K. J. Somaiya   College of Engineering, Mumbai-77

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Experiment / assignment / tutorial No. 4
Grade: AA / AB / BB / BC / CC / CD /DD
Signature of the Staff In-charge with date

TITLE: Program to print patterns

AIM: Program to print patterns for 'n' rows using nested loops.

Expected OUTCOME of Experiment: The program takes the number of rows to be printed as the input by the user and prints the pattern accordingly.

Books/ Journals/ Websites referred:

1. Programming in C, second edition, Pradeep Dey and Manas Ghosh, Oxford University Press.
2. Programming in ANSI C, fifth edition, E Balagurusamy, Tata McGraw Hill.
3. Introduction to programming and problem solving , G. Michael Schneider ,Wiley India edition.
4. **http://cse.iitkgp.ac.in/~rkumar/pds-vlab/**

Problem Definition:

The program is to print a pattern as given by the user. The program makes use of a nested loop to print a pattern of characters, numbers or alphabets.
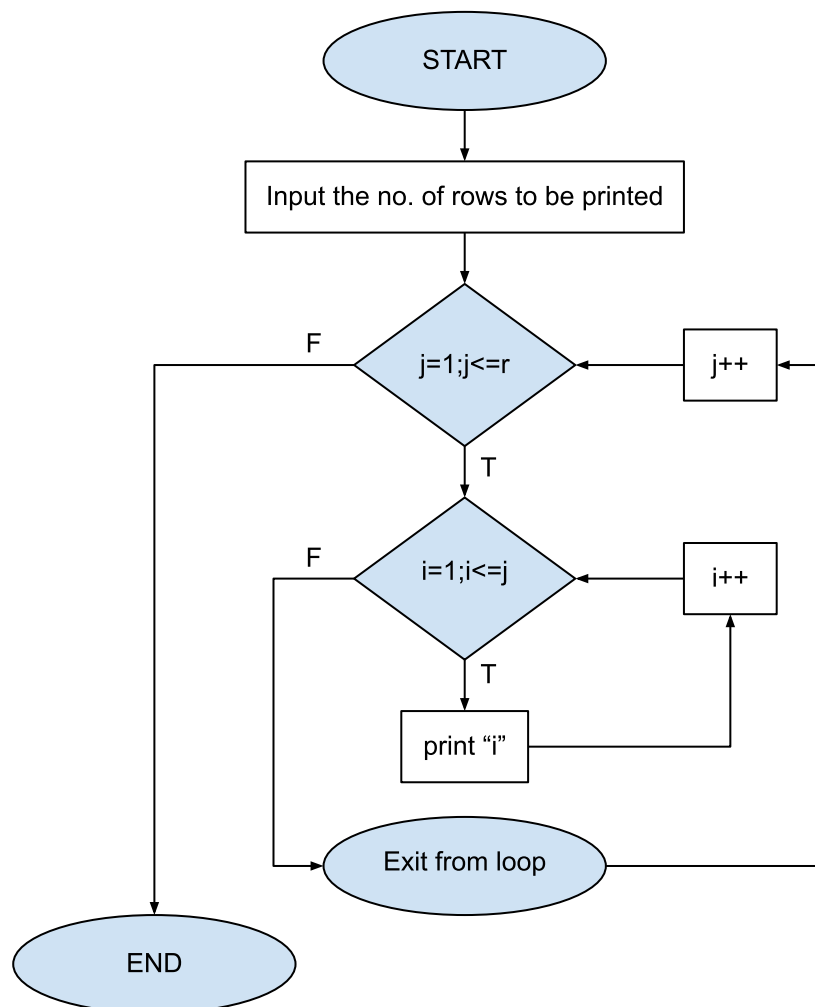
Example:

Input: Number of rows = 4

Output:

1

1 2

1 2 3

1 2 3 4

Algorithm:

Implementation details:

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

void main()

{
   int r,i,j;
   printf("Enter the number of rows to be printed: ");
   scanf("%d",&r);

   for (j=1;j<=r;j++)
   {

      for (i=1;i<=j;i++)
      {
         printf("%d ",i);
      }

  printf("\n");

   }

}
```
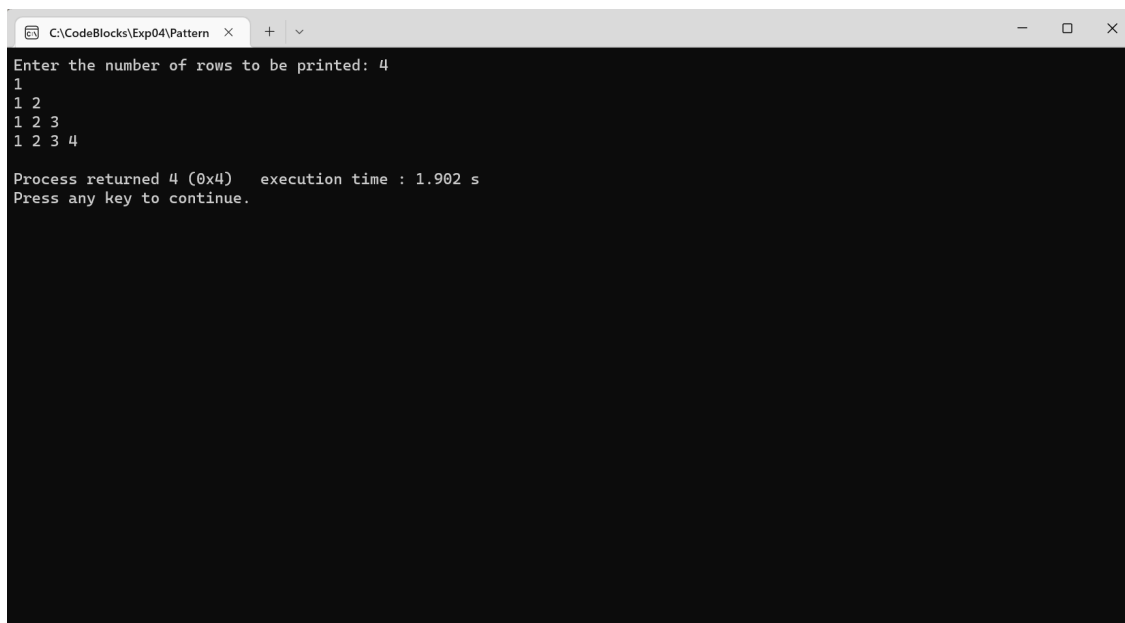
Output(s):

Conclusion:

The program could thus take the number of rows to be printed as the input and printed the pattern accordingly.

Post Lab Descriptive Questions

Write a program to print the following:

```
1
2    4
3    6    9
4    8    12   16
5    10   15   20   25
6    12   18   24   30   36
7    14   21   28   35   42   49
8    16   24   32   40   48   56   64
9    18   27   36   45   54   63   72   81
10   20   30   40   50   60   70   80   90   100
```
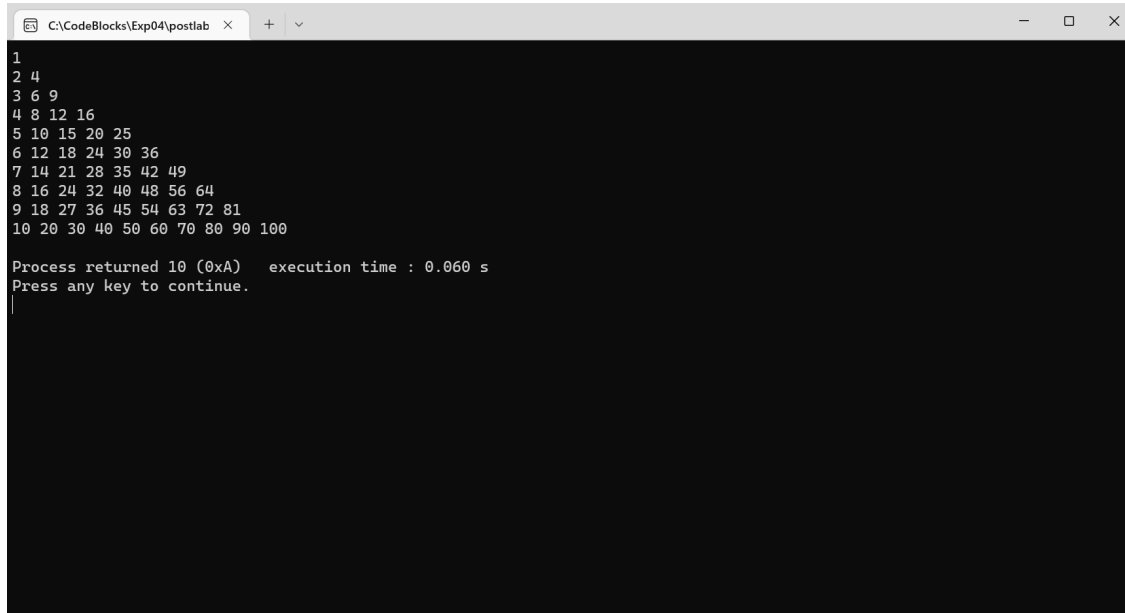
Program:

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

void main()

{
    int i,j;

for (i=1;i<=10;i++)
    {
      for (j=1;j<=i;j++)
      {
        printf("%d ",i*j);
      }
    printf("\n");
    }

}
```

```
1
2 4
3 6 9
4 8 12 16
5 10 15 20 25
6 12 18 24 30 36
7 14 21 28 35 42 49
8 16 24 32 40 48 56 64
9 18 27 36 45 54 63 72 81
10 20 30 40 50 60 70 80 90 100

Process returned 10 (0xA)   execution time : 0.060 s
Press any key to continue.
```

Date: _____   **Signature of faculty in-charge**