

INTERNATIONAL INDIAN SCHOOL BURAIDAH

Worksheet for the Academic Year 2025-26

CLASS:XII SUBJECT: Computer Science

Data Structures

1. A _____ is a way to store, organize, or manage data in efficient and productive manner

Data Structure

2. A stack is one of the following types of data structure?

a) Linear b) Dynamic c) Circular d) All of these

3. Stack data structure is following _____ principle.

LIFO

4. In stack data can be inserted or deleted from _____ only.

Top

5. The insert operation in the stack is known as pop. (True/**False**)

6. You can replace any element position in the stack. (True/**False**)

7. The peek operation refers to accessing/inspecting the top element in the stack. (**True**/False)

8. A condition raise due to the stack is full is known as _____.

a) Underflow **b) Overflow** c) List is full d) Completely Filled

9. While popping the element from the stack, a condition will be raised, this condition is known as _____.

a) Underflow b) Overflow c) List is Empty d) Blank List

10. Stack overflow condition is raised in _____ operation where as Stack underflow condition is raised in _____ operations.

Push, Pop

11. Write a python function named is_underflow() to check a stack is an underflow.

```
def is_underflow(stk):
```

```
    if stk==[]:
```

```
        return True
```

```
    else:
```

```
        return False
```

[12] Write a function to push an element into the stack.

```
def push(stk,e):
```

```
    stk.append(e)
```

```
    top = len(stk)-1
```

[13] Write a python function to delete an element from the stack.

```
def pop_stack(stk):
```

```
    if stk==[]:
```

```
        return "UnderFlow"
```

```
    else:
```

```
        e = stk.pop()
```

```
        if len(stk)==0:
```

```
            top = None
```

```
        else:
```

```
            top = len(stk)-1
```

```
        return e
```

[14] Write a function to display the stack elements.

```
def display(stk):
```

```
    if stk==[]:
```

```
        print("Stack is Empty")
```

```
    else:
```

```
top = len(stk)-1
print(stk[top],"-Top")
for i in range(top-1,-1,-1):
    print(stk[i])
```

[15] Write a function to inspect an element from the stack.

```
def peek(stk):
    if stk==[]:
        return "UnderFlow"
    else:
        top = len(stk)-1
        return stk[top]
```

[16] Write functions AddPlayer(player) and DeletePlayer(player) in python to add and remove a player by considering them as push and pop operations in a stack.

```
def AddPlayer(player):
    pn=input("enter player name:")
    player.append(pn)
def DeletePlayer(player):
    if player==[]:
        print("No player found")
    else:
        return player.pop()
```

[17] Vedika has created a dictionary containing names and marks as key-value pairs of 5 students. Write a program, with separate user-defined functions to perform the following operations:

- 1. Push the keys (name of the student) of the dictionary into a stack, where the corresponding value (marks) is greater than 70.**
- 2. Pop and display the content of the stack.**

The dictionary should be as follows:

```
d={"Ramesh":58, "Umesh":78, "Vishal":90, "Khushi":60, "Ishika":95}
```

Then the output will be: Umesh Vishal Ishika

```
def push(stk,item):
```

```
    stk.append(item)
```

```
def Pop(stk):
```

```
    if stk==[]:
```

```
        return None
```

```
    else:
```

```
        return stk.pop()
```

```
stk=[]
```

```
d={"Ramesh":58, "Umesh":78, "Vishal":90, "Khushi":60, "Ishika":95}
```

```
for i in d:
```

```
    if d[i]>70:
```

```
        push(stk,i)
```

```
while True:
```

```
    if stk!=[]:
```

```
        print(Pop(stk),end=" ")
```

```
    else:
```

```
        break
```