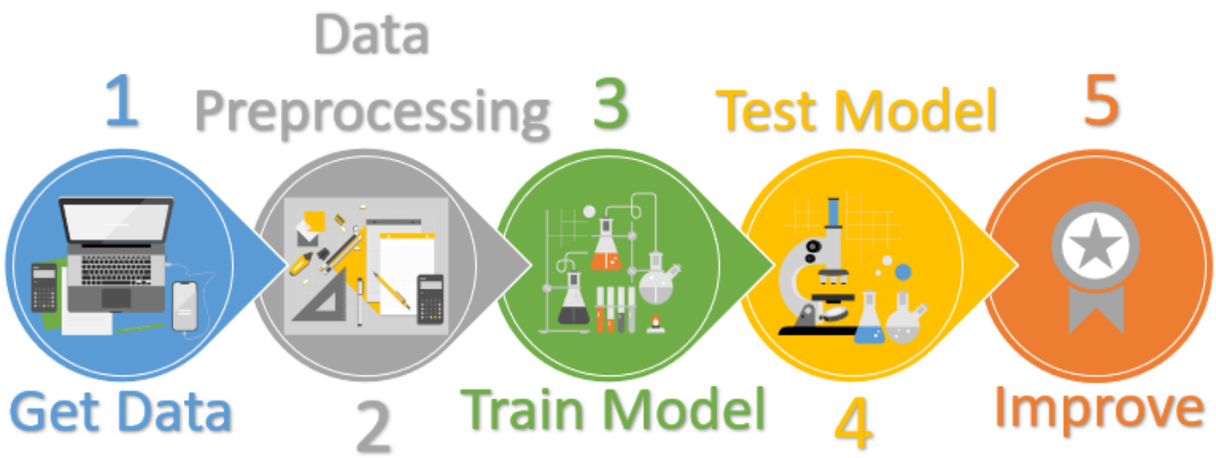
+ Code + Text



Topics

1. Input and Output handling in Python
2. Variables
3. Data Structures
4. Control Statements
5. Functions

1. Input and Output

```
#Read subject code from keyboard and display it
a=input('Enter subject Code: ')
print(a)
```

```
Enter subject Code: 19AIE205
19AIE205
```

2. Variables

Write 3 examples each for legal and illegal variables

Legal : age, a_value, myVar

Illegal :2myage, my-var, $age

```
#Display an integer, a floating point value, a complex number and a boolean value
i_N=2
f_N=7.5
c_N1=3
c_N2=7
x_bool = 15<14

print(i_N)
print(f_N)
print(complex(c_N1,c_N2))
print(x_bool)
```

```
2
7.5
(3+7j)
False
```

3. Data Structures

```
# Identify different datastructures used in Section 6 (Refer image)
list
tuple
Dictionary
```

4. Control Statements

```
# Identify different control statements used in Section 6 (Refer image)
4 for statement : Iterative
1 if statement  :  Conditional
```

5. Functions

```
# Identify different functions used in Section 6 (Refer image)
Product()
Append()
len()
```

6. Write logic for below program

```
import itertools
lst = list(itertools.product([0, 1], repeat=10))
lst2 = list(itertools.product([0, 1], repeat=4))
finallist,n,m,count=[],4,3,0
for i in lst:
    list_=lst[count]
    try1=[list_[i:i+n] for i in range(0, len(list_)-m, n-m)]
    myDict = dict((el,0) for el in lst2)
    for elem in try1:
        if(elem in myDict):
            myDict[elem]=myDict[elem]+1
    finallist.append(myDict);
    count=count+1
finallist[0]
```

```
import itertools
lst = list(itertools.product([0,1], repeat = 10))
lst2 = list(itertools.product([0,1], repeat = 4))
finallist,n,m,count=[],4,3,0
for i in lst:
    list_ = lst[count]
    try1 = [list_[i:i+n] for i in range(0, len(list_)-m,n-m)]
    myDict = dict((el,0) for el in lst2)
    for elem in try1:
        if(elem in myDict):
            myDict[elem] = myDict[elem]+1
    finallist.append(myDict);
    count = count + 1
```

```
    count = count + 1
finallist[0]
```

```
{(0, 0, 0, 0): 7,
 (0, 0, 0, 1): 0,
 (0, 0, 1, 0): 0,
 (0, 0, 1, 1): 0,
 (0, 1, 0, 0): 0,
 (0, 1, 0, 1): 0,
 (0, 1, 1, 0): 0,
 (0, 1, 1, 1): 0,
 (1, 0, 0, 0): 0,
 (1, 0, 0, 1): 0,
 (1, 0, 1, 0): 0,
 (1, 0, 1, 1): 0,
 (1, 1, 0, 0): 0,
 (1, 1, 0, 1): 0,
 (1, 1, 1, 0): 0,
 (1, 1, 1, 1): 0}
```

Your Answer here :

For every element in lst which has a combination of 0 and 1 which repeats 10 times. try1 (a list of 7 tuple with 4 elements) goes from 0 to 7 with the increment of 1, and myDict(tuple) is created with 2nd element as 0. A loop is created which traverse through try1 and checks if the elem in try1 matches with the elem in myDict, if the same element is found the value gets incremented. After every iteration, the dictionary formed get appended to the finallist. This goes for every element in lst. Finally, the first element of the finallist is printed which is actually a dictionary formed in first iteration of the for loop

Reflections

1. Any 5 features of Python Programming Language
2. Difference between mutable and immutable datatypes
3. Primitive and Non primitive data structures
4. Selection and iteration statements
5. Built-in and user-defined functions

name: " Abhijith A Thampi "

roll_number: " AM.EN.U4AIE20102 "

self_assessment: 7

Show code

```
Name :  Abhijith A Thampi
Roll Number :  AM.EN.U4AIE20102
Self Assessment Marks :  7 /10
```