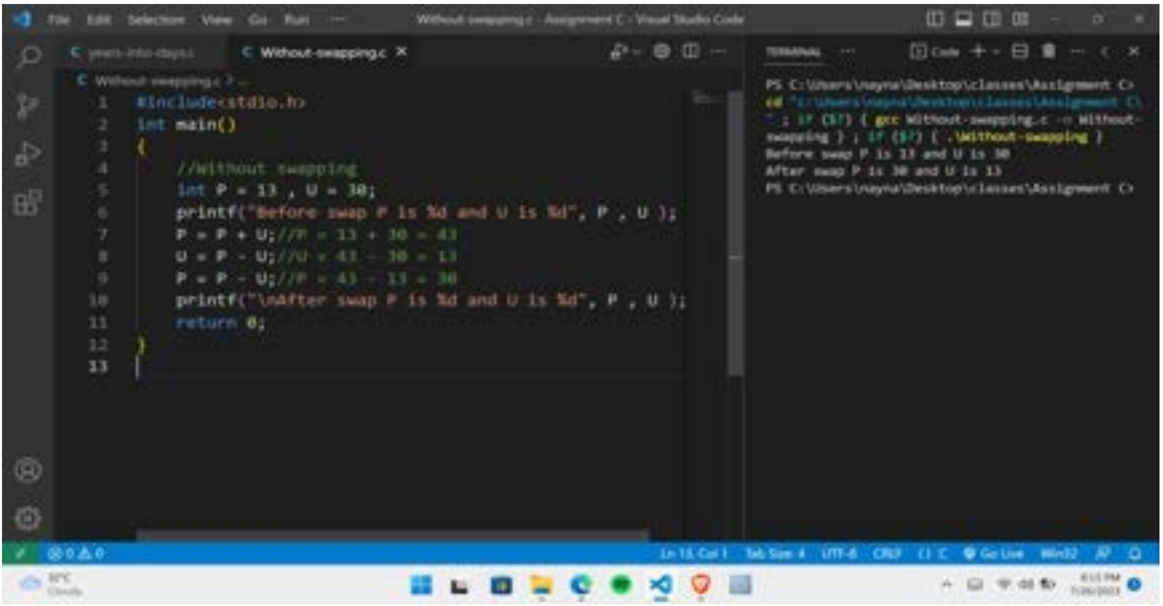

File Edit Selection View Go ··· years-into-days.c - Assignment C - Visual Studio Code
C years-into-days.c ×
C years-into-days.c > main()
TERMINAL ··· Code
Ln 5, Col 39 Spaces: 4 UTF-8 CRLF {} C Go Live Win32
34°C Cloudy
6:02 PM 7/26/2023

```c
#include <stdio.h>
int main()
{
    int Days, Year;
    //Ask user to input number of years
    printf("Enter year: ");
    scanf("%d", &Year);
    // Ignoring leap year
    Days = (Year * 365);
    //Print the result
    printf("DAYS: %d\n", Days);
    return 0;
}
```

```
PS C:\Users\nayna\Desktop\classes\Assignm
ent C> cd "c:\Users\nayna\Desktop\classes
\Assignment C\" ; if ($?) { gcc years-int
o-days.c -o years-into-days } ; if ($?) {
 .\years-into-days }
Enter year: 1997
DAYS: 728905
PS C:\Users\nayna\Desktop\classes\Assignm
ent C> 
```

Module 3.2 --> C Language Programming with C

1> Write a program to swap two numbers without using Third variable.

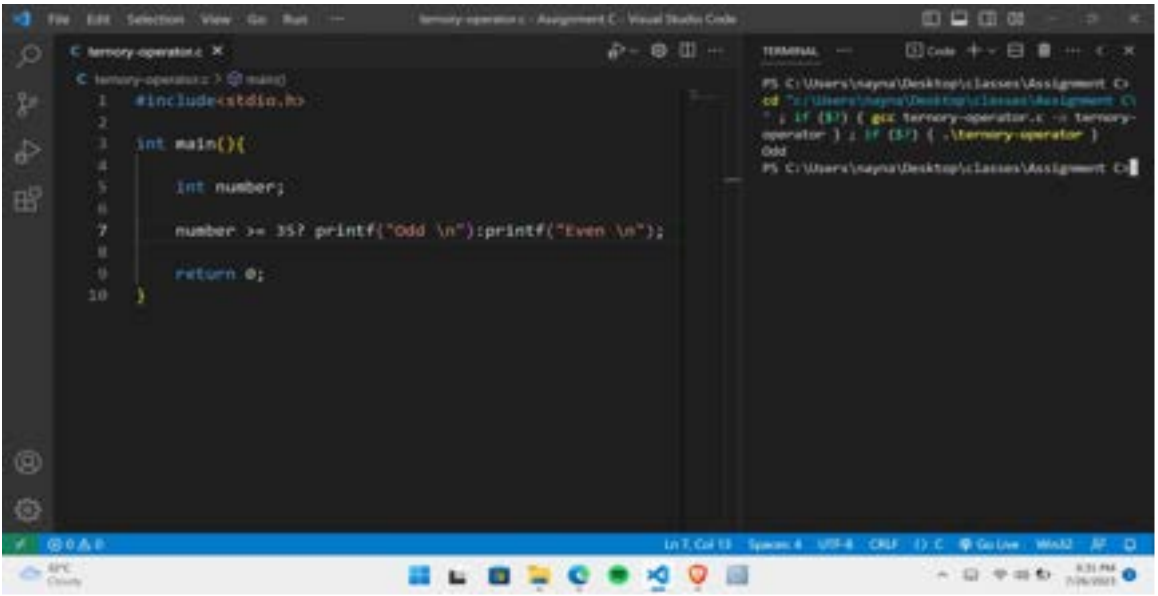
Ans. 

File Edit Selection View Go Run ···
Without-swapping.c - Assignment C - Visual Studio Code
years-into-days.c
Without-swapping.c
TERMINAL
Code
Ln 13, Col 1 Tab Size: 4 UTF-8 CRLF {} C Go Live Win32

```c
#include<stdio.h>
int main()
{
    //Without swapping
    int P = 13 , U = 30;
    printf("Before swap P is %d and U is %d", P , U );
    P = P + U;//P = 13 + 30 = 43
    U = P - U;//U = 43 - 30 = 13
    P = P - U;//P = 43 - 13 = 30
    printf("\nAfter swap P is %d and U is %d", P , U );
    return 0;
}
```

```
PS C:\Users\nayna\Desktop\classes\Assignment C>
cd "c:\Users\nayna\Desktop\classes\Assignment C\
" ; if ($?) { gcc Without-swapping.c -o Without-
swapping } ; if ($?) { .\Without-swapping }
Before swap P is 13 and U is 30
After swap P is 30 and U is 13
PS C:\Users\nayna\Desktop\classes\Assignment C>
```

2> Write a program to find number is even or odd using ternary operator.

Ans. 

File Edit Selection View Go Run ···
ternory-operator.c - Assignment C - Visual Studio Code
ternory-operator.c
ternory-operator.c > main()
TERMINAL
Code
Ln 7, Col 13 Spaces: 4 UTF-8 CRLF {} C Go Live Win32

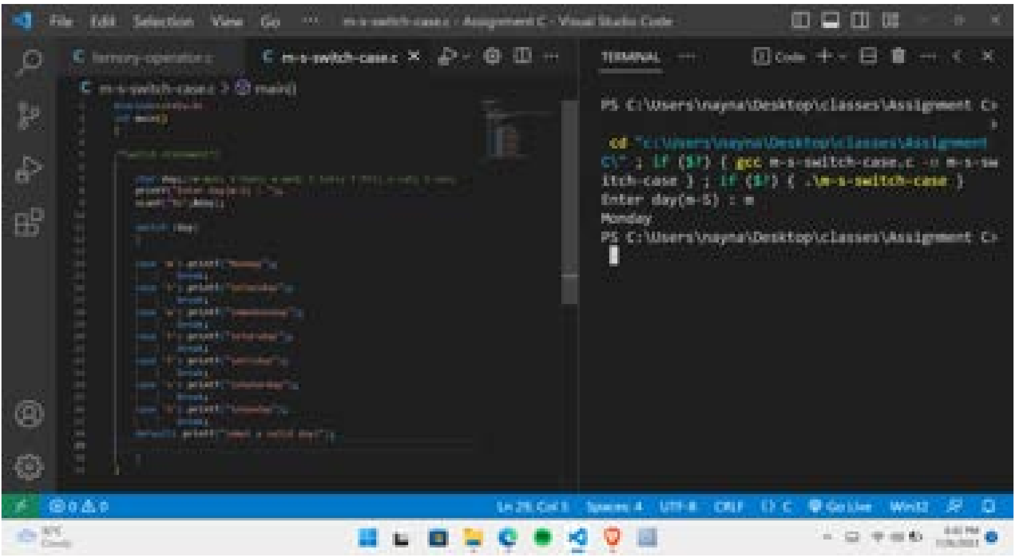
```c
#include<stdio.h>

int main(){

    int number;

    number >= 35? printf("Odd \n"):printf("Even \n");

    return 0;
}
```

```
PS C:\Users\nayna\Desktop\classes\Assignment C>
cd "c:\Users\nayna\Desktop\classes\Assignment C\
" ; if ($?) { gcc ternory-operator.c -o ternory-
operator } ; if ($?) { .\ternory-operator }
Odd
PS C:\Users\nayna\Desktop\classes\Assignment C>
```

3> Write a program to show

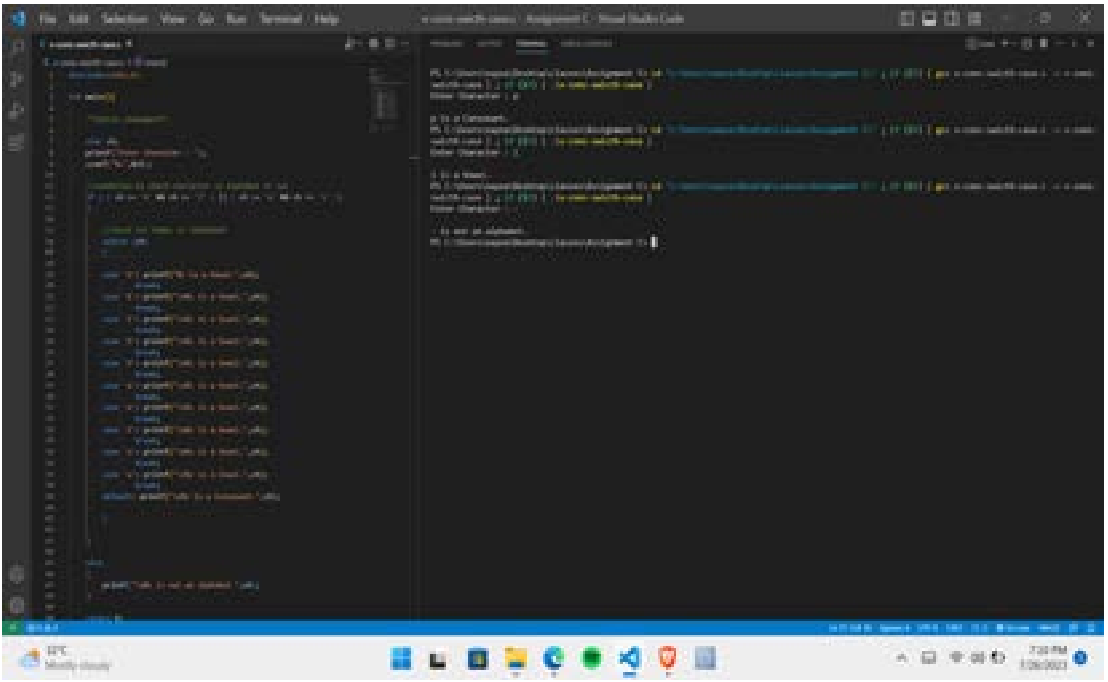
1. Monday to Sunday using switch case.
2. Vowel or Consonant using switch case.

Ans. (1) Ans.



```
PS C:\Users\nayna\Desktop\classes\Assignment C>
 cd "c:\Users\nayna\Desktop\classes\Assignment
C\" ; if ($?) { gcc m-s-switch-case.c -o m-s-sw
itch-case } ; if ($?) { .\m-s-switch-case }
Enter day(m-S) : m
Monday
PS C:\Users\nayna\Desktop\classes\Assignment C>
```

(2) Ans.



```
[illegible]
Enter Character : p

p is a Consonant.
[illegible]
Enter Character : [illegible]

[illegible] is a Vowel.
[illegible]
Enter Character : [illegible]

[illegible] is not an alphabet.
[illegible]
```

4> Looping programs:

1. **Write a program to print 972 to 897 using for loop.**
2. **Write a program to take 10 no. Input from user and find out**

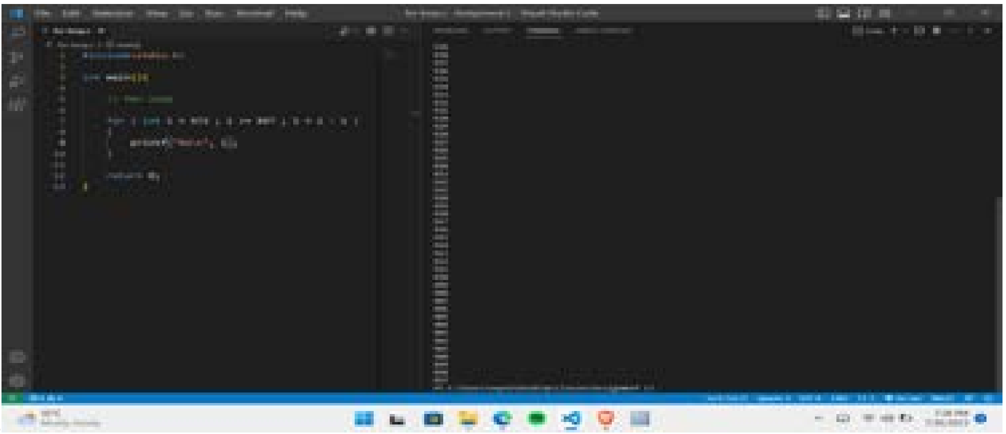
   How many Even numbers are there?

   How many odd numbers are there?

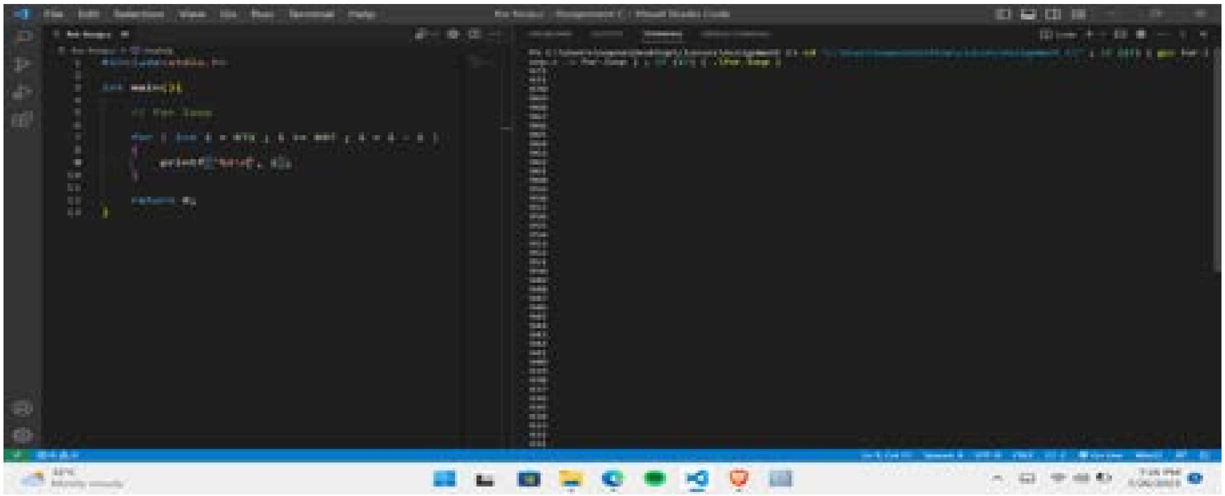
   Sum of even numbers.

   Sum of odd numbers.

Ans. (1) Ans.

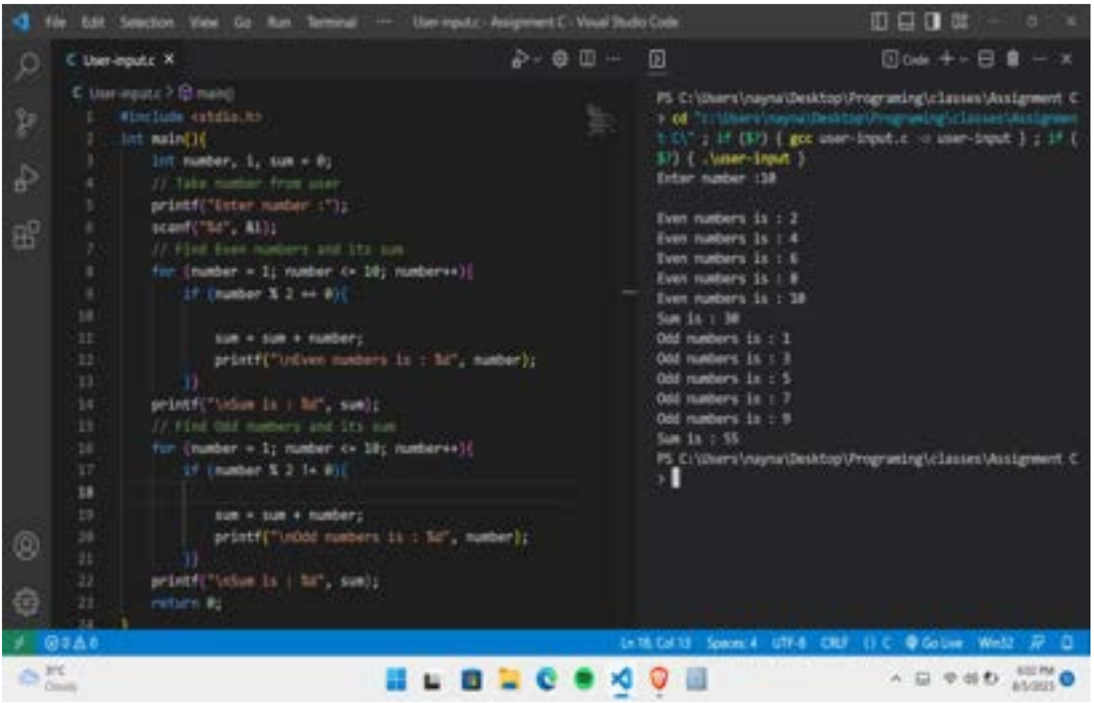


```
#include<stdio.h>

int main(){

    // For loop

    for ( int i = 972 ; i >= 897 ; i = i - 1 )
    {
        printf("%d\n", i);
    }

    return 0;
}
```



```
#include<stdio.h>

int main(){

    // For loop

    for ( int i = 972 ; i >= 897 ; i = i - 1 )
    {
        printf("%d\n", i);
    }

    return 0;
}
```

(2) Ans.

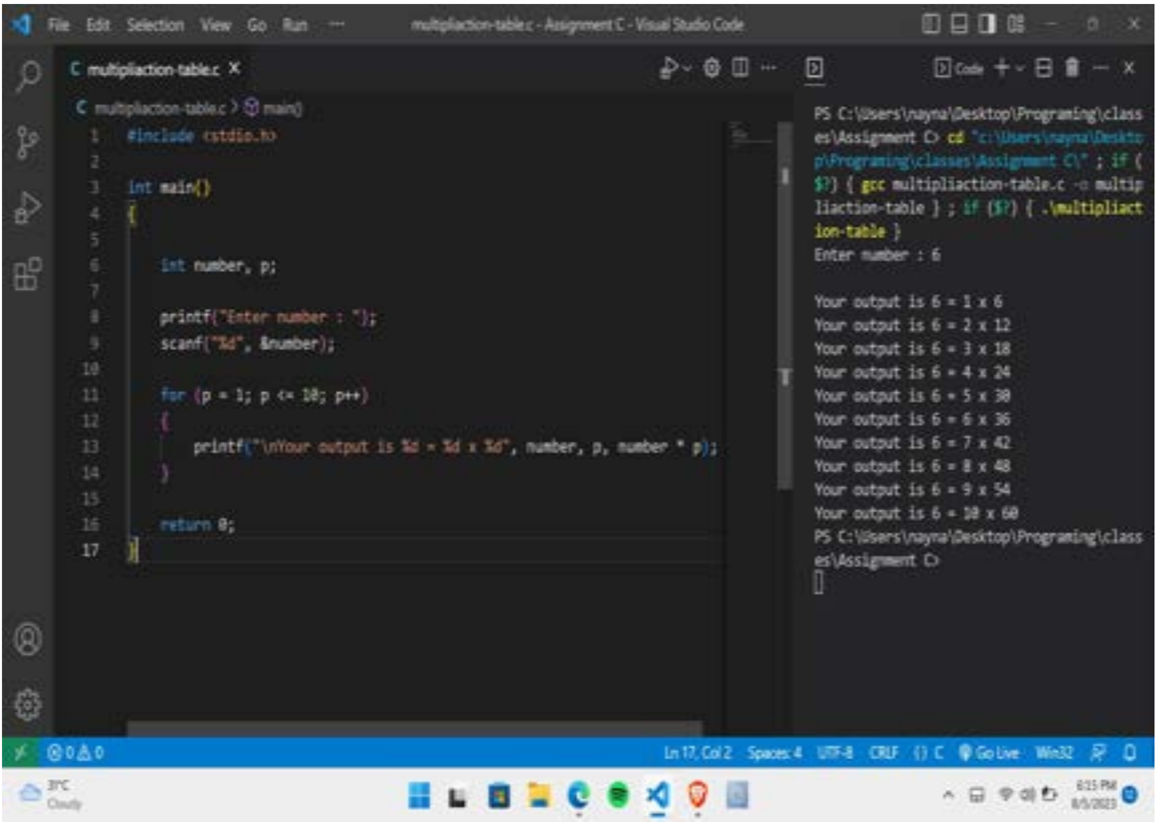


```c
#include <stdio.h>
int main(){
    int number, i, sum = 0;
    // Take number from user
    printf("Enter number :");
    scanf("%d", &i);
    // Find Even numbers and its sum
    for (number = 1; number <= 10; number++){
        if (number % 2 == 0){

            sum = sum + number;
            printf("\nEven numbers is : %d", number);
        }}
    printf("\nSum is : %d", sum);
    // Find Odd numbers and its sum
    for (number = 1; number <= 10; number++){
        if (number % 2 != 0){

            sum = sum + number;
            printf("\nOdd numbers is : %d", number);
        }}
    printf("\nSum is : %d", sum);
    return 0;
}
```

```
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C
> cd "c:\Users\nayna\Desktop\Programing\classes\Assignmen
t C\" ; if ($?) { gcc user-input.c -o user-input } ; if (
$?) { .\user-input }
Enter number :10

Even numbers is : 2
Even numbers is : 4
Even numbers is : 6
Even numbers is : 8
Even numbers is : 10
Sum is : 30
Odd numbers is : 1
Odd numbers is : 3
Odd numbers is : 5
Odd numbers is : 7
Odd numbers is : 9
Sum is : 55
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C
> 
```

5> Write a program to print the table of the given number.

Ans.

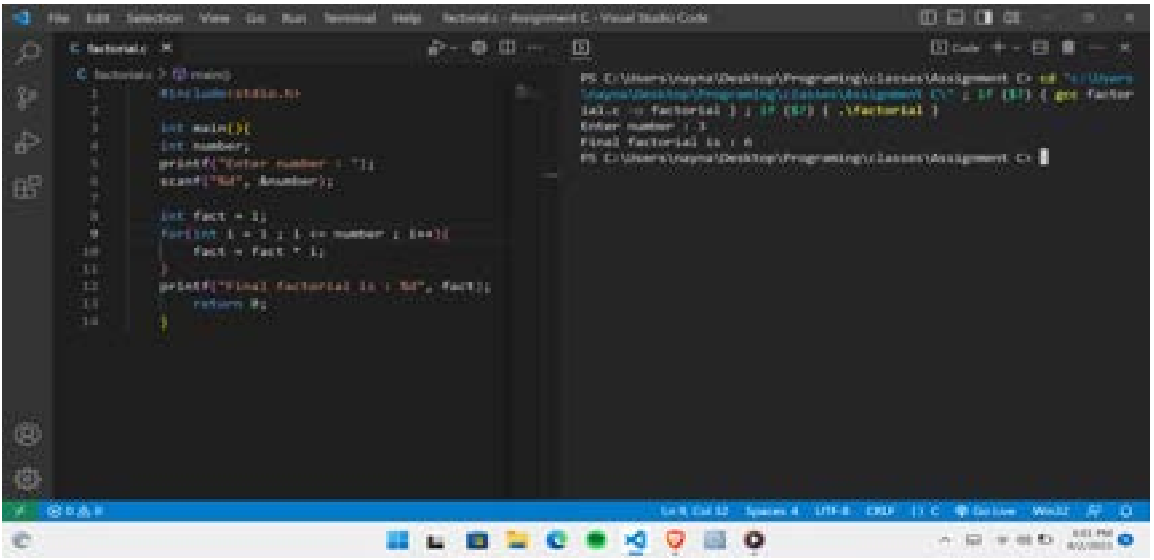


```c
#include <stdio.h>

int main()
{


    int number, p;

    printf("Enter number : ");
    scanf("%d", &number);

    for (p = 1; p <= 10; p++)
    {
        printf("\nYour output is %d = %d x %d", number, p, number * p);
    }

    return 0;
}
```

```
PS C:\Users\nayna\Desktop\Programing\class
es\Assignment C> cd "c:\Users\nayna\Deskto
p\Programing\classes\Assignment C\" ; if (
$?) { gcc multipliaction-table.c -o multip
liaction-table } ; if ($?) { .\multipliact
ion-table }
Enter number : 6

Your output is 6 = 1 x 6
Your output is 6 = 2 x 12
Your output is 6 = 3 x 18
Your output is 6 = 4 x 24
Your output is 6 = 5 x 30
Your output is 6 = 6 x 36
Your output is 6 = 7 x 42
Your output is 6 = 8 x 48
Your output is 6 = 9 x 54
Your output is 6 = 10 x 60
PS C:\Users\nayna\Desktop\Programing\class
es\Assignment C>
```

6> Write a program to print factorial of given number.

Ans.

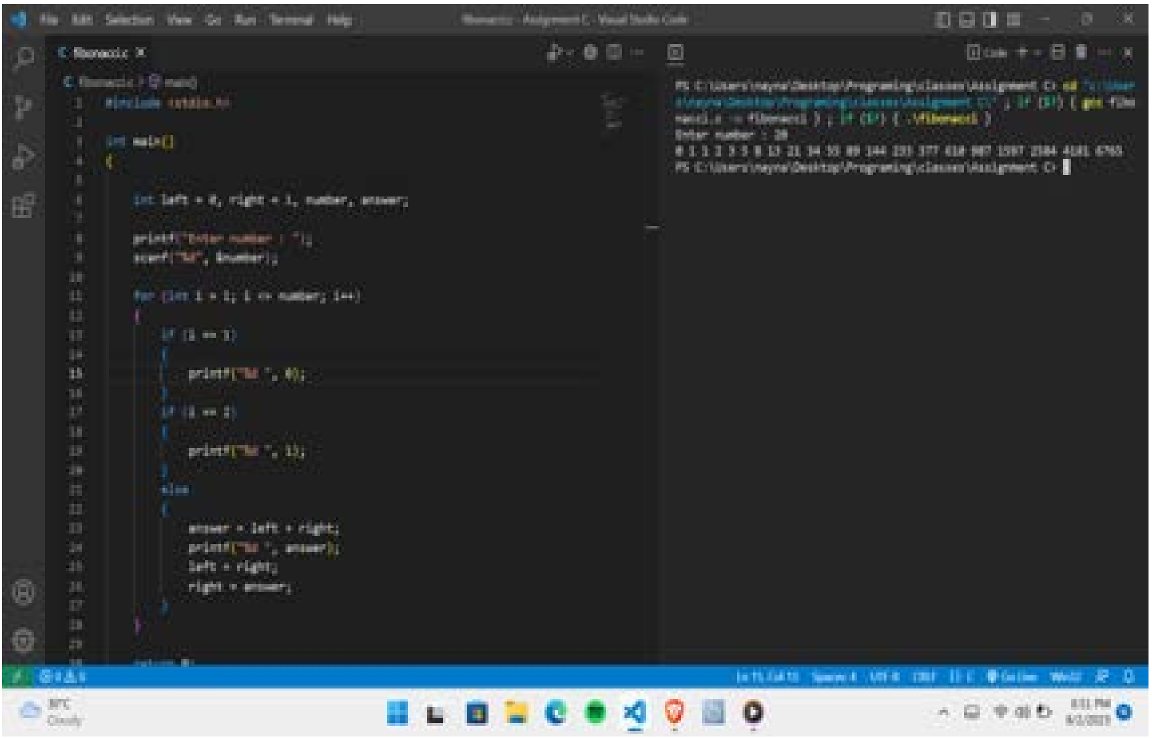


```c
#include<stdio.h>

int main(){
int number;
printf("Enter number : ");
scanf("%d", &number);

int fact = 1;
for(int i = 1 ; i <= number ; i++){
    fact = fact * i;
}
printf("Final factorial is : %d", fact);
    return 0;
}
```

```
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C> cd "c:\Users\nayna\Desktop\Programing\classes\Assignment C\" ; if ($?) { gcc factorial.c -o factorial } ; if ($?) { .\factorial }
Enter number : 3
Final factorial is : 6
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C>
```

7> Write a program to print Fibonacci series up to given numbers.

Ans.

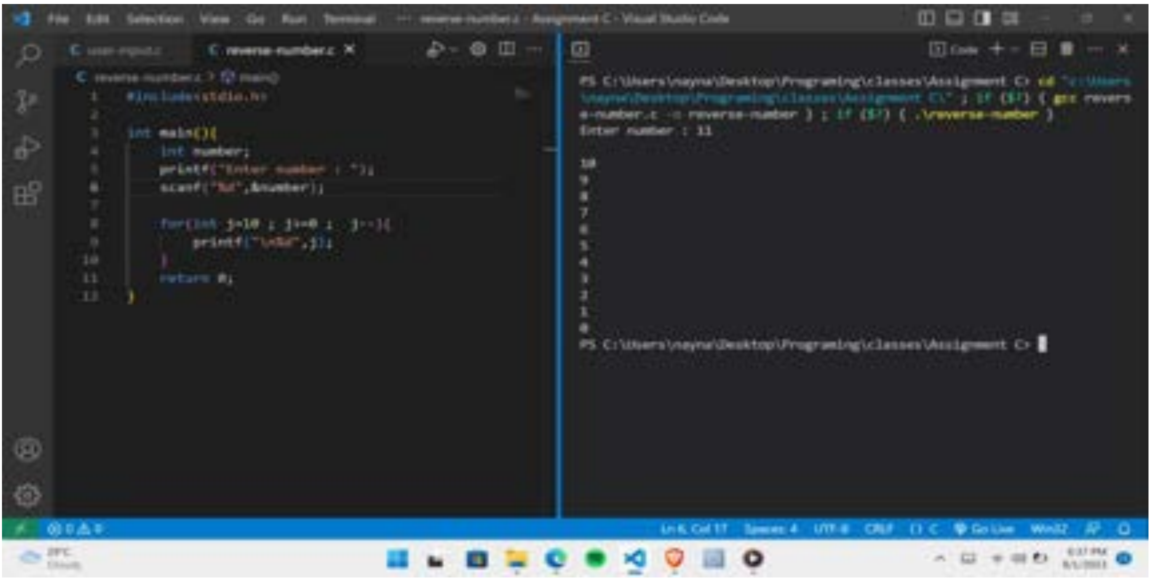


```c
#include <stdio.h>

int main()
{

    int left = 0, right = 1, number, answer;

    printf("Enter number : ");
    scanf("%d", &number);

    for (int i = 1; i <= number; i++)
    {
        if (i == 1)
        {
            printf("%d ", 0);
        }
        if (i == 2)
        {
            printf("%d ", 1);
        }
        else
        {
            answer = left + right;
            printf("%d ", answer);
            left = right;
            right = answer;
        }
    }

    return 0;
```

```
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C> cd "c:\Users\nayna\Desktop\Programing\classes\Assignment C\" ; if ($?) { gcc fibonacci.c -o fibonacci } ; if ($?) { .\fibonacci }
Enter number : 20
0 1 1 2 3 5 8 13 21 34 55 89 144 233 377 610 987 1597 2584 4181 6765
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C>
```

8> Write a program to print numbers in reverse order.

Ans.

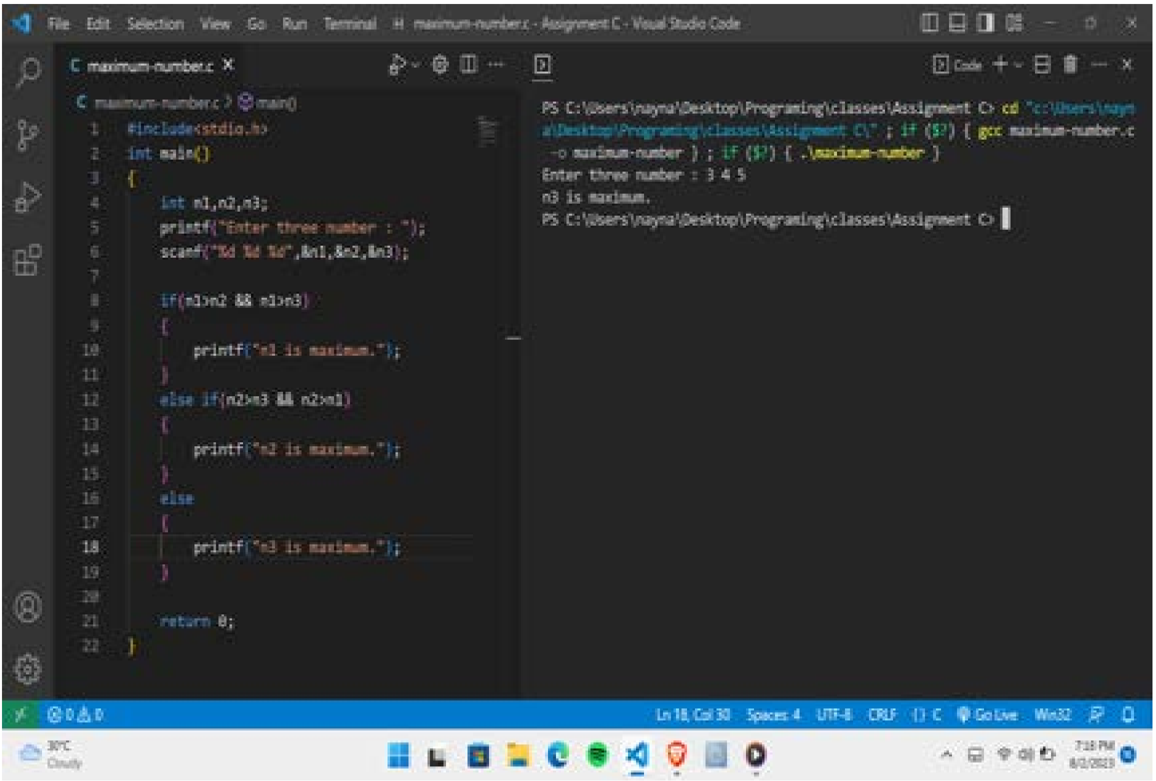


```c
#include<stdio.h>

int main(){
    int number;
    printf("Enter number : ");
    scanf("%d",&number);

    for(int j=10 ; j>=0 ;  j--){
        printf("\n%d",j);
    }
    return 0;
}
```

```
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C> cd "c:\Users\nayna\Desktop\Programing\classes\Assignment C\" ; if ($?) { gcc reverse-number.c -o reverse-number } ; if ($?) { .\reverse-number }
Enter number : 11

10
9
8
7
6
5
4
3
2
1
0
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C> 
```

9> Write a program to find out the max from the given number.

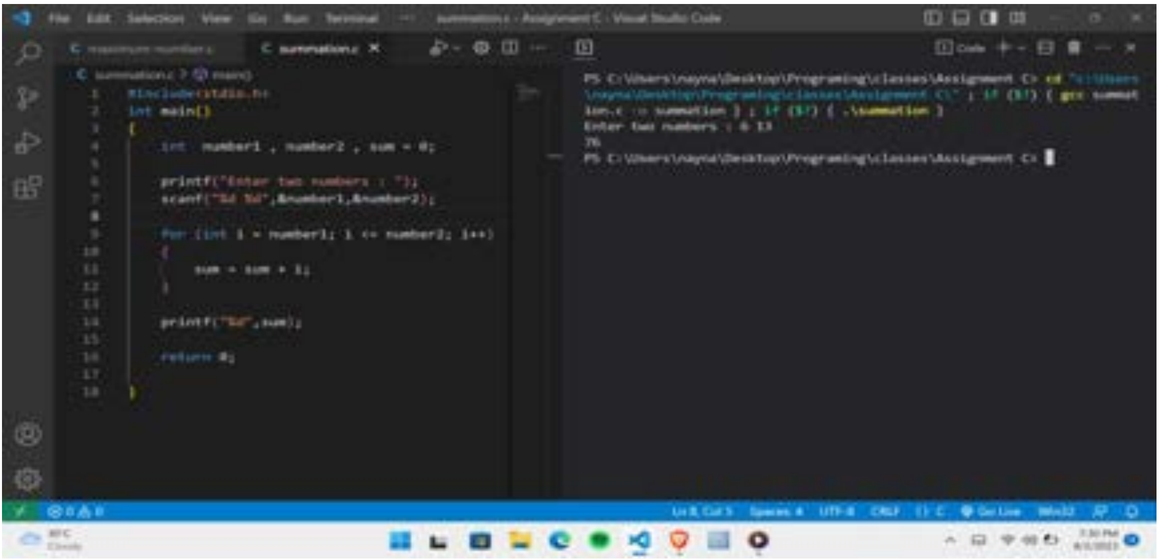
Ans.



```c
#include<stdio.h>
int main()
{
    int n1,n2,n3;
    printf("Enter three number : ");
    scanf("%d %d %d",&n1,&n2,&n3);

    if(n1>n2 && n1>n3)
    {
        printf("n1 is maximum.");
    }
    else if(n2>n3 && n2>n1)
    {
        printf("n2 is maximum.");
    }
    else
    {
        printf("n3 is maximum.");
    }

    return 0;
}
```

```
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C> cd "c:\Users\nayna\Desktop\Programing\classes\Assignment C\" ; if ($?) { gcc maximum-number.c
 -o maximum-number } ; if ($?) { .\maximum-number }
Enter three number : 3 4 5
n3 is maximum.
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C> 
```

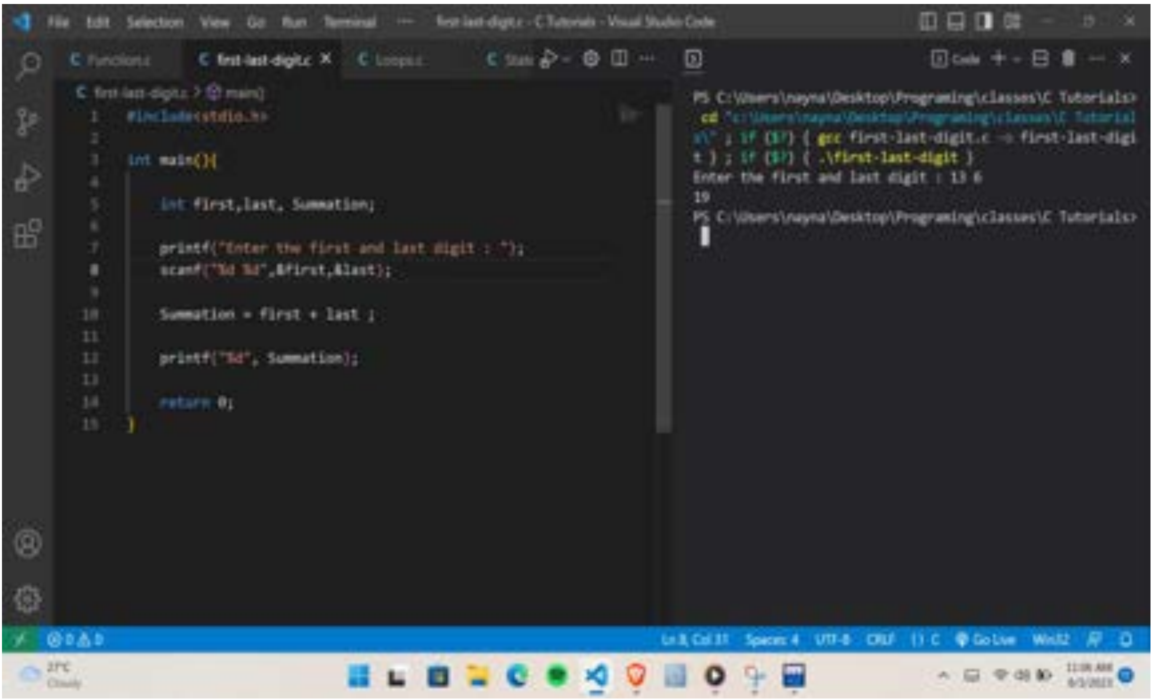
10> Write a program and make a summation of the given number.

Ans. 

```c
#include<stdio.h>
int main()
{
    int  number1 , number2 , sum = 0;

    printf("Enter two numbers : ");
    scanf("%d %d",&number1,&number2);

    for (int i = number1; i <= number2; i++)
    {
        sum = sum + i;
    }

    printf("%d",sum);

    return 0;

}
```

```
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C> cd "c:\Users\nayna\Desktop\Programing\classes\Assignment C\" ; if ($?) { gcc summation.c -o summation } ; if ($?) { .\summation }
Enter two numbers : 6 13
76
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C> 
```

11> Write a program you must make a summation of first and last Digit.

Ans. 

```c
#include<stdio.h>

int main(){

    int first,last, Summation;

    printf("Enter the first and last digit : ");
    scanf("%d %d",&first,&last);

    Summation = first + last ;

    printf("%d", Summation);

    return 0;
}
```

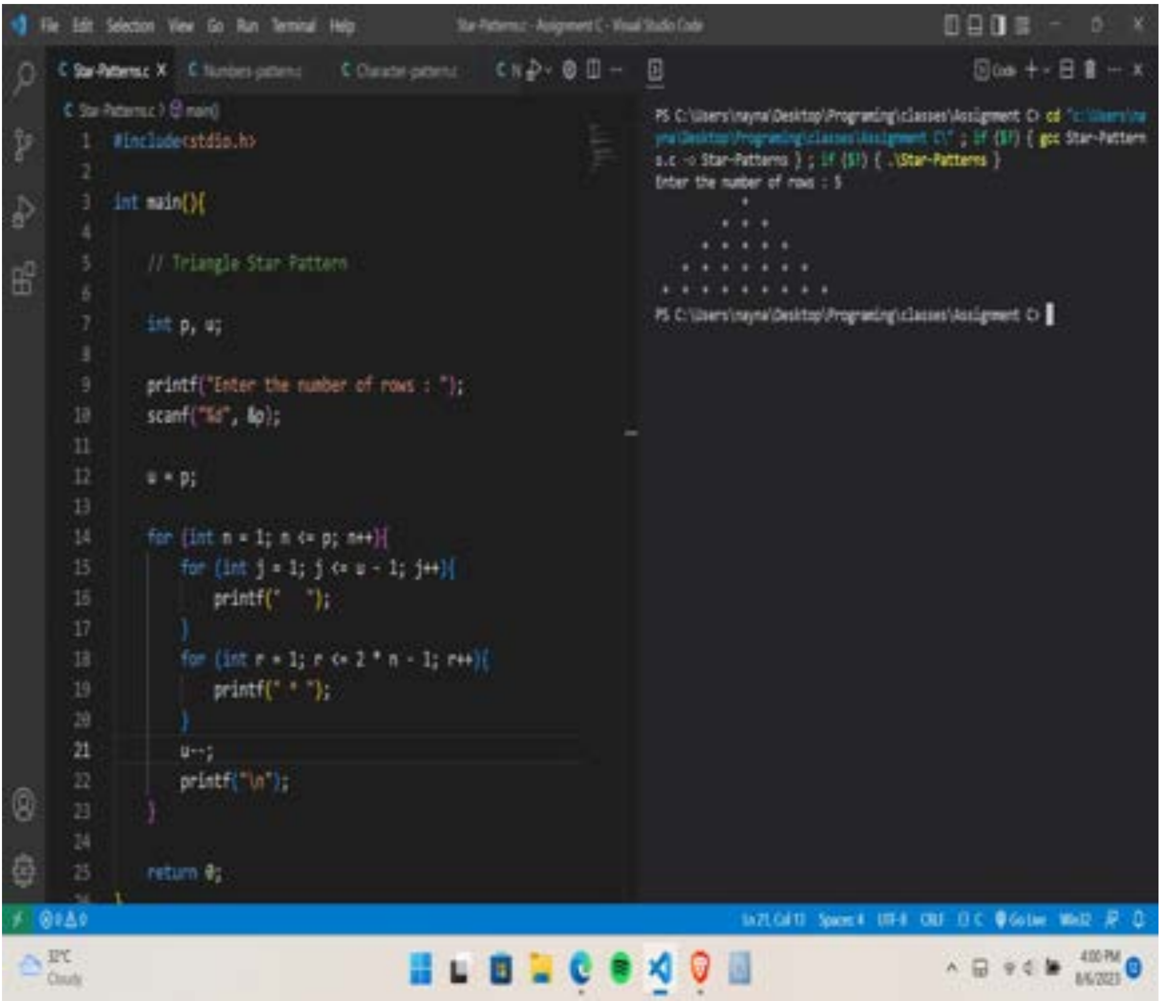
```
PS C:\Users\nayna\Desktop\Programing\classes\C Tutorials>
 cd "c:\Users\nayna\Desktop\Programing\classes\C Tutorials\" ; if ($?) { gcc first-last-digit.c -o first-last-digit } ; if ($?) { .\first-last-digit }
Enter the first and last digit : 13 6
19
PS C:\Users\nayna\Desktop\Programing\classes\C Tutorials>
```

12>Patterns Programs:

(1)

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

Ans.



File Edit Selection View Go Run Terminal Help
Star-Patterns.c - Assignment C - Visual Studio Code
Star-Patterns.c
Numbers-patterns.c
Character-patterns.c
Star-Patterns.c > main()
Code
Ln 21, Col 13 Spaces: 4 UTF-8 CRLF C Go Live Win32
32°C
Cloudy
4:00 PM
8/6/2023

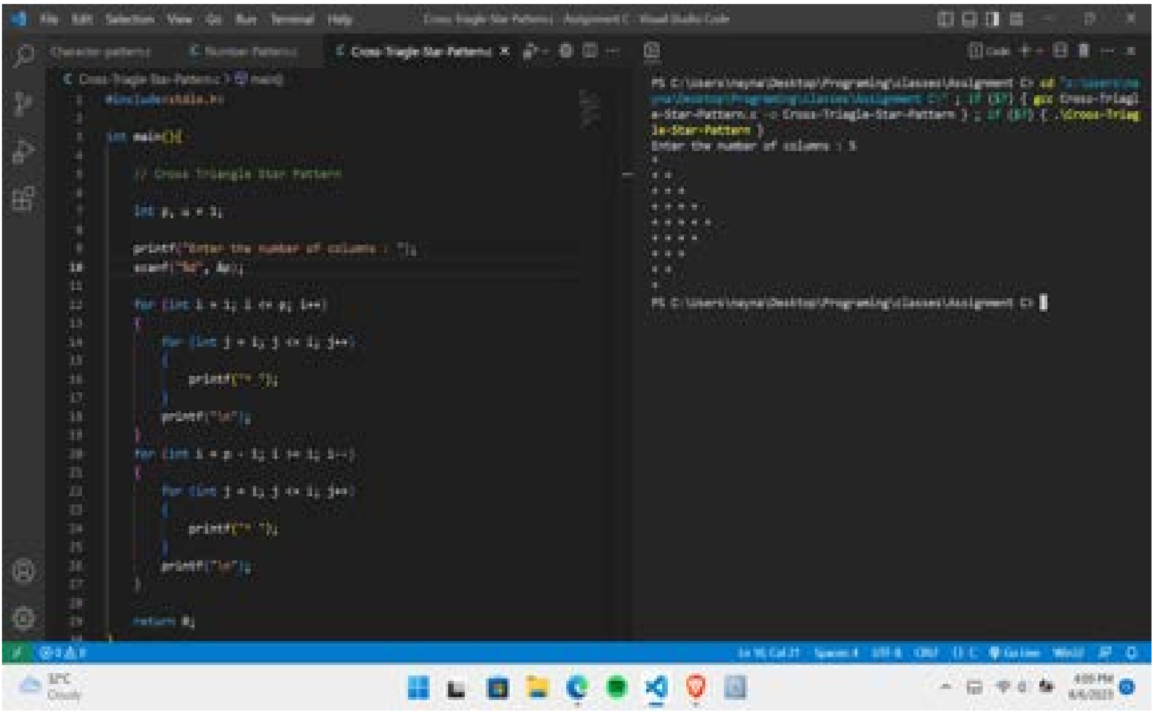
```c
#include<stdio.h>

int main(){

    // Triangle Star Pattern

    int p, u;

    printf("Enter the number of rows : ");
    scanf("%d", &p);

    u = p;

    for (int n = 1; n <= p; n++){
        for (int j = 1; j <= u - 1; j++){
            printf("   ");
        }
        for (int r = 1; r <= 2 * n - 1; r++){
            printf(" * ");
        }
        u--;
        printf("\n");
    }

    return 0;
}
```

```
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C> cd "c:\Users\nayna\Desktop\Programing\classes\Assignment C\" ; if ($?) { gcc Star-Patterns.c -o Star-Patterns } ; if ($?) { .\Star-Patterns }
Enter the number of rows : 5
             *
          *  *  *
       *  *  *  *  *
    *  *  *  *  *  *  *
 *  *  *  *  *  *  *  *  *
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C> 
```

(2)

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

Ans.



```c
#include<stdio.h>

int main(){

    // Cross Triangle Star Pattern

    int p, u = 1;

    printf("Enter the number of columns : ");
    scanf("%d", &p);

    for (int i = 1; i <= p; i++)
    {
        for (int j = 1; j <= i; j++)
        {
            printf("* ");
        }
        printf("\n");
    }
    for (int i = p - 1; i >= 1; i--)
    {
        for (int j = 1; j <= i; j++)
        {
            printf("* ");
        }
        printf("\n");
    }

    return 0;
```

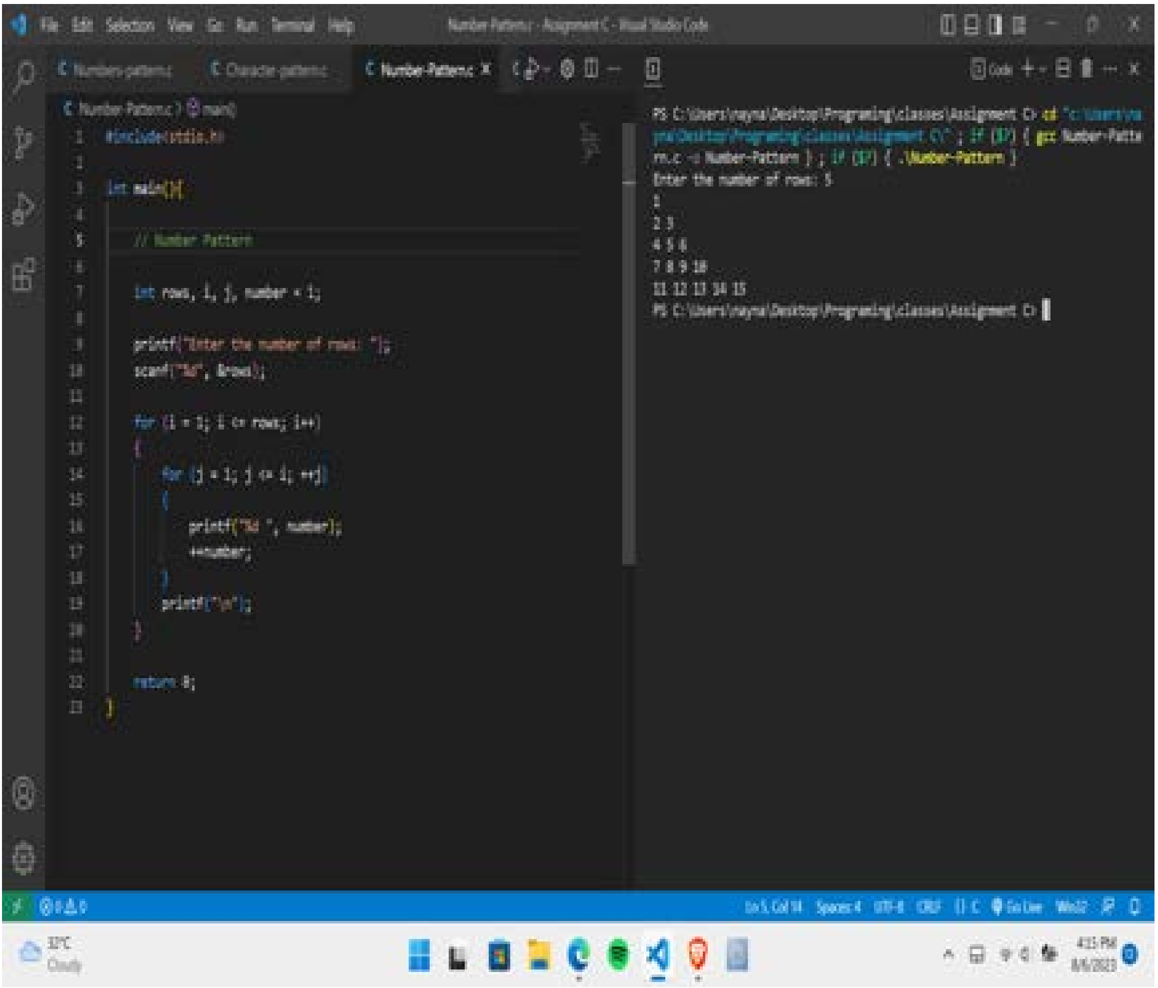
```
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C> cd "c:\Users\nayna\Desktop\Programing\classes\Assignment C\" ; if ($?) { gcc Cross-Triagle-Star-Pattern.c -o Cross-Triagle-Star-Pattern } ; if ($?) { .\Cross-Triagle-Star-Pattern }
Enter the number of columns : 5
*
* *
* * *
* * * *
* * * * *
* * * *
* * *
* *
*
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C> 
```

File Edit Selection View Go Run Terminal Help
Cross-Triagle-Star-Pattern.c - Assignment C - Visual Studio Code
Character-pattern.c
Number-Pattern.c
Cross-Triagle-Star-Pattern.c
Code
Ln 10, Col 21 Spaces: 4 UTF-8 CRLF {} C Go Live Win32
31°C Cloudy

(3)

```
1
2    3
4    5    6
7    8    9    10
11   12   13   14   15
```

Ans.



```c
#include<stdio.h>

int main(){

    // Number Pattern

    int rows, i, j, number = 1;

    printf("Enter the number of rows: ");
    scanf("%d", &rows);

    for (i = 1; i <= rows; i++)
    {
        for (j = 1; j <= i; ++j)
        {
            printf("%d ", number);
            ++number;
        }
        printf("\n");
    }

    return 0;
}
```

```
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C> cd "c:\Users\na
yna\Desktop\Programing\classes\Assignment C\" ; if ($?) { gcc Number-Patte
rn.c -o Number-Pattern } ; if ($?) { .\Number-Pattern }
Enter the number of rows: 5
1
2 3
4 5 6
7 8 9 10
11 12 13 14 15
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C> 
```

File Edit Selection View Go Run Terminal Help
Number-Pattern.c - Assignment C - Visual Studio Code
Numbers-pattern.c
Character-pattern.c
Number-Pattern.c
Number-Pattern.c > main()
Code
Ln 5, Col 14 Spaces: 4 UTF-8 CRLF {} C Go Live Win32
32°C Cloudy
4:15 PM
8/6/2023

(4) **1**

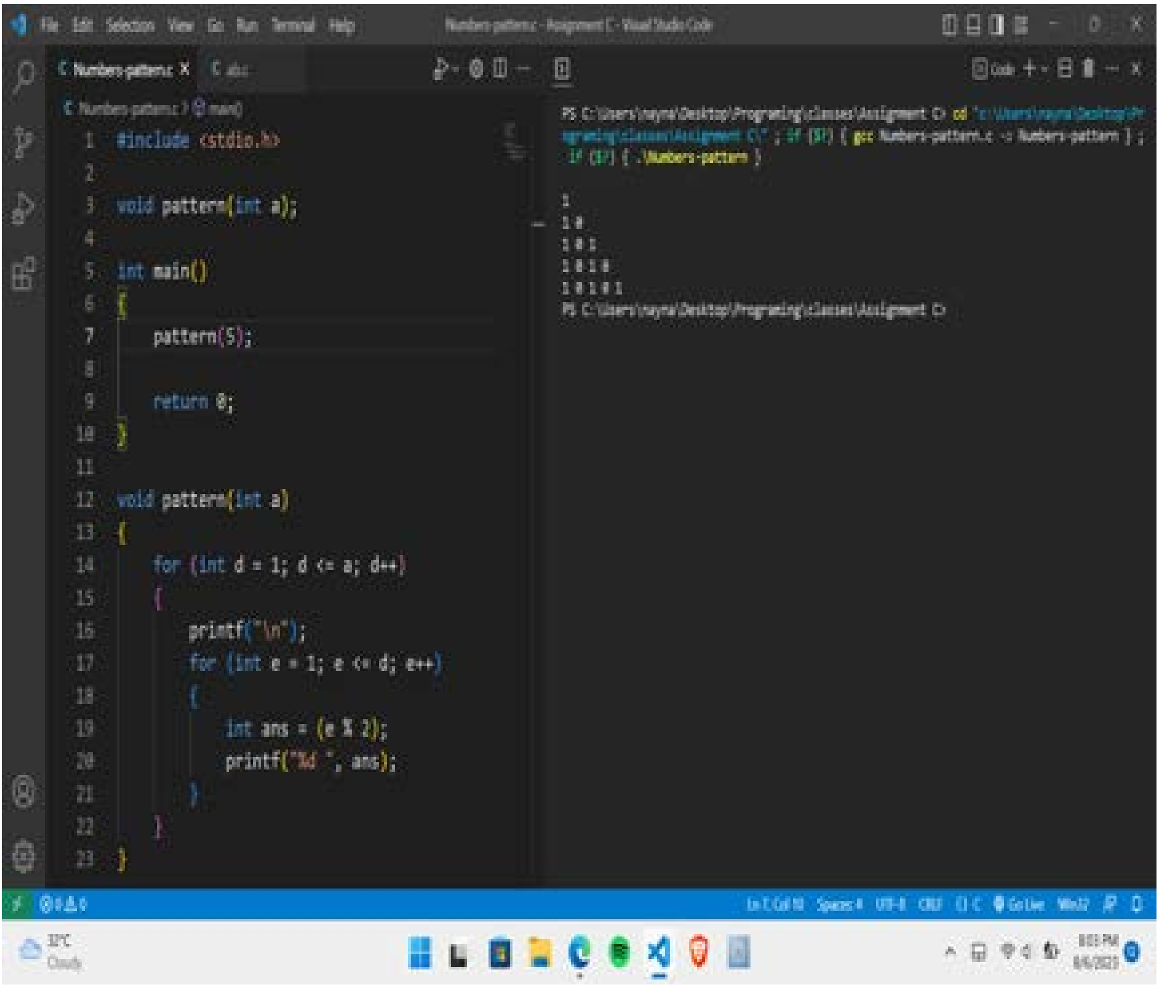
1 0

1 0 1

1 0 1 0

1 0 1 0 1

Ans.



```c
#include <stdio.h>

void pattern(int a);

int main()
{
    pattern(5);

    return 0;
}

void pattern(int a)
{
    for (int d = 1; d <= a; d++)
    {
        printf("\n");
        for (int e = 1; e <= d; e++)
        {
            int ans = (e % 2);
            printf("%d ", ans);
        }
    }
}
```

```
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C> cd "c:\Users\nayna\Desktop\Programing\classes\Assignment C\" ; if ($?) { gcc Numbers-pattern.c -o Numbers-pattern } ; if ($?) { .\Numbers-pattern }

1
1 0
1 0 1
1 0 1 0
1 0 1 0 1
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C>
```

File Edit Selection View Go Run Terminal Help
Numbers-pattern.c - Assignment C - Visual Studio Code
Numbers-pattern.c
abc
Numbers-pattern.c > main()
Code
Ln 7, Col 10 Spaces: 4 UTF-8 CRLF C Go Live Win32
32°C
Cloudy
8:03 PM
8/4/2023

(5) **A**

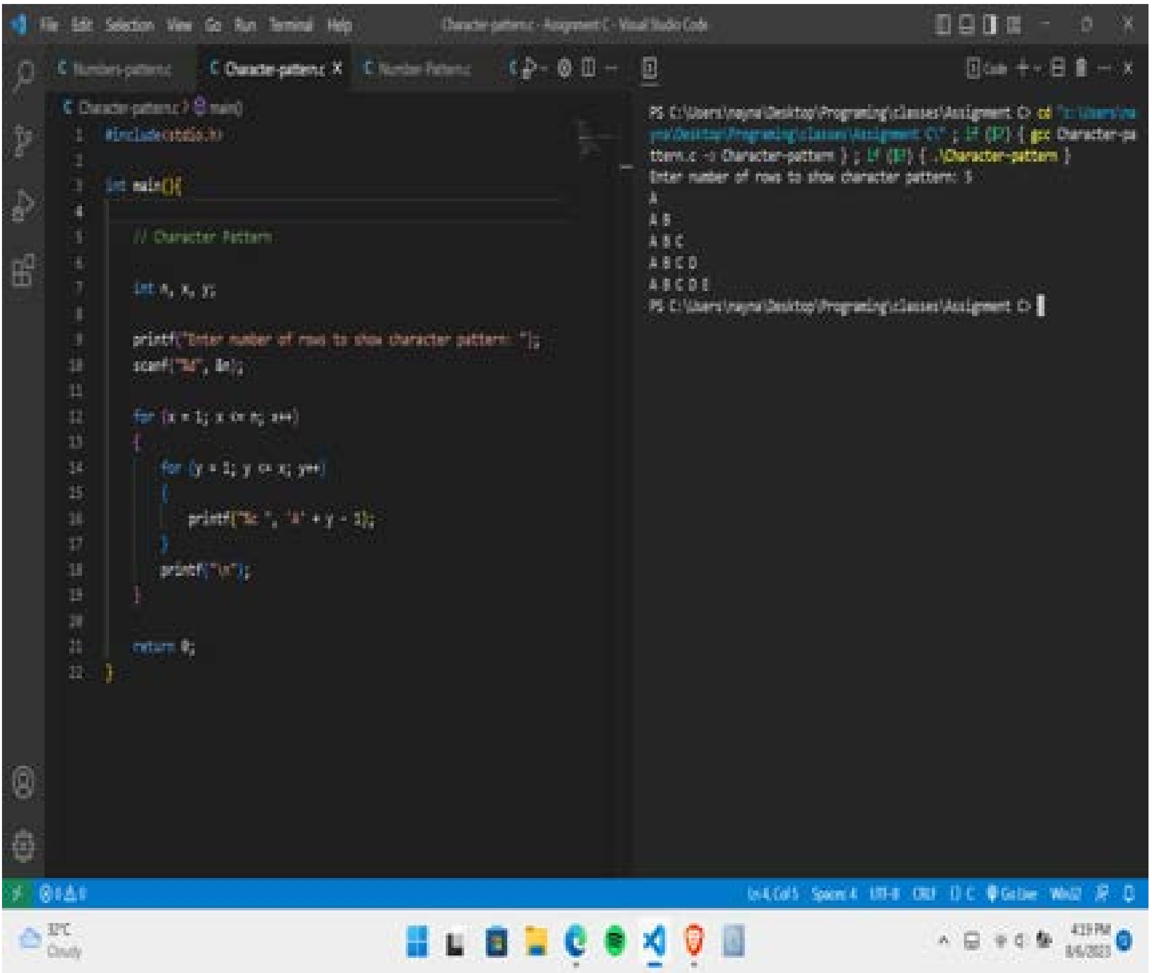
A B

A B C

A B C D

A B C D E

Ans.



File Edit Selection View Go Run Terminal Help
Character-pattern.c - Assignment C - Visual Studio Code
Numbers-pattern.c
Character-pattern.c
Number-Pattern.c
Character-pattern.c > main()
Code
Ln 4, Col 5 Spaces: 4 UTF-8 CRLF {} C Go Live Win32
32°C Cloudy
4:19 PM 8/6/2023

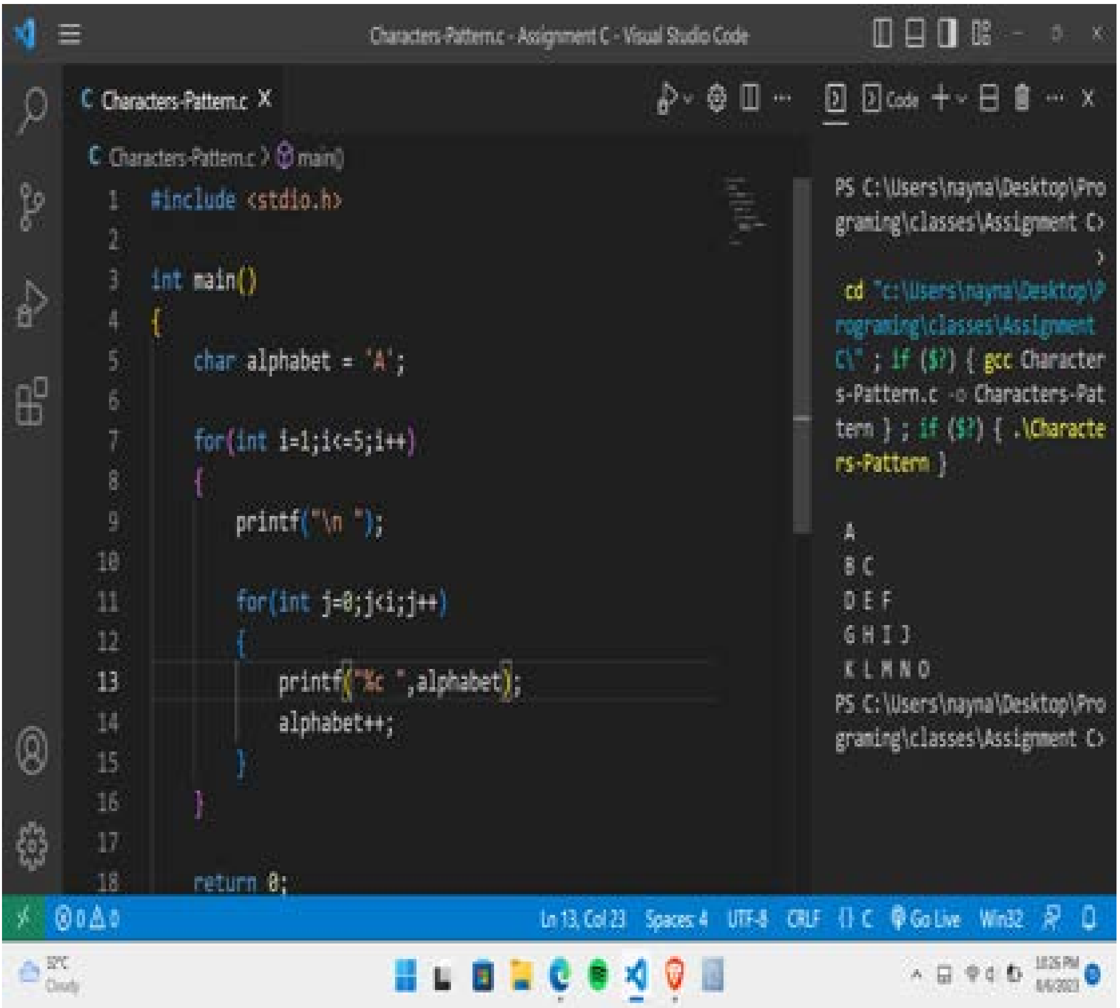
```c
#include<stdio.h>

int main(){

    // Character Pattern

    int n, x, y;

    printf("Enter number of rows to show character pattern: ");
    scanf("%d", &n);

    for (x = 1; x <= n; x++)
    {
        for (y = 1; y <= x; y++)
        {
            printf("%c ", 'A' + y - 1);
        }
        printf("\n");
    }

    return 0;
}
```

```
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C> cd "c:\Users\nayna\Desktop\Programing\classes\Assignment C\" ; if ($?) { gcc Character-pattern.c -o Character-pattern } ; if ($?) { .\Character-pattern }
Enter number of rows to show character pattern: 5
A
A B
A B C
A B C D
A B C D E
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C>
```

(6)

```
A
B    C
D    E    F
G    H    I    J
K    L    M    N    O
```

Ans.


Characters-Pattern.c - Assignment C - Visual Studio Code
Characters-Pattern.c
Characters-Pattern.c > main()
Code
Ln 13, Col 23   Spaces: 4   UTF-8   CRLF   {} C   Go Live   Win32

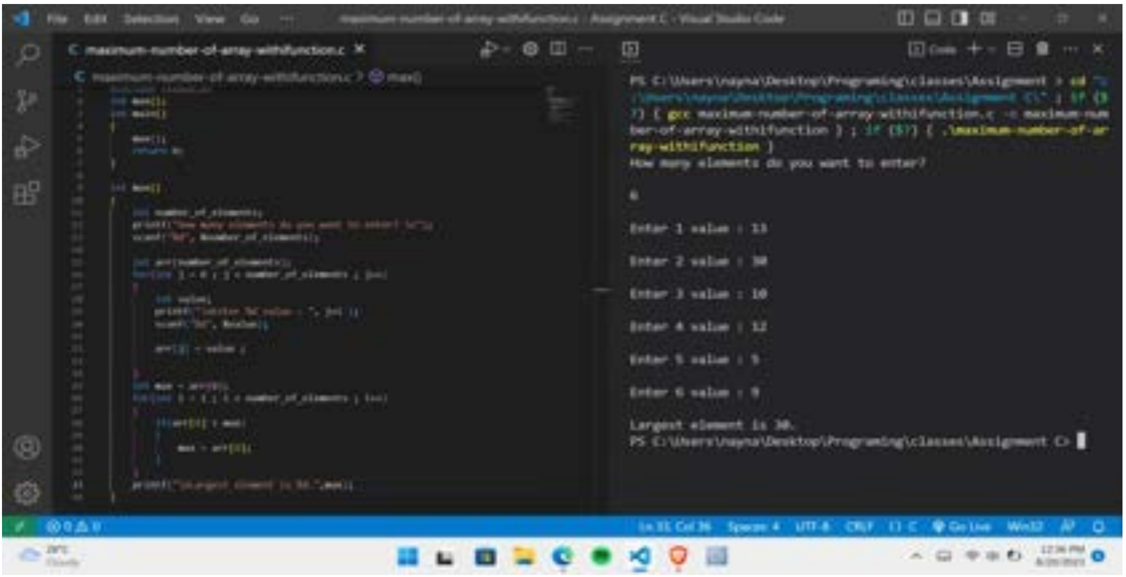
```c
#include <stdio.h>

int main()
{
    char alphabet = 'A';

    for(int i=1;i<=5;i++)
    {
        printf("\n ");

        for(int j=0;j<i;j++)
        {
            printf("%c ",alphabet);
            alphabet++;
        }
    }

    return 0;
```

```
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C>
 cd "c:\Users\nayna\Desktop\Programing\classes\Assignment C\" ; if ($?) { gcc Characters-Pattern.c -o Characters-Pattern } ; if ($?) { .\Characters-Pattern }

 A
 B C
 D E F
 G H I J
 K L M N O
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C>
```

Module 3.3 --> File Handling and debugging

1> Write a program to find out the max number from given array using function.

Ans.

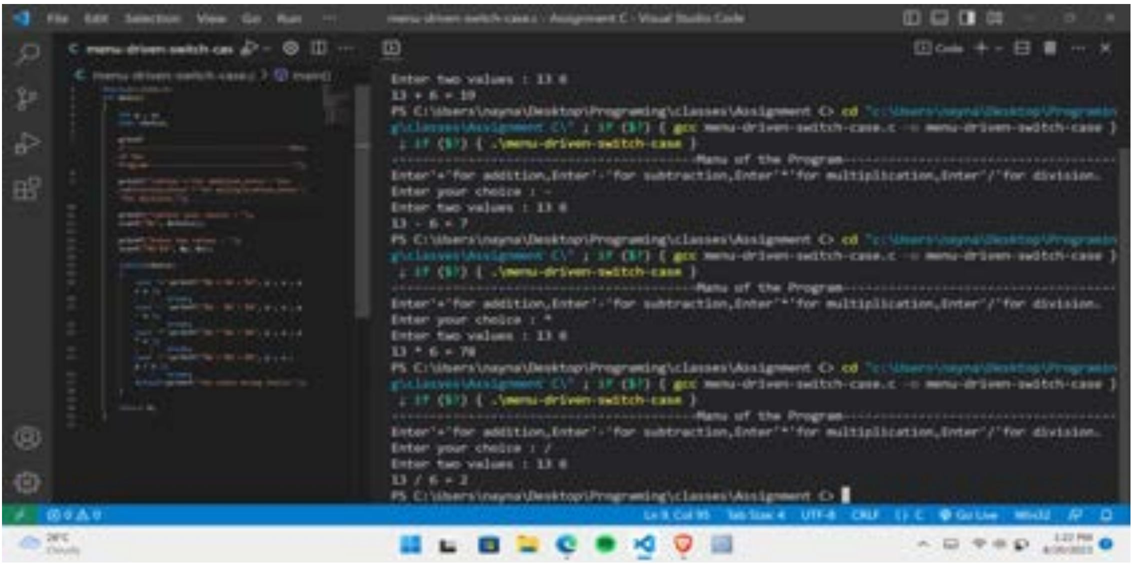


```c
int max();
int main()
{
    max();
    return 0;
}

int max()
{
    int number_of_elements;
    printf("How many elements do you want to enter? \n");
    scanf("%d", &number_of_elements);

    int arr[number_of_elements];
    for(int i = 0 ; i < number_of_elements ; i++)
    {
        int value;
        printf("\nEnter %d value : ", i+1 );
        scanf("%d", &value);

        arr[i] = value ;

    }
    int max = arr[0];
    for(int i = 1 ; i < number_of_elements ; i++)
    {
        if(arr[i] > max)
        {
            max = arr[i];
        }
    }
    printf("\nLargest element is %d.",max);
}
```

```
PS C:\Users\nayna\Desktop\Programing\classes\Assignment > cd "c:\Users\nayna\Desktop\Programing\classes\Assignment C\" ; if ($?) { gcc maximum-number-of-array-withifunction.c -o maximum-number-of-array-withifunction } ; if ($?) { .\maximum-number-of-array-withifunction }
How many elements do you want to enter?

6

Enter 1 value : 13

Enter 2 value : 30

Enter 3 value : 10

Enter 4 value : 12

Enter 5 value : 5

Enter 6 value : 9

Largest element is 30.
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C>
```

2> Write a program of Addition, Subtraction, Multiplication and Division using Switch case. (Must Be Menu Driven).

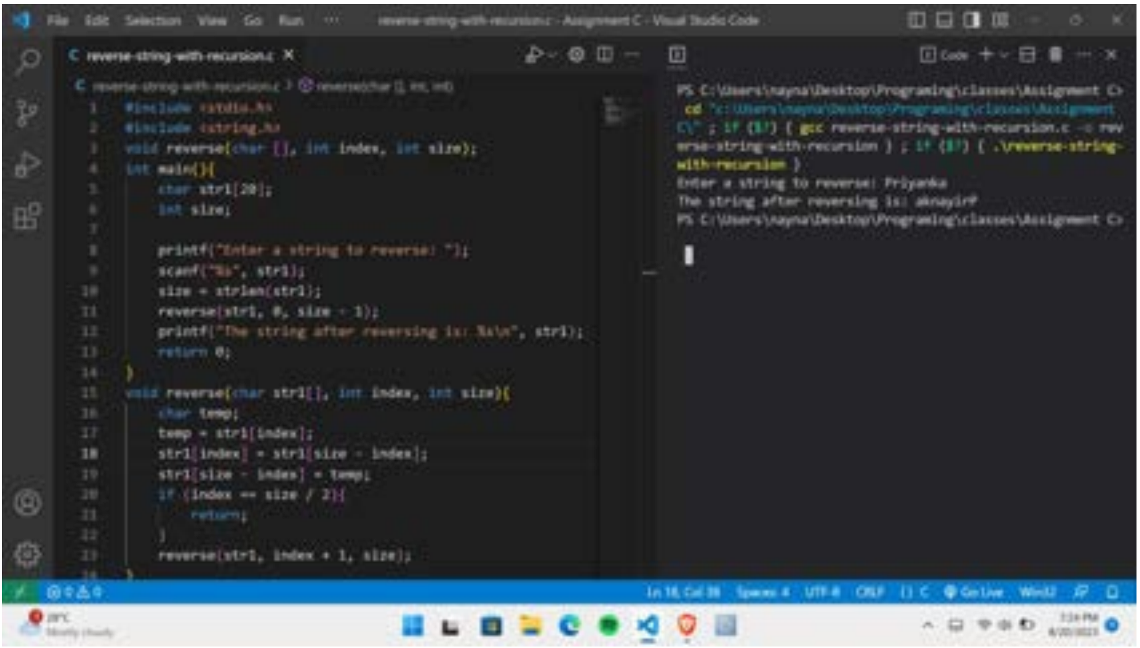
Ans.



```
Enter two values : 13 6
13 + 6 = 19
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C> cd "c:\Users\nayna\Desktop\Programing\classes\Assignment C\" ; if ($?) { gcc menu-driven-switch-case.c -o menu-driven-switch-case } ; if ($?) { .\menu-driven-switch-case }
------------------------------------------------Menu of the Program------------------------------------------------
Enter'+'for addition,Enter'-'for subtraction,Enter'*'for multiplication,Enter'/'for division.
Enter your choice : -
Enter two values : 13 6
13 - 6 = 7
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C> cd "c:\Users\nayna\Desktop\Programing\classes\Assignment C\" ; if ($?) { gcc menu-driven-switch-case.c -o menu-driven-switch-case } ; if ($?) { .\menu-driven-switch-case }
------------------------------------------------Menu of the Program------------------------------------------------
Enter'+'for addition,Enter'-'for subtraction,Enter'*'for multiplication,Enter'/'for division.
Enter your choice : *
Enter two values : 13 6
13 * 6 = 78
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C> cd "c:\Users\nayna\Desktop\Programing\classes\Assignment C\" ; if ($?) { gcc menu-driven-switch-case.c -o menu-driven-switch-case } ; if ($?) { .\menu-driven-switch-case }
------------------------------------------------Menu of the Program------------------------------------------------
Enter'+'for addition,Enter'-'for subtraction,Enter'*'for multiplication,Enter'/'for division.
Enter your choice : /
Enter two values : 13 6
13 / 6 = 2
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C>
```

3> Write a program to find the reverse of string using recursion.

Ans.



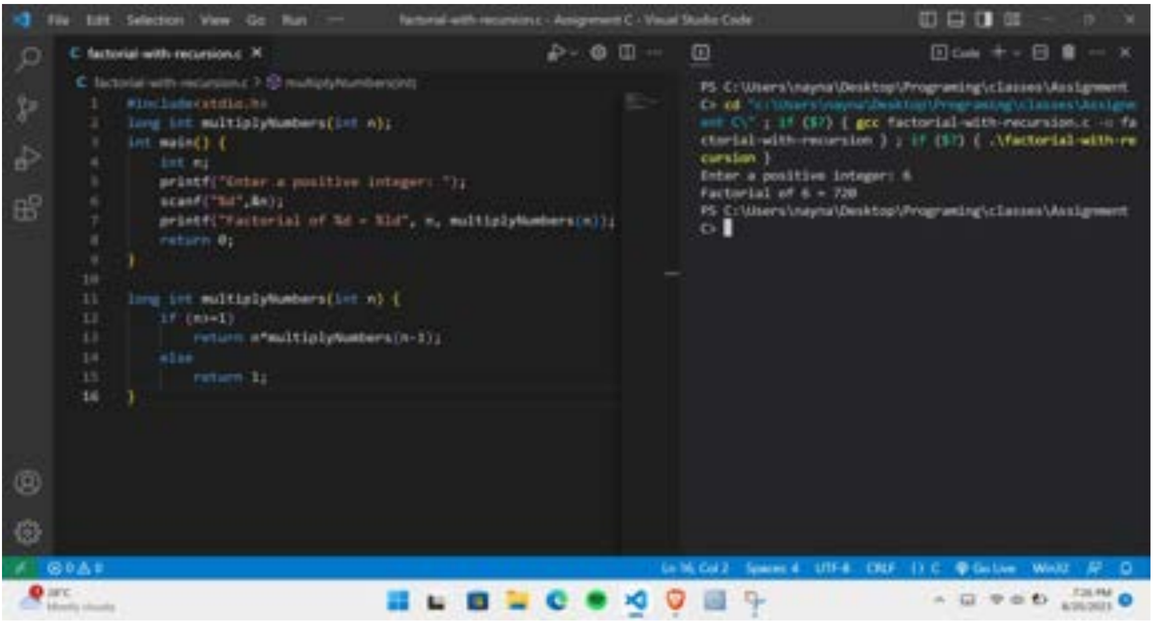
File Edit Selection View Go Run ··· reverse-string-with-recursion.c - Assignment C - Visual Studio Code
reverse-string-with-recursion.c
reverse-string-with-recursion.c > reverse(char [], int, int)

```c
#include <stdio.h>
#include <string.h>
void reverse(char [], int index, int size);
int main(){
    char str1[20];
    int size;

    printf("Enter a string to reverse: ");
    scanf("%s", str1);
    size = strlen(str1);
    reverse(str1, 0, size - 1);
    printf("The string after reversing is: %s\n", str1);
    return 0;
}
void reverse(char str1[], int index, int size){
    char temp;
    temp = str1[index];
    str1[index] = str1[size - index];
    str1[size - index] = temp;
    if (index == size / 2){
        return;
    }
    reverse(str1, index + 1, size);
}
```

```
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C>
 cd "c:\Users\nayna\Desktop\Programing\classes\Assignment
C\" ; if ($?) { gcc reverse-string-with-recursion.c -o rev
erse-string-with-recursion } ; if ($?) { .\reverse-string-
with-recursion }
Enter a string to reverse: Priyanka
The string after reversing is: aknayirP
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C>
```

4> Write a program to find factorial using recursion.

Ans.



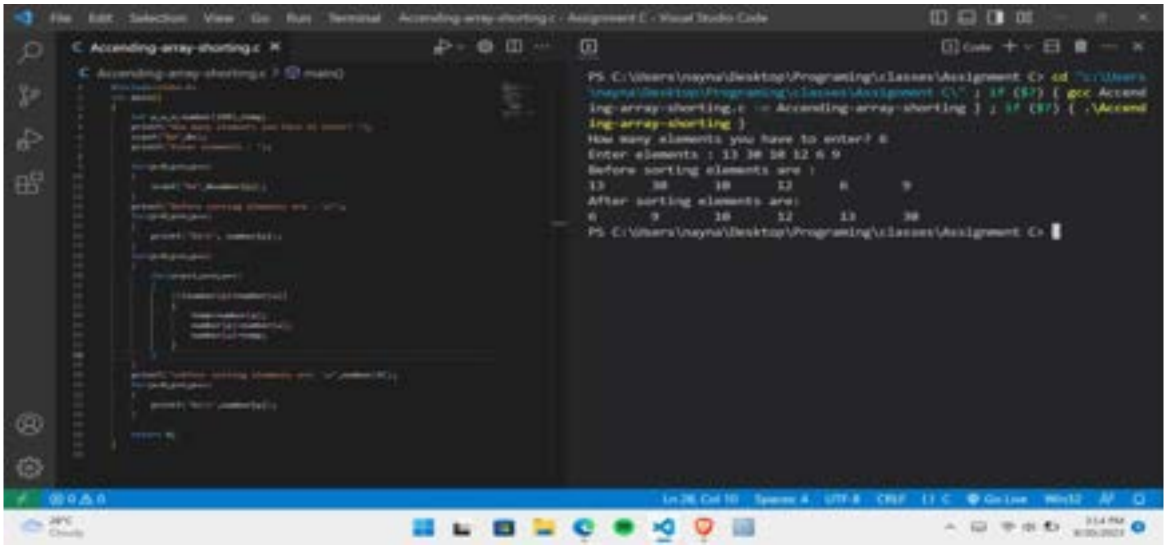
File Edit Selection View Go Run ··· factorial-with-recursion.c - Assignment C - Visual Studio Code
factorial-with-recursion.c
factorial-with-recursion.c > multiplyNumbers(int)

```c
#include<stdio.h>
long int multiplyNumbers(int n);
int main() {
    int n;
    printf("Enter a positive integer: ");
    scanf("%d",&n);
    printf("Factorial of %d = %ld", n, multiplyNumbers(n));
    return 0;
}

long int multiplyNumbers(int n) {
    if (n>=1)
        return n*multiplyNumbers(n-1);
    else
        return 1;
}
```

```
PS C:\Users\nayna\Desktop\Programing\classes\Assignment
C> cd "c:\Users\nayna\Desktop\Programing\classes\Assignme
nt C\" ; if ($?) { gcc factorial-with-recursion.c -o fa
ctorial-with-recursion } ; if ($?) { .\factorial-with-re
cursion }
Enter a positive integer: 6
Factorial of 6 = 720
PS C:\Users\nayna\Desktop\Programing\classes\Assignment
C>
```

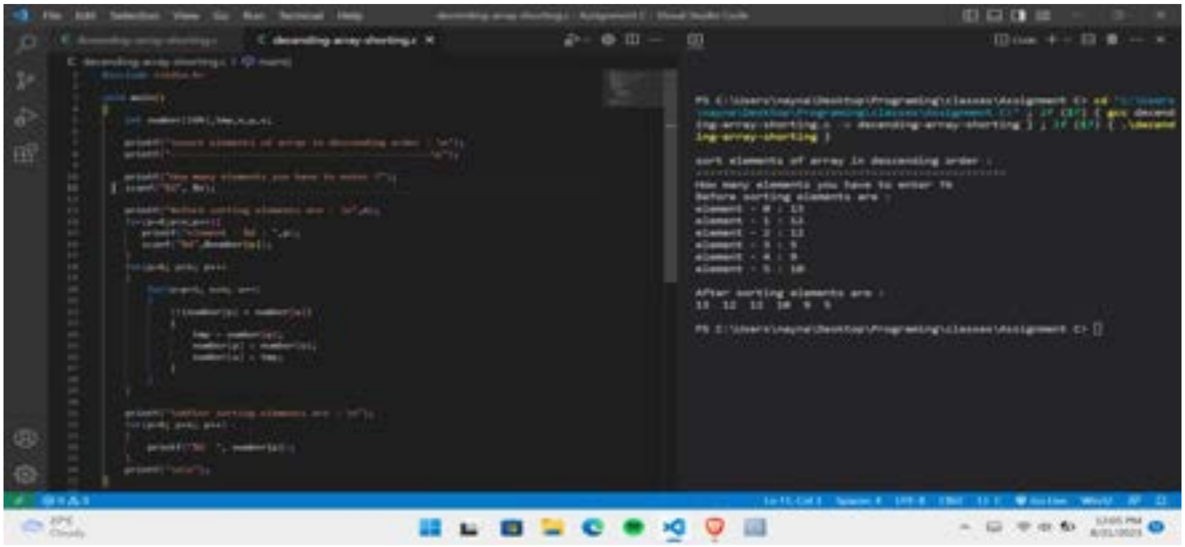
5> Write a program to take two Array input from user and sort them in ascending or descending order as per user's choice.

Ans. **Acceding Order**


File Edit Selection View Go Run Terminal Accending-array-shorting.c - Assignment C - Visual Studio Code
Accending-array-shorting.c
Accending-array-shorting.c > main()
Code

```
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C> cd "c:\Users\nayna\Desktop\Programing\classes\Assignment C\" ; if ($?) { gcc Accending-array-shorting.c -o Accending-array-shorting } ; if ($?) { .\Accending-array-shorting }
How many elements you have to enter? 6
Enter elements : 13 30 10 12 6 9
Before sorting elements are :
13      30      10      12      6       9
After sorting elements are:
6       9       10      12      13      30
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C> 
```

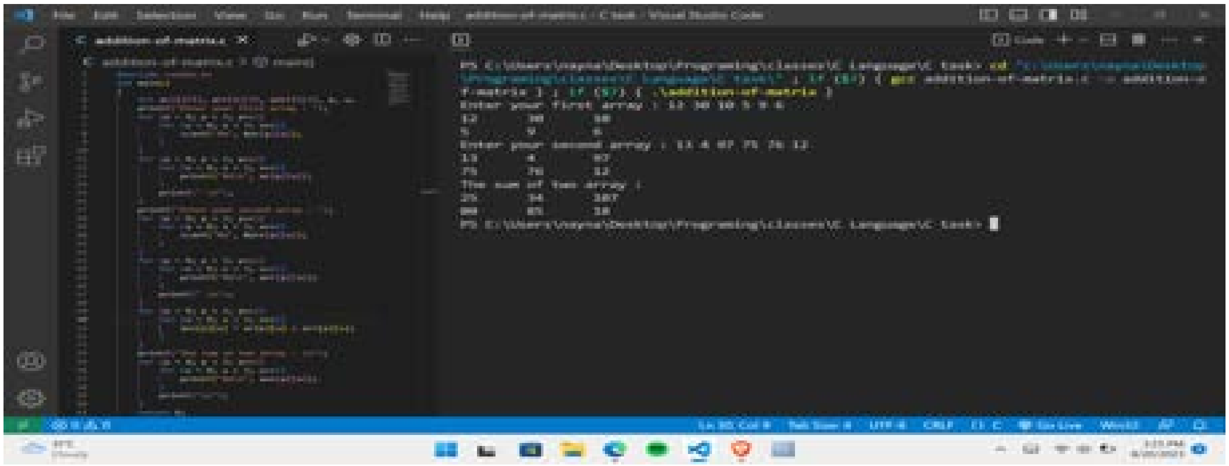
Descending Order


File Edit Selection View Go Run Terminal Help descending-array-shorting.c - Assignment C - Visual Studio Code
Accending-array-shorting.c
descending-array-shorting.c
Code

```
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C> cd "c:\Users\nayna\Desktop\Programing\classes\Assignment C\" ; if ($?) { gcc descending-array-shorting.c -o descending-array-shorting } ; if ($?) { .\descending-array-shorting }

sort elements of array in descending order :
------------------------------------------------
How many elements you have to enter ?6
Before sorting elements are :
element - 0 : 13
element - 1 : 11
element - 2 : 12
element - 3 : 5
element - 4 : 9
element - 5 : 10

After sorting elements are :
13  12  11  10  9  5

PS C:\Users\nayna\Desktop\Programing\classes\Assignment C> 
```

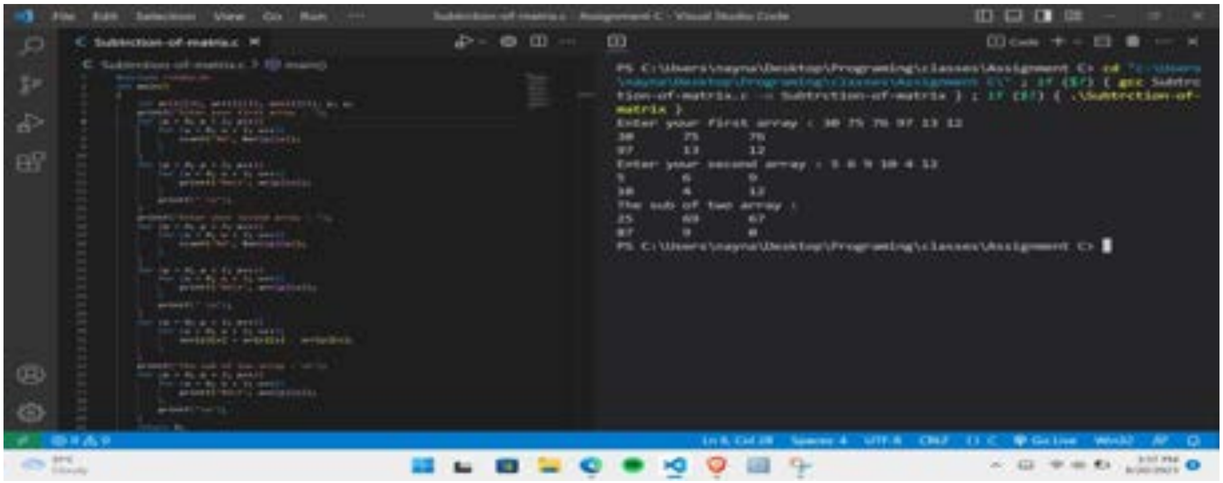
6> Write a program to make Addition, Subtraction and Multiplication of two matrix using 2-D Array.

Ans. **Addition of two matrix using 2-D Array**



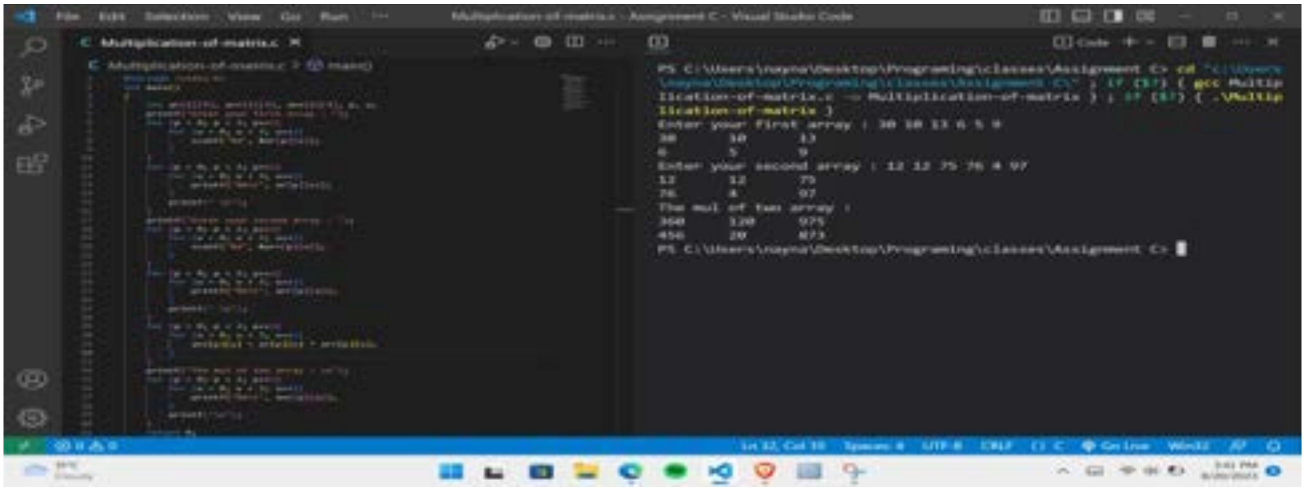
```
PS C:\Users\nayna\Desktop\Programming\classes\C Language\C task> cd "c:\Users\nayna\Desktop
\Programming\classes\C Language\C task\" ; if ($?) { gcc addition-of-matrix.c -o addition-o
f-matrix } ; if ($?) { .\addition-of-matrix }
Enter your first array : 12 30 10 5 9 6
12      30      10
5       9       6
Enter your second array : 13 4 97 75 76 12
13      4       97
75      76      12
The sum of two array :
25      34      107
80      85      18
PS C:\Users\nayna\Desktop\Programming\classes\C Language\C task> 
```

Subtraction of two matrix using 2-D Array



```
PS C:\Users\nayna\Desktop\Programming\classes\Assignment C> cd "c:\Users
\nayna\Desktop\Programming\classes\Assignment C\" ; if ($?) { gcc Subtrc
tion-of-matrix.c -o Subtrction-of-matrix } ; if ($?) { .\Subtrction-of-
matrix }
Enter your first array : 30 75 76 97 13 12
30      75      76
97      13      12
Enter your second array : 5 6 9 10 4 12
5       6       9
10      4       12
The sub of two array :
25      69      67
87      9       0
PS C:\Users\nayna\Desktop\Programming\classes\Assignment C> 
```

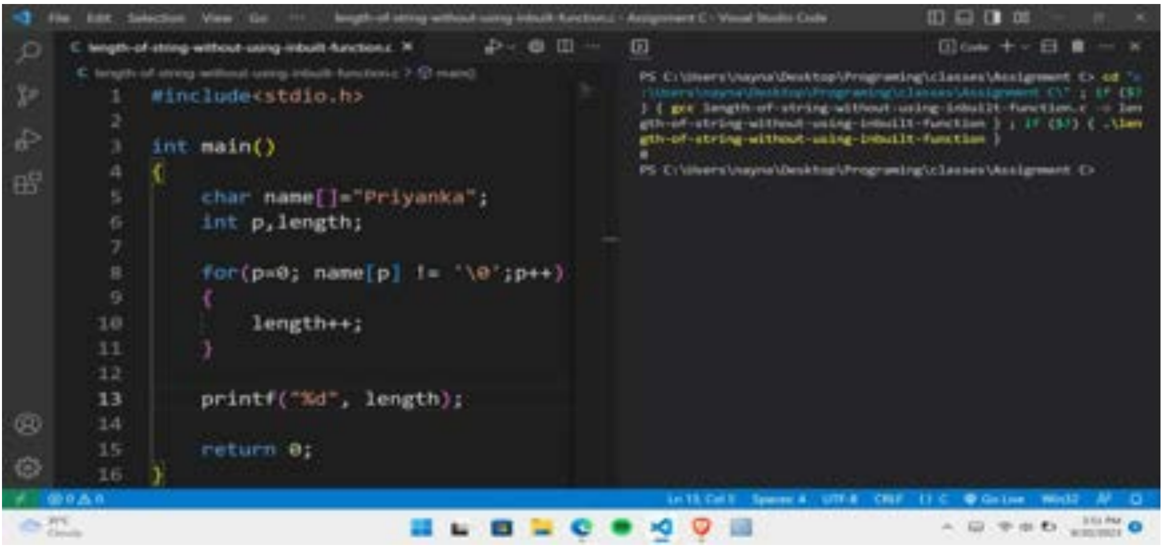
Multiplication of two matrix using 2-D Array



```
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C> cd "c:\Users\nayna\Desktop\Programing\classes\Assignment C\" ; if ($?) { gcc Multiplication-of-matrix.c -o Multiplication-of-matrix } ; if ($?) { .\Multiplication-of-matrix }
Enter your first array : 30 10 13 6 5 9
30      10      13
6       5       9
Enter your second array : 12 12 75 76 4 97
12      12      75
76      4       97
The mul of two array :
360     120     975
456     20      873
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C>
```

7> Write a program to Find out length of string without using inbuilt function.

Ans.

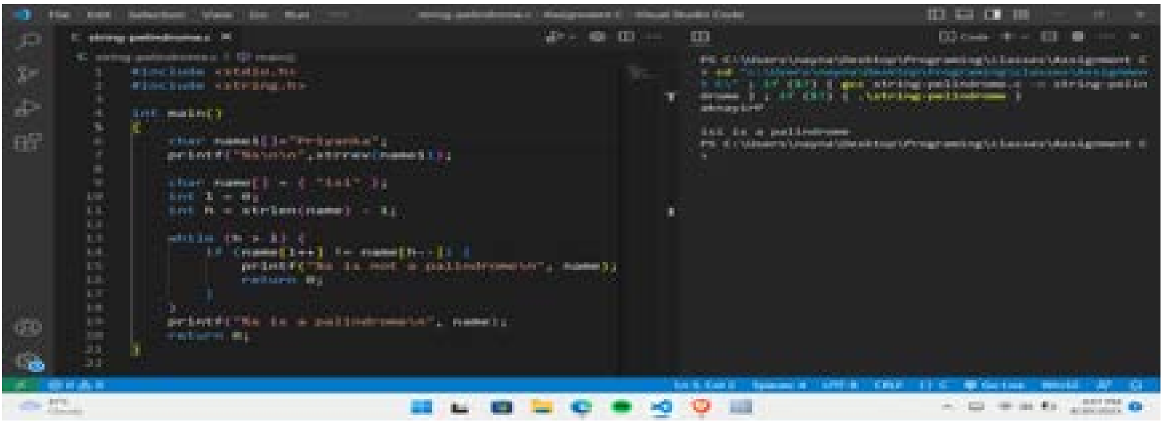


```c
#include<stdio.h>

int main()
{
    char name[]="Priyanka";
    int p,length;

    for(p=0; name[p] != '\0';p++)
    {
        length++;
    }

    printf("%d", length);

    return 0;
}
```

```
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C> cd "c:\Users\nayna\Desktop\Programing\classes\Assignment C\" ; if ($?) { gcc length-of-string-without-using-inbuilt-function.c -o length-of-string-without-using-inbuilt-function } ; if ($?) { .\length-of-string-without-using-inbuilt-function }
8
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C>
```

8> Write a program to reverse a string and check if the string is palindrome or not.

Ans.

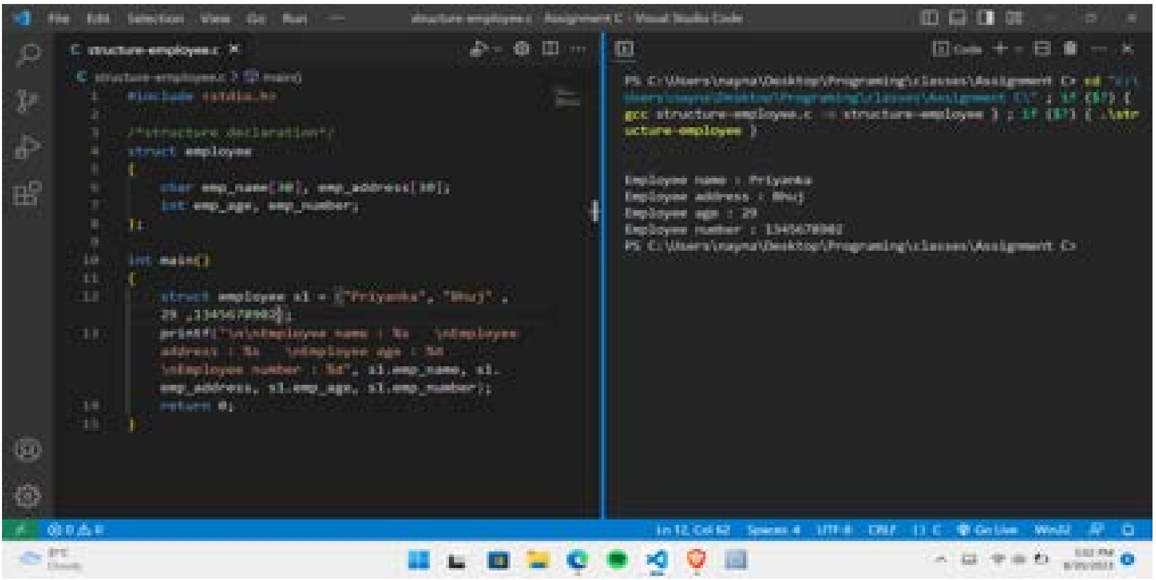


```c
#include <stdio.h>
#include <string.h>

int main()
{
    char name1[]="Priyanka";
    printf("%s\n\n",strrev(name1));

    char name[] = { "lol" };
    int l = 0;
    int h = strlen(name) - 1;

    while (h > l) {
        if (name[l++] != name[h--]) {
            printf("%s is not a palindrome\n", name);
            return 0;
        }
    }
    printf("%s is a palindrome\n", name);
    return 0;
}
```

```
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C> cd "c:\Users\nayna\Desktop\Programing\classes\Assignment C\" ; if ($?) { gcc string-palindrome.c -o string-palindrome } ; if ($?) { .\string-palindrome }
aknayirP

lol is a palindrome
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C>
```

9> Write a program of employee structure that provides the following information - Print and Display Employee-number, Employee-name, Address and Age.

Ans.

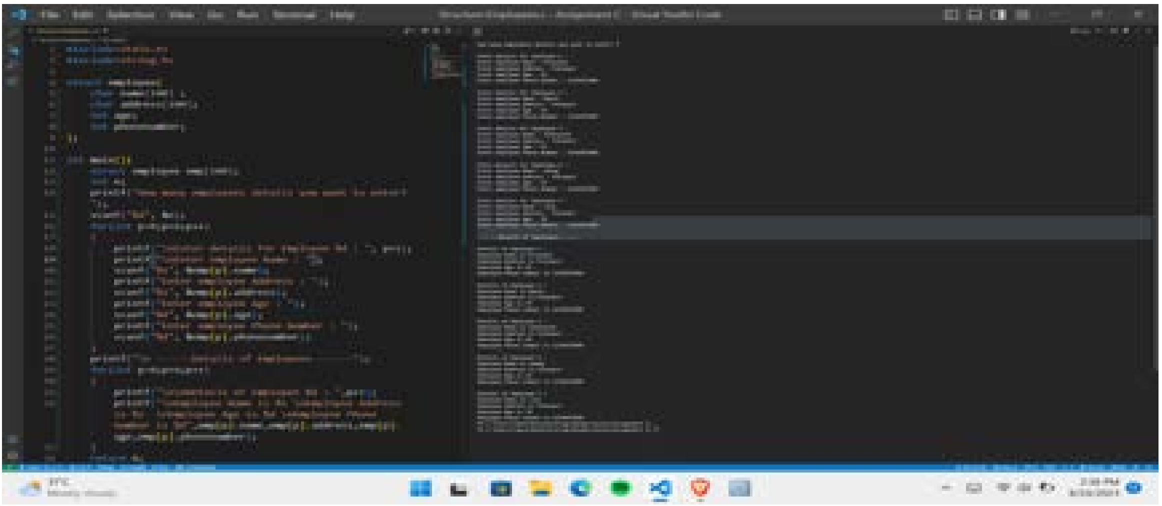


```c
#include <stdio.h>

/*structure declaration*/
struct employee
{
    char emp_name[30], emp_address[30];
    int emp_age, emp_number;
};

int main()
{
    struct employee s1 = {"Priyanka", "Bhuj" , 29 ,1345678902};
    printf("\n\nEmployee name : %s   \nEmployee address : %s   \nEmployee age : %d   \nEmployee number : %d", s1.emp_name, s1.emp_address, s1.emp_age, s1.emp_number);
    return 0;
}
```

```
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C> cd "c:\Users\nayna\Desktop\Programing\classes\Assignment C\" ; if ($?) { gcc structure-employee.c -o structure-employee } ; if ($?) { .\structure-employee }


Employee name : Priyanka
Employee address : Bhuj
Employee age : 29
Employee number : 1345678902
PS C:\Users\nayna\Desktop\Programing\classes\Assignment C>
```

10> Write a program of structure for five employees that provides the following information -print and display Employee number, Employee name, Address and Age.

Ans.



11> Write a program to show the difference between Structure and Union.

Ans.