

EXPERIMENT-1

AIM: -

Write a c program to demonstrate the working of the following constructs:

i)do...while

ii) while...do

iii) if ...else

iv) switch

v) for Loops in C language

//AIM:(i) To demonstrate the working of do..while construct Objective

To understand the working of do while with different range of values and test cases

SOURCE-CODE:-

```
#include <stdio.h>

void main ()
{
    int num;
    double fact=1;
    printf("enter a number:");
    scanf("%d",&num);
    do
    {
        Fact=fact*num;
        num--;
    }
    While(num>0);
    printf("factorial of a given number is:%d",fact);
}
```

TEST CASES:**Test Case:1**

Test Case Name: Positive values within the range.

Input	Excepted Output	Actual Output	Remarks
6	720.00	720.0000	Success
7	5040.00	5040.0000	Success

Test Case:2

Test Case Name: Value is Zero.

Input	Excepted Output	Actual Output	Remarks
0	1	0	Fail

Test Case:3

Test Case Name: Negative values.

Input	Excepted Output	Actual Output	Remarks
0	1	0	Fail

AIM:(ii)-To demonstrate the working of while construct Objective.

To understand the working of while with different range of values and test cases

SOURCE-CODE: -

```
#include <stdio.h>

void main ()
{
    int num,rem,sum=0;
    printf("enter a number:");
    scanf("%d",&num);
    While(num>0)
    {
        Rem=num%10;
        Sum+=rem;
        num/=10;
        printf("sum of digits of a given number is:%d",sum);
    }
```

TEST CASES:**Test Case:1**

Test Case Name: Positive values within the range

Input	Excepted Output	Actual Output	Remarks
3463	16	16	Success
493	16	16	Success
5	5	5	Success

Test Case:2

Test Case Name: Negative values.

Input	Excepted Output	Actual Output	Remarks
-346316	16	0	Fail
-4	4	0	Fail

Test Case:3

Test Case Name: Values in Out of Range.

Input	Excepted Output	Actual Output	Remarks
343343	21	0	Fail
656565	33	8	Fail

AIM:(iii):--To demonstrate the working of if else construct Objective

To understand the working of if else with different range of values and test cases

SOURCE-CODE:-

```
#include<stdio.h>

void main ()
{
int year;
printf("Enter a year");
scanf("%d",&year);
if(year%4==0 && year%100!=0)
{
Printf("leap year");
}
else
{
Printf("not a leap year");
}
}
```

TEST CASES:**Test Case:1****Test Case Name:** Years not divided by 100

Input	Excepted Output	Actual Output	Remarks
673	Not leap year	Not leap year	Success
973	Not leap year	Not leap year	Success
676	leap year	leap year	Success
436	leap year	leap year	Success

Test Case:2**Test Case Name:** Years divided by 100

Input	Excepted Output	Actual Output	Remarks
1900	Not leap year	leap year	Fail
2000	Not leap year	leap year	Fail

AIM:(iv):To demonstrate the working of switch construct Objective

To understand the working of switch with different range of values and test cases

SOURCE-CODE: -

```
#include<stdio.h>

void main() {
int a,b,c;
printf("1.Add/n 2.Sub /n 3.Mul /n 4.Div /n Enter Yourchoicell");
scanf("%d",&i);
printf("Enter a,b values");
scanf("%d%d",&a,&b);
switch(i) {
case 1:
c=a+b;
printf("The sum of a & b is: %d",c);
break;
case 2: c=a-b;
printf("The Diff of a & b is: %d",c);
break;
case 3:
c=a*b;
printf("The Mul of a & b is: %d",c);
break;
case 4:
c=a/b;
printf("The Div of a & b is: %d",c);
break;
default:
printf("Enter yourchoice"); } }
```

TEST CASES:**Test Case:1****Test Case Name:** Values with in the Range.

a=60, b=30

Input	Excepted Output	Actual Output	Remarks
1	90	90	Success
2	30	30	Success
3	1800	1800	Success
4	2	2	Success

Test Case:2

a=30, b=20

Input	Excepted Output	Actual Output	Remarks
1	50	50	Success
2	10	10	Success
3	600	600	Success
4	1	1	Success

Test Case:3**Test Case Name:** Values out of Range.

Input	Excepted Output	Actual Output	Remarks
<u>1</u> a=343434 b=454545	<u>797979</u>	<u>1147</u>	<u>Fail</u>
<u>2</u> a=343434 b=565656	<u>220011</u>	<u>-23403</u>	<u>Fail</u>
<u>3</u> a=111111 b=100000		<u>20416</u>	<u>Fail</u>

AIM:(v): To demonstrate working of for construct Objective

To understand the working of for with different range of values and test cases

SOURCE-CODE: -

```
#include <stdio.h>

Void main()
{
int n,i;
double fact=1.0000;
printf("Enter a number");
scanf("%d",&n);
for(i=1;i<=n;i++)
{
fact=fact*i;
}
Printf("Factorial of given number is:%d",fact);
}
```

TEST CASES:**Test Case:1**

Test Case Name: Positive values within the Range.

Input	Excepted Output	Actual Output	Remarks
3	6.000000	6.000000	Success
2	4.000000	4.000000	Success

Test Case:2

Input	Excepted Output	Actual Output	Remarks
0	1	1	Success

Test Case:3

Test Case Name: Negative Values within the Range,.

Input	Excepted Output	Actual Output	Remarks
-3	1	0	Fail