



**Tribhuvan University  
Institute of Engineering  
Purwanchal Campus, Dharan**

**C-Programming Lab Report**

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## LAB SHEET NO.5[To be familiar with LOOPS]

1.WAP to read 10 numbers from user and find their sum and average.

### Code:

```
#include<stdio.h>
int main()
{
    int num[10];
    int i,sum=0,avg;
    printf("Enter any 10 number:");
    for(i=0;i<=9;i++)
    {
        scanf("%d",&num[i]);

    }
    for(i=0;i<=9;i++)
    {
        sum = sum + num[i];

    }
    printf("%d\n",sum);
    avg=sum/10;
    printf("%d",avg);

    return 0;
}
```

### Output:

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

Code - C Tutorials + - [ ] [ ] ^ X

```
cd "/Users/nigam/Downloads/C Tutorials/" && gcc jpt.c -o jpt && "/Users/nigam/Downloads/C Tutorials/"jpt
nigam@Nigams-MacBook-Pro Downloads % cd "/Users/nigam/Downloads/C Tutorials/" && gcc jpt.c -o jpt && "/Users/nigam/Downloads/C Tutorials/"j
pt
Enter any 10 number:10 20 30 40 50 60 70 80 90 100
550
nigam@Nigams-MacBook-Pro C Tutorials %
```

2.WAP to display the multiplication table of integer given by the user.

**Code:**

```
#include<stdio.h>
int main()
{
    int a,i,table;
    printf("Enter a number:");
    scanf("%d",&a);
    for(i=1;i<=10;i++)
    {
        table = a * i;
        printf("%d*%d=%d\n",a,i,table);
    }
    return 0;
}
```

**Output:**

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL
nigam@Nigams-MacBook-Pro Downloads % cd "/Users/nigam/Downloads/C Tutorials/"
&& gcc jpt.c -o jpt && "/Users/nigam/Downloads/C Tutorials/"jpt
Enter a number:5
5*1=5
5*2=10
5*3=15
5*4=20
5*5=25
5*6=30
5*7=35
5*8=40
5*9=45
5*10=50
nigam@Nigams-MacBook-Pro C Tutorials %
```

Code - C Tutorials + - □ ☒ ^ ×

**Code:**

Output:

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
```

```
nigam@Nigams-MacBook-Pro Downloads % cd "/Users/nigam/Downloads/C Tutorials/" && gcc jpt.c -o jpt && "/Users/nigam/Downloads/C Tutorials/"jpt
Enter any two numbers:40
50
the even number is 40
the even number is 42
the even number is 44
the even number is 46
the even number is 48
the even number is 50
the total even number is 64
nigam@Nigams-MacBook-Pro C Tutorials %
```

4.WAP to display sum of series:  $1 + 1/2 + 1/3 + 1/4 + 1/5 \dots 1/n$

**Code:**

```
#include<stdio.h>
int main()
{
    float n,i,series=0;
    printf("Enter the value of n:");
    scanf("%f",&n);
    for(i=1;i<=n;i++)
    {
        series =(1/i)+series;

    }
    printf("the sum of series is: %f",series);
    return 0;
}
```

**Output:**



```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
cd "/Users/nigam/Downloads/C Tutorials/" && gcc jpt.c -o jpt && "/Users/nigam/Downloads/C Tutorials/"jpt
nigam@Nigams-MacBook-Pro Downloads % cd "/Users/nigam/Downloads/C Tutorials/" && gcc jpt.c -o jpt && "/Users/nigam/Downloads/C Tutorials/"j
pt
Enter the value of n:5
the sum of series is: 2.283334
nigam@Nigams-MacBook-Pro C Tutorials %
```

5. WAP to display sum of series:  $1 + 1/2! + 1/3! + 1/4! + 1/5! \dots 1/n!$

**Code:**

```
#include<stdio.h>
int main()
{
    int i,j;
    float n, sum=0.0;
    printf("enter the value of n :");
    scanf("%f",&n);
    for(i=1;i<=n;i++)
    {
        float fact=1;
        for(j=1;j<=i;j++)
        {
            fact=fact*j;
        }
        sum=sum+(float)1/fact;
    }
    printf("the sum of the series is %f",sum);
    return 0;
}
```

**Output:**

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL
cd "/Users/nigam/Downloads/C Tutorials/" && gcc jpt.c -o jpt && "/Users/nigam/Downloads/C Tutorials/"jpt
nigam@Nigams-MacBook-Pro Downloads % cd "/Users/nigam/Downloads/C Tutorials/" && gcc jpt.c -o jpt && "/Users/nigam/Downloads/C Tutorials/"jpt
enter the value of n :5
the sum of the series is 1.716667
nigam@Nigams-MacBook-Pro C Tutorials %
```

6.WAP to display sum of series:  $x + x^2/2! + x^3/3! + x^4/4! + x^5/5! \dots x^n/n!$

**Code:**

```
#include<stdio.h>
#include<math.h>
int main()
{
    int n,i,j,temp,k;
    float sum=0;
    printf("enter the value of x:");
    scanf("%d",&n);
    for (i=1;i<=n;i++)
    {
        float fact=1;
        for(k=1;k<=i;k++)
        {
            fact=fact*k;
        }
        sum=sum+ (float)pow(n,i)/fact;
    }
    printf("the sum of the seires is %f",sum);
    return 0;
}
```

**Output:**

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL Code - C Tutorials + - □ □ ^ >

```
cd "/Users/nigam/Downloads/C Tutorials/" && gcc jpt.c -o jpt && "/Users/nigam/Downloads/C Tutorials/"jpt
nigam@Nigams-MacBook-Pro Downloads % cd "/Users/nigam/Downloads/C Tutorials/" && gcc jpt.c -o jpt && "/Users/nigam/Downloads/C Tutorials/"jpt
enter the value of x:5
the sum of the seires is 90.416664
nigam@Nigams-MacBook-Pro C Tutorials %
```

7.WAP to find the value  $\cos(x)$  without using  $\cos(x)$  library function.

**Code:**

```
#include<stdio.h>
#include<math.h>
int factorial (int n)
{
    int i,fact=1;
    for(i=1;i<=n;i++)
    {
        fact=fact*i;
    }
    return fact;
}
int main ()
{

    float x,sum=0.0,count;
    int i,n,sign=-1;
    printf("enter the value of x:");
    scanf("%f",&x);
    printf("enter the value of n:");
    scanf("%d",&n);
    count=x;
    x=x*(3.1415/180);
    for (i=0;i<=n;i+=2)//i+=2 means i=i+2
    {
        sign=sign*-1;
        sum=sum+sign*pow(x,i)/factorial(i);
    }
    printf("the value of cos(%.2f)=%2f",count,sum);
    return 0;
}
```

**Output:**

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

Code - C Tutorials + - [] ^ X

```
cd "/Users/nigam/Downloads/C Tutorials/" && gcc jpt.c -o jpt && "/Users/nigam/Downloads/C Tutorials/"jpt
nigam@Nigams-MacBook-Pro Downloads % cd "/Users/nigam/Downloads/C Tutorials/" && gcc jpt.c -o jpt && "/Users/nigam/Downloads/C Tutorials/"jpt
enter the value of x:5
enter the value of n:6
the value of cos(5.00)=0.996195
nigam@Nigams-MacBook-Pro C Tutorials %
```



8.WAP to display whether a number is Armstrong or not.

**Code:**

```
#include<stdio.h>
int main() {
int n,rem,sum=0,flag;
printf("enter a number :");
scanf("%d",&n);
flag=n;
while(n!=0)
{
rem=n%10;
sum=sum+rem*rem*rem;
n=n/10;
}
if(sum==flag)
{
printf("number is Armstrong");
}
else {
printf("number is not Armstrong");
}
return 0;
}
```

**Output:**

PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL

Code - C Tutorials   +   -   □   □   ^   ×

```
cd "/Users/nigam/Downloads/C Tutorials/" && gcc jpt.c -o jpt && "/Users/nigam/Downloads/C Tutorials/"jpt
nigam@Nigams-MacBook-Pro Downloads % cd "/Users/nigam/Downloads/C Tutorials/" && gcc jpt.c -o jpt && "/Users/nigam/Downloads/C Tutorials/"jpt
enter a number :156
number is not Armstrong
nigam@Nigams-MacBook-Pro C Tutorials % cd "/Users/nigam/Downloads/C Tutorials/" && gcc jpt.c -o jpt && "/Users/nigam/Downloads/C Tutorials/"jpt
enter a number :153
number is Armstrong
nigam@Nigams-MacBook-Pro C Tutorials %
```

9.WAP to display the terms of Fibonacci series.

**Code:**

```
#include<stdio.h>
int main()
{
    int n,i,first=0,second=1,fact;
    printf("enter the value upto which you want fibonacci series:");
    scanf("%d",&n);
    printf(" %5d %5d",first,second);
    for(i=3;i<=n;i++)
    {
        fact=first+second;
        printf("%5d",fact);
        first=second;
        second=fact;
    }
    return 0;
}
```

**Output:**



The screenshot shows a code editor with tabs for PROBLEMS, OUTPUT, DEBUG CONSOLE, and TERMINAL. The TERMINAL tab is active, displaying the execution of the program. The user enters the value 5, and the output shows the first five terms of the Fibonacci series: 0, 1, 1, 2, 3. The output is formatted with 5-digit field widths.

```
cd "/Users/nigam/Downloads/C Tutorials/" && gcc jpt.c -o jpt && "/Users/nigam/Downloads/C Tutorials/"jpt
nigam@Nigams-MacBook-Pro Downloads % cd "/Users/nigam/Downloads/C Tutorials/" && gcc jpt.c -o jpt && "/Users/nigam/Downloads/C Tutorials/"jpt
enter the value upto which you want fibonacci series:5
0      1      1      2      3
nigam@Nigams-MacBook-Pro C Tutorials %
```

**Code:**

```
#include<stdio.h>

int main()
{
    int num,i,div,scale=0;
    printf("enter the number for which you want reverse:");
    scanf("%d",&num);
    while(num!=0)
    {
        div=num%10;
        scale=scale*10+div;
        num= num/10;
    }
    printf("the reverse of a number is %d",scale);
    return 0;
}
```

Output:

PROBLEMS    OUTPUT    DEBUG CONSOLE    TERMINAL

Code - C Tutorials +    

```

nigam@Nigams-MacBook-Pro Downloads % cd "/Users/nigam/Downloads/C Tutorials/" && gcc jpt.c -o jpt && "/Users/nigam/Downloads/C Tutorials/"jpt
enter the number for which you want reverse:54
the reverse of a number is 452
nigam@Nigams-MacBook-Pro C Tutorials %

```

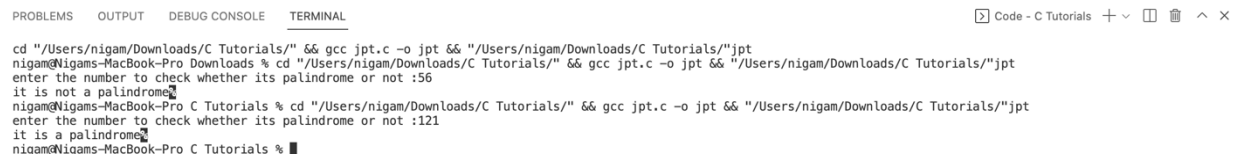
11.WAP to check whether a number is palindrome or not.

**Code:**

```
#include<stdio.h>
int main()
{
    int num,i,div,scale=0,put;
    printf("enter the number to check whether its palindrome or not :");
    scanf("%d",&num);
    put=num;
    while(num!=0)
    {
        div=num%10;
        scale=scale*10+div;
        num= num/10;
    }
    if (scale==put){
        printf("it is a palindrome");
    }
    else{
        printf("it is not a palindrome");
    }

    return 0;
}
```

**Output:**



```
cd "/Users/nigam/Downloads/C Tutorials/" && gcc jpt.c -o jpt && "/Users/nigam/Downloads/C Tutorials/"jpt
nigam@Nigams-MacBook-Pro Downloads % cd "/Users/nigam/Downloads/C Tutorials/" && gcc jpt.c -o jpt && "/Users/nigam/Downloads/C Tutorials/"jpt
enter the number to check whether its palindrome or not :56
it is not a palindrome
nigam@Nigams-MacBook-Pro C Tutorials % cd "/Users/nigam/Downloads/C Tutorials/" && gcc jpt.c -o jpt && "/Users/nigam/Downloads/C Tutorials/"jpt
enter the number to check whether its palindrome or not :121
it is a palindrome
nigam@Nigams-MacBook-Pro C Tutorials %
```

12.WAP to find HCF and LCM of two number.

**Code:**

```
#include <stdio.h>
int main()
{
    int i, n1, n2, j, hcf=1,lcm;

    printf("\n\n LCM of two numbers:\n ");
    printf("-----\n");

    printf("Input 1st number : ");
    scanf("%d", &n1);
    printf("Input 2nd number: ");
    scanf("%d", &n2);

    j = (n1<n2) ? n1 : n2;

    for(i=1; i<=j; i++)
    {
        if(n1%i==0 && n2%i==0)
        {
            hcf = i;
        }
    }
    lcm=(n1*n2)/hcf;

    printf("\nThe LCM of %d and %d is : %d\n\n", n1, n2, lcm);
    printf("\nThe HCF of %d and %d is : %d\n\n", n1, n2, hcf);
    return 0;
}
```

**Output:**

```
nigam@Nigams-MacBook-Pro Downloads % cd "/Users/nigam/Downloads/C Tutorials/" && gcc tempCodeRunnerFile.c -o tempCodeRunnerFile && "/Users/nigam/Downloads/C Tutorials/"te
mpCodeRunnerFile
```

```
LCM of two numbers:
-----
```

```
Input 1st number : 20
Input 2nd number: 40
```

```
The LCM of 20 and 40 is : 40
```

```
The HCF of 20 and 40 is : 20
```

```
nigam@Nigams-MacBook-Pro C Tutorials % █
```

13.WAP to print the following patterns:

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

1 2 3 4 5 4 3 2 1	5 4 3 2 1
1 2 3 4 3 2 1	5 4 3 2
1 2 3 2 1	5 4 3
1 2 1	5 4
1	5

### Code:

```
#include <stdio.h>

int main()
{
    int row,column,n=5;
    for (row=1;row<=n;row++)
    {
        for(column=1;column<=row;column++)
        {
            printf(" %d",column);
        }
        printf("\n");
    }
    return 0;
}
```

### Output:

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

Code + - □ □ ⌵

```
cd "/Users/nigam/Downloads/C Tutorials/" && gcc jpt.c -o jpt && "/Users/nigam/Downloads/C Tutorials/"jpt
nigam@Nigams-MacBook-Pro Downloads % cd "/Users/nigam/Downloads/C Tutorials/" && gcc jpt.c -o jpt && "/Users/nigam/Downloads/C Tutorials/"jpt
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
nigam@Nigams-MacBook-Pro C Tutorials %
```

### Code:

```
#include <stdio.h>

int main()
{
    int row,column,n=5;
    for (row=5;row>=1;row--)
    {
        for(column=1;column<=row;column++)
        {
            printf(" %d",column);
        }
        printf("\n");
    }
}
```

```

}
return 0;
}

```

Output:

```

PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL
cd "/Users/nigam/Downloads/C Tutorials/" && gcc jpt.c -o jpt && "/Users/nigam/Downloads/C Tutorials/"jpt
nigam@Nigams-MacBook-Pro Downloads % cd "/Users/nigam/Downloads/C Tutorials/" && gcc jpt.c -o jpt && "/Users/nigam/Downloads/C Tutorials/"jpt
1 2 3 4 5
1 2 3 4
1 2 3
1 2
1
nigam@Nigams-MacBook-Pro C Tutorials %

```

Code:

```

#include <stdio.h>
int main()
{
int row,star,space,n=5;
for(row=1;row<=n;row++)
{
for (space=1;space<=n-row;space++)
{
printf(" ");
}
for(star=1;star<=(2*row-1);star++)
{
printf("*");
}
printf("\n");
}
return 0;
}

```

Output:

```

PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL
cd "/Users/nigam/Downloads/C Tutorials/" && gcc jpt.c -o jpt && "/Users/nigam/Downloads/C Tutorials/"jpt
nigam@Nigams-MacBook-Pro Downloads % cd "/Users/nigam/Downloads/C Tutorials/" && gcc jpt.c -o jpt && "/Users/nigam/Downloads/C Tutorials/"jpt
****
*****
*****
nigam@Nigams-MacBook-Pro C Tutorials %

```



## Code:

```
#include <stdio.h>

int main()
{
    int row,column,sum=0,n=5;
    for (row=1;row<=n;row++)
    {
        for(column=1;column<=row;column++)
        {
            sum=sum+1;
            printf("%d ",sum);
        }
        printf("\n");
    }
    return 0;
}
```

## Output:

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

Code + - [ ] [ ] ^ x

```
cd "/Users/nigam/Downloads/C Tutorials/" && gcc jpt.c -o jpt && "/Users/nigam/Downloads/C Tutorials/"jpt
nigam@Nigams-MacBook-Pro Downloads % cd "/Users/nigam/Downloads/C Tutorials/" && gcc jpt.c -o jpt && "/Users/nigam/Downloads/C Tutorials/"jpt
1
2 3
4 5 6
7 8 9 10
11 12 13 14 15
nigam@Nigams-MacBook-Pro C Tutorials %
```

## Code:

```
#include <stdio.h>

int main()
{
    int row,column,i,n=5;
    for (row=1;row<=n;row++)
    {
        for(column=1;column<=n-row+1;column++)
        {
            printf("%d",column);
        }
        for(column=n-row;column>=1;column--)
        {
            printf("%d",column);
        }

        printf("\n");
        for (i=1;i<=row;i++)
        {
            printf(" ");
        }
    }
    return 0;
}
```

## Output:

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL
cd "/Users/nigam/Downloads/C Tutorials/" && gcc jpt.c -o jpt && "/Users/nigam/Downloads/C Tutorials/"jpt
nigam@Nigams-MacBook-Pro Downloads % cd "/Users/nigam/Downloads/C Tutorials/" && gcc jpt.c -o jpt && "/Users/nigam/Downloads/C Tutorials/"jpt
123454321
12321
121
1
nigam@Nigams-MacBook-Pro C Tutorials %
```

## Code:

```
#include <stdio.h>

int main()
{
    int row,column,n=5;
    for (row=1;row<=n;row++)
    {
        for(column=5;column>=row;column--)
        {
            printf("%d",column);
        }
        printf("\n");
    }
    return 0;
}
```

## Output:

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

 Code + -   ^ x

```
cd "/Users/nigam/Downloads/C Tutorials/" && gcc jpt.c -o jpt && "/Users/nigam/Downloads/C Tutorials/"jpt
nigam@Nigams-MacBook-Pro Downloads % cd "/Users/nigam/Downloads/C Tutorials/" && gcc jpt.c -o jpt && "/Users/nigam/Downloads/C Tutorials/"jpt
54321
543
54
5
nigam@Nigams-MacBook-Pro C Tutorials %
```