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INDEX

| Sl. No. | Name of The Experiment | Date of Experiment | Date of Submission | Page No. | Remarks |
|---------|---|--------------------|--------------------|----------|---------|
| 1 | Unix Commands | 01/12/2020 | 07/12/2020 | 1 | |
| 2 | Fundamental 1. DISPLAY THE MESSAGE 2. DISPLAY THE VALUE OF VARIABLE 3. AREA PERIMETER OF RECTANGLE 4. AREA PERIMETER OF SQUARE 5. AREA PERIMETER OF TRIANGLE | 08/12/2020 | 14/12/2020 | 2-5 | |
| 3 | Flow Control 1. AREA PERIMETER OF CIRCLE 2. AREA PERIMETER OF RECTANGLE, SQUARE, TRIANGLE, CIRCLE 3. SIMPLE INTEREST 4. GROSS SALARY 5. CELCIUS TO FAHRENHEIT | 15/12/2020 | 21/12/2020 | 6-11 | |
| 4 | IF, ELSE, NESTED ELSE-IF, SWITCH STATEMENTS 1. VOTING ELIGIBILITY 2. EVEN AND ODD 3. LARGER AMONG TWO NUMBERS 4. VOWEL OR CONSONANT 5. LARGEST AMONG THREE NUMBERS 6. ROOTS OF QUADRATIC EQUATION 7. LEAP YEAR 8. POSITIVE, NEGATIVE OR ZERO 9. SIMPLE CALCULATOR 10. GRADES OF STUDENTS | 22/12/2020 | 28/12/2020 | 12-21 | |
| 5 | Operator 1. ARITHMETIC OPERATOR 2. LOGICAL OPERATOR 3. BITWISE OPERATOR 4. RELATIONAL OPERATOR 5. ASSIGNMENT OPERATOR 6. ESCAPE SEQUENCE | 29/12/2020 | 04/12/2021 | 22-28 | |
| 6 | LoopS 1. REVERSE A NUMBER 2. PALINDROME 3. FACTORIAL OF A NUMBER 4. ARMSTRONG NUMBER 5. FIBONACCI SERIES 6. PRIME OR NOT 7. PRIME NUMBER BETWEEN TWO INTERVALS 8. GCD OF TWO NUMBERS 9. LCM OF TWO NUMBERS 10. PATTERN FORMATION 11. LETTER SERIES 12. PYRAMID PATTERN 13. SERIES OF 'N' GIVEN NUMBERS | 05/01/2021 | 11/01/2021 | 29-41 | |

| | | | | | |
|----|---|------------|------------|-------|--|
| 7 | Array 1. PRINT AN ARRAY 2. ARRAY IN REVERSE ORDER 3. SUM OF AN ARRAY 4. AVERAGE OF ARRAY 5. LARGEST ELEMENT OF ARRAY 6. SECOND LARGEST ELEMENT OF ARRAY 7. SMALLEST ELEMENT OF ARRAY 8. ADDITION OF TWO MATICES 9. MULTIPLICATION OF TWO MATRICES | 12/01/2021 | 18/01/2021 | 42-51 | |
| 8 | Function 1. VOTING ELIGIBILITY 2. EVEN AND ODD 3. LARGER AMONG TWO NUMBERS 4. VOWEL CONSONANT 5. LARGEST AMONG THREE NUMBERS 6. LEAP YEAR 7. POSITIVE, NEGATIVE OR ZERO 8. ARMSTRONG NUMBER 9. FIBONACCI SERIES 10. PRIME OR NOT 11. PRIME NUMBER BETWEEN TWO INTERVALS 12. GCD OF TWO NUMBERS 13. LCM OF TWO NUMBERS | 19/01/2021 | 25/01/2021 | 52-64 | |
| 9 | Recursion 1. SUM OF NATURAL NUMBERS 2. FACTORIAL OF NUMBER 3. GCD OF TWO NUMBERS 4. POWER OF A NUMBER 5. FIBONACCI SEQUENCE | 27/01/2021 | 08/02/2021 | 65-69 | |
| 10 | Pointers 1. BASIC DECLARATION 2. HANDLING POINTERS 3. &(address of) AND *(value at address) OPERATOR 4. ADDITION OF TWO NUMBERS 5. ADDITION OF NUMBERS WITH ADD FUNCTION USING CALL BY REFERENCE 6. MAXIMUM NUMBER BETWEEN TWO NUMBERS 7. STORING AND PRINTING ELEMENTS 8. SWAPPING OF ELEMENTS 9. FACTORIAL OF A NUMBER 10. FUNCTION RETURNING POINTER | 09/02/2021 | 20/02/2021 | 70-78 | |

Experiment-1

Aim:-Study of Important UNIX Commands

List of Commands:

TO OPEN TERMINAL WINDOW IN UBUNTU --CTRL+ALT+T
TO KNOW THE USERNAME INFO --(uname)
TO KNOW ALL THE USER INFO -- (uname-a)
CLEAR SCREEN--(clear)
TO OPEN CALENDAR OF PRESENT MONTH-- (cal)
TO KNOW THE CALENDAR OF PREVIOUS, PRESENT AND NEXT MONTH --(cal-3)
TO KNOW THE CALENDAR OF TOTAL YEAR--(cal-y)
TO KNOW THE DATE OF TODAY -- (date)
TO KNOW ONLY TODAYS DATE --(date + %d)
TO PRINT REVERSE OF THE DATE--(date +%D)
TO KNOW NO. OF DAYS COMPLETED IN THIS YEAR --(date+%J)
SOME OTHER COMMANDS TOO TRY IT OUT --(man date, man cal)
TO PAUSE ANY COMMAND FOR 10 SEC. --(sleep 10)
TO OPEN THE PRESENT WORKING DIRECTORY -- (pwd)
SHOWS THE HISTORY--(history)
CLEAR THE HISTORY--(history-c)
CREATING A TEXT FILE--(touch c)
DIRECTORY LISTING --(ls)
TO REVERSE THE LISTING --(ls-r)
TO SHOW ALL FILES INCLUDING HIDDEN FILES--(ls-a)
SORT FILE BY NAME--(ls-s)
SORT FILE BY FILE TYPE--(ls-S)
CREATE A DIRECTORY -- (mkdir)
TO CHANGE THE DIRECTORY --(cd)
TO GO BACK --(cd ..)
TO REMOVE DIRECTORY --(rmdir)
TO CREATE MULTIPLE FOLDERS -(mkdir 123 4)
TO USE RECURSIVE METHOD (ls-R)

Experiment-2

Program-1

Write a Program To display about yourself.

Source Code:

```
exp2 > exp4 > exp3 > C about.c > main()
1 #include <stdio.h>
2
3 void main()
4 {
5     printf("Hello My name is Om Prakash Mohanta\n");
6     printf("I am Student of CV Raman University\n");
7     printf("I am CSE(Data Science)\n");
8     return 0;
9 }
```

Output:

```
Hello My name is Om Prakash Mohanta
I am Student of CV Raman University
I am CSE(Data Science)
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4\exp3> █
```

Program-2

Write a Program To initialize and display the value of the variable.

Source Code:

```
exp2 > exp4 > exp3 > C variable.c > main()
1 #include <stdio.h>
2 int main()
3 {
4     int a,b;
5     printf("Enter Two number");
6     scanf("%d%d",&a,&b);
7     printf("Two numbers are %d\n%d",a,b);
8     return 0;
9 }
```

Output:

```
if ($?) { .\variable }
Enter Two number5
8
Two numbers are 5
8
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4\exp3> █
```

Program-3

Write a Program To find out the area and perimeter of rectangle.

Source Code:

```
1 #include <stdio.h>
2 void main()
3 {
4     int l,b,area,peri;
5     printf("Enter length and breadth");
6     scanf("%d%d",&l,&b);
7     area=l*b;
8     peri=2*(l+b);
9     printf("The Area is %d\n",area);
10    printf("The Perimeter is %d",peri);
11    return 0;
12 }
```

Output:

```
~~~~~
Enter length and breadth4
4
The Area is 16
The Perimeter is 16
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4\exp3> █
```

Program-4

Write a Program To findout the area and perimeter of square.

Source Code:

```
1 #include <stdio.h>
2 void main()
3 {
4     int a,area,peri;
5     printf("Enter side of Square");
6     scanf("%d",&a);
7     area=a*a;
8     peri=4*a;
9     printf("The Area is %d\n",area);
10    printf("The Perimeter is %d",peri);
11    return 0;
12 }
```

Output:

```
Enter side of Square5
The Area is 25
The Perimeter is 20
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4\exp3>
```

Program-5

Write a Program To findout the area and perimeter of triangle.

Source Code:

```
1 #include <stdio.h>
2 void main()
3 {
4     int b,h,area,peri,s1,s2,s3;
5     printf("Enter base and height");
6     scanf("%d%d",&b,&h);
7     printf("Enter three sides of triangle");
8     scanf("%d%d%d",&s1,&s2,&s3);
9     area=(b*h)/2;
10    peri=s1+s2+s3;
11    printf("The Area is %d\n",area);
12    printf("The Perimeter is %d",peri);
13    return 0;
14 }
```

Output:

```
Enter base and height8
6
Enter three sides of triangle5
5
5
The Area is 24
The Perimeter is 15
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4\exp3>
```

Experiment-3

Program-1

Write a Program To findout the area and perimeter of circle.

Source Code:

```
exp2 > exp4 > exp3 > C circle.c > main()
1 #include <stdio.h>
2 void main()
3 {
4     int r,area,peri;
5     printf("Enter radius");
6     scanf("%d",&r);
7     area=3.14*r*r;
8     peri=2*3.14*r;
9     printf("The Area is %d\n",area);
10    printf("The Perimeter is %d",peri);
11    return 0;
12 }
```

Output:

```
Enter radius10
The Area is 314
The Perimeter is 62
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4\exp3>
```

Program-2

Write a Program To findout the area and perimeter of rectangle,square, triangle and circle.

Source Code:

```
1 #include <stdio.h>
2 void main()
3 {
4     printf("For Rectangle\n");
5     int length,breadth,area_r,peri_r;
6     printf("Enter length and breadth");
7     scanf("%d%d",&length,&breadth);
8     area_r=length*breadth;
9     peri_r=2*(length+breadth);
10    printf("The Area is %d\n",area_r);
11    printf("The Perimeter is %d\n",peri_r);
12
13    printf("For Triangle\n");
14    int base,height,area_t,peri_t,s1,s2,s3;
15    printf("Enter base and height");
16    scanf("%d%d",&base,&height);
17    printf("Enter three sides of triangle");
18    scanf("%d%d%d",&s1,&s2,&s3);
19    area_t=(0.5*(base*height));
20    peri_t=s1+s2+s3;
21    printf("The Area is %d\n",area_t);
22    printf("The Perimeter is %d\n",peri_t);
23
24    printf("For Square\n");
25    int a,area_s,peri_s;
26    printf("Enter side of Square");
27    scanf("%d",&a);
28    area_s=a*a;
29    peri_s=4*a;
30    printf("The Area is %d\n",area_s);
31    printf("The Perimeter is %d\n",peri_s);
```

```
32
33     printf("For Circle\n");
34     int r,area_c,peri_c;
35     printf("Enter radius");
36     scanf("%d",&r);
37     area_c=3.14*r*r;
38     peri_c=2*3.14*r;
39     printf("The Area is %d\n",area_c);
40     printf("The Perimeter is %d",peri_c);
41     return 0;
42 }
```

Output:

```
For Rectangle
Enter length and breadth>>>5
>>>4
The Area is 20
The Perimeter is 18
For Triangle
Enter base and height>>>8
>>>5
Enter three sides of triangle>>>6
>>>6
>>>6
The Area is 20
The Perimeter is 18
For Square
Enter side of Square>>>5
The Area is 25
The Perimeter is 20
For Circle
Enter radius>>>5
The Area is 78
The Perimeter is 31

Process Finished.
>>>
```

Program-3

Write a Program To findout the simple interest.

Source Code:

```
exp2 > exp4 > exp3 > C intrest.c > ...
1 #include <stdio.h>
2 void main()
3 {
4     int I=0,p,t;
5     double r;
6     printf("Enter the principle amount");
7     scanf("%d",&p);
8     printf("Enter the rate");
9     scanf("%lf",&r);
10    printf("Enter the time in years");
11    scanf("%d",&t);
12    I=(p*t*r)/100;
13    printf("The Intrest is %d\n",I);
14    return 0;
15 }
16
```

Output:

```
Enter the principle amount1000
Enter the rate12.5
Enter the time in years5
The Intrest is 625
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4\exp3>
```

Program-4

Write a Program To findout the gross salary, where, HRA is the 20% of basic salary, DA is the 70% of basic salary and the basic salary is Rs. 5000/- . (Gross salary = Basic salary + HRA + DA).

Source Code:

```
exp2 > exp4 > exp3 > C salary.c > main()
1 #include<stdio.h>
2 int main()
3 {
4     double salary,hra,da;
5     double basic=5000;
6     hra=0.2*basic;
7     da=0.7*basic;
8     salary=basic+hra+da;
9     printf("The Gross salary amount %lf",salary);
10    return 0;
11 }
12 }
```

Output:

```
PS C:\Users\LENOVO\OneDrive\Desktop\program> cd "c:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4\exp3"
}
The Gross salary amount 9500.000000
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4\exp3>
```

Program-5

Write a Program To calculate the the temperature from Celsius to Fahrenheit.

Source Code:

```
exp2 > exp4 > exp3 > C temp.c > main()
1 #include<stdio.h>
2 void main()
3 {
4     double c,f;
5     printf("Enter the Temperature in celcius");
6     scanf("%lf",&c);
7     f=(c*9/5)+32;
8     printf("The Temperature in fahrenheit is%lf",f);
9     return 0;
10 }
```

Output:

```
Enter the Temperature in celcius35
The Temperature in fahrenheit is95.000000
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4\exp3>
```

Experiment-4

Program-1

Write a Program To enter age from keyboard and print that you are eligible for voting or not.

Source Code:

```
exp2 > exp4 > C voting.c > main()
1 #include <stdio.h>
2
3
4 int main()
5 {
6     int age;
7     printf("Enter the age");
8     scanf("%d",&age);
9     if(age>=18)
10    {
11        printf("Youou are eligible for voting");
12    }
13    else
14    {
15        printf("You are not eligible for voting");
16    }
17    return 0;
18 }
```

Output:

```
PS C:\Users\LENOVO\OneDrive\Desktop\program> cd "c:\Users\LENOVO\OneD
Enter the age
25
Youou are eligible for voting
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4> █
```

Program-2

Write a Program To check whether a number is even or odd.

Source Code:

```
exp2 > exp4 > C even odd.c > main()
1 #include <stdio.h>
2
3 int main()
4 {
5     int n;
6     printf("Enter the number");
7     scanf("%d",&n);
8     if(n%2==0)
9     {
10         printf("The number is even no");
11     }
12     else
13     {
14         printf("The number is odd no");
15     }
16     return 0;
17 }
```

Output:

```
PS C:\Users\LENOVO\OneDrive\Desktop\program> cd "c:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4"
Enter the number52
The number is even no
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4>
```

Program-3

Write a Program To find the largest number among two numbers.

Source Code:

```
exp2 > exp4 > C largest2.c > main()
1   #include <stdio.h>
2
3   int main()
4   {
5       int a,b;
6       printf("Enter the numbers");
7       scanf("%d%d",&a,&b);
8       if(a>b)
9       {
10           printf("A is the greatest number");
11       }
12       else
13       {
14           printf("B is the greatest number");
15       }
16       return 0;
17 }
```

Output:

```
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4> cd
.\largest2 }
Enter the numbers25
65
B is the greatest number
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4> █
```

Program-4

Write a Program To check whether a character is a vowel or consonant.

Source Code:

```
#include<stdio.h>

int main()
{
    char ch;
    printf("Enter the letter to check");
    scanf("%c",&ch);
    if(ch=='A'||ch=='E'||ch=='I'||ch=='O'||ch=='U'||ch=='a'||ch=='e'||ch=='i'||ch=='o'||ch=='u')
    {
        printf("The Letter is a vowel");
    }
    else
    {
        printf("The Letter is a consonant");
    }
    return 0;
}
```

Output:

```
PS C:\Users\LENOVO\OneDrive\Desktop\program> cd "c:\Users\LENOVO\OneDrive\"
Enter the letter to checkA
The Letter is a vowel
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4\exp3> cd "c:\Users\"
) { .\vowel }
Enter the letter to checkd
The Letter is a consonant
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4\exp3> █
```

Program-5

Write a Program To find the largest number among three numbers.

Source Code:

```
exp2 > exp4 > C largest3.c > main()
1 #include <stdio.h>
2
3 int main()
4 {
5     int a,b,c;
6     printf("Enter the numbers");
7     scanf("%d%d%d",&a,&b,&c);
8     if(a>b && a>c)
9     {
10         printf("A is the greatest number");
11     }
12     else if (b>a && b>c)
13     {
14         printf("B is the greatest number");
15     }
16     else
17     {
18         printf("C is the greatest number");
19     }
20     return 0;
21 }
```

Output:

```
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4> cd "c
.\largest3 "
Enter the numbers3
4
5
C is the greatest number
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4> █
```

Program-6

Write a Program To find all roots of a quadratic equation.

Source Code:

```
exp2 > exp4 > C quad.c > ...
1  #include<math.h>
2  #include<stdio.h>
3
4  int main()
5  {
6      double a,b,c,d,r1,r2,real,imag;
7      printf("Enter the numbers");
8      scanf("%lf%lf%lf",&a,&b,&c);
9
10     d=b*b-4*a*c;
11     if(d>0)
12     {
13         r1=(-b+sqrt(d))/2*a;
14         r2=(-b-sqrt(d))/2*a;
15         printf("root1 = %lf and root2 = %lf", r1, r2);
16     }
17     else if(d==0)
18     {
19         r1=r2=-b/(2*a);
20         printf("root1 = %lf",r1);
21     }
22     else
23     {
24         real = -b / (2 * a);
25         imag = sqrt(-d) / (2 * a);
26         printf("root1 = %lf+%lfi and root2 = %f-%fi", real, imag, real, imag);
27     }
28     return 0;
29 }
```

Output:

```
Enter the numbers5
4
6
root1 = -0.400000+1.019804i and root2 = -0.400000-1.019804i
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4> █
```

Program-7

Write a Program To check Whether the Entered Year is Leap Year or not(Using nested else-if).

Source Code:

```
1 #include <stdio.h>
2
3 int main()
4 {
5     int year;
6     printf("Enter the Year");
7     scanf("%d",&year);
8     if(year%4==0)
9     {
10         if(year%100==0)
11         {
12             if(year%400==0)
13             {
14                 printf("The Year is Leap Year");
15             }
16             else
17             {
18                 printf("The Year is not Leap Year");
19             }
20         }
21         else
22         {
23             printf("The Year is Leap Year");
24         }
25     }
26     else
27     {
28         printf("The Year is not Leap year");
29     }
30     return 0;
31 }
```

Output:

```
.\leapyear }
Enter the Year2020
The Year is Leap Year
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4> cd "c:
.\leapyear "
Enter the Year2017
The Year is not Leap year
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4> █
```

Program-8

Write a Program To check Whether a Number is Positive or Negative or Zero.

Source Code:

```
1 #include <stdio.h>
2
3 int main()
4 {
5     int number;
6     printf("Enter the number");
7     scanf("%d",&number);
8     if(number<=0)
9     {
10         printf("The number is negative");
11     }
12     else
13     {
14         printf("The number is positive");
15     }
16     return 0;
17 }
```

Output:

```
Enter the number
54
The number is positive
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4> cd "c:
e } ; if ($?) { .\negativepositive }
Enter the number-36
The number is negative
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4> █
```

Program-9

Write a Program of simple Calculator using switch Statement.

Source Code:

```
exp2 > exp4 > C calculator.c > main()
1 #include <stdio.h>
2
3 int main()
4 {
5     int num;
6     int a,b,d;
7     printf("Enter 1 for Addition\n2 for Subtraction\n3 for Multiplication\n4 for Coefficient\n5 for Remainder\nEnter Choice: ");
8     scanf ("%d",&num);
9     printf("Enter two number");
10    scanf("%d %d",&a,&b);
11    switch(num)
12    {
13        case 1: d=a+b;
14            break;
15        case 2: d=a-b;
16            break;
17        case 3:d=a*b;
18            break;
19        case 4: d=a/b;
20            break;
21        case 5:d=a%b ;
22            break;
23        default: printf ("Invalid Response");
24    }
25
26    printf("Result %d",d);
27    return 0;
28 }
```

Output:

```
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4> cd - C:\US
) { .\calculator }
Enter 1 for Addition
2 for Subtraction
3 for Multiplication
4 for Coefficient
5 for Remainder
Enter Choice: 3
Enter two numbers
4
Result 20
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4> █
```

Program-10

Write a Program To calculate the grade of students for the marks given below using switch statement :

| Marks (100) | Grade |
|-------------|-------|
| 0-60 | Fail |
| 61-70 | D |
| 71-80 | C |

- | | |
|--------|---|
| 81-90 | B |
| 91-100 | A |

Source Code:

```
exp2 > exp4 > C grade.c > main()
1 #include <stdio.h>
2
3 int main()
4 {
5     int marks;
6     printf("Enter the marks");
7     scanf ("%d",&marks);
8     switch(marks/10)
9     {
10        case 10:
11        case 9:
12            printf("Grade:A");
13            break;
14        case 8:
15            printf("Grade:B");
16            break;
17        case 7:
18            printf("Grade:C");
19            break;
20        case 6:
21            printf("Grade:D");
22            break;
23        default:
24            printf("Fail");
25    }
26 }
```

Output:

```
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4> cd "c
e "
Enter the marks85
Grade:B
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4> cd "c
e "
Enter the marks65
Grade:D
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4> █
```

Experiment-5

Program-1

Write a Program To show all the functions of Arithmetic operator.

Source Code:

```
1 #include<stdio.h>
2
3 int main()
4 {
5     int a,b,c,d,e,f,g;
6     printf("Enter the numbers");
7     scanf("%d %d",&a,&b);
8     c=a+b;
9     d=a-b;
10    e=a*b;
11    f=a/b;
12    g=a%b;
13
14    printf("Addition Is %d\n",c);
15    printf("Subtraction Is %d\n",d);
16    printf("Multiplication Is %d\n",e);
17    printf("Division Is %d\n",f);
18    printf("Modulus Is %d\n",g);
19    return 0;
20
21 }
```

Output:

```
Enter the numbers5
4
Addition Is 9
Subtraction Is 1
Multiplication Is 20
Division Is 1
Modulus Is 1
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4\exp3\operator> █
```

Program-2

Write a Program To show all the functions of Logical operator.

Source Code:

```
1 int main()
2 {
3     int a,b,c,d;
4     printf("Enter the numbers");
5     scanf("%d %d %d",&a,&b,&c,&d);
6
7     if (a > b && c == d)
8         printf("A is greater than B AND C is equal to d\n");
9     else
10        printf("AND condition not satisfied\n");
11
12
13    if (a > b || c == d)
14        printf("A is greater than B\n");
15    else
16        printf("A is not greater than B\n");
17
18    if (!a)
19        printf("A is zero\n");
20    else
21        printf("A is not zero");
22
23    return 0;
24 }
```

Output:

```
Enter the numbers5
4
6
6
A is greater than B AND C is equal to d
A is greater than B
A is not zero
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4\exp3\operator> █
```

Program-3

Write a Program To show all the functions of Bitwise operator.

Source Code:

```
1 #include<stdio.h>
2
3
4 int main()
5 {
6     int a,b,i;
7     printf("Enter the numbers");
8     scanf("%d %d",&a,&b);
9     printf("Output of and = %d\n",a&b);
10    printf("Output of or = %d\n",a|b);
11    printf("Output of xor = %d\n",a^b);
12    printf("Output of bitwise complement = %d\n",~a);
13    printf("Output of bitwise complement = %d\n",~b);
14    for (i=0; i<=2; i++)
15    {
16        printf("Right shift by %d: %d\n", i, a>>i);
17        printf("Left shift by %d: %d\n",i, a<<i);
18    }
19 }
20 return 0;
21 }
```

Output:

```
Enter the numbers5
5
Output of and = 5
Output of or = 5
Output of xor = 0
Output of bitwise complement = -6
Output of bitwise complement = 4
Right shift by 0: 5
Left shift by 0: 5
Right shift by 1: 2
Left shift by 1: 10
Right shift by 2: 1
Left shift by 2: 20
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4\exp3\operator> █
```

Program-4

Write a Program To show all the functions of Relational operator.

Source Code:

```
1 #include <stdio.h>
2
3 int main()
4 {
5     int a = 10, b = 4;
6     if (a > b)
7         printf("a is greater than b\n");
8     else
9         printf("a is less than or equal to b\n");
10    if (a >= b)
11        printf("a is greater than or equal to b\n");
12    else
13        printf("a is lesser than b\n");
14
15    if (a < b)
16        printf("a is less than b\n");
17    else
18        printf("a is greater than or equal to b\n");
19
20    if (a <= b)
21        printf("a is lesser than or equal to b\n");
22    else
23        printf("a is greater than b\n");
24
25    if (a == b)
26        printf("a is equal to b\n");
27    else
28        printf("a and b are not equal\n");
29
30    if (a != b)
31        printf("a is not equal to b\n");
32    else
33        printf("a is equal b\n");
34
35    return 0;
36 }
```

Output:

```
a is greater than b  
a is greater than or equal to b  
a is greater than or equal to b  
a is greater than b  
a and b are not equal  
a is not equal to b  
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4\exp3\operator> █
```

Program-5

Write a Program To show the function of Assignment operator.

Source Code:

```
1 #include <stdio.h>
2
3 main() {
4
5     int a,b,c;
6     printf("Enter the number");
7     scanf("%d %d",&a,&c);
8     b = a;
9     printf("Line 1 - = Operator Example, Value of c = %d\n", b );
10    b +=a;
11    printf("Line 2 - += Operator Example, Value of c = %d\n", b );
12    b -=a;
13    printf("Line 3 - -= Operator Example, Value of c = %d\n", b );
14    b *= a;
15    printf("Line 4 - *= Operator Example, Value of c = %d\n", b );
16    b /= a;
17    printf("Line 5 - /= Operator Example, Value of c = %d\n", b );
18    c %= a;
19    printf("Line 6 - %= Operator Example, Value of c = %d\n", c );
20    c <= 2;
21    printf("Line 7 - <= Operator Example, Value of c = %d\n", c );
22    c >= 2;
23    printf("Line 8 - >= Operator Example, Value of c = %d\n", c );
24    c &= 2;
25    printf("Line 9 - &= Operator Example, Value of c = %d\n", c );
26    c ^= 2;
27    printf("Line 10 - ^= Operator Example, Value of c = %d\n", c );
28    c |= 2;
29    printf("Line 11 - |= Operator Example, Value of c = %d\n", c );
30
31 }
```

Output:

```
Enter the number7
5
Line 1 - = Operator Example, Value of c = 7
Line 2 - += Operator Example, Value of c = 14
Line 3 - -= Operator Example, Value of c = 7
Line 4 - *= Operator Example, Value of c = 49
Line 5 - /= Operator Example, Value of c = 7
Line 6 - = Operator Example, Value of c = 5
Line 7 - <= Operator Example, Value of c = 20
Line 8 - >= Operator Example, Value of c = 5
Line 9 - &= Operator Example, Value of c = 0
Line 10 - ^= Operator Example, Value of c = 2
Line 11 - |= Operator Example, Value of c = 2
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4\exp3\operator> █
```

Program-6

Write a Program To show the function of escape sequence.

Source Code:

```
1 #include <stdio.h>
2 int main(void)
3 {
4
5     printf("Hello\n");
6     printf("World");
7     printf("Hello \t World");
8     printf("Hello fri \r ends");
9     return (0);
10 }
```

Output:

```
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4\exp3> cd '$_' { .\escape }
Hello
endsHello      WorldHello fri
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4\exp3> █
```

Experiment-6

Program-1

Write a Program To Reverse a Number

Source Code:

```
C reverse.c > ...
1 #include <stdio.h>
2 int main()
3 {
4     int n, rev = 0, rem;
5     printf("Enter an integer");
6     scanf("%d", &n);
7     while (n != 0)
8     {
9         rem = n % 10;
10        rev = rev * 10 + rem;
11        n = n/ 10;
12    }
13    printf("Reversed number = %d", rev);
14    return 0;
15 }
16 |
```

Output:

```
PS C:\Users\LENOVO\OneDrive\Desktop\program> cd "c:\Users\LENOVO\OneDrive\Desktop\program"
Enter an integer785
Reversed number = 587
PS C:\Users\LENOVO\OneDrive\Desktop\program>
```

Program-2

Write a Program To Check Whether a Number is Palindrome or Not

Source Code:

```
C pallindrome.c > ...
1 #include <stdio.h>
2 int main()
3 {
4     int n, rev = 0, rem;
5     printf("Enter an integer ");
6     scanf("%d", &n);
7     int num=n;
8     while (n != 0)
9     {
10         rem = n % 10;
11         rev = rev * 10 + rem;
12         n =n/ 10;
13     }
14     if(num==rev)
15     {
16         printf("The number is palindrome");
17     }
18     else
19     {
20         printf("The number is not palindrome");
21     }
22     return 0;
23 }
```

Output:

```
Enter an integer 121
The number is palindrome
PS C:\Users\LENOVO\OneDrive\Desktop\program> cd "c:\Us
}
Enter an integer 123
The number is not palindrome
PS C:\Users\LENOVO\OneDrive\Desktop\program> █
```

Program-3

Write a Program To find factorial of a given number

Source Code:

```
C factroial.c > #include <stdio.h>
1
2
3 int main()
4 {
5     int i=1,n,fact=1;
6     printf("Enter Number");
7     scanf("%d",&n);
8     while(i<=n)
9     {
10         fact=fact*i;
11         i++;
12     }
13     printf("%d", fact);
14     return 0;
15 }
16 }
```

Output:

```
PS C:\Users\LENOVO\OneDrive\Desktop\program> cd "c:\Users\LENOVO\OneDrive\Desktop\program"
Enter Number5
120
PS C:\Users\LENOVO\OneDrive\Desktop\program>
```

Program-4

Write a Program To check Armstrong Number

Source Code:

```
C amstrong.c > ...
1 #include <stdio.h>
2 int main()
3 {
4     int n, rev , rem,h=0;
5     printf("Enter an integer ");
6     scanf("%d", &n);
7     int num=n;
8     while (n != 0)
9     {
10         rem = n % 10;
11         rev =rev*rem*rem;
12         h=h+rev;
13         n =n/10;
14     }
15     if(num==h)
16     {
17
18         printf("Armstrong number");
19     }
20     else
21     {
22         printf("Not a amstrong number");
23     }
24     return 0;
25 }
26 |
```

Output:

```
PS C:\Users\LENOVO\OneDrive\Desktop\program> cd "c:\Users\
Enter an integer 153
Armstrong number
PS C:\Users\LENOVO\OneDrive\Desktop\program> █
```

Program-5

Write a Program To print the Fibonacci series up to given number

Source Code:

```
C fibonacci.c > ↗ main()
1   #include <stdio.h>
2
3   int main()
4   {
5       int n1
6       int i,n,n1=0,n2=1,term;
7       printf("Enter number of turns");
8       scanf("%d",&n);
9       printf("The Fibonacci Series Is");
10      for(i=1;i<=n;i++)
11      {
12          term=n1+n2;
13          printf(" %d",n1);
14          n1=n2;
15          n2=term;
16      }
17      return 0;
18 }
```

Output:

```
Windows PowerShell
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PS C:\Users\LENOVO\OneDrive\Desktop\program> cd "c:\Users\LENOVO\OneDrive\Desktop\program"
Enter number of turns15
The Fibonacci Series Is 0 1 1 2 3 5 8 13 21 34 55 89 144 233 377
PS C:\Users\LENOVO\OneDrive\Desktop\program> █
```

Program-6

Write a Program To check Whether a Number is prime or Not (using for loop)

Source Code:

```
C prime.c > #include<stdio.h>
1
2
3 int main()
4 {
5     int i,n,prime=0;
6     printf("Enter a number");
7     scanf("%d",&n);
8     for(i=2;i<n;i++)
9     {
10         if(n%i==0)
11         {
12             prime=1;
13         }
14     }
15     if(prime==0)
16     {
17         printf("The number is prime ");
18     }
19     else
20     {
21         printf("The number is not a prime number");
22     }
23 }
24 }
```

Output:

```
PS C:\Users\LENOVO\OneDrive\Desktop\program> cd "c:\"
Enter a number7
The number is prime
PS C:\Users\LENOVO\OneDrive\Desktop\program> cd "c:\"
Enter a number15
The number is not a prime number
PS C:\Users\LENOVO\OneDrive\Desktop\program> █
```

Program-7

Write a Program To Display Prime Numbers Between Two Intervals (using for loop)

Source Code:

```
C prime2.c > ⊕ main()
1 #include<stdio.h>
2
3 int main()
4 {
5     int i,j,a,b,prime;
6     printf("Enter the 1st number");
7     scanf("%d",&a);
8     printf("Enter the 2nd number");
9     scanf("%d",&b);
10    printf("The prime number are ");
11    for(i=a;i<=b;i++)
12    {
13        prime=1;
14        for (j = 2; j <= i / 2; j++)
15        {
16            if (i % j == 0)
17            {
18                prime = 0;
19            }
20        }
21        if (prime == 1)
22        {
23            printf("%d ", i);
24        }
25    }
26    return 0;
27 }
```

Output:

The screenshot shows a terminal window with the following content:

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
Windows PowerShell
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PS C:\Users\LENOVO\OneDrive\Desktop\program> cd "c:\Users\LENOVO\OneDrive\Desktop\program\" ; if ($?) { gcc prime2.c -o prime2 } ; if ($?) { ./prime2 }

Enter the 1st number2
Enter the 2nd number150
The prime number are 2 3 5 7 11 13 17 19 23 29 31 37 41 43 47 53 59 61 67 71 73 79 83 89 97 101 103 107 109 113 127 131 137 139 149
PS C:\Users\LENOVO\OneDrive\Desktop\program>
```

Program-8

Write a Program To Find GCD of two Numbers (using for loop)

Source Code:

```
C gcd.c > main()
1 #include<stdio.h>
2
3 int main()
4 {
5     int n1,n2,gcd;
6     printf("Enter two numbers");
7     scanf("%d %d",&n1,&n2);
8     for(int i=1;i<=n1 && i<=n2;i++)
9     {
10         if(n1 % i==0 && n2 % i==0)
11         {
12             gcd=i;
13         }
14     }
15     printf("The GCD %d and %d is %d",n1,n2,gcd);
16     return 0;
17 }
```

Output:

```
Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\LENOVO\OneDrive\Desktop\program> cd "c:\Users\LENOVO\OneDrive\Desktop\program\" ; if ($?) { gcc gcd.c -o gcd } ; if ($?) { .\gcd }

Enter two numbers5
50
The GCD 5 and 50 is 5
PS C:\Users\LENOVO\OneDrive\Desktop\program>
```

Program-9

Write a Program To Find LCM of two Numbers. (using for loop)

Source Code:

```
C lcm.c > #include<stdio.h>
1
2
3 int main()
4 {
5     int n1,n2,lcm;
6     printf("Enter two numbers");
7     scanf("%d %d",&n1,&n2);
8     lcm=(n1>n2)?n1:n2;
9     while(1)
10    {
11        if(lcm % n1==0 && lcm % n2==0)
12        {
13            printf("The Lcm %d and %d is %d",n1,n2,lcm);
14            break;
15        }
16        lcm++;
17    }
18    return 0;
19 }
```

Output:

```
Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\LENOVO\OneDrive\Desktop\program> cd "c:\Users\LENOVO\OneDrive\Desktop\program\" ; if ($?) { gcc lcm.c -o lcm } ; if ($?) { .\lcm }
Enter two numbers
12
The Lcm 8 and 12 is 24
PS C:\Users\LENOVO\OneDrive\Desktop\program>
```

Program-10

Write a Program To find the following pattern.

**

*

Source Code:

```
C pattern1.c ×
C pattern1.c > main()
1 #include <stdio.h>
2
3 int main()
4 {
5     for(int i=5;i>=1;i--)
6     {
7         for(int j=1;j<=i;j++)
8         {
9             printf("* ");
10            }
11            printf("\n");
12        }
13    return 0;
14 }
```

Output:

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
[Running] cd "c:\Users\LENOVO\OneDrive\Desktop\program\" && gcc pattern1.c -o pattern1 && "c:\Users\LENOVO\OneDrive\Desktop\program\"pattern1
* * * *
* * *
* *
*
[Done] exited with code=0 in 4.562 seconds
```

Program-11

Write a Program To find the following pattern.

A

BB

CCC

DDDD

EEEEEE

Source Code:

```
C pattern2.c > ⚙ main()
1   #include<stdio.h>
2
3   int main()
4   {
5       int i,j;
6       char ch;
7       for(i=1;i<=5;i++)
8       {
9           ch='A';
10          for(j=1;j<=i;j++)
11          {
12              printf("%c",ch++);
13          }
14          printf("\n");
15      }
16      return 0;
17 }
```

Output:

```
PS C:\Users\LENOVO\OneDrive\Desktop\program> cd  
A  
AB  
ABC  
ABCD  
ABCDE  
PS C:\Users\LENOVO\OneDrive\Desktop\program>
```

Program-12

Write a Program To find the following pattern

*
* * *
* * * * *

Source Code:

```
C pattern3.c > main()
1 #include <stdio.h>
2 int main()
3 {
4     int i,j,k = 0;
5     for (i=1;i<=5;i++,k=0)
6     {
7         for (j=1;j<=5-i;j++)
8         {
9             printf("  ");
10        }
11        while (k != 2 * i - 1)
12        {
13            printf("* ");
14            k++;
15        }
16        printf("\n");
17    }
18    return 0;
19 }
```

Output:

```
Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\LENOVO\OneDrive\Desktop\program> cd "c:\Users\LENOVO\OneDrive\Desktop\program"
*
* *
* * *
* * * *
* * * * *
* * * * * *
PS C:\Users\LENOVO\OneDrive\Desktop\program>
```

Program-13

Write a Program To print the following series for N given number

```
1  
111  
11111  
1111111  
111111111
```

Source Code:

```
C pattern4.c > # main()  
1 #include <stdio.h>  
2 int main()  
3 {  
4     int i,j,n,k = 0;  
5     printf("Enter the no of rows");  
6     scanf("%d",&n);  
7     for (i=1;i<=n;i++,k=0)  
8     {  
9         for (j=1;j<=n-i;j++)  
10        {  
11            | printf(" ");  
12        }  
13        while (k != 2 * i - 1)  
14        {  
15            | printf("1 ");  
16            k++;  
17        }  
18        printf("\n");  
19    }  
20    return 0;  
21 }
```

Output:

```
Windows PowerShell  
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Try the new cross-platform PowerShell https://aka.ms/pscore6  
PS C:\Users\LENOVO\OneDrive\Desktop\program> cd "c:\Users\LENOVO\OneDrive\Desktop\program"  
Enter the no of rows5  
      1  
     1 1 1  
    1 1 1 1 1  
   1 1 1 1 1 1 1  
 1 1 1 1 1 1 1 1  
PS C:\Users\LENOVO\OneDrive\Desktop\program>
```

Experiment-7

Program-1

Write a Program WAP To print an array

Source Code:

```
exp2 > exp4 > exp7 > C p1.c > ⚡ main()
1 #include<stdio.h>
2 #include<stdlib.h>
3
4 void main()
5 {
6     system("cls");
7     int num[5],i;
8     printf("Enter the numbers in the array");
9     for(i=0;i<5;i++)
10    scanf("%d",&num[i]);
11
12    printf("The Entered numbers are: ");
13    for(i=0;i<5;i++)
14    printf("%d ",num[i]);
15
16    return 0;
17 }
```

Output:

```
Enter the numbers in the array8
5
4
9
6
The Entered numbers are: 8 5 4 9 6
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4\exp7>
```

Program-2

Write a Program to print an array in reverse order

Source Code:

```
1 #include<stdio.h>
2 #include<stdlib.h>
3
4 void main()
5 {
6     system("cls");
7     int num[5],i;
8     printf("Enter the numbers in the array");
9     for(i=0;i<5;i++)
10        scanf("%d",&num[i]);
11
12    printf("The Entered numbers in reverse order: ");
13    for[i=4;i>=0;i--]
14    printf("%d ",num[i]);
15
16    return 0;
17 }
```

Output:

```
Enter the numbers in the array85
75
45
65
95
The Entered numbers in reverse order: 95 65 45 75 85
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4\exp7> █
```

Program-3

Write a Program to calculate sum of an array

Source Code:

```
exp2 > exp4 > exp7 > C p3.c > main()
1 #include<stdio.h>
2 #include<stdlib.h>
3
4 void main()
5 {
6     system("cls");
7     int num[5],i,sum=0;
8     printf("Enter the numbers in the array");
9     for(i=0;i<5;i++)
10    {
11        scanf("%d",&num[i]);
12        sum =sum+num[i];
13    }
14
15    printf("The sum of the number is %d ",sum);
16
17    return 0;
18 }
```

Output:

```
Enter the numbers in the array5
8
7
6
4
The sum of the number is 30
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4\exp7>
```

Program-4

Write a Program to calculate average of an array

Source Code:

```
exp2 > exp4 > exp7 > C p4.c > main()
1 #include<stdio.h>
2 #include<stdlib.h>
3
4 void main()
5 {
6     system("cls");
7     int num[5],i;
8     double avg,sum=0;
9     printf("Enter the numbers in the array");
10    for(i=0;i<5;i++)
11    {
12        scanf("%d",&num[i]);
13        sum =sum+num[i];
14    }
15    avg=sum/i;
16    printf("The average of the number is %lf ",avg);
17
18    return 0;
19 }
```

Output:

```
Enter the numbers in the array
8
5
4
8
The average of the number is 6.400000
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4\exp7>
```

Program-5

Write a Program to find the largest element of an array

Source Code:

```
exp2 > exp4 > exp7 > C p5.c > main()
1 #include<stdio.h>
2 #include<stdlib.h>
3
4 void main()
5 {
6     system("cls");
7     int num[5],i;
8     printf("Enter the numbers in the array");
9     for(i=0;i<5;i++)
10        scanf("%d",&num[i]);
11
12    for (i = 1; i < 5; i++)
13        if(num[0] < num[i])
14            num[0] = num[i];
15
16    printf("The Largest number is %d ",num[0]);
17
18    return 0;
19 }
```

Output:

```
Enter the numbers in the array5
8
6
7
9
The Largest number is 9
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4\exp7> █
fwd-i-search: _
```

Program-6

Write a Program to find the second largest element of an array

Source Code:

```
1 #include<stdio.h>
2 #include<stdlib.h>
3
4 void main()
5 {
6     system("cls");
7     int num[5],i;
8     int second;
9     printf("Enter the numbers in the array ");
10    for(i=0;i<5;i++)
11        scanf("%d",&num[i]);
12
13    for (i = 1; i < 5; i++)
14    {
15        if(num[0] < num[i])
16        {
17            second=num[0];
18            num[0] = num[i];
19        }
20        else if(second<num[i] && num[i]!=num[0])
21        {
22            second=num[i];
23        }
24    }
25    printf("The Second Largest number is %d ",second);
26
27    return 0;
28 }
```

Output:

```
Enter the numbers in the array 75
84
95
84
65
The Second Largest number is 84
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4\exp7>
```

Program-7

Write a Program to find the smallest element of an array

Source Code:

```
1 #include<stdio.h>
2 #include<stdlib.h>
3
4 void main()
5 {
6     system("cls");
7     int num[5],i;
8     printf("Enter the numbers in the array");
9     for(i=0;i<5;i++)
10        scanf("%d",&num[i]);
11
12    for (i = 1; i <5; i++)
13        if(num[0] > num[i])
14            num[0] = num[i];
15
16    printf("The Smallest number is %d ",num[0]);
17
18    return 0;
19 }
```

Output:

```
Enter the numbers in the array84
75
84
35
24
The Smallest number is 24
PS C:\Users\LENOVO\OneDrive\Desktop\program\exp2\exp4\exp7> █
```

Program-8

Write a Program to add two numbers.

Source Code:

```
exp2 > exp4 > exp1 > C p8.c > ⌂ main()
1 #include<stdio.h>
2 #include<stdlib.h>
3
4 void main()
5 {
6     system("cls");
7     int i,j,a[2][2],b[2][2],c[2][2];
8     printf("Enter the value for 1st Matrix \n");
9     for(i=0;i<2;i++)
10        for(j=0;j<2;j++)
11            scanf("%d",&a[i][j]);
12
13    printf("Enter the value for 2nd Matrix \n");
14    for(i=0;i<2;i++)
15        for(j=0;j<2;j++)
16            scanf("%d",&b[i][j]);
17
18    for(i=0;i<2;i++)
19        for(j=0;j<2;j++)
20            c[i][j]=a[i][j]+b[i][j] ;
21
22    printf("\n The sum of Matrix is: \n");
23    for(i=0;i<2;i++)
24    {
25        for(j=0;j<2;j++)
26        {
27            printf("%d ",c[i][j]);
28        }
29        printf("\n\n");
30    }
31
32    return 0;
33 }
```

Output:

```
Enter the value for 1st Matrix
4
4
4
4
Enter the value for 2nd Matrix
9
9
9
9
The sum of Matrix is:
13 13
13 13
```

Program-9

Write a Program to multiply two numbers.

Source Code:

```

1 #include<stdio.h>
2 #include<stdlib.h>
3
4 void main()
5 {
6     system("cls");
7     int i,j,a[2][2],b[2][2],c[2][2];
8     printf("Enter the value for 1st Matrix \n");
9     for(i=0;i<2;i++)
10    {
11        for(j=0;j<2;j++)
12            scanf("%d",&a[i][j]);
13
14        printf("Enter the value for 2nd Matrix \n");
15        for(i=0;i<2;i++)
16            {
17                for(j=0;j<2;j++)
18                    scanf("%d",&b[i][j]);
19
20                for(i=0;i<2;i++)
21                    {
22                        for(j=0;j<2;j++)
23                            c[i][j]=a[i][j]*b[i][j] ;
24
25                    }
26
27                printf("\n\n");
28            }
29
30        return 0;
31    }

```

Output:

```

Enter the value for 1st Matrix
5
5
5
5
Enter the value for 2nd Matrix
5
5
5
5
The Multiplication of Matrix is:
25 25
25 25

```

Experiment-8

Program-1

Write a Program to enter age from keyboard and print that you are eligible for voting or not.

Source Code:

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

int vote(int age)
{
    if(age>=18)
        return 1;
    else
        return 0;
}

int main()
{
    system("cls");
    int age,result;
    printf("Enter the age ");
    scanf("%d",&age);
    result=vote(age);
    if(result==1)
        printf("You are eligible for voting");
    else
        printf("Not eligible for voting");

    return 0;
}
```

Output:

```
Enter the age 17
Not eligible for voting
PS C:\Users\LENOVO\OneDrive\Desktop\program\Assignment\exp8> █
```

Program-2

Write a Program to check whether a number is even or odd.

Source Code:

```
Assignment > expo > 111_evenodd.c > ...
1 #include<stdio.h>
2 #include<stdlib.h>
3
4 void main()
5 {
6     system("cls");
7     int n,res;
8     printf("Enter the number");
9     scanf("%d",&n);
10    res=evenodd(n);
11    if(res==1)
12        printf("Even number");
13    else
14        printf("Odd number");
15
16    return 0;
17 }
18 int evenodd(int n)
19 {
20     if(n%2==0)
21         return 1;
22     else
23         return 0;
24 }
```

Output:

```
Enter the number54
Even number
PS C:\Users\LENOVO\OneDrive\Desktop\program\Assignment\exp8> █
```

Program-3

Write a Program to find the largest number among two numbers.

Source Code:

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

void main()
{
    system("cls");
    int a,b,res;
    printf("Enter the numbers");
    scanf("%d%d",&a,&b);
    res=largest(a,b);
    if(res==1)
        printf("A is the greatest number");
    else
        printf("B is the greatest number");

    return 0;
}
int largest(int a,int b)
{
    if(a>b)
        return 1;
    else
        return 0;
}
```

Output:

```
Enter the numbers85
45
A is the greatest number
PS C:\Users\LENOVO\OneDrive\Desktop\program\Assignment\exp8> █
```

Program-4

Write a Program to check whether a character is a vowel or consonant.

Source Code:

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

int main()
{
    system("cls");
    char ch;
    int isvowel(char ch);
    printf("Enter the letter to cheak ");
    scanf("%c",&ch);
    if(isvowel(ch))
        printf("The letter is a vowel");
    else
        printf("The letter is a consonant");
    return 0;
}

int isvowel(char ch)
{
    if(ch=='A' || ch=='E' || ch=='I' || ch=='O' || ch=='U' || ch=='a' || ch=='e' || ch=='i' || ch=='o' || ch=='u')
        return 1;
    else
        return 0;
}
```

Output:

```
Enter the letter to cheak E
The letter is a vowel
PS C:\Users\LENOVO\OneDrive\Desktop\program\Assignment\exp8> █
```

Program-5

Write a Program to find the largest number among three numbers.

Source Code:

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

void main()
{
    system("cls");
    int a,b,c,res;
    printf("Enter the numbers");
    scanf("%d%d%d",&a,&b,&c);
    res=largest(a,b,c);
    if(res==2)
        printf("A is the greatest number");
    else if(res==1)
        printf("B is the greatest number");
    else
        printf("C is the greatest number");

    return 0;
}
int largest(int a,int b,int c)
{
    if(a>b && a>c)
        return 2;
    else if(b>a && b>c)
        return 1;
    else
        return 0;
}
```

Output:

```
Enter the numbers75
95
23
B is the greatest number
PS C:\Users\LENOVO\OneDrive\Desktop\program\Assignment\exp8> █
```

Program-6

Write a Program to check Whether the Entered Year is Leap Year or not.

Source Code:

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

int main()
{
    system("cls");
    int year,leap;
    printf("Enter the year");
    scanf("%d",&year);
    leap=leapyear(year);
    if(leap==0)
        printf("The Year is Leap year");
    else
        printf("The Year is not leap year");
}
int leapyear(int year)
{
    if(year%4==0 || year%100==0 || year%400==0)
        return 0;
    else
        return 1;
}
```

Output:

```
Enter the year2032
The Year is Leap year
PS C:\Users\LENOVO\OneDrive\Desktop\program\Assignment\exp8>
```

Program-7

Write a Program to check Whether a Number is Positive or Negative or Zero.

Source Code:

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

int main()
{
    system("cls");
    int n,res;
    printf("Enter the number");
    scanf("%d",&n);
    res=negative(n);
    if(res==1)
        printf("The number is negative");
    else
        printf("The number is positive");

    return 0;
}
int negative(int n)
{
    if(n<=0)
        return 1;
    else
        return 0;
}
```

Output:

```
Enter the number58
The number is positive
PS C:\Users\LENOVO\OneDrive\Desktop\program\Assignment\exp8> █
```

Program-8

Write a Program to check Armstrong Number.

Source Code:

```
Assignment > expo > C fun_armstrong.c > amstrong(int)
1 #include<stdio.h>
2 #include<stdlib.h>
3
4 int amstrong(int n)
5 {
6     int rev,rem,h=0;
7     int num=n;
8     while (n !=0)
9     {
10         rem=n%10;
11         rev=rev*rem*rem;
12         h=h+rev;
13         n=n/10;
14     }
15     if(num==h)
16     | return 1;
17     else
18     | return 0;
19 }
20 int main()
21 {
22     system("cls");
23     int n,result;
24     printf("Enter an Integer");
25     scanf("%d",&n);
26     result=amstrong(n);
27     if(result==1)
28     | printf("Is a Armstrong number");
29     else
30     | printf("Not a amstrong");
31     return 0;
32 }
```

Output:

```
Enter an Integer153
Is a Amstrong number
PS C:\Users\LENOVO\OneDrive\Desktop\program\Assignment\exp8> █
```

Program-9

Write a Program to print the Fibonacci series up to given number.

Source Code:

```
1 #include <stdio.h>
2 #include<stdlib.h>
3
4 void fiboseries(int n)
5 {
6     int n1=0,n2=1,n3;
7     for(int i=1;i<=n;i++)
8     {
9         n3=n1+n2;
10        printf("%d ",n1);
11        n1=n2;
12        n2=n3;
13    }
14 }
15 int main()
16 {
17     system("cls");
18     int n;
19     printf("Enter the no of times");
20     scanf("%d",&n);
21     printf("The fibonacci serries is ");
22     fiboseries(n);
23     return 0;
24 }
```

Output:

```
Enter a number: 5
Factorial of 5 is 120
PS C:\Users\LENOVO\OneDrive\Desktop\program\Assignment\exp8> []
```

Program-10

Write a Program to check Whether a Number is prime or Not.

Source Code:

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

void main()
{
    system("cls");
    int i,result,n;
    printf("Enter a number");
    scanf("%d",&n);
    result=prime(n);
    if(result==0)
        printf("The number is a prime number");
    else
        printf("The number is not a prime number");
    return 0;
}
int prime(int n)
{
    int prime=0,i;
    for(i=2;i<n;i++)
    {
        if(n%i==0)
            prime=1;
    }
    if(prime==1)
        return 1;
    else
        return 0;
}
```

Output:

```
Enter a number7
The number is a prime number
PS C:\Users\LENOVO\OneDrive\Desktop\program\Assignment\exp8>
```

Program-11

Write a Program to Display Prime Numbers between Two Intervals.

Source Code:

```
1 #include<stdio.h>
2 #include<stdlib.h>
3
4 void primefind(int n1,int n2)
5 {
6     for(int i=n1;i<=n2;i++)
7     {
8         int prime=1;
9         for(int j=2;j<=i/2;j++)
10        {
11            if(i%j==0)
12            {
13                prime=0;
14            }
15        }
16        if(prime)
17        {
18            printf("%d ",i);
19        }
20    }
21 }
22 int main()
23 {
24     system("cls");
25     int n1,n2,prime,i,n;
26     printf("Enter two number");
27     scanf("%d %d",&n1,&n2);
28     printf("The prime numbers are ");
29     primefind(n1,n2);
30     return 0;
31 }
```

Output:

```
Enter two number1  
100  
The prime numbers are 1 2 3 5 7 11 13 17 19 23 29 31 37 41 43 47 53 59 61 67 71 73 79 83 89 97  
PS C:\Users\LENOVO\OneDrive\Desktop\program\Assignment\exp8>
```

Program-12

Write a Program to Find GCD of two Numbers.

Source Code:

```
1 #include<stdio.h>  
2 #include<stdlib.h>  
3  
4 int main()  
5 {  
6     system("cls");  
7     int n1,n2,gcd;  
8     printf("Enter two numbers");  
9     scanf("%d %d",&n1,&n2);  
0     gcd=gcdfind(n1,n2);  
1     printf("The gcd of %d and %d is %d",n1,n2,gcd);  
2     return 0;  
3 }  
4 int gcdfind(int n1,int n2)  
5 {  
6     int gcd;  
7     for(int i=1;i<=n1 && i<=n2;i++)  
8     {  
9         if(n1 % i==0 && n2 % i==0)  
0             {  
1                 gcd=i;  
2             }  
3     }  
4     return gcd;  
5 }
```

Output:

```
Enter two numbers8  
84  
The gcd of 8 and 84 is 4  
PS C:\Users\LENOVO\OneDrive\Desktop\program\Assignment\exp8>
```

Program-13

Write a Program to Find LCM of two Numbers.

Source Code:

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

void main()
{
    int n1,n2,lcm;
    system("cls");
    printf("Enter two numbers");
    scanf("%d %d",&n1,&n2);
    lcm=lcmfind(n1,n2);
    printf("The Lcm %d and %d is %d",n1,n2,lcm);
    return 0;
}

int lcmfind(int n1,int n2)
{
    int lcm;
    lcm=(n1>n2)?n1:n2;
    while([lcm%n1!=0 && lcm%n2!=0])
    {
        lcm++;
    }
    return lcm;
}
```

Output:

```
Enter two numbers8
16
The Lcm 8 and 16 is 16
PS C:\Users\LENOVO\OneDrive\Desktop\program\Assignment\exp8>
```

Experiment-9

Program-1

Write a Program to find the sum of natural numbers using recursion.

Source Code:

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

int main()
{
    system("cls");
    int n,add;
    printf("Enter the numbers");
    scanf("%d",&n);
    add=addnumber(n);
    printf("Sum of numbers=%d",add);
}

int addnumber(int n)
{
    if(n>0)
        return n+addnumber(n-1);
    else
        return n;
}
```

Output:

```
Enter the numbers10
Sum of numbers=55
PS C:\Users\LENOVO\OneDrive\Desktop\program\Assignment\exp8> █
```

Program-2

Write a Program to calculate the factorial of a number using recursion.

Source Code:

```
1 #include<stdio.h>
2 #include<stdlib.h>
3
4 int fact(int n)
5 {
6     if (n >1)
7         return (n * fact(n-1));
8     else
9         return 1;
10 }
11
12 int main()
13 {
14     system("cls");
15     int n,factorial;
16     printf("Enter a number: ");
17     scanf("%d", &n);
18     factorial = fact(n);
19     printf("Factorial of %d is %d\n", n, factorial);
20     return 0;
21 }
```

Output:

```
Enter a number: 5
Factorial of 5 is 120
PS C:\Users\LENOVO\OneDrive\Desktop\program\Assignment\exp8> █
```

Program-3

Write a Program to find G.C.D of 2 number using recursion.

Source Code:

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

int main()
{
    system("cls");
    int n1,n2,gcd;
    printf("Enter two numbers");
    scanf("%d %d",&n1,&n2);
    gcd=gcdfind(n1,n2);
    printf("The gcd of %d and %d is %d",n1,n2,gcd);
    return 0;
}

int gcdfind(int n1,int n2)
{
    if[n2>0]
        return (n1%n2) ;
    else
        return n1;
}
```

Output:

```
Enter two numbers2
8
The gcd of 2 and 8 is 2
PS C:\Users\LENOVO\OneDrive\Desktop\program\Assignment\exp8> █
```

Program-4

Write a Program to calculate the power of a number using recursion.

Source Code:

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

int main()
{
    system("cls");
    int res,a,base;
    printf("Enter base number");
    scanf("%d",&base);
    printf("Enter power number");
    scanf("%d",&a);
    res=power(base,a);
    printf("%d^%d=%d",base,a,res);
    return 0;
}
int power(int base,int a)
{
    if(a>0)
        return(base*power(base,a-1));
    else
        return 1;
}
```

Output:

```
Enter base number2
Enter power number3
2^3 =8
PS C:\Users\LENOVO\OneDrive\Desktop\program\Assignment\exp8>
```

Program-5

Write a recursive function to print Fibonacci sequence.

Source Code:

```
1 #include <stdio.h>
2 #include<stdlib.h>
3
4 int fiboseries(int n)
5 {
6     static int n1=0,n2=1,n3;
7     if(n>0)
8     {
9         n3=n1+n2;
10        n1=n2;
11        n2=n3;
12        printf("%d ",n3);
13        fiboseries(n-1);
14    }
15 }
16 int main()
17 {
18     system("cls");
19     int n;
20     printf("Enter the no of times");
21     scanf("%d",&n);
22     printf("The fibonacci serries is ");
23     printf("%d %d ",0,1);
24     fiboseries(n-2);
25     return 0;
26 }
```

Output:

```
Enter a number: 5
Factorial of 5 is 120
PS C:\Users\LENOVO\OneDrive\Desktop\program\Assignment\exp8> []
```

Experiment-10

Program-1

Write a Program in C to show the basic declaration of pointer.

Source Code:

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

int main()
{
    system("cls");
    int a, *ptr;
    printf("Enter a integer value");
    scanf("%d",&a);
    ptr=&a;
    printf("%d",*ptr);
}
```

Output:

```
Enter a integer value10
10
PS C:\Users\PIKUN\OneDrive\Documents\program\Assignment\exp9>
```

Program-2

Write a Program in C to demonstrate how to handle the pointers in the program.

Source Code:

```
#include <stdio.h>
#include<stdlib.h>
int main()
{
    system("cls");
    int a=65;
    int *d=&a;
    printf("%d",*d);
    return 0;
}
```

Output:

```
65
PS C:\Users\PIKUN\OneDrive\Documents\program\Assignment\exp9>
```

Program-3

Write a Program in C to demonstrate the use of & (address of) and *(value at address) operator.

Source Code:

```
#include <stdio.h>
#include<stdlib.h>
void main()
{
    system("cls");
    int a;
    float b;
    char ch;
    printf("Enter a integer value ");
    scanf("%d",&a);
    printf("Enter a float value ");
    scanf("%f",&b);
    printf("Enter a character value ");
    scanf(" %c",&ch);

    int *pt1;
    float *pt2;
    char *pt3;
    pt1= &a;
    pt2=&b;
    pt3=&ch;
    printf ( " A = %d\n",a);
    printf ( " B = %f\n",b);
    printf ( " C = %c\n",ch);

    printf("\n Using & operator :\n");
    printf ( " address of m = %p\n",&a);
    printf ( " address of fx = %p\n",&b);
    printf ( " address of cht = %p\n",&ch);

    printf("\n Using & and * operator :\n");
    printf ( " value at address of m = %d\n",*(&a));
    printf ( " value at address of fx = %f\n",*(&b));
    printf ( " value at address of cht = %c\n",*(&ch));

    printf("\n Using only pointer variable :\n");
    printf ( " address of m = %p\n",pt1);
    printf ( " address of fx = %p\n",pt2);
    printf ( " address of cht = %p\n",pt3);
```

```
    printf("\n Using only pointer operator :\n");
    printf (" value at address of m = %d\n", *pt1);
    printf (" value at address of fx= %f\n", *pt2);
    printf (" value at address of cht= %c\n\n", *pt3);
}
```

Output:

```
Enter a integer value 8
Enter a float value 7.5
Enter a character value P
A = 8
B = 7.500000
C = P

Using & operator :
address of m = 0061FEC0
address of fx = 0061FEBC
address of cht = 0061FEBB

Using & and * operator :
value at address of m = 8
value at address of fx = 7.500000
value at address of cht = P

Using only pointer variable :
address of m = 0061FEC0
address of fx = 0061FEBC
address of cht = 0061FEBB

Using only pointer operator :
value at address of m = 8
value at address of fx= 7.500000
value at address of cht= P
```

```
PS C:\Users\PIKUN\OneDrive\Documents\program\Assignment\exp9> █
```

Program-4

Write a Program in C to add two numbers using pointers.

Source Code:

```
#include<stdio.h>
#include<stdlib.h>
int main()
{
    system("cls");
    int n1,n2,sum,*a,*b;
    printf("Enter two numbers");
    scanf("%d %d",&n1,&n2);
    a=&n1;
    b=&n2;
    sum=*a+*b;
    printf("The sum of %d and %d is %d",n1,n2,sum);
}
```

Output:

```
Enter two numbers54
95
The sum of 54 and 95 is 149
PS C:\Users\PIKUN\OneDrive\Documents\program\Assignment\exp9> []
```

Program-5

Write a Program in C to add numbers with add function using call by reference.

Source Code:

```
#include<stdio.h>
#include<stdlib.h>
int add(int *a,int *b)
{
    return *a+*b;
}
int main()
{
    system("cls");
    int a,b,sum;
    printf("Enter two numbers");
    scanf("%d %d",&a,&b);
    sum=add(&a,&b);
    printf("The sum is%d",sum);
}
```

Output:

```
Enter two numbers88
75
The sum is163
PS C:\Users\PIKUN\OneDrive\Documents\program\Assignment\exp9> █
```

Program-6

Write a Program in C to find the maximum number between two numbers.

Source Code:

```
#include<stdio.h>
#include<stdlib.h>
int max(int *a,int *b)
{
    if(*a > *b)
        return *a;
    else
        return *b;
}
int main()
{
    system("cls");
    int a,b,res;
    printf("Enter two numbers");
    scanf("%d %d",&a,&b);
    res=max(&a,&b);
    printf("The Maximum number is %d",res);

}
```

Output:

```
Enter two numbers8
7
The Maximum number is 8
PS C:\Users\PIKUN\OneDrive\Documents\program\Assignment\exp9> █
```

Program-7

Write a Program in C to store n elements in an array and print the elements using pointer.

Source Code:

```
#include<stdio.h>
#include<stdlib.h>
int main()
{
    system("cls");
    int size,i;
    printf("Enter the size of the array");
    scanf("%d",&size);
    int arr[size];
    printf("Enter the elements");
    for(i=0;i<size;i++)
    {
        scanf("%d",(&arr[i]));
    }
    printf("The Enter numbers are");
    for(i=0;i<size;i++)
    {
        printf(" %d ",*(arr+i));
    }
}
```

Output:

```
Enter the size of the array5
Enter the elements8
7
6
9
4
The Enter numbers are8 7 6 9 4
PS C:\Users\PIKUN\OneDrive\Documents\program\Assignment\exp9> █
```

Program-8

Write a Program in C to swap elements with swap function using call by reference.

Source Code:

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

int main()
{
    system("cls");
    int a,b;
    printf("Enter the value ");
    scanf("%d %d",&a,&b);
    swap(&a,&b);
    printf("%d %d",a,b);
    return 0;
}

int swap(int *a,int *b)
{
    int c;
    c=*a;
    *a=*b;
    *b=c;
}
```

Output:

```
Enter the value 5
8
8 5
PS C:\Users\PIKUN\OneDrive\Documents\program\Assignment\exp9>
```

Program-9

Write a Program in C to find the factorial of a given number using pointers.

Source Code:

```
#include<stdio.h>
#include<stdlib.h>
int fact(int n,int *f)
{
    int i;
    *f=1;
    for(i=1;i<=n;i++)
    {
        *f=*f*i;
    }
}
int main()
{
    system("cls");
    int f,n;
    printf("Enter the number ");
    scanf("%d",&n);
    fact(n,&f);
    printf("The factorial is %d",f);
    return 0;
}
```

Output:

```
Enter the number 7
The factorial is 5040
PS C:\Users\PIKUN\OneDrive\Documents\program\Assignment\exp9> █
```

Program-10

Write a Program in C to show the basic declaration of pointer.

Source Code:

```
#include<stdio.h>
#include<stdlib.h>
int *fun()
{
    static int a=100;
    return (&a);
}
int main()
{
    system("cls");
    int *p;
    p=fun();
    printf("%p\n",p);
    printf("%d\n",*p);
    return 0;
}
```

Output:

```
00403008
100
PS C:\Users\PIKUN\OneDrive\Documents\program\Assignment\exp9> []
```