



RIPHAH

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Lab-14:

Task 1:

Code & Output:

```
D: > DSA > DSA LAB > Lab 14 > Task_1.cpp > main()
4  class Stack {
32  void pop() {
35      } else {
36          cout << "Stack is empty! Cannot pop.\n";
37      }
38  }
39
40  // Peek the top element without removing it
41  int peek() {
42      if (!isEmpty()) {
43          return stackArray[top];
44      } else {
45          cout << "Stack is empty! Nothing to peek.\n";
46          return -1; // Return an invalid value for empty stack

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\mwale> cd "d:\DSA\DSA LAB\Lab 14\" ; if ($?) { g++ Task_1.cpp -o Task_1 } ; if ($?) { .\Task_1 }
Top element: 3
Top element after pop: 2
Is stack empty after clear? Yes
PS D:\DSA\DSA LAB\Lab 14>
```

Task 2:

Code& Output:

```
D: > DSA > DSA LAB > Lab 14 > Task_2.cpp > reverseStringUsingStack(const string &)
```

```
6  string reverseStringUsingStack(const string& input) {
11      for (char ch : input) {
12          charStack.push(ch);
13      }
14
15      // Pop characters from the stack to reverse the string
16      while (!charStack.empty()) {
17          reversedString += charStack.top();
18          charStack.pop();
19      }
20
21      return reversedString;
22  }
23
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\mmwale> cd "d:\DSA\DSA LAB\Lab 14\" ; if ($?) { g++ Task_2.cpp -o Task_2 } ; if ($?) { .\Task_2 }
Enter a string: waleed
Original string: waleed
Reversed string: deelaw
PS D:\DSA\DSA LAB\Lab 14>
```

Task 3:

Code & Output:

```
D: > DSA > DSA LAB > Lab 14 > Task_3.cpp > ...
```

```
75      rear = -1;
76      count = 0;
77      cout << "Queue cleared.\n";
78  }
79
80  private:
81      // Resize the queue to handle overflow
82      void resize() {
83          int newCapacity = capacity * 2;
84          int* newQueueArray = new int[newCapacity];
85          for (int i = 0; i < count; i++) {
86              newQueueArray[i] = queueArray[(front + i) % capacity];
87          }
88          delete[] queueArray;
89      }
90
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\mmwale> cd "d:\DSA\DSA LAB\Lab 14\" ; if ($?) { g++ Task_3.cpp -o Task_3 } ; if ($?) { .\Task_3 }
Queue overflow! Resizing the queue...
Front element: 10
Queue size: 4
Front element after dequeue: 20
Queue cleared.
Queue size after clear: 0
PS D:\DSA\DSA LAB\Lab 14>
```