Assignment - 01

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Program 1 : Floyd's Triangle

Aim : To write the c-programm to Find the Floyd's triangle of n rows using for loop.

Program :

```
#include <stdio.h>
#include <conio.h>
 int main()
{
    int num, i, j, k=1;
     num=5;
For (i=1; i<=num; i++)
{
    For (j=1; j<=i; j++)
PrintF ("%d", k++);
PrintF ("\n");
  }
  Return 0;
   }
```

Output :

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

Program2 : Pascal triangle.

Aim : To write the C-programm to print the Pascal triangle of n rows using For loop.

Program :

```
#include <stdio.h>
#include <conio.h>
int main()
{  int rows, coef=1, space, i, j;
Printf("Enter the number of rows:");
Scanf("%d", &rows);
For(i=0; i<rows; i++)
{  For(space=1; space<=rows-1; space++)
Printf(" ");
For(j=0; j<=i; j++)
{  IF(j==0||i==0)
   coef=1;
else
coef=coef*(i-j+1)/j;
Printf("%4d", coef); }
Printf("\n"); }
  Return 0;
}
```

Input : Rows=6

output :

```
          1
        1   1
      1   2   1
    1   3   3   1
  1   4   6   4   1
1   5   10  10  5   1
```

Program 3: Diamond star pattern

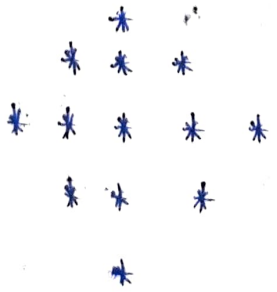
Aim: To write the C-Programm to Print Diamond star pattern of n rows using For Loop.

Program:

```
# include <stdio.h>
# include <conio.h>
 int main ()
{
  int n, c, k ;
Printf ("Enter number of rows: \n");
scanf ("%d", &n);
For (k=1; k<=n ; k++)
{  For (c=1 ; c<=n-k ; c++)
   Printf (" ");
For (c=1 ; c<=2*k-1 ; c++)
 Printf ("*");
 For (c=1; c<= Printf ("\n"); }
 For (k=1 ; k<=n-1 ; k++) {
 For (c=1; c<=k ; c++)
  Print f (" ");
 For (c=1 ; c<=2 * (n-k)-1 ; c++)
  Print f ("*");
  Print f ("\n"); }
   return 0 ;
}
```

Input: (n) rows = 5

output:



Program 4 : Star Pattern

Aim : To write the C-Programm to Print a star Pattern to show up as a staircase of stars.

Program :

```
# include <stdio.h>
# include <conio.h>
  int main ()
{   int num;
  PrintF ("Enter the Row: \n");
  SCanF (" %d", &num);
For (int i=1; i<=num; i++)
  {
    For (int j=1; j<=i; j++)
    {
      PrintF. ("* ");
    }
    Return 0;
  }
```

Input : num = 5

output :

```
*
* *
* * *
* * * *
* * * * *
```

Program 5: Palindrome

Aim: To write the C-Programm to Find the integer whether Palindrome or not.

Program:

```
# include <stdio.h>
  Int main ( )
{  int n, m, sum=0 ;
 Scanf ("%d", &n);
  int temp= n ;
  while (n>0) {
  m= n%10;
  Sum= (Sum * 10) + m ;
    n = n/10 ;
  }
IF ( Sum == temp)
{
  PrintF ("Palindrome");
 }
  else
 {
  PrintF ("not a Palindrome");
  }
    Return 0 ;
  }
```

Input: n = 1210121

Output: 1210121 is palindrome

Program 6: GCD & LCM

Aim: To write the C Programm to show / Find GCD and LCM of two integers

Program:

```
# include <stdio.h>
# include <conio.h>
  int main ()
{  int num1, num2, gcd, lcm, count=1, small;
PrintF("Enter the twoinputs");
Scanf ("%d %d", &num1, &num2);
small = (num1 <num2) ? num1: num2;
while (count <= small)
{
   if (num1 % count==0 && num2 % count == 0)
{     gcd= count;
   }  count++;
}  lcm = (num1* num2)/gcd;
PrintF("GCD = %d \n LCM = %d \n", gcd, lcm);
   Return 0;
   }
```

Input: GCD of 12 and 15 (num1=12, num2=15)
LCM of 12 and 15

output: GCD = 3

LCM = 60

Program 7: HCF

Aim: To write the c-programm to find the HCF of two integers using For loop.

Program:

```
#  include < stdio.h >
#  include < conio.h >
   int main ( )
{
    int a, b, i, hcf ;
     a = 10
     b = 15
    For (i=1; i<=a || i<=b ; i++)
    {
     if (a%i==0 && b%i==0)
       HCF = i ;
     }
      printf ("hcf = %d", hcf);
       Return 0;
        }
```

Input: a=10
b=15

Output: HCF of 10 and 15 = 15

Program 8: Rhombus

Aim: To write the C Program to Print the Rhombus star pattern using For Loop.

Program:

```
# include <stdio.h>
   int main( ) {
      int n=5;
  For (int i=1; i<=n; i+=2) {
   For (int j=1; j<=i; j++) {
     PrintF ("* ");
  }
     PrintF ("\n");
  }
  For (int i=n-2; i>=1; i-=2) {
      For (int j=1; j<=i; j++) {
      Printf ("* ");
   } Printf ("\n");
   }
     return 0; }
```

output:

```
*
* * *
* * * * *
* * *
*
```

Program 9: Vowels and consonants

Aim: To write the C-Programm to find the noof vowels and consonants in given sentence.

Program:

```
#include<stdio.h>
int main(){
char str[100];
int i, vowels=0, consonants=0;
Printf("Enter a sentence:\n");
gets(str, sizeof(str), stdin);
For(i=0; str[i] != '\0'; i++){
IF (str[i]=='a'||str[i]=='e'||str[i]=='i'||str[i]=='o'
||str[i]=='u'||str[i]=='A'||str[i]=='E'||str[i]=='I'
||str[i]=='O'||str[i]=='U'){
vowels++;
} else IF((str[i]>='a'&&str[i]<='z')||(str[i]>='A'&&str[
<='Z')){ consonants++; }}
PrintF("the number of vowels is: %d\n", vowels);
PrintF(" the number of consonants is: %d\n", Consonant
Return 0; }
```

Input: Teacher

output: Vowels : 03

Consonants: 04

Program 10: Matrix multiplication

Aim: To write the C Programm to find the multiplication of given matrices

Program:

```
#include<stdio.h>
int main(){
int a[10][10],b[10][10],mul[10][10],r,c,i,j,k;
printf("Enter the number of row=\n");
scanf("%d",&r);
printf("Enter the number of column:\n");
scanf("%d",&c);
printf("Enter the elements of first matrix:\n");
for(i=0;i<r;i++)
{
for(j=0;j<c;j++){
scanf("%d",&a[i][j]);}}
printf("Enter the elements of second matrix:\n");
for(i=0;i<r;i++){
for(j=0;j<c;j++){
scanf("%d",&b[i][j]);}}
printf("multiply of two matrices=\n");
for(i=0;i<r;i++){ for(j=0;j<c;j++){ mul[i][j]=0;
for(k=0;k<c;k++){ mul[i][j]=mul[i][j]+a[i][k]*b[k][j];
}}}  for(i=0;i<r;i++){ for(j=0;j<c;j++){
printf("%d",mul[i][j]);} printf("\n");} return 0;}
```

Input: 2 2 1 2 3 4 2 1 3 4

Output:

8	9
19	18