CBSE 2024 COMPARTMENT

30. A dictionary, **d_city** contains the records in the following format :

{state:city}

Define the following functions with the given specifications : *3*

(i) **push_city(d_city):** It takes the dictionary as an argument and pushes all the cities in the stack **CITY** whose states are of more than 4 characters.

(ii) **pop_city():** This function pops the cities and displays **"Stack empty"** when there are no more cities in the stack.

CBSE 2024

30. Consider a list named **Nums** which contains random integers.

Write the following user defined functions in Python and perform the specified operations on a stack named **BigNums.** **3**

(i) **PushBig() :** It checks every number from the list **Nums** and pushes all such numbers which have **5 or more digits** into the stack, **BigNums.**

(ii) **PopBig() :** It pops the numbers from the stack, **BigNums** and displays them. The function should also display **"Stack Empty"** when there are no more numbers left in the stack.

For example: If the list **Nums** contains the following data :

```
Nums = [213,10025,167,254923,14,1297653,31498,386,92765]
```

Then on execution of **PushBig()**, the stack **BigNums** should store :

```
[10025, 254923, 1297653, 31498, 92765]
```

And on execution of **PopBig()** , the following output should be displayed :

```
92765
31498
1297653
254923
10025
Stack Empty
```

CBSE 2023 COMPARTMENT

30. A list contains following record of course details for a University :

[Course_name, Fees, Duration]

Write the following user defined functions to perform given operations on the stack named **'Univ'** : *3*

(i) **Push_element()** – To push an object containing the Course_name, Fees and Duration of a course, which has fees greater than 100000 to the stack.

(ii) **Pop_element()** – To pop the object from the stack and display it. Also, display "Underflow" when there is no element in the stack.

For example :

If the lists of courses details are :

["MCA",200000,3]

["MBA",500000,2]

["BA",100000,3]

The stack should contain :

["MBA",500000,2]

["MCA",200000,3]

CBSE 2023

30. (a) A list contains following record of customer:
`[Customer_name, Room Type]`
Write the following user defined functions to perform given operations on the stack named `'Hotel'` :

(i) `Push_Cust()` – To Push customers' names of those customers who are staying in 'Delux' Room Type.

(ii) `Pop_Cust()` – To Pop the names of customers from the stack and display them. Also, display "Underflow" when there are no customers in the stack.

For example :
If the lists with customer details are as follows :

```
["Siddarth", "Delux"]
["Rahul", "Standard"]
["Jerry", "Delux"]
```

The stack should contain

```
Jerry
Siddharth
```

The output should be:

```
Jerry
Siddharth
Underflow
```

OR

(b) Write a function in Python, `Push (Vehicle)` where, Vehicle is a dictionary containing details of vehicles – `{Car_Name: Maker}`.
The function should push the name of car manufactured by 'TATA' (including all the possible cases like Tata, TaTa, etc.) to the stack. **3**

For example:
If the dictionary contains the following data:

```
Vehicle={"Santro":"Hyundai","Nexon":"TATA","Safari":"Tata"}
```

The stack should contain

```
Safari
Nexon
```

CBSE 2022 COMPARTMENT

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8. (a) Write separate user defined functions for the following : *3*

(i) **PUSH(N)** – This function accepts a list of names, **N** as parameter. It then pushes only those names in the stack named **OnlyA** which contain the letter **'A'**.

(ii) **POPA(OnlyA)** – This function pops each name from the stack **OnlyA** and displays it. When the stack is empty, the message **"EMPTY"** is displayed.

For example :

If the names in the list **N** are

```
['ANKITA', 'NITISH', 'ANWAR', 'DIMPLE', 'HARKIRAT']
```

Then the stack **OnlyA** should store

```
['ANKITA', 'ANWAR', 'HARKIRAT']
```

And the output should be displayed as

```
HARKIRAT ANWAR ANKITA EMPTY
```

OR

(b) Write the following user defined functions : *3*

(i) **pushEven(N)** – This function accepts a list of integers named **N** as parameter. It then pushes only even numbers into the stack named **EVEN**.

(ii) **popEven(EVEN)** – This function pops each integer from the stack **EVEN** and displays the popped value. When the stack is empty, the message **"Stack Empty"** is displayed.

For example :

If the list **N** contains

```
[10,5,3,8,15,4]
```

Then the stack, **EVEN** should store

```
[10,8,4]
```

And the output should be

```
4 8 10 Stack Empty
```

1. "Stack is a linear data structure which follows a particular order in which the operations are performed." **2**

   What is the order in which the operations are performed in a Stack ?

   Name the List method/function available in Python which is used to remove the last element from a list implemented stack.

   Also write an example using Python statements for removing the last element of the list.

8. • Write the definition of a user defined function **PushNV(N)** which accepts a list of strings in the parameter **N** and **pushes** all strings which have no vowels present in it, into a list named **NoVowel**. **3**

   • Write a program in Python to input 5 words and **push** them one by one into a list named **All**.

   The program should then use the function **PushNV()** to create a stack of words in the list **NoVowel** so that it stores only those words which do not have any vowel present in it, from the list **All**. Thereafter, **pop** each word from the list **NoVowel** and display the popped word. When the stack is empty display the message **"EmptyStack"**.

   For example :

   If the Words accepted and pushed into the list **All** are

   ['DRY', 'LIKE', 'RHYTHM', 'WORK', 'GYM']

   Then the stack **NoVowel** should store

   ['DRY', 'RHYTHM', 'GYM']

   And the output should be displayed as

   GYM RHYTHM DRY EmptyStack

OR

- Write the definition of a user defined function **Push3_5(N)** which accepts a list of integers in a parameter **N** and **pushes** all those integers which are **divisible by 3 or divisible by 5** from the list **N** into a list named **Only3_5**.

- Write a program in Python to input 5 integers into a list named **NUM**.

  The program should then use the function **Push 3_5()** to create the stack of the list **Only3_5**. Thereafter **pop** each integer from the list **Only3_5** and display the popped value. When the list is empty, display the message **"StackEmpty"**.

For example :

If the integers input into the list **NUM** are :

```
[10, 6, 14, 18, 30]
```

Then the stack **Only3_5** should store

```
[10, 6, 18, 30]
```

And the output should be displayed as

```
30  18  6  10 StackEmpty
```