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Batch- C11

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Aim: To study Data types, Input Output, Control Structures in Python

Program 1

Write a Python program to print the following string in a specific format Twinkle, twinkle, little star,"How I wonder what you are! "Up above the world so high,   Like a diamond in the sky. Twinkle, ' twinkle ', little star, How I wonder what you are Using only one print() function.

Theory:

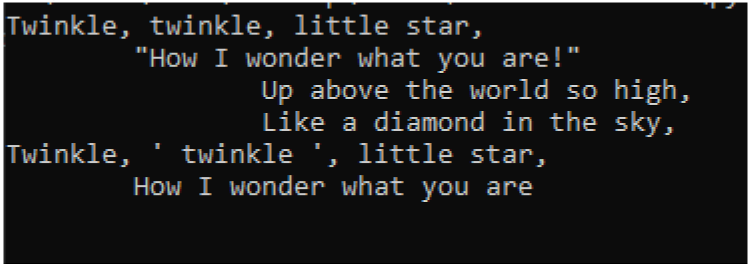
Python print() function prints the message to the screen or any other standard output device.

- **\n :** This string literal is used to add a new blank line while printing a statement.
- **\t :** This string literal is used to add a new blank spaces while printing a statement.

Program:

```
print("Twinkle, twinkle, little star,\n\t\"How I wonder what you are!\"\n\t\tUp above the world so high,
\n\t\tLike a diamond in the sky, \nTwinkle, ' twinkle ', little star, \n\tHow I wonder what you are");
```

Output:



```
Twinkle, twinkle, little star,
        "How I wonder what you are!"
                Up above the world so high,
                Like a diamond in the sky,
Twinkle, ' twinkle ', little star,
        How I wonder what you are
```

Program 1

Program to show output formatting take two values and display them using single print function using •str.format() •% operator

Theory

The format() method formats the specified value(s) and insert them inside the string's placeholder.

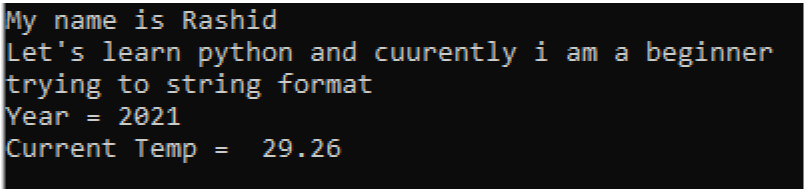
The placeholder is defined using curly brackets: {}. Read more about the placeholders in the Placeholder section below.

The format() method returns the formatted string.

Program

```
name = "Rashid";
print(f"My name is {name}");
print("Let's learn {} and cuurently i am a {}".format("python","beginner"));
print("trying to {str1} {str2}".format(str1="string", str2="format"));
print("Year = {0}".format(2021));
print("Current Temp = {0: .2f}".format(29.25678));
```

Output:



```
My name is Rashid
Let's learn python and cuurently i am a beginner
trying to string format
Year = 2021
Current Temp =  29.26
```

Program 3:

Program to find leap year using nested if

Theory:

Python Conditions and If statements

Python supports the usual logical conditions from mathematics:

- Equals: a == b
- Not Equals: a != b
- Less than: a < b
- Less than or equal to: a <= b
- Greater than: a > b
- Greater than or equal to: a >= b

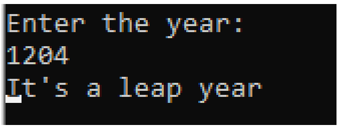
These conditions can be used in several ways, most commonly in "if statements" and loops.

An "if statement" is written by using the if keyword.

Program

```
print("Enter the year: ")
year = int(input());
if year % 4 == 0:
   print("It's a leap year");
else:
   print("It's not a leap year");

print("\n");
```

Output:



```
Enter the year:
1204
It's a leap year
```

Program 4:

Program to print all armstrong number in range 100 to 999.

Theory:

Python For Loops

A for loop is used for iterating over a sequence (that is either a list, a tuple, a dictionary, a set, or a string).

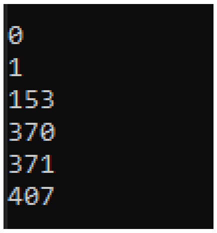
This is less like the for keyword in other programming languages, and works more like an iterator method as found in other object-orientated programming languages.

With the for loop we can execute a set of statements, once for each item in a list, tuple, set etc.

Program

```
for i in range(0, 9):
   for j in range(0, 9):
      for k in range(0, 9):
         temp = pow(i, 3) + pow(j, 3) + pow(k, 3);
         if temp == (i*100 + j*10 + k) :
            print(temp);
```

Output



```
0
1
153
370
371
407
```

Program 5:

Program to find fibonacci series of n terms

Theory

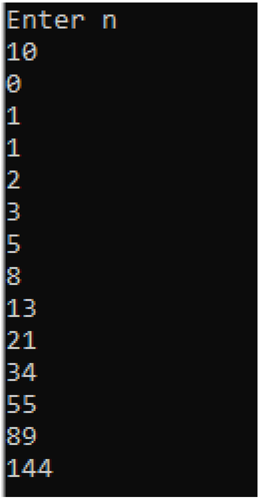
In mathematics, the Fibonacci numbers, commonly denoted F_n, form a sequence, the Fibonacci sequence, in which each number is the sum of the two preceding ones. The sequence commonly starts from 0 and 1,

Program

```
print("\nEnter n");
n = int(input());
```

```
prev2 = 0;
prev1 = 1;
print(prev2);
print(prev1);
for i in range(0, n+1):
   print(prev1+prev2);
   temp = prev1;
   prev1 = prev1 + prev2;
   prev2 = temp;
```

Output



```
Enter n
10
0
1
1
2
3
5
8
13
21
34
55
89
144
```

Program 6:

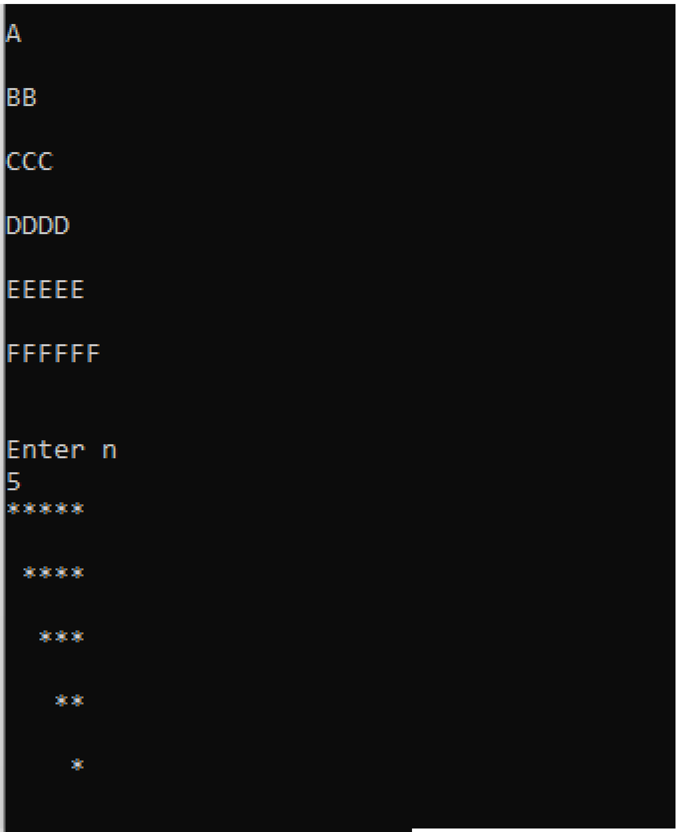
Program on pattern

Theory

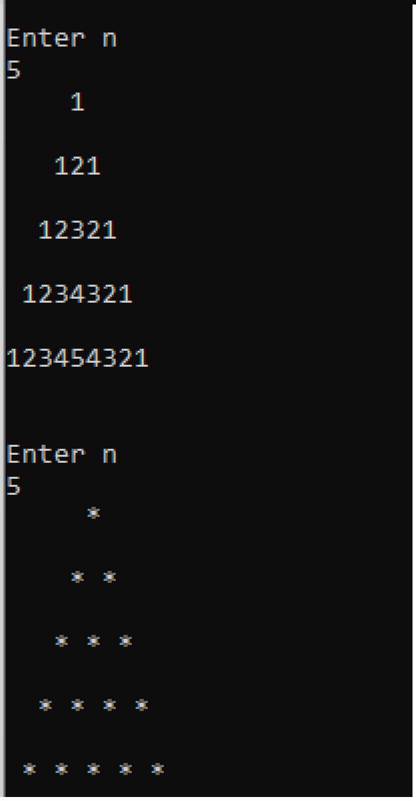
Program

```
count = 0
for i in 'ABCDEF':
   for j in range(0, count+1):
      print (i, end='');
   print ("\n");
   count = count + 1;

print("\nEnter n");
n = int(input());
for i in range(0,n):
   for j in range(0,i):
      print(" ",end='');
   for j in range(i, n):
      print("*", end='');
   print("\n");
print("\nEnter n");
n = int(input());
for i in range(0,n):
    for j in range(0,n-i-1):
        print(" ",end='');
    temp = 1;
    for j in range(0, i+1):
        print(temp, end='');
        temp = temp + 1;
    temp = temp - 1;
    for j in range(0, i):
        temp = temp - 1;
        print(temp, end='');
    print("\n");

print("\nEnter n");
n = int(input());
for i in range(0, n):
    for j in range(0,n-i):
        print(" ",end='');
    for j in range(0, i+1):
        print("* ",end='');
    print("\n");
```

Output:



```
A

BB

CCC

DDDD

EEEEE

FFFFFF


Enter n
5
*****

 ****

  ***

   **

    *

```



```
Enter n
5
    1

   121

  12321

 1234321

123454321


Enter n
5
     *

    * *

   * * *

  * * * *

 * * * * *
```