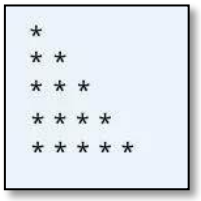
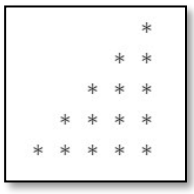
FREEDOM INTERNATIONAL SCHOOL

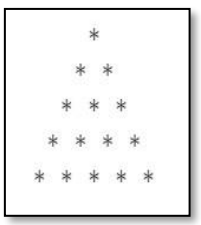
COMPUTER SCIENCE(083)

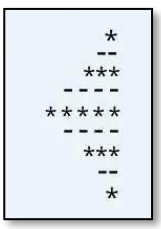
Programs on for/ while loop

1. WAP to print sum of n natural numbers.
2. WAP to print table of a number.
3. WAP to print factorial of a number.
4. WAP to check if a number is a perfect number or not.
5. WAP to print Fibonacci series.
6. WAP to check if a number is prime number or not.
7. WAP to print all the even numbers between 1 to n.
8. WAP to print the square root of a number. If it is not a whole number print the next integer number.
9. WAP to print the sum of digits of a number.
10. WAP to check if a number is Armstrong number or not
11. WAP to have a menu driven schedule, where user enters 1 to print digits of a number, if user enters 2 the code prints sum of digits and other than that it prints invalid choice.
12. WAP to print a random number till the user choice is yes.
13. WAP to print reverse of a number.
14. WAP to enter the 10 numbers and print largest and second largest number.
15. Write a Python program to find numbers between 100 and 400 (both included) where each digit of a number is an even number. The numbers obtained should be printed in a comma-separated sequence.
16. Write programs to calculate sum of the following series:
    a) $1+x+x^2+x^3+x^4+\ldots\ldots\ldots\ldots+x^n$
    b) $1-x+x^2-x^3+x^4-\ldots\ldots\ldots\ldots+x^n$
    c) $x+x^2/2+x^3/3+x^4/4+\ldots\ldots\ldots\ldots+x^n/n$
    d) $x-x^2/2+x^3/3-x^4/4+\ldots\ldots\ldots\ldots+x^n/n$
    e) $x+x^2/2!+x^3/3!+x^4/4!+\ldots\ldots\ldots\ldots+x^n/n!$
    f) $x-x^2/2!+x^3/3-x^4/4!+\ldots\ldots\ldots\ldots+x^n/n!$
    g) $1+(1+2)+(1+2+3)+(1+2+3+4)+\ldots\ldots(1+2+3+\ldots.+n)$
17. Write programs to print the following patterns:









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

```
A       E       E       A       ABCDE   ABCDE
AB      ED      DE      BA      ABCD    BCDE
ABC     EDC     CDE     CBA     ABC     CDE
ABCD    EDCB    BCDE    DCBA    AB      DE
ABCDE   EDCBA   ABCDE   EDCBA   A       E

EDCBA   EDCBA   A       E       EEEEE   AAAAA
DCBA    EDCB    BB      DD      DDDD    BBBB
CBA     EDC     CCC     CCC     CCC     CCC
BA      ED      DDDD    BBBB    BB      DD
A       E       EEEEE   AAAAA   A       E
```

Number pattern examples

```
1           1           1 2 3 4 5       1           1234567
12          123         1 2 3 4 5       123         12345
123         12345       1 2 3 4 5       12345       123
1234        1234567     1 2 3 4 5       1234567     1
12345       123456789   1 2 3 4 5       12345       123
                                        123         12345
                                        1           1234567
```

```
1 2 3 4 5       1               1 2 3 4 5
1 2 3 4         2 7              1 2 3 4
1 2 3           3 8 13            1 2 3
1 2             4 9 14 19          1 2
1               5 10 15 20 25       1
```

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

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