

#### Ex 4A

```
class Node:
    def __init__(self, data):
        self.data = data
        self.next = None
class Queue:
    def __init__(self):
        self.front = None
        self.rear = None
    def enqueue(self, value):
        new_node = Node(value)
        if self.rear is None:
            self.front = self.rear = new_node
        else:
            self.rear.next = new_node
            self.rear = new_node
        print(f"{value} added to the queue")
    def dequeue(self):
        if self.front is None:
            print("Queue is empty")
        else:
            removed = self.front.data
            self.front = self.front.next
            if self.front is None:
                self.rear = None
            print(f"{removed} removed from the queue")
    def display(self):
        if self.front is None:
            print("Queue is empty")
        else:
            temp = self.front
            print("Queue:", end=" ")
            while temp is not None:
                print(temp.data, end=" --> ")
                temp = temp.next
            print("NULL")
q = Queue()
while True:
    print("\nMain Menu")
    print("1. Enqueue")
    print("2. Dequeue")
    print("3. Display")
    print("4. Exit")
    ch = input("Enter your choice: ")
    if ch == '1':
        value = input("Enter the value: ")
        q.enqueue(value)
```

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elif ch == '2':
    q.dequeue()
elif ch == '3':
    q.display()
elif ch == '4':
    print("Program ended.")
    break
else:
    print("Enter a valid input.")

```

## Output:

```

file  edit  shell  debug  options  window  help
Python 3.10.9 (tags/v3.10.9:1dd9be6, Dec  6 2022, 20:01:21) [MSC v.1934 64
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/Users/24ucs040/4al.py =====

Main Menu
1. Enqueue
2. Dequeue
3. Display
4. Exit
Enter your choice: 1
Enter the value: \Ragul
\Ragul added to the queue

Main Menu
1. Enqueue
2. Dequeue
3. Display
4. Exit
Enter your choice: 3
Queue: \Ragul --> NULL

Main Menu
1. Enqueue
2. Dequeue
3. Display
4. Exit
Enter your choice: 2
\Ragul removed from the queue

Main Menu
1. Enqueue
2. Dequeue
3. Display
4. Exit
Enter your choice: 4
Program ended.
>>>

```