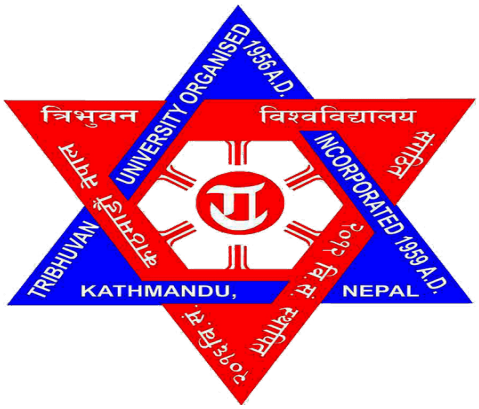


Tribhuvan University
Institute of Engineering
Purwanchal Campus, Dharan

C-Programming Lab Report

Prepared by:- Nigam Yadav

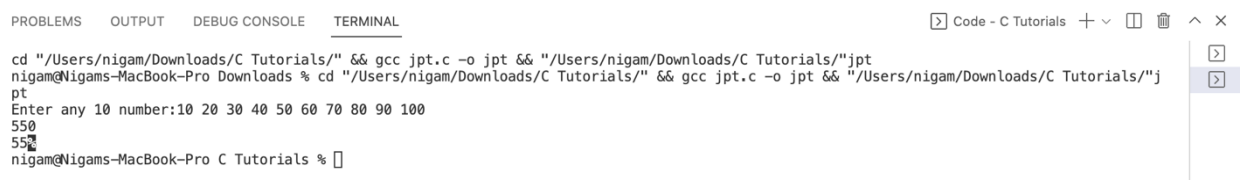
LAB SHEET NO.5[To be familiar with LOOPS]

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

Code:

```c
#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:



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

Code:

```c
#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;
}
```

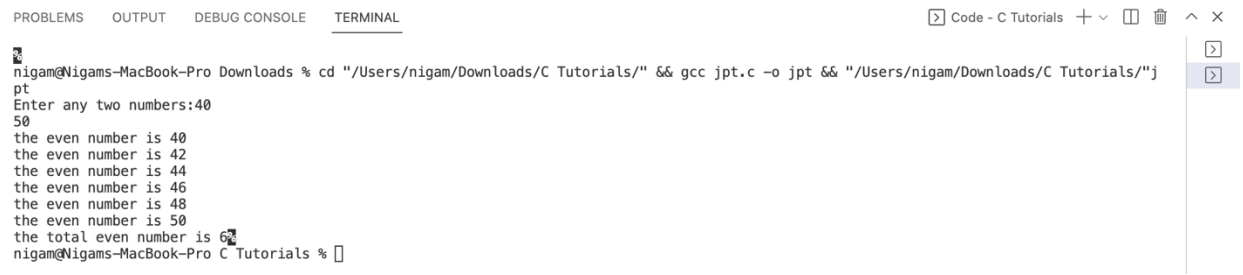
Output:

3.WAP to input two integer values from the user and print the even number between the range of integers. Also count the even number and display the count as well [Hint: if user enters 10 and 100. The program should print and count even numbers between 10 and 100].

Code:

```c
#include<stdio.h>
int main()
{
    int a,b;
    int count=0,even,i,temp;
    printf("Enter any two numbers:");
    scanf("%d%d",&a,&b);
    for(i=a;i<=b;i++)
    {
        if((even=i%2)==0)
        {
            count = count + 1;
            printf("the even number is %d\n",i);
        }
    }
    printf("the total even number is %d", count);
    return 0;
}
```

Output:



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

Code:

```c
#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:

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

Code:

```c
#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:

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

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:

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

Code:

```c
#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;
}
```

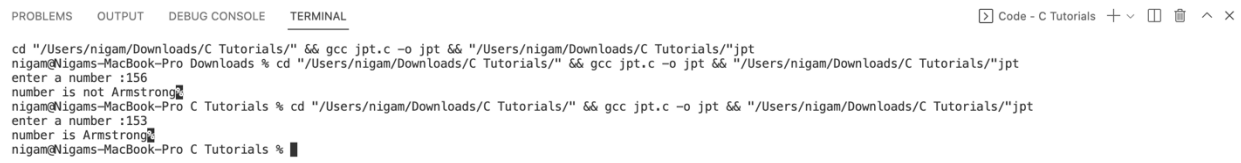
Output:

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

Code:

```c
#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:

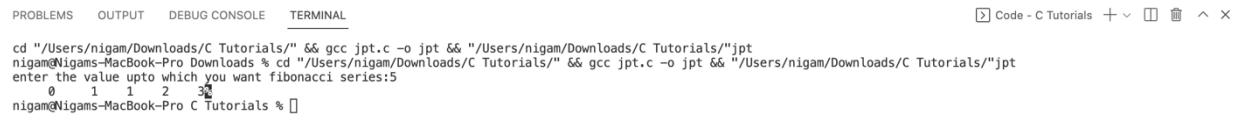


9.WAP to display the terms of Fibonacci series.

Code:

```c
#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:

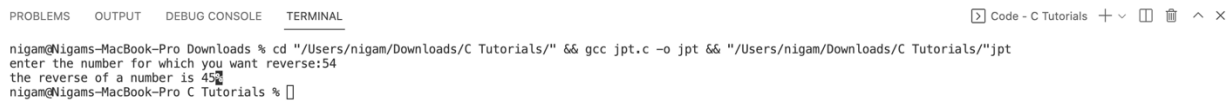


10.WAP to display the number in reverse order

Code:

```c
#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:

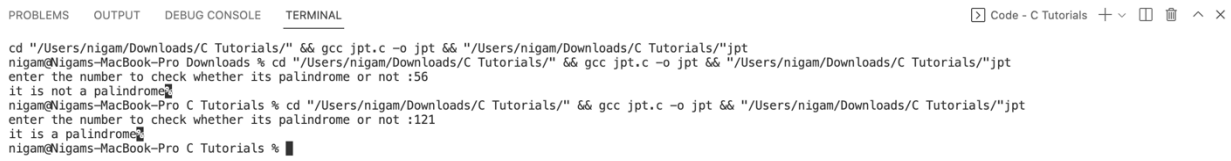


11.WAP to check whether a number is palindrome or not.

Code:

```c
#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:

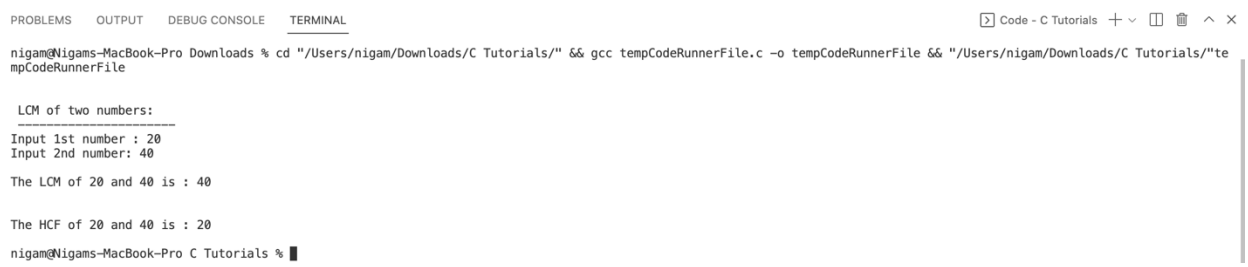


12.WAP to find HCF and LCM of two number.

Code:

```c
#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:



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:

```c
#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;
}
```

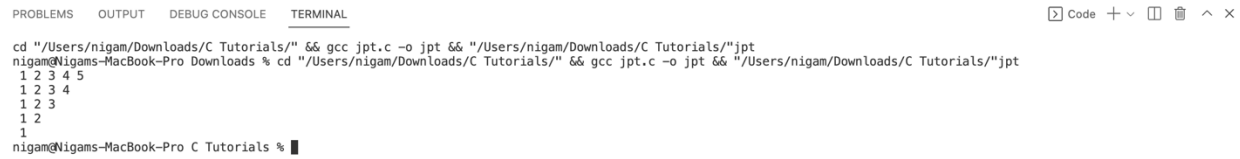
Output:

Code:

```c
#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:



Code:

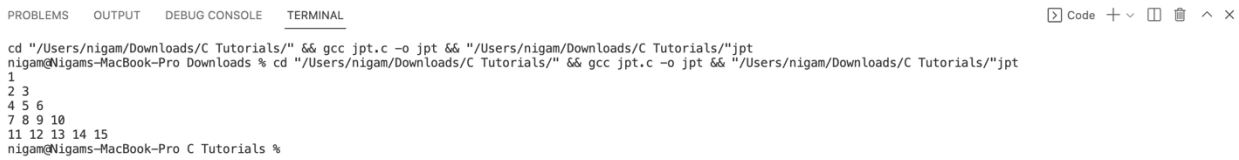
```
#include <stdio.h>
int main()
{
int row,star,space,n=5;
for(row=1;row<=n;row++)
{
for (space=1;space<=n-row;space++)
{
printf(" ");
}
for(star=1;star<=(2*row-1);star++)
{
printf("*");
}
printf("\n");
}
return 0;
}
```

Output:

Code:

```c
#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:



Code:

```c
#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:

Code:

```c
#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: