INDIAN SCHOOL AL WADI AL KABIR

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| **Class: XII Comp. Sci.** | **Department: Computer Science** | **Date of Submission: 22/08/2023** |
| **Worksheet No: 5** | **Topic: Data Structure- STACK and its implementation using List** | **Note:** |

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| 1 | What is Stack? What basic operations can be performed on them? |
| 2 | Given a bounded stack of capacity 4 which is initially empty, write the stack content after each step: a) Push ‘1’ b) Push ‘2’ c) Push ‘3’ d) Push ‘4’ e) Pop f) Pop g) Push(‘5’) h)Pop i)Pop j)Pop  |
| 3 | A list, NList contains following record as list elements: [City, Country, distance from Delhi] Each of these records are nested together to form a nested list. Write the following user defined functions in Python to perform the specified operations on the stack named travel.  (i) Push\_element(NList): It takes the nested list as an argument and pushes a list object containing name of the city and country, which are not in India and distance is less than 3500 km from Delhi. (ii) Pop\_element(): It pops the objects from the stack and displays them. Also, the function should display “Stack Empty” when there are no elements in the stack. For example: If the nested list contains the following data: NList=[["New York", "U.S.A.", 11734], ["Naypyidaw", "Myanmar", 3219], ["Dubai", "UAE", 2194], ["London", "England", 6693], 3 [12] ["Gangtok", "India", 1580], ["Columbo", "Sri Lanka", 3405]]The stack should contain: ['Naypyidaw', 'Myanmar'], ['Dubai', 'UAE'], ['Columbo', 'Sri Lanka'] The output should be: ['Columbo', 'Sri Lanka'] ['Dubai', 'UAE'] ['Naypyidaw', 'Myanmar'] Stack Empty    |
| 4 |  Consider STACK=[‘a’,’b’,’c’,’d’]. Write the STACK content after each operation: a) STACK.pop( )b) STACK.append(‘e’) c) STACK.append(‘f’) d) STACK.pop( )   |
| 5 | Write a program to implement a stack for the students (studentno, name). Just implement Push. def add(stk,item): stk.append(item) def display(stk):  top = len(stk) for a in range(top-1,-1,-1): print(stk[a]) stack=[]while True: print("STACK OPERATION:") print("1.ADD student") print("2.Display stack") ch = int(input("Enter your choice(1-4):")) if ch==1: rno = int(input("Enter Roll no to be inserted :")) sname = input("Enter Student name to be inserted :") item = [rno,sname] add(stack,item) elif ch==2: display(stack) else: print("invalid choice")  |
| 6 | Find the output of the following code: result=0 numberList=[10,20,30] numberList.append(40) result=result+ numberList.pop() result=result+ numberList.pop() print(result) print(numberList) |
| 7 | Julie has created a dictionary containing names and marks as key value pairs of 6 students. Write a program, with separate user defined functions to perform the following operations:● Push the keys (name of the student) of the dictionary into a stack, where the corresponding value (marks) is greater than 75.● Pop and display the content of the stack.For example: If the sample content of the dictionary is as follows:R= {"OM":76, "JAI":45, "BOB":89, "ALI":65, "ANU":90, "TOM":82}The output from the program should be: TOM ANU BOB OMR= {"OM":76, "JAI":45, "BOB":89, "ALI":65, "ANU":90, "TOM":82}stack=[]def dpush(d): for i in d: if d[i]>72: stack.append(i)def dpop(): while True: if stack==[]: print("stack is empty") break else: print(stack.pop())dpush(R)dpop() |
| 8 | Write a function in python, PushEl(e) to add a new element and PopEl(e) to delete an element from a List, considering them to act as push and pop operations of the Stack data structure. |
| 9 | Write a function POP(Book) in Python to delete a Book from a list of Book titles, considering it to act as a pop operation of the Stack data structure. |