

# LAB 4

## Based on Nested loops

1) 1  
1 2  
1 2 3

```
#include <stdio.h>
int main()
{
    int i,j;
    for(i=1;i<=3;i++)
    {
        for(j=1;j<=i;j++)
        {
            printf("%d\t",j);
        }
        printf("\n");
    }
    return 0;
}
```

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

```
#include <stdio.h>
int main()
{
    int i,j;
    for(i=1;i<=5;i++)
    {
        for(j=1;j<=i;j++)
        {
            printf("%d\t",i);
        }
        printf("\n");
    }
    return 0;
}
```

```
3)  1
    2 2
    3 3 3
    4 4 4 4
    5 5 5 5 5
```

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

```
int main()
```

```
{
    int i,j;
    for(i=1;i<=5;i++)
    {
        for(j=1;j<=i;j++)
        {
            printf("%d\t",i);
        }
        printf("\n");
    }
    return 0;
}
```

```
4)  1
    1 1
    1 1 1
    1 1 1 1
    1 1 1 1 1
```

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

```
int main()
```

```
{
    int i,j;
    for(i=1;i<=5;i++)
    {
        for(j=1;j<=i;j++)
        {
            printf("1\t");
        }
        printf("\n");
    }
    return 0;
}
```

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

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

```
int main()
```

```

{
    int i,j,a=1;
    for(i=1;i<=5;i++)
    {
        for(j=1;j<=i;j++)
        {
            printf("%d\t",a);
            a++;
        }
        printf("\n");
    }
    return 0;
}

```

6) 1 2 3 4 5  
     2 4 6 8 10  
     3 6 9 12 15  
     4 8 12 16 20  
     5 10 15 20 25

```

#include <stdio.h>
int main()
{
    int i,j;
    for(i=1;i<=5;i++)
    {
        for(j=1;j<=5;j++)
        {
            printf("%d\t",i*j);
        }
        printf("\n");
    }
    return 0;
}

```

7) 1  
     11 21  
     31 41 51  
     61 71 81 91  
     101 111 121 131 141 151

```

#include <stdio.h>
int main()
{
    int i,j,k=1;
    for(i=1;i<=5;i++)
    {
        for(j=1;j<=i;j++)
        {

```

```

        printf("%d\t",k);
        k=k+10;
    }
    printf("\n");
}
return 0;
}

```

8)

```

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

```

```

#include <stdio.h>
int main ()
{
    int i,j,k;
    for(i=1;i<=5;i++)
    {
        for(k=4;k>=i;k--)
        {
            printf("\t");
        }
        for(j=1;j<=i;j++)
        {
            printf("%d\t",i);
        }
        printf("\n");
    }
    return 0;
}

```

9)

```

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

```

```

#include <stdio.h>
int main ()
{
    int i,j,k;
    for(i=1;i<=5;i++)
    {
        for(k=4;k>=i;k--)
        {

```

```

        printf("\t");
    }
    for(j=1;j<=i;j++)
    {
        printf("%d\t",i);
    }
    printf("\n");
}
return 0;
}

```

10)

```

        *
      * *
    * * *
  * * * *
* * * * *

```

```

#include <stdio.h>
int main ()
{
    int i,j,k;
    for(i=1;i<=5;i++)
    {
        for(k=4;k>=i;k--)
        {
            printf("\t");
        }
        for(j=1;j<=i;j++)
        {
            printf("*\t");
        }
        printf("\n");
    }
    return 0;
}

```

11)

```

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

```

```

#include <stdio.h>
int main ()
{

```

```

int i,j;
for(i=1;i<=5;i++)
{
    for(j=5;j>=i;j--)
    {
        printf("%d\t",j);
    }
    printf("\n");
}
return 0;
}

```

12) 5 5 5 5 5  
 4 4 4 4  
 3 3 3  
 2 2  
 1

```

#include <stdio.h>
int main ()
{
    int i,j;
    for(i=5;i>=1;i--)
    {
        for(j=1;j<=i;j++)
        {
            printf("%d\t",i);
        }
        printf("\n");
    }
    return 0;
}

```

13) \* \* \* \* \*  
 \* \* \* \*  
 \* \* \*  
 \* \*  
 \*

```

#include <stdio.h>
int main ()
{
    int i,j;
    for(i=5;i>=1;i--)
    {
        for(j=1;j<=i;j++)
        {
            printf("*\t");
        }
    }
}

```

```

    }
    printf("\n");
}
return 0;
}

```

14) WAP to find sum of series.

$1^2+2^2+3^2+4^2+\dots+n^2$ .

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

```
int main ()
```

```

{
    int sum=0,n,i;
    printf("Enter the number of terms\n");
    scanf("%d",&n);
    for(i=1;i<=n;i++)
    {
        sum=sum+(i*i);
    }
    printf("%d\n",sum);
    return 0;
}

```

15) WAP to find sum of series.

$1+1/x +1/x^2 +1/x^3 +1/x^4 +\dots+1/x^n$ .

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

```
#include <math.h>
```

```
int main ()
```

```

{
    float sum=0,x;
    int i,n;
    printf("Enter the value of x\n");
    scanf("%f",&x);
    printf("Enter the value of n\n");
    scanf("%d",&n);
    for(i=0;i<=n;i++)
    {
        sum=sum+1/(pow(x,i));
    }
    printf("%f\n",sum);
    return 0;
}

```

16) WAP to find sum of series.

$1 \times 4 \ 2 \times 7 \ 3 \times 11 \ 4 \times 15 \dots \dots \dots n \text{th term}$

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

```

int main()
{
    int i,j,n,sum=0;
    printf("Enter the number of terms\n");
    scanf("%d",&n);
    for(i=1,j=4;i<=4;i++,j+=3)
    {
        printf("%dx%d\t",i,j);
        sum=sum+(i*j);
    }
    printf("sum=%d\n",sum);
    return 0;
}

```

17) WAP to find sum of series.  
 $1+x+x^2/2! +x^3/3!+ \dots +x^n/n!$

```

#include <stdio.h>
#include <math.h>
int main()
{
    int i,x,n,sum=1,fact=1,j;
    printf("Enter the number of terms\n");
    scanf("%d",&n);
    printf("Enter the value of x\n");
    scanf("%d",&x);
    for(i=1;i<=n;i++)
    {
        fact=1;
        for(j=1;j<=i;j++)
        {
            fact=fact*j;
        }
        sum=sum+pow(x,i)/(int)fact;
    }
    printf("sum=%d\n",sum);
    return 0;
}

```