DATE:-19/09/22

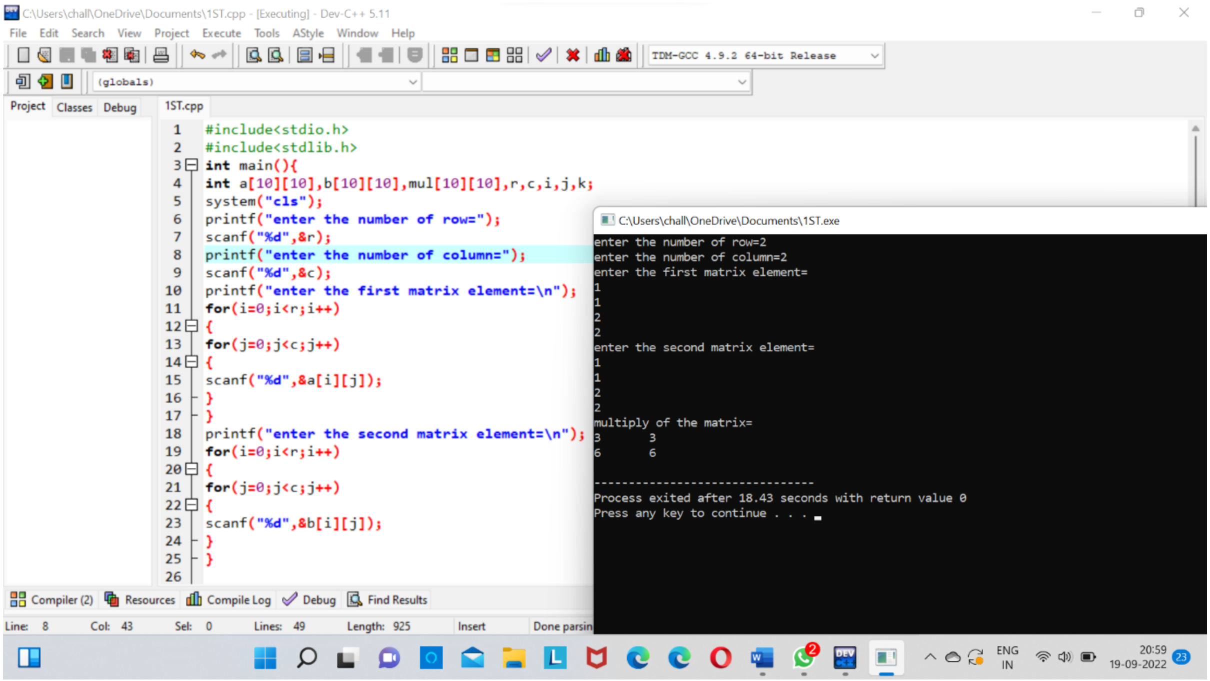
COURSE NAME:-DATA STRUCTURES FOR EXPRESSION EVALUATION

COURSE CODE:-CSA0374

NAME OF THE STUDENT:-CH.INDHU PRIYA

REGNO:-192111191

EXPERIMENT:1(MATRIX MULTIPLICATION)



C:\Users\chall\OneDrive\Documents\1ST.cpp - [Executing] - Dev-C++ 5.11

```c
#include<stdio.h>
#include<stdlib.h>
int main(){
int a[10][10],b[10][10],mul[10][10],r,c,i,j,k;
system("cls");
printf("enter the number of row=");
scanf("%d",&r);
printf("enter the number of column=");
scanf("%d",&c);
printf("enter the first matrix element=\n");
for(i=0;i<r;i++)
{
for(j=0;j<c;j++)
{
scanf("%d",&a[i][j]);
}
}
printf("enter the second matrix element=\n");
for(i=0;i<r;i++)
{
for(j=0;j<c;j++)
{
scanf("%d",&b[i][j]);
}
}

```

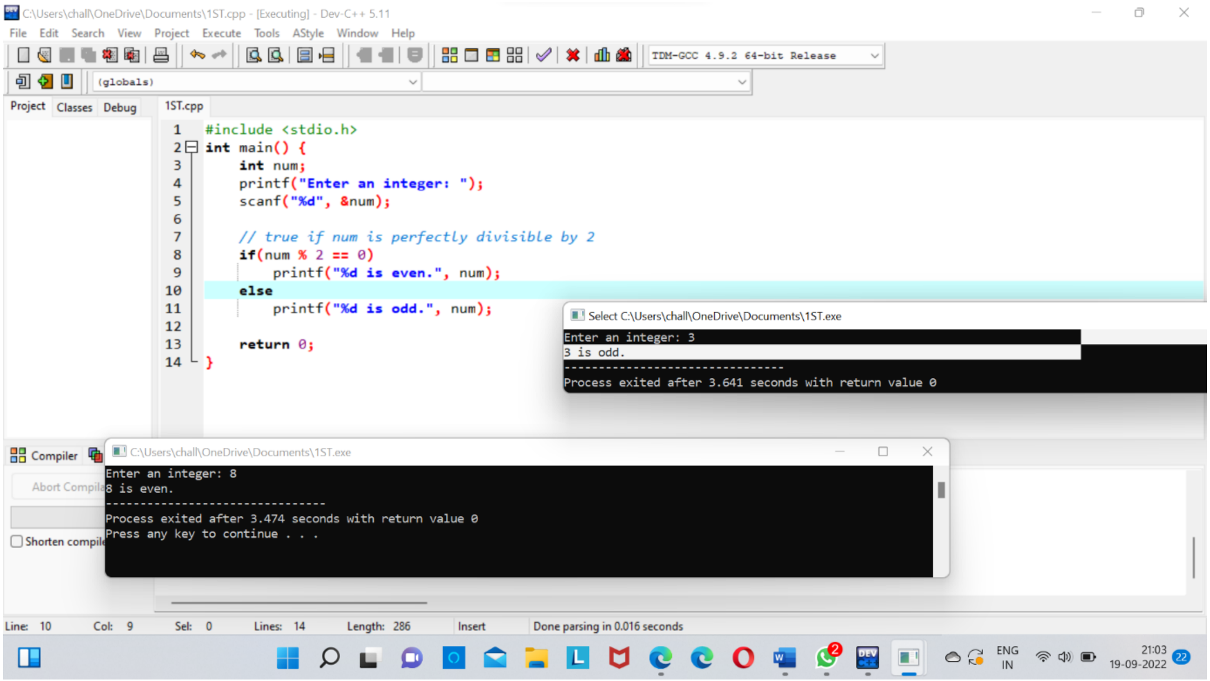
C:\Users\chall\OneDrive\Documents\1ST.exe

```
enter the number of row=2
enter the number of column=2
enter the first matrix element=
1
1
2
2
enter the second matrix element=
1
1
2
2
multiply of the matrix=
3       3
6       6

--------------------------------
Process exited after 18.43 seconds with return value 0
Press any key to continue . . .
```

Line: 8 Col: 43 Sel: 0 Lines: 49 Length: 925 Insert Done parsin

EXPERIMENT:2(ODD OR EVEN)



C:\Users\chall\OneDrive\Documents\1ST.cpp - [Executing] - Dev-C++ 5.11

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

    // true if num is perfectly divisible by 2
    if(num % 2 == 0)
        printf("%d is even.", num);
    else
        printf("%d is odd.", num);

    return 0;
}
```

Select C:\Users\chall\OneDrive\Documents\1ST.exe

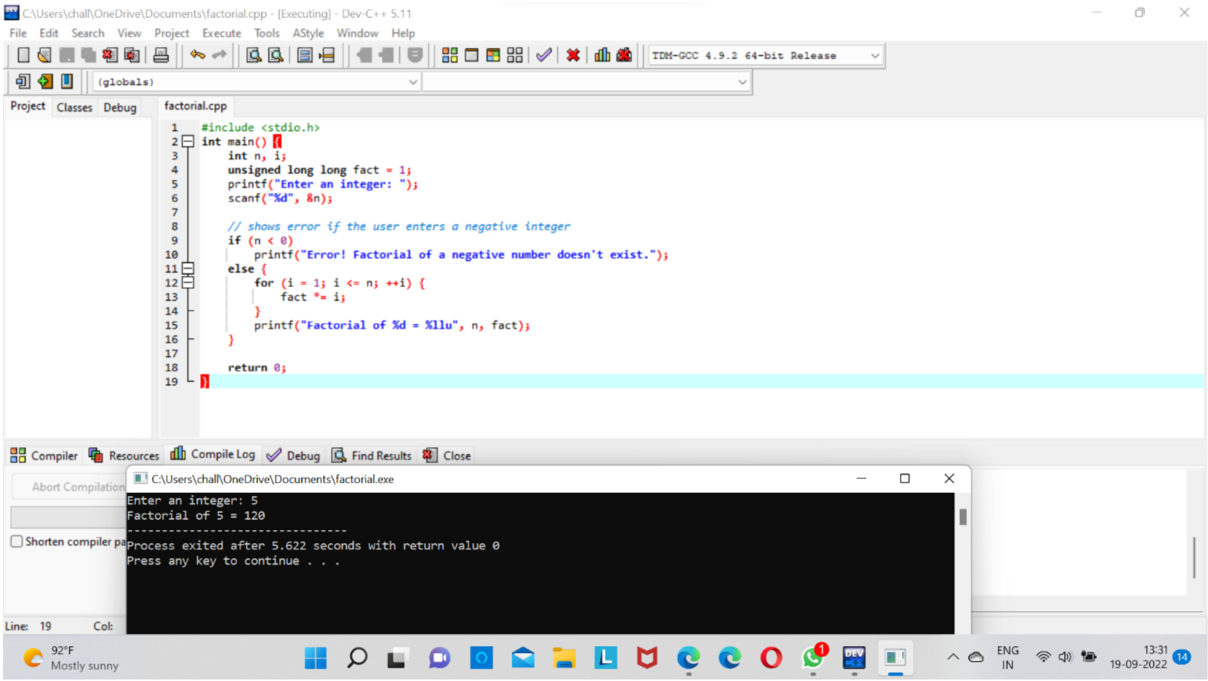
```
Enter an integer: 3
3 is odd.
--------------------------------
Process exited after 3.641 seconds with return value 0
```

C:\Users\chall\OneDrive\Documents\1ST.exe

```
Enter an integer: 8
8 is even.
--------------------------------
Process exited after 3.474 seconds with return value 0
Press any key to continue . . .
```

Line: 10 Col: 9 Sel: 0 Lines: 14 Length: 286 Insert Done parsing in 0.016 seconds

EXPERIMENT:-3(WITHOUT USING RECURSION FACTORIAL)


C:\Users\chall\OneDrive\Documents\factorial.cpp - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 4.9.2 64-bit Release
(globals)
Project Classes Debug
factorial.cpp
Compiler Resources Compile Log Debug Find Results Close
Abort Compilation
Shorten compiler pa
C:\Users\chall\OneDrive\Documents\factorial.exe
Line: 19 Col:
92°F
Mostly sunny
ENG
IN
13:31
19-09-2022

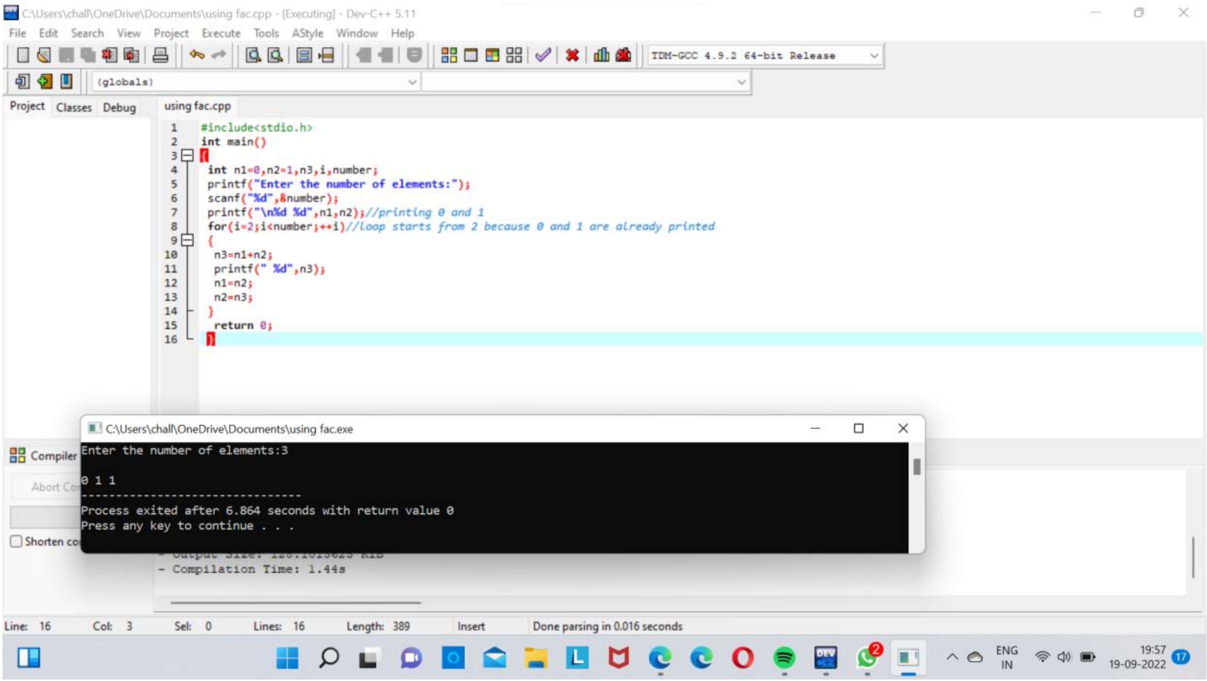
```c
#include <stdio.h>
int main() {
    int n, i;
    unsigned long long fact = 1;
    printf("Enter an integer: ");
    scanf("%d", &n);

    // shows error if the user enters a negative integer
    if (n < 0)
        printf("Error! Factorial of a negative number doesn't exist.");
    else {
        for (i = 1; i <= n; ++i) {
            fact *= i;
        }
        printf("Factorial of %d = %llu", n, fact);
    }

    return 0;
}
```

```
Enter an integer: 5
Factorial of 5 = 120
--------------------------------
Process exited after 5.622 seconds with return value 0
Press any key to continue . . .
```

EXPERIMENT:-4(WITHOUT USING RECURSION FIBINOSIS)


C:\Users\chall\OneDrive\Documents\using fac.cpp - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 4.9.2 64-bit Release
(globals)
Project Classes Debug
using fac.cpp
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C:\Users\chall\OneDrive\Documents\using fac.exe
Line: 16 Col: 3 Sel: 0 Lines: 16 Length: 389 Insert Done parsing in 0.016 seconds
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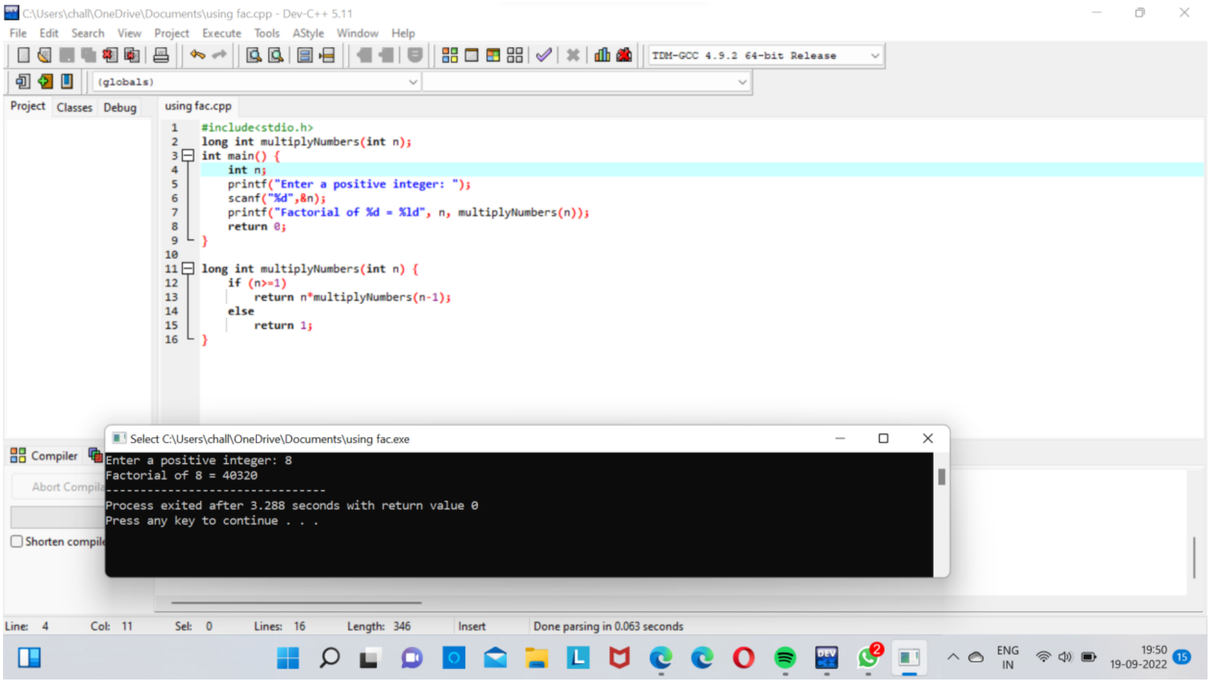
19:57
19-09-2022

```c
#include<stdio.h>
int main()
{
 int n1=0,n2=1,n3,i,number;
 printf("Enter the number of elements:");
 scanf("%d",&number);
 printf("\n%d %d",n1,n2);//printing 0 and 1
 for(i=2;i<number;++i)//loop starts from 2 because 0 and 1 are already printed
 {
  n3=n1+n2;
  printf(" %d",n3);
  n1=n2;
  n2=n3;
 }
  return 0;
 }
```

```
Enter the number of elements:3

0 1 1
--------------------------------
Process exited after 6.864 seconds with return value 0
Press any key to continue . . .
```

```
- Compilation Time: 1.44s
```

EXPERIMENT:-5(USING RECURSION FACTORIAL)


C:\Users\chall\OneDrive\Documents\using fac.cpp - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 4.9.2 64-bit Release
(globals)
Project Classes Debug
using fac.cpp

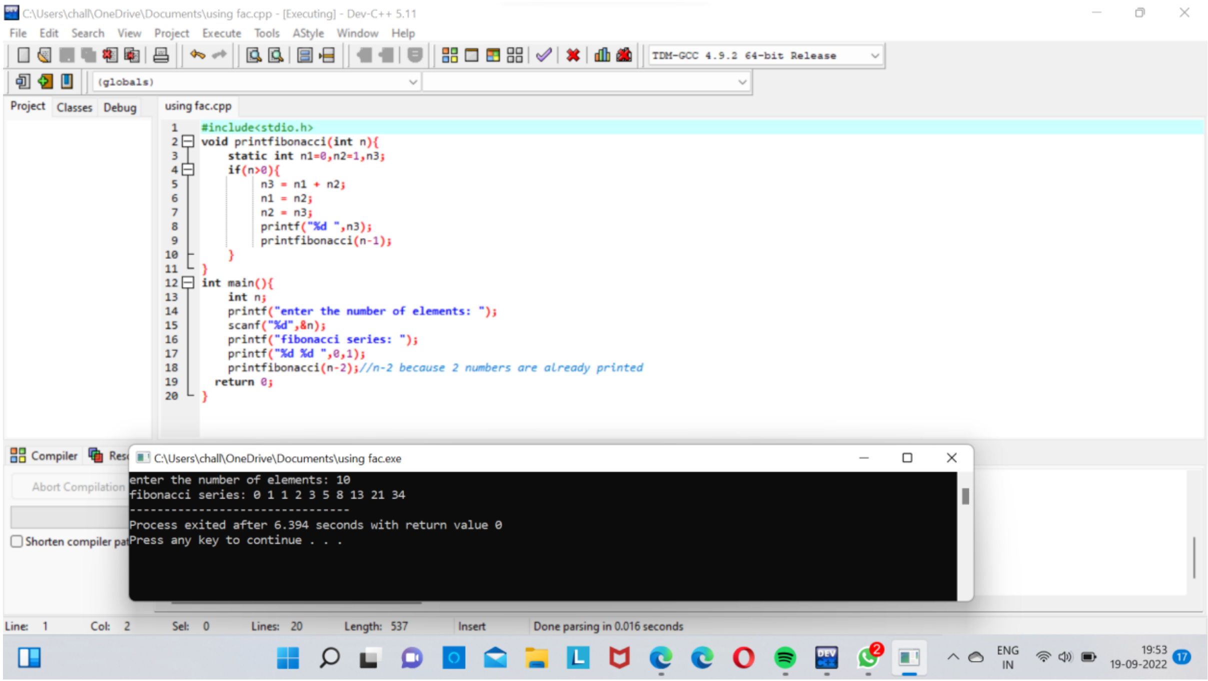
```
#include<stdio.h>
long int multiplyNumbers(int n);
int main() {
    int n;
    printf("Enter a positive integer: ");
    scanf("%d",&n);
    printf("Factorial of %d = %ld", n, multiplyNumbers(n));
    return 0;
}

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

Select C:\Users\chall\OneDrive\Documents\using fac.exe

```
Enter a positive integer: 8
Factorial of 8 = 40320
--------------------------------
Process exited after 3.288 seconds with return value 0
Press any key to continue . . .
```

Compiler
Abort Compil
Shorten compil
Line: 4 Col: 11 Sel: 0 Lines: 16 Length: 346 Insert Done parsing in 0.063 seconds
ENG IN
19:50
19-09-2022

EXPERIMENT:-6(USING RECURSION FIBINOSIS)


C:\Users\chall\OneDrive\Documents\using fac.cpp - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 4.9.2 64-bit Release
(globals)
Project Classes Debug
using fac.cpp

```
#include<stdio.h>
void printfibonacci(int n){
    static int n1=0,n2=1,n3;
    if(n>0){
        n3 = n1 + n2;
        n1 = n2;
        n2 = n3;
        printf("%d ",n3);
        printfibonacci(n-1);
    }
}
int main(){
    int n;
    printf("enter the number of elements: ");
    scanf("%d",&n);
    printf("fibonacci series: ");
    printf("%d %d ",0,1);
    printfibonacci(n-2);//n-2 because 2 numbers are already printed
  return 0;
}
```

C:\Users\chall\OneDrive\Documents\using fac.exe

```
enter the number of elements: 10
fibonacci series: 0 1 1 2 3 5 8 13 21 34
--------------------------------
Process exited after 6.394 seconds with return value 0
Press any key to continue . . .
```

Compiler
Res
Abort Compilation
Shorten compiler pa
Line: 1 Col: 2 Sel: 0 Lines: 20 Length: 537 Insert Done parsing in 0.016 seconds
ENG IN
19:53
19-09-2022