

INTERNATIONAL INDIAN SCHOOL BURAI DAH

Worksheet for the Academic Year 2023-24

CLASS: XII SUBJECT: Computer Science

LESSON :9[Data Structure]

1 **Stack is a data structure that follows_____order**

- a. FIFO
- b. LIFO
- c. LILO
- d. FILO

Ans **b. LIFO**

2 **Queue is a data structure that follows_____order**

- a. FIFO
- b. LIFO
- c. LILO
- d. FILO

Ans **a. FIFO**

3 **What will be the output of the following Python code :**

```
mylist=['java','c++','python','vb','vc++','php','cobol']
print(mylist.pop())
mylist.append('c#')
print(len(mylist))
mylist.insert(3,'basic')
print(mylist)
mylist.sort()
print(mylist)
print(mylist.index('php'))
```

Ans **cobo**

17

```
['java', 'c++', 'python', 'basic', 'vb', 'vc++', 'php', 'c#']
['basic', 'c#', 'c++', 'java', 'php', 'python', 'vb',
'vc++']4
```

4 **Identify the error in following code:**

- (i) List1 = [10,20,30,40]
List1[4]=100
- (ii) Name="Michael Jackson"
Name[2]="k"

Ans (i) **Index 4 is out of range, because List1 contains 4 items (Index 0 to 3 only)**
(ii) **String is immutable type so we can't change any character of string in place.**

5 **Write down the status of Stack after each operation:**

Stack =[10,20,30,40] where TOP item is 40

- (i) Push 70
- (ii) Push 100
- (iii) Pop an item from Stack
- (iv) Peek the Stack

Ans (i) **[10,20,30,40,70]**
(ii) **[10,20,30,40,70,100]**
(iii) **[10,20,30,40,70]**
(iv) **7**

6. Write the function SumEvenOdd(MYLIST) to find the sum of all Even elements and sum of all Odd elements present in MYLIST

For e.g if the elements are

8 12 17 19 25 29 33 32 56 90

Output should be:Even

Sum = 198 Odd Sum = 123

```
def SumEvenOdd(MYLIST):
    sume=0
    sumo=0
    for i in range(len(MYLIST)):
        if MYLIST[i]%2==0:
            sume+=MYLIST[i]
        else:
            sumo+=MYLIST[i]
    print("Even Sum = ",sume)
    print("Odd Sum = ",sumo)
```

7. Write the function CountEvenOdd(MYLIST) to find the count of all Even elements and sum of all Odd elements.

For e.g if the elements are

8 12 17 19 25 28 33 32 56 90

Output should be:

Even Count =6 Odd

Sum = 4

```
def CountEvenOdd(MYLIST):
    counte=0
    counto=0
    for i in range(len(MYLIST)):
        if MYLIST[i]%2==0:
            counte+=1
        else:
            counto+=1
    print("Even Count = ",counte)
    print("Odd Count = ",counto)
```

8. Write a function in python, Push(Employee) and Pop(Employee) to add a new Employee and delete a Employee from a List of Employee Names, considering them to act as push and pop operations of the Stack data structure.

```
def Push(Employee):
    name=input('Enter Employee name ')
    Employee.append(name)
def Pop(Employee):
    if len(Employee)==0: # or if Employee==[]:
        print('Underflow')
    else:
        name = Employee.pop()
        print('Popped Name was ',name)
```

9. Write a function in python, Push(Employee) and Show(Employee) to add a new Employee and display Employee names from a List of Employee, considering them to act as push and show operations of the Stack data structure.

```

def Push(Employee):
    name=input('Enter name
    :')Employee.append(name)
def Show(Employee):
    if len(Employee)==0:
        print('Underflow')
    else:
        print('Employee Names ')
        for i in
            range(len(Employee)):
                print(Employee[i])

```

- 10 Raj is a Python programmer working of Data structure Stack to store name of visitors,he has implemented the code for PUSH and POP, but both functions are not producing the correct result. Help Raj in identifying the error(s) and also write the Correct code for specific line number:

```

def PUSH(VISITOR,name):
    name.append(VISITOR) #Line 1top
    = len(VISITOR)-1      #Line 2

def POP(VISITOR):
    if len(VISITOR)==1:    #Line 3
        return "Sorry! No Visitor to delete " #Line 4
    else:
        val = VISITOR.pop(1)    #Line 5if
        len(VISITOR)==1:        #Line 6
            top=None    #Line 7
        else
            top=len(VISITOR) #Line 8
        return val

```

Ans

```

#Line 1
VISITOR.append(name)
#Line 3
if len(VISITOR)==0:
#Line 5
val = VISITOR.pop()
#Line 6
if len(VISITOR)==0:
#Line 8
top = len(VISITOR)-1

```

11. A list contains following record of customer.

[Customer_name, Room Type]

Write the following user defined functions to perform given operations on the stack name 'Hotel':

- i) Push_Cust()- To Push customers names of those customers who are staying in 'Delux' Room Type
- ii) Pop_Cust()- To Pop 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 contain customer details are as follows:

["Siddharth", "Delux"]

["Rahul", "Standard"]

["jerry", "Delux"]

The stack should contain

Jerry

Siddharth

The output should be:

Jerry

Siddharth

Underflow

12. Write a function in Python, Push(Vehicles) 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 possible cases like Tata, Ta Ta, etc) to the stack.

For example:

If the dictionary contains the following data:

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

The stack should contain

Safari

Nexon

- 13 a) 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 only 3_5
- b) Write a program in Python to input 5 integers into a list named NUM. The program should then use the function Push3_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 “Stack Empty”.

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

[Note: Refer Oswaal CBSE class 12 Computer Science Question Bank 2023-2024 for answers of 11,12,13.(book.google.com.sa)]