



College of Arts,  
Science &  
Commerce

RISE WITH EDUCATION  
NAAC REACCREDITED - 'A' GRADE  
ISO 9001 : 2008

**S.I.E.S College of Arts, Science and Commerce**  
**Sion(W), Mumbai – 400 022.**

**CERTIFICATE**

This is to certify that Mr. / Miss **Harsh Nair**

Roll No. **FCS2122074** Has successfully completed the necessary course of experiments in the subject of **Programming with C** during the academic year **2021 – 2022** complying with the requirements of **University of Mumbai**, for the course of **F.Y.BSc. Computer Science [Semester-2]**

Prof. In-Charge

**NAME: Prof. Manoj Singh**  
**(Programming with C)**

Examination Date:

Examiner's Signature & Date:

Head of the Department

**Prof. Manoj Singh**

College Seal

And

Date

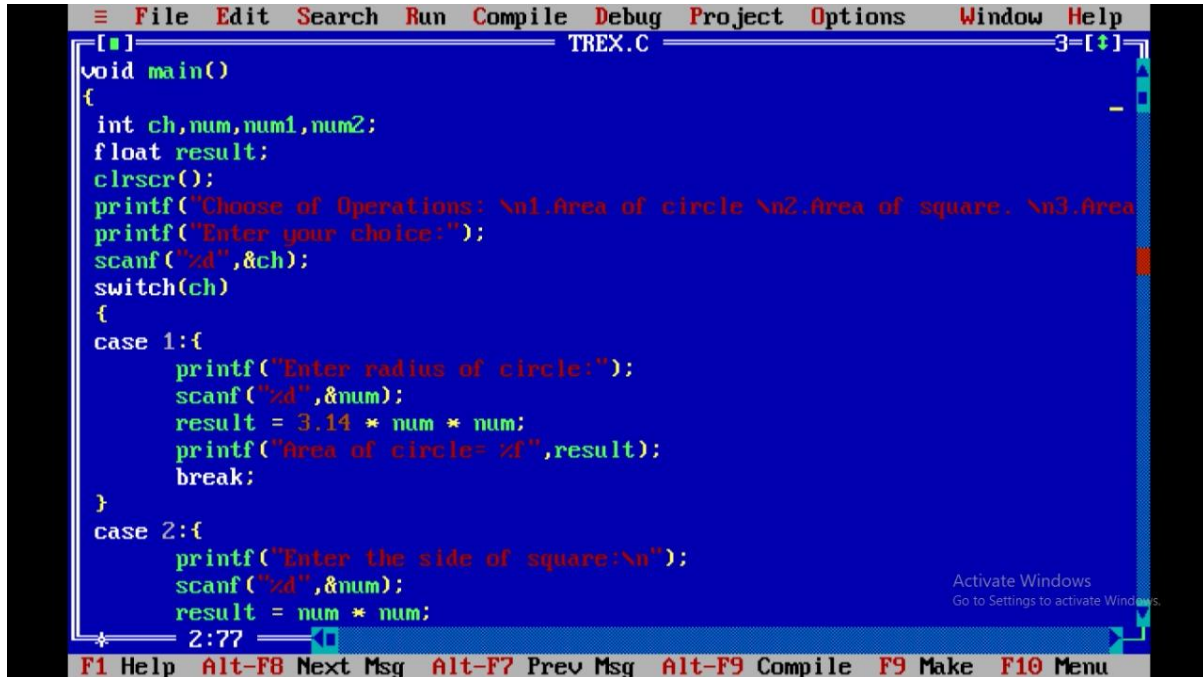
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Name: Harsh Nair

Roll No: FCS2122074

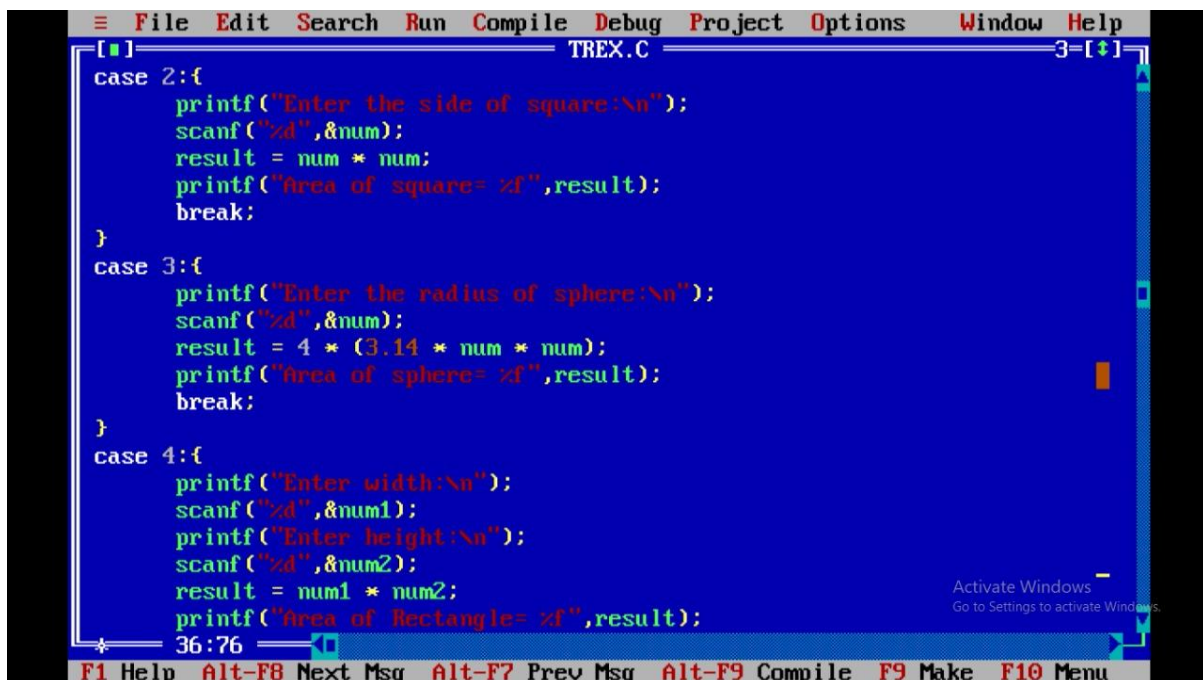
## PWC Practical 1&2



```
File Edit Search Run Compile Debug Project Options Window Help
TREX.C
void main()
{
    int ch,num,num1,num2;
    float result;
    clrscr();
    printf("Choose of Operations: \n1.Area of circle \n2.Area of square. \n3.Area");
    printf("Enter your choice:");
    scanf("%d",&ch);
    switch(ch)
    {
    case 1:{
        printf("Enter radius of circle:");
        scanf("%d",&num);
        result = 3.14 * num * num;
        printf("Area of circle= %f",result);
        break;
    }
    case 2:{
        printf("Enter the side of square:\n");
        scanf("%d",&num);
        result = num * num;
```

Activate Windows  
Go to Settings to activate Windows.

F1 Help Alt-F8 Next Msg Alt-F7 Prev Msg Alt-F9 Compile F9 Make F10 Menu



```
File Edit Search Run Compile Debug Project Options Window Help
TREX.C
case 2:{
    printf("Enter the side of square:\n");
    scanf("%d",&num);
    result = num * num;
    printf("Area of square= %f",result);
    break;
}
case 3:{
    printf("Enter the radius of sphere:\n");
    scanf("%d",&num);
    result = 4 * (3.14 * num * num);
    printf("Area of sphere= %f",result);
    break;
}
case 4:{
    printf("Enter width:\n");
    scanf("%d",&num1);
    printf("Enter height:\n");
    scanf("%d",&num2);
    result = num1 * num2;
    printf("Area of Rectangle= %f",result);
}
```

Activate Windows  
Go to Settings to activate Windows.

F1 Help Alt-F8 Next Msg Alt-F7 Prev Msg Alt-F9 Compile F9 Make F10 Menu

```
File Edit Search Run Compile Debug Project Options Window Help
TREX.C
result = 4 * (3.14 * num * num);
printf("Area of sphere= %f",result);
break;
}
case 4:{
    printf("Enter width:\n");
    scanf("%d",&num1);
    printf("Enter height:\n");
    scanf("%d",&num2);
    result = num1 * num2;
    printf("Area of Rectangle= %f",result);
    break;
}
default:
    printf("Wrong Input\n");
}
getch();
}
```

36:76

F1 Help Alt-F8 Next Msg Alt-F7 Prev Msg Alt-F9 Compile F9 Make F10 Menu

Activate Windows  
Go to Settings to activate Windows.

```
Choose of Operations:
1.Area of circle
2.Area of square.
3.Area of square. *.Area of Rectangle.
Enter your choice: 1
Enter radius of circle: 177
Area of circle= 98373.062500
```

```
Choose of Operations:
1.Area of circle
2.Area of square.
3.Area of square. ♦.Area of Rectangle.
Enter your choice: 2
Enter the side of square: 728
Area =5696.000000_
```

Activate Windows  
Go to Settings to activate Windows.

```
Choose of Operations:
1.Area of circle
2.Area of square.
3.Area of square. ♦.Area of Rectangle.
Enter your choice: 3
Enter the radius of sphere: 278
Area =-10164.000000
```

Activate Windows  
Go to Settings to activate Windows.

Name: Harsh Nair

Roll No: FCS2122074

### Practical 3

#### Input:

Aim- Programs on decision statements.

Source code: -

```
PRAX3.C 3=1+
#include<stdio.h>
#include<math.h>
void main()
{
    int choice;
    clrscr();
    printf("Enter any of the choice\n1.Area of circle\n2.Area of square\n3.Area of");
    scanf("%d",&choice);
    switch(choice)
    {
    case 1:
    {
        int r;
        float pi = 3.14,a;
        printf("Enter radius of Circle\n");
        scanf("%d",&r);
        a=pi*r*r;
        printf("Area of Circle is %d\n",a);
        break;
    }
    }
```

```
PRAX3.C 3=1+
case 2:
{float area,side;
printf("Enter side of a square\n");
scanf("%f",&side);
area=side*side;
printf("Area of square is %f\n",area);
break;
}
case 3:
{
float radius,pi=3.14,area;
printf("Enter radius of a sphere\n");
scanf("%f",&radius);
area=4*pi*(radius*radius);
printf("Area of a sphere is %f\n",area);
break;
}
case 4:
{
float l,b,a;
printf("Enter length and breadth of a rectangle\n");
41:8
```

```
{
float l,b,a;
printf("Enter length and breadth of a rectangle\n");
scanf("%f%f",&l,&b);
a=(l*b);
printf("Area of Rectangle is %f\n",a);
break;
}
case 5:
{
printf("See you soon\n");
exit(0);
}
default:
printf("Invalid number\n");
}
getch();
}
56:53
```

### Output:

```
Enter any of the choice
1.Area of circle
2.Area ofsquare
3.Area of sphere
4.Area ofrectangle
1
Enter radius of Circle
3
Area of Circle is 28.260000
-
```

```
Enter any of the choice
1.Area of circle
2.Area ofsquare
3.Area of sphere
4.Area ofrectangle
2
Enters slide of a square
7
Area of square is 49.000000
```

```
Enter any of the choice
1.Area of circle
2.Area ofsquare
3.Area of sphere
4.Area ofrectangle
3
Enter radius of a sphere
5
Area of a sphere is 314.000000
-
```

```
Enter any of the choice
1.Area of circle
2.Area ofsquare
3.Area of sphere
4.Area ofrectangle
4
Enter length and breadth of a rectangle
2
3
Area of Rectangle is 6.000000
-
```

## Practical 4

Aim: Programs on looping

Practical No.4a

Write a program on **number palindrome** demonstrating while loop

Source code: -

```
===== PALINDRO.C =====
void main()_
{
    int n,reverse=0,temp;
    clrscr();
    printf("Enter your input");
    scanf("%d",&n);
    temp=n;
    while(temp!=0)
    {
        reverse=reverse*10;
        reverse=reverse+reverse%10;
        temp=temp/10;
    }

    if(n==reverse)
    {
        printf("%d is a pallindrome.\n",n);
    }
    else
    {
        printf("%d is not a palindrome.\n",n);
    }
    getch();
} _
```

```
Enter the number: 777
The number you entered is an palindrome number
```

```
Enter the number:1234
The number you entered is not palindrome
```



Practical No.4b

Write a program on **Armstrong number** demonstrating while loop

Source code: -

```
==[■]== ARMSTRON.C ==  
void main()  
{  
    int num,sum=0,lasted,temp;  
    clrscr();  
    printf("Enter a number: ");  
    scanf("%d",&num);  
    temp=num;  
    while(temp!=0)  
    {  
        lasted=temp%10;  
        sum=sum+(lasted*lasted*lasted);  
        temp=temp/10;  
    }  
  
    if(sum==num)  
    {  
        printf("%d is an Armstrong number \n",num);  
    }  
    else  
    {  
        printf("%d is not an Armstrong number \n",num);  
    }  
    getch();  
}
```

23:8

```
Enter a number: 153  
153 is an Armstrong number
```

```
Enter a number: 1234  
1234 is not an Armstrong number
```

—

## PRACTICAL NO.5

Aim: Programs on arrays.

a) Write a program on Addition of 2 Matrix and

```
#include<stdio.h>
void main()
{
    int a[8][8],b[8][8],c[8][8],i,j;
    printf("\n Enter Value for First Matrix :\n");
    for (i=0; i<3; i++)
    {
        for (j=0; j<3; j++)
        {
            scanf("%d",&a[i][j]);
        }
    }

    printf("\n");
    printf("\n Enter value for Second Matrix :\n");
    for (i=0; i<3; i++)
    {
        for (j=0; j<3; j++)
        {
            scanf("%d",&b[i][j]);
        }
    }
}
```

```
scanf("%d",&a[i][j]);
}
}

printf("\n");
printf("\n Enter value for Second Matrix :\n");
for (i=0; i<3; i++)
{
    for (j=0; j<3; j++)
    {
        scanf("%d",&b[i][j]);
    }
}

printf("\n");
printf("\n The First Matrix is :\n");
for (i=0; i<3; i++)
{
    for (j=0; j<3; j++)
    {
        printf("%d ",a[i][j]);
    }
}
}
```

```
File Edit Search Run Compile Debug Project Options Window Help
PRAC5A~1.C 1-[+]-
printf(" %d ",a[i][j]);
}
printf("\n");
}
printf("\n");
printf("\n The second Matrix is : \n");
for (i=0; i<3; i++)
{
    for (j=0; j<3; j++)
    {
        printf(" %d ",a[i][j]);
    }
    printf("\n");
}
printf("\n");
printf("\n Addition of two matrix \n");
for (i=0; i<3; i++)
{
    for (j=0; j<3; j++)
    {
        c[i][j]=a[i][j]+b[i][j];
    }
}
56:2
F1 Help Alt-F8 Next Msg Alt-F7 Prev Msg Alt-F9 Compile F9 Make F10 Menu
```

```

{
    c[i][j]=a[i][j]+b[i][j];
    printf(" %d ",c[i][j]);
}
printf("\n");
}
56:2
```

```
C:\TURBOC3\BIN>TC

Enter Value for First Matrix :
7 6 5
2 8 6
3 7 8

Enter value for Second Matrix :
2 7 6
3 2 1
4 4 6
```

```
Enter value for Second Matrix :
2 7 6
3 2 1
4 4 6

The First Matrix is :
7 6 5
2 8 6
3 7 8

The second Matrix is :
7 6 5
2 8 6
3 7 8

Addition of two matrix
9 13 11
5 10 7
7 11 14

Enter Value for First Matrix :
```

b] Write a program on Multiplication of 2 Matrix

```
PRAC5B~1.C 2-[+]  
#include<stdio.h>  
  
void main()  
{  
    int a[8][8],b[8][8],c[8][8],i,j,k;  
    int sum=0;  
    printf("\n Enter value for First Matrix :\n");  
    for (i=0; i<3; i++)  
    {  
        for (j=0; j<3; j++)  
        {  
            scanf("%d",&a[i][j]);  
        }  
    }  
    printf("\n");  
  
    printf("\n Enter value for Second Matrix :\n");  
    for (i=0; i<3; i++)  
    {  
        for (j=0; j<3; j++)  
        {  
            scanf("%d",&b[i][j]);  
        }  
    }  
    printf("\n");  
  
    printf("\n Multiplication of Two Matrix :\n");  
    for (i=0; i<3; i++)  
    {  
        for (j=0; j<3; j++)  
        {  
            sum=0;  
            for (k=0; k<3; k++)  
            {  
                sum=sum+a[i][k]*b[k][j];  
            }  
            c[i][j]=sum;  
        }  
    }  
    for (i=0; i<3; i++)  
    {  
        for (j=0; j<3; j++)  
        {  
            printf("%d ",c[i][j]);  
        }  
        printf("\n");  
    }  
}
```

```
PRAC5B~1.C 2-[+]  
  
    for (j=0; j<3; j++)  
    {  
        scanf("%d",&b[i][j]);  
    }  
    printf("\n");  
    printf("\n The First Matrix is :\n");  
    for (i=0; i<3; i++)  
    {  
        for (j=0; j<3; j++)  
        {  
            printf("%d ",a[i][j]);  
        }  
        printf("\n");  
    }  
    printf("\n");  
    printf("\n The second Matrix is :\n");  
    for (i=0; i<3; i++)  
    {  
        for (j=0; j<3; j++)  
        {  
            scanf("%d",&b[i][j]);  
        }  
    }  
    printf("\n");  
  
    printf("\n Multiplication of Two Matrix :\n");  
    for (i=0; i<3; i++)  
    {  
        for (j=0; j<3; j++)  
        {  
            sum=0;  
            for (k=0; k<3; k++)  
            {  
                sum=sum+a[i][k]*b[k][j];  
            }  
            c[i][j]=sum;  
        }  
    }  
    for (i=0; i<3; i++)  
    {  
        for (j=0; j<3; j++)  
        {  
            printf("%d ",c[i][j]);  
        }  
        printf("\n");  
    }  
}
```

```
PRAC5B~1.C 3-[+]  
  
    for (j=0; j<3; j++)  
    {  
        printf("%d ",a[i][j]);  
    }  
    printf("\n");  
  
    printf("\n Multiplication of Two Matrix :\n");  
    for (i=0; i<3; i++)  
    {  
        for (j=0; j<3; j++)  
        {  
            sum=0;  
            for (k=0; k<3; k++)  
            {  
                sum=sum+a[i][k]*b[k][j];  
            }  
            c[i][j]=sum;  
        }  
    }  
    for (i=0; i<3; i++)  
    {  
        for (j=0; j<3; j++)  
        {  
            printf("%d ",c[i][j]);  
        }  
        printf("\n");  
    }  
}
```

```
    }  
    for (i=0; i<3; i++)  
    {  
        for (j=0; j<3; j++)  
        {  
            printf("%d ",c[i][j]);  
        }  
        printf("\n");  
    }  
}
```

Name: Harsh Nair

Roll no: FCS2122074

### **PRACTICAL NO.6**

**Aim: Programs on functions.**

Write a Switch Case having menu for options:

1]Find out maximum and minimum of some values using function (Take the size of array from user then ask for numbers in that array find minimum and maximum number from that set of array numbers) 2]Check perfect numbers using the function

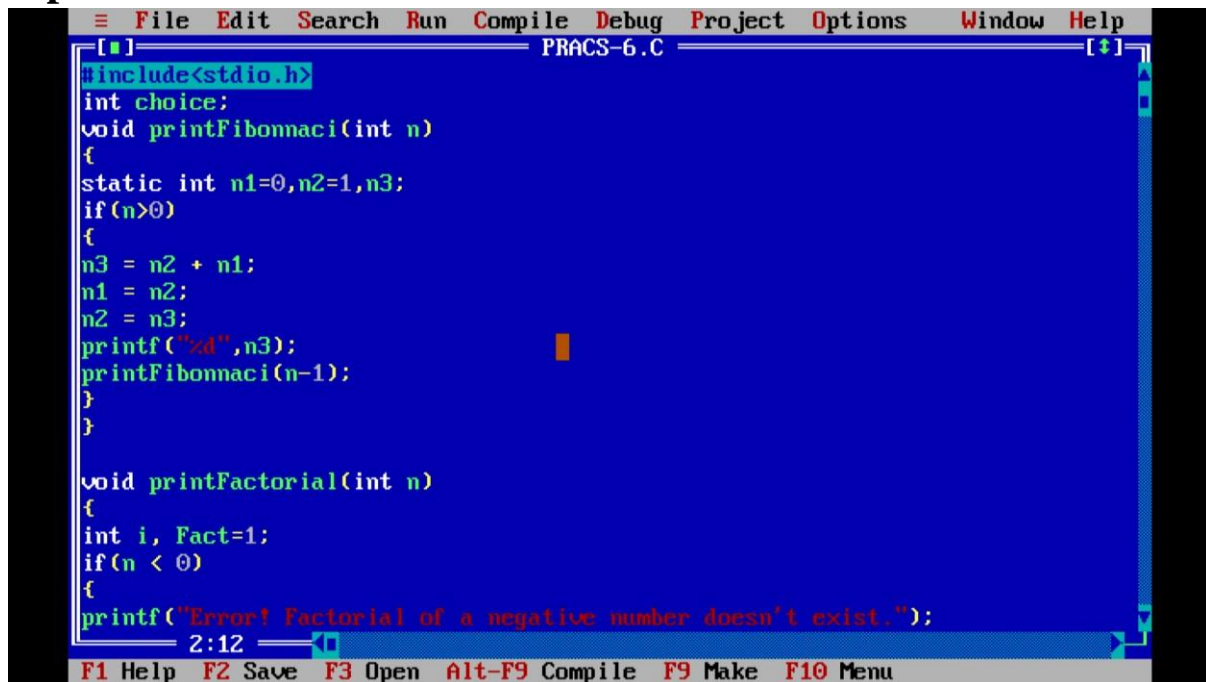
(Perfect number, a positive integer that is equal to the sum of its proper divisors.

Eg. 6 is divisible by 1,2 and 3 if you add  $1+2+3=6$  and therefore 6 is a perfect number)

3]Find the Factorial of any number using the function.

4]Fibonacci Series using Recursion function \*/

## Input:

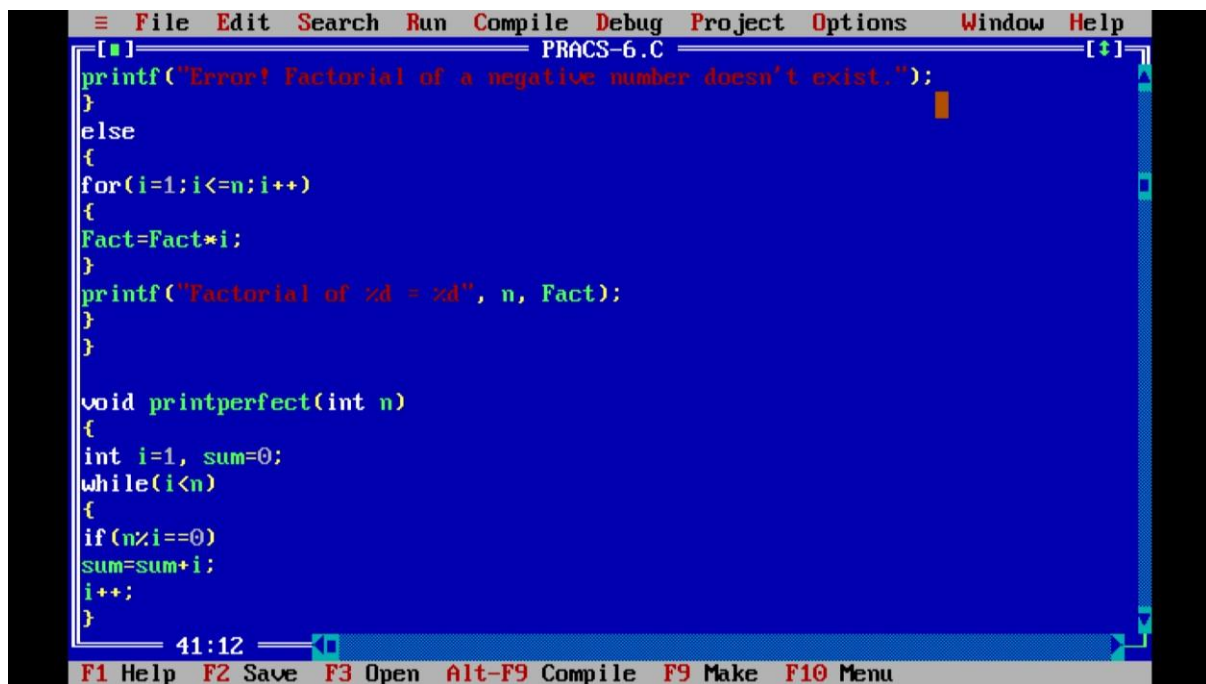


A screenshot of a C program editor window titled "PRACS-6.C". The menu bar includes File, Edit, Search, Run, Compile, Debug, Project, Options, Window, and Help. The code is as follows:

```
[■] PRACS-6.C [⚡]
#include<stdio.h>
int choice;
void printFibonnaci(int n)
{
    static int n1=0,n2=1,n3;
    if(n>0)
    {
        n3 = n2 + n1;
        n1 = n2;
        n2 = n3;
        printf("%d",n3);
        printFibonnaci(n-1);
    }
}

void printFactorial(int n)
{
    int i, Fact=1;
    if(n < 0)
    {
        printf("Error! Factorial of a negative number doesn't exist.");
    }
}
```

The status bar at the bottom shows: F1 Help F2 Save F3 Open Alt-F9 Compile F9 Make F10 Menu. The cursor is at line 2:12.



A screenshot of the same C program editor window, showing the continuation of the code:

```
        printf("Error! Factorial of a negative number doesn't exist.");
    }
    else
    {
        for(i=1;i<=n;i++)
        {
            Fact=Fact*i;
        }
        printf("Factorial of %d = %d", n, Fact);
    }
}

void printperfect(int n)
{
    int i=1, sum=0;
    while(i<n)
    {
        if(n%i==0)
        sum=sum+i;
        i++;
    }
}
```

The status bar at the bottom shows: F1 Help F2 Save F3 Open Alt-F9 Compile F9 Make F10 Menu. The cursor is at line 41:12.



```
File Edit Search Run Compile Debug Project Options Window Help
PRACS-6.C
if(sum==n)
printf("%d is a perfect number",i);
else
printf("%d is not a perfect number",i);
}

int maxmin(int a[],int n)
{
int min,max,i;
min=max=a[0];
for(i=1; i<n; i++)
{
if(min>a[i])
min=a[i];
if(max<a[i])
max=a[i];
}
printf("minimum of array is : %d",min);
printf("\nmaximum of array is : %d",max);
return 0;
}
62:12
F1 Help F2 Save F3 Open Alt-F9 Compile F9 Make F10 Menu
```

```
File Edit Search Run Compile Debug Project Options Window Help
PRACS-6.C
//start of switch case
int main()
{
printf("Press 1 to find out maximum and minimum of some values.\n");
printf("Press 2 to check perfect numbers.\n");
printf("Press 3 to find the factorial of any number.\n");
printf("Press 4 to find Fibonnaci series a number.\n");
scanf("%d",&choice);

switch(choice)
{
case 1:
{
int a[1000],n,i;
printf("enter size of the array:");
scanf("%d",&n);
printf("enter elements in array:");
for(i=0;i<n;i++)
{
scanf("%d",&a[i]);
}
}
}
84:2
F1 Help F2 Save F3 Open Alt-F9 Compile F9 Make F10 Menu
```

```
File Edit Search Run Compile Debug Project Options Window Help
PRACS-6.C
maxmin(a,n);
break;
}

case 2:
{
int n;
printf("enter a number:");
scanf("%d",&n);
printperfect(n);
break;
}

case 3:
{
int n;
printf("enter an integer:");
scanf("%d",&n);
printFactorial(n);
break;
}
_ 105:2
```

F1 Help F2 Save F3 Open Alt-F9 Compile F9 Make F10 Menu

```
File Edit Search Run Compile Debug Project Options Window Help
PRACS-6.C
printf("enter an integer:");
scanf("%d",&n);
printFactorial(n);
break;
}

case 4:
{
int n;
printf("enter the number of elements: ");
scanf("%d",&n);
printf("Fibonnaci series:");
printf("%d %d",0,1);
printfFibonnaci(n-2); //n-2 because 2 number are already printed
break;
}
default:
printf("wrong input\n");
}
return 0;
}
_ 121:1
```

F1 Help F2 Save F3 Open Alt-F9 Compile F9 Make F10 Menu



## Output:

A

```
C:\TURBOC3\BIN>TC
Press 1 to find out maximum and minimum of some values.
Press 2 to check perfect numbers.
Press 3 to find the factorial of any number.
Press 4 to find Fibonacci series a number.
1
enter size of the array:5
enter elements in array:1 2 3 4 5
minimum of array is : 1
maximum of array is : 5_
```

B

```
C:\TURBOC3\BIN>TC
Press 1 to find out maximum and minimum of some values.
Press 2 to check perfect numbers.
Press 3 to find the factorial of any number.
Press 4 to find Fibonacci series a number.
2
enter a number:6
6 is a perfect number
```

C

```
C:\TURBOC3\BIN>TC
Press 1 to find out maximum and minimum of some values.
Press 2 to check perfect numbers.
Press 3 to find the factorial of any number.
Press 4 to find Fibonnaci series a number.
3
enter an integer:5
Factorial of 5 = 120_
```

D

```
C:\TURBOC3\BIN>TC
Press 1 to find out maximum and minimum of some values.
Press 2 to check perfect numbers.
Press 3 to find the factorial of any number.
Press 4 to find Fibonnaci series a number.
4
enter the number of elements: 5
Fibonnaci series:0 1123_
```

## Practical 7

PRACTICAL NO.7

Aim: Programs on structures and unions.

```
NAME.C
#include <stdio.h>
#include <string.h>

struct student
{
    int rollno;
    char name[60];
}s1;

union student1
{
    int rollno;
    char name[60];
}u1;

void main()
{
    s1.rollno=74;
    strcpy(s1.name, "Harsh");
    printf("Rollno: %d\n", s1.rollno);
    printf("Name: %s\n", s1.name);
```

```
    u1.rollno=74;
    strcpy(u1.name, "Nair");
    printf("Rollno: %d\n", u1.rollno);
    printf("Name: %s\n", u1.name);

    printf("\nsizeof structure: %d\n", sizeof(s1));
    printf("sizeof union: %d\n", sizeof(u1));
    getch();
}
```

```
sizeof structure: 62
sizeof union: 60
Rollno: 74
Name: Harsh
Rollno: 24910
Name: Nair

sizeof structure: 62
sizeof union: 60
```

## Practical 8

PRACTICAL NO.8

Aim: Programs on pointers.

```
PRAC8.C
#include<stdio.h>
int main()
{
    int num1,num2,t;
    int *a,*b;
    a=& num1;
    b=& num2;
    printf("Enter value of num1: ");
    scanf("%d", &num1);
    printf("Enter value of num2: ");
    scanf("%d", &num2);

    //print values before swapping
    printf("Before Swapping: num1=%d, num2=%d\n",*a,*b);
    printf("Address before swapping of num1 %u\n and num2 %u\n",a,b);
    t = num1;
    num1 = num2;
    num2 = t ;
    a=& num1;
    b=& num2;
    //print values after swapping
}
```

```
//print values after swapping
printf("Ater Swapping: num1=%d, num2=%d\n",*a,*b);
printf("Address after swapping of num1 %u\n and num2 %u\n",a,b);
return(0);
}
```

```
C:\TURBOC3\BIN>TC
Enter value of num1: 7
Enter value of num2: 8
Before Swapping: num1=7, num2=8
Address before swapping of num1 65524
and num2 65522
Ater Swapping: num1=8, num2=7
Address after swapping of num1 65524
and num2 65522
```

Roll No: FCS2122074

## PWC Practical 9 & 10

## Practical 9

Aim: Programs on string manipulations.

**Input:**

```

1  #include <stdio.h>
2  #include <string.h>
3  void main()
4  {
5      char str1[50], str2[50], str3[50]=" ";
6      int len, mid, tmp, i;
7      printf("Enter string 1: ");
8      gets(str1);
9      printf("Enter string 2: ");
10     gets(str2);
11
12     //comparison
13     if (strcmp(str1, str2) == 0) {
14         printf("Both are same.\n");
15     }
16     else {
17         printf("Both are different.\n");
18     }
19
20     //concatination
21     strcat(str3, str1);
22     strcat(str3, " ");
23     printf("%s", str3);
24 }

```

```
[*] 3-[*]
}
//concatination
strcat(str3, str1);
strcat(str3, " ");
strcat(str3, str2);
printf("Concatenated string: %s\n", str3);
//reverse
len = strlen(str3); //12
mid = len/2; //6

for (i= 0; i < mid; i++) {
    tmp = str3[len - 1 - i];
    str3[len - 1 - i] = str3[i];
    str3[i] = tmp;
}

//output
printf("Reversed string: %s\n", str3);
printf("End of code\n");
getch();
}
```

## Output

```
C:\TURBOC3\BIN>TC
Enter string 1: 7 3 4
Enter string 2: 2 2 8
Both are different.
Concatenated string: 7 3 4 2 2 8
Reversed string: 8 2 2 4 3 7
End of code
```

## Practical 10

Aim: Programs on basic file operations.

**Input:**

```

[ ] DATATUBE.C 1=[ ]
#include<stdio.h>
#include<string.h>
void main()
{
    FILE *filePointer;
    char dataToBeWritten[100] = "This file was generated using file operations i
    filePointer = fopen("FileOperation.txt", "w");
    if (filePointer == NULL)
    {
        printf(" FileOperation.txt file failed to open.");
    }
    else
    {
        printf("The file is now opened.\n");
        if (strlen(dataToBeWritten) >0)
        {
            fputs(dataToBeWritten,filePointer);
            fputs("\n", filePointer);
        }
        fclose(filePointer);
        printf("Data successfully written in file FileOperation.c\n");
        printf("The file is now closed.");
    }
    getch();
}
25:1
```

**Output:**

```

C:\TURBOC3\BIN>TC
The file is now opened.
Data successfully written in file FileOperation.c
The file is now closed._
```