

1. Write a menu-based program to perform the operation on queue in python.

```
class Queue:
    def __init__(Q):
        Q.items = [ ]
    def isEmpty(Q): # Checks whether the queue is empty or not
        return Q.items == [ ]
    def Enqueue(Q, item): #Insert an element
        Q.items.append(item)
        if len(Q.items)==1:
            front=rear=0
        else:
            rear=len(Q.items)
    def Dequeue(Q): # Delete an element
        return Q.items.pop(0)
    def peek(Q): #Check the value of rear
        return Q.items[len(Q.items)-1]
    def size(Q): # Size of the queue i.e. total no. of elements in queue
        return len(Q.items)
q = Queue( )
print("MENU BASED QUEUE")
cd=True
while cd:
    print(" 1. ENQUEUE ")
    print(" 2. DEQUEUE ")
    print(" 3. Display ")
    print(" 4. Size of Queue ")
    print(" 5. Value at rear ")
    choice=int(input("Enter your choice (1-5) : "))

    if choice==1:
        val=input("Enter the element: ")
        q.Enqueue(val)
    elif choice==2:
        if q.items==[ ]:
            print("Queue is empty")
        else:
            print("Deleted element is :", q.Dequeue( ))
    elif choice==3:
        print(q.items)
    elif choice==4:
        print("Size of the queue is :", q.size( ))
    elif choice==5:
        print("Value of rear element is :", q.peek( ))
```

```

else:
    print("You enetered wrong choice ")
print("Do you want to continue? Y/N")
option=input( )
if option=='y' or option=='Y':
    cd=True
else:
    cd=False

```

2. Write a menu-based program to perform the operation on stack in python

```

class Stack:
def __init__(self):
    self.items = [ ]
def isEmpty(self): # Checks whether the stack is empty or not
    return self.items == [ ]
def push(self, item): #Insert an element
    self.items.append(item)
def pop(self): # Delete an element
    return self.items.pop( )
def peek(self): #Check the value of top
    return self.items[len(self.items)-1]
def size(self): # Size of the stack i.e. total no. of elements in stack
    return len(self.items)
s = Stack( )
print("MENU BASED STACK")
cd=True
while cd:
    print(" 1. Push ")
    print(" 2. Pop ")
    print(" 3. Display ")
    print(" 4. Size of Stack ")
    print(" 5. Value at Top ")
    choice=int(input("Enter your choice (1-5) : "))
    if choice==1:
        val=input("Enter the element: ")
        s.push(val)
    elif choice==2:
        if s.items==[ ]:
            print("Stack is empty")
        else:
            print("Deleted element is :", s.pop( ))

```

```
elif choice==3:
    print(s.items)
elif choice==4:
    print("Size of the stack is :", s.size( ))
elif choice==5:
    print("Value of top element is :", s.peek( ))
else:
    print("You enetered wrong choice ")
print("Do you want to continue? Y/N")
option=input( )
if option=='y' or option=='Y':
    var=True
else:
    var=False
```