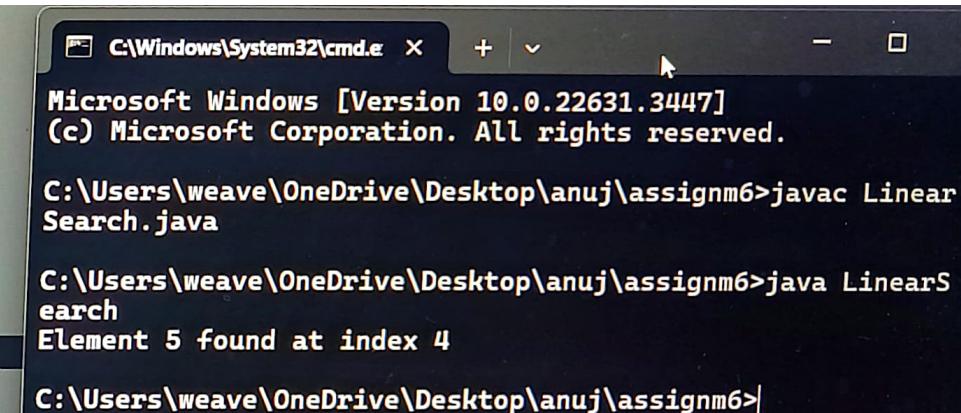


```
public class LinearSearch {  
  
    public static int linearSearch(int[] arr, int target) {  
  
        for (int i = 0; i < arr.length; i++) {  
  
            if (arr[i] == target) {  
                return i;  
            }  
        }  
  
        return -1;  
    }  
  
    public static void main(String[] args) {  
        int[] arr = {4, 2, 8, 1, 5, 9, 3};  
        int target = 5;  
        int index = linearSearch(arr, target);  
        if (index != -1) {  
            System.out.println("Element " + target + " found at index " + index);  
        } else {  
            System.out.println("Element " + target + " not found in the array");  
        }  
    }  
}
```



A screenshot of a Windows Command Prompt window titled 'C:\Windows\System32\cmd.exe'. The window shows the following text:  
Microsoft Windows [Version 10.0.22631.3447]  
(c) Microsoft Corporation. All rights reserved.  
C:\Users\weave\OneDrive\Desktop\anuj\assignm6>javac LinearSearch.java  
C:\Users\weave\OneDrive\Desktop\anuj\assignm6>java LinearSearch  
Element 5 found at index 4  
C:\Users\weave\OneDrive\Desktop\anuj\assignm6>

C:\Users\weave\OneDrive\Desktop\anuj\assignm6\BinarySearch.java - Notepad++

```
Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
nearSearch.java [x] BinarySearch.java [x]
public class BinarySearch {

    public static int binarySearch(int[] arr, int target) {
        int left = 0;
        int right = arr.length - 1;

        while (left <= right) {
            int mid = left + (right - left) / 2;

            if (arr[mid] == target) {
                return mid;
            }

            if (arr[mid] < target) {
                left = mid + 1;
            }

            else {
                right = mid - 1;
            }
        }

        return -1;
    }

    public static void main(String[] args) {
        int[] arr = {1, 2, 3, 4, 5, 6, 7, 8, 9};
        int target = 5;
        int index = binarySearch(arr, target);
        if (index != -1) {
            System.out.println("Element " + target + " found at index " + index);
        } else {
            System.out.println("Element " + target + " not found in the array");
        }
    }
}
```

C:\Windows\System32\cmd.exe + Microsoft Windows [Version 10.0.22631.3447]  
(c) Microsoft Corporation. All rights reserved.  
C:\Users\weave\OneDrive\Desktop\anuj\assignm6>javac LinearSearch.java  
C:\Users\weave\OneDrive\Desktop\anuj\assignm6>java LinearSearch  
Element 5 found at index 4  
C:\Users\weave\OneDrive\Desktop\anuj\assignm6>javac BinarySearch.java  
C:\Users\weave\OneDrive\Desktop\anuj\assignm6>java BinarySearch  
Element 5 found at index 4  
C:\Users\weave\OneDrive\Desktop\anuj\assignm6>

```
public static int[] sortByFrequency(int[] arr) {  
  
    Map<Integer, Integer> frequencyMap = new TreeMap<>();  
    for (int num : arr) {  
        frequencyMap.put(num, frequencyMap.getOrDefault(num, 0) + 1);  
    }  
  
    List<Integer> sortedList = new ArrayList<>();  
  
    for (Map.Entry<Integer, Integer> entry : frequencyMap.entrySet()) {  
        int key = entry.getKey();  
        int freq = entry.getValue();  
        for (int i = 0; i < freq; i++) {  
            sortedList.add(key);  
        }  
    }  
  
    int[] sortedArr = new int[sortedList.size()];  
    for (int i = 0; i < sortedList.size(); i++) {  
        sortedArr[i] = sortedList.get(i);  
    }  
  
    return sortedArr;  
}  
  
public static void main(String[] args) {  
    int[] arr = {3, 1, 2, 2, 4, 1, 4, 3, 2};  
    int[] sortedArr = sortByFrequency(arr);  
  
    System.out.println("Sorted elements by frequency:");  
    for (int num : sortedArr) {  
        System.out.print(num + " ");  
    }  
}
```

```
C:\Windows\System32\cmd.exe + -  
C:\Users\weave\OneDrive\Desktop\anuj\assignm6>javac SortElementsByFrequency.java  
C:\Users\weave\OneDrive\Desktop\anuj\assignm6>java SortElementsByFrequency  
Sorted elements by frequency:  
1 1 2 2 2 3 3 4 4  
C:\Users\weave\OneDrive\Desktop\anuj\assignm6>
```

Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?



BinarySearch.java | SortElementsByFrequency.java | SortColors.java

```
public class SortColors {
```

```
    public static void sortColors(int[] nums) {
        int count0 = 0, count1 = 0, count2 = 0;

        for (int num : nums) {
            if (num == 0) {
                count0++;
            } else if (num == 1) {
                count1++;
            } else if (num == 2) {
                count2++;
            }
        }
    }
```

```
    int i = 0;
    while (count0 > 0) {
        nums[i++] = 0;
        count0--;
    }
    while (count1 > 0) {
        nums[i++] = 1;
        count1--;
    }
    while (count2 > 0) {
        nums[i++] = 2;
        count2--;
    }
}

public static void main(String[] args) {
    int[] nums = {2, 0, 2, 1, 1, 0};
    sortColors(nums);
    System.out.println("Sorted array:");
    for (int num : nums) {
        System.out.print(num + " ");
    }
}
```

C:\Windows\System32\cmd.exe

```
C:\Users\weave\OneDrive\Desktop\anuj\assignm6>java SortColors
Sorted array:
0 0 1 1 2 2
C:\Users\weave\OneDrive\Desktop\anuj\assignm6>
```

File Search View Encoding Language Settings Tools Macro Run Plugins Window ?

Search.java | BinarySearch.java | SortElementsByFrequency.java | SortColors.java | BalancedParentheses.java

```

import java.util.*;

class BalancedParentheses {

    public static boolean isBalanced(String str) {
        Stack<Character> stack = new Stack<>();

        for (char ch : str.toCharArray()) {
            if (ch == '(' || ch == '{' || ch == '[') {
                stack.push(ch);
            } else if (ch == ')' || ch == '}' || ch == ']') {
                if (stack.isEmpty() || !isMatchingPair(stack.pop(), ch))
                    return false;
            }
        }

        return stack.isEmpty();
    }

    private static boolean isMatchingPair(char opening, char closing) {
        return (opening == '(' && closing == ')') ||
               (opening == '{' && closing == '}') ||
               (opening == '[' && closing == ']');
    }

    public static void main(String[] args) {
        String str1 = "{[()]}";
        String str2 = "{[()]}";
        String str3 = "{{{}}";

        System.out.println("Is " + str1 + " balanced? " + isBalanced(str1));
        System.out.println("Is " + str2 + " balanced? " + isBalanced(str2));
        System.out.println("Is " + str3 + " balanced? " + isBalanced(str3));
    }
}

```

C:\Windows\System32\cmd.exe + ▾

dParentheses

```

Is "{[()]}" balanced? true
Is "{[()]}{{{{}}" balanced? false
Is "{{{{}}" balanced? false

```

C:\Users\weave\OneDrive\Desktop\anuj\assignm6>

```
nearSearch.java | BinarySearch.java | SortElementsByFrequency.java | SortColors.java | BalancedParentheses.java | Stack.java |  
public int pop() {  
    if (isEmpty()) {  
        throw new EmptyStackException();  
    }  
    return stack[top--];  
}  
  
public int peek() {  
    if (isEmpty()) {  
        throw new EmptyStackException();  
    }  
    return stack[top];  
}  
  
public boolean isEmpty() {  
    return top == -1;  
}  
  
public boolean isFull() {  
    return top == capacity - 1;  
}  
  
public int size() {  
    return top + 1;  
}  
  
class Stack1 {  
    public static void main(String[] args) {  
        Stack stack = new Stack(5);  
  
        stack.push(1);  
        stack.push(2);  
        stack.push(3);  
  
        System.out.println("Size of stack: " + stack.size());  
        System.out.println("Top element of stack: " + stack.peek());  
  
        System.out.println("Elements popped from stack:");  
        while (!stack.isEmpty()) {  
            System.out.println(stack.pop());  
        }  
    }  
}
```

```
C:\Windows\System32\cmd.exe  
C:\Users\weave\OneDrive\Desktop\anuj\assignm6>java Stack1  
Size of stack: 3  
Top element of stack: 3  
Elements popped from stack:  
3  
2  
1  
C:\Users\weave\OneDrive\Desktop\anuj\assignm6>
```

Java source file

length : 1,395 lines : 65

Ln : 48 Col : 1 Pos : 922

80°F  
Partly cloudy

Search



FULL HD 1080

acer

```
Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?  
NearSearch.java | BinarySearch.java | SortElementsByFrequency.java | SortColors.java | BalancedParentheses.java | Stack.java | Queue.java  
  
int dequeuedElement = queue[front];  
front = (front + 1) % capacity;  
size--;  
return dequeuedElement;  
}  
  
public int peek() {  
    if (isEmpty()) {  
        throw new NoSuchElementException("Queue is empty");  
    }  
    return queue[front];  
}  
  
public boolean isEmpty() {  
    return size == 0;  
}  
  
public boolean isFull() {  
    return size == capacity;  
}  
  
public int size() {  
    return size;  
}  
  
}  
  
class Queue1 {  
    public static void main(String[] args) {  
        Queue queue = new Queue(5);  
  
        queue.enqueue(1);  
        queue.enqueue(2);  
        queue.enqueue(3);  
  
        System.out.println("Size of queue: " + queue.size());  
        System.out.println("Front element of queue: " + queue.peek());  
  
        System.out.println("Elements dequeued from queue:");  
        while (!queue.isEmpty()) {  
            System.out.println(queue.dequeue());  
        }  
    }  
}
```

C:\Windows\System32\cmd.exe +

C:\Users\weave\OneDrive\Desktop\anuj\assignm6>java Queue1  
Size of queue: 3  
Front element of queue: 1  
Elements dequeued from queue:

1  
2  
3

C:\Users\weave\OneDrive\Desktop\anuj\assignm6>

C:\Users\weave\OneDrive\Desktop\anuj\assignm6\Deque.java - Notepad++

Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

BinarySearch.java SortElementsByFrequency.java SortColors.java

```
        }
        return deque[front];
    }

    public int getRear() {
        if (isEmpty()) {
            throw new NoSuchElementException("Deque is empty");
        }
        return deque[rear];
    }

    public boolean isEmpty() {
        return size == 0;
    }

    public boolean isFull() {
        return size == capacity;
    }

    public int size() {
        return size;
    }
```

```
1 class Deque1 {
2     public static void main(String[] args) {
3         Deque deque = new Deque(5);
4
5         deque.insertRear(1);
6         deque.insertRear(2);
7         deque.insertFront(3);
8         deque.insertFront(4);
9
10        System.out.println("Size of deque: " + deque.size());
11        System.out.println("Front element of deque: " + deque.getFront());
12        System.out.println("Rear element of deque: " + deque.getRear());
13
14        System.out.println("Elements deleted from deque:");
15        while (!deque.isEmpty()) {
16            System.out.println(deque.deleteFront());
17        }
18    }
19}
```

2  
C:\Users\weave\OneDrive\Desktop\anuj\assignm6>java Deque1  
Size of deque: 4  
Front element of deque: 4  
Rear element of deque: 2  
Elements deleted from deque:  
4  
3  
1  
2

C:\Users\weave\OneDrive\Desktop\anuj\assignm6>

s\weave\OneDrive\Desktop\anuj\assignm6\Ques9.java - Notepad++

Search View Encoding Language Settings Tools Macro Run Plugins Window ?  
earch.java BinarySearch.java SortElementsByFrequency.java SortColors.java  
tempQueue.offer(mainQueue.poll());  
}  
  
int poppedElement = mainQueue.poll();  
  
Queue<Integer> temp = mainQueue;  
mainQueue = tempQueue;  
tempQueue = temp;  
return poppedElement;  
}  
  
public int top() {  
 if (isEmpty()) {  
 throw new IllegalStateException("Stack is empty");  
 }  
 int topElement = 0;  
  
 while (!mainQueue.isEmpty()) {  
 topElement = mainQueue.poll();  
 tempQueue.offer(topElement);  
 }  
  
 Queue<Integer> temp = mainQueue;  
 mainQueue = tempQueue;  
 tempQueue = temp;  
 return topElement;  
}  
  
public boolean isEmpty() {  
 return mainQueue.isEmpty();  
}  
  
lass StackElement {  
public static void main(String[] args) {  
 StackUsingQueues stack = new StackUsingQueues();  
  
 stack.push(1);  
 stack.push(2);  
 stack.push(3);  
  
 System.out.println("Top element of stack: " + stack.top());  
  
 System.out.println("Elements popped from stack:");  
 while (!stack.isEmpty()) {  
 System.out.println(stack.pop());  
 }  
}

C:\Windows\System32\cmd.exe +   
2  
1  
  
C:\Users\weave\OneDrive\Desktop\anuj\assignm6>javac Ques9.java  
  
C:\Users\weave\OneDrive\Desktop\anuj\assignm6>java StackElement  
Top element of stack: 3  
Elements popped from stack:  
3  
2  
1  
  
C:\Users\weave\OneDrive\Desktop\anuj\assignm6>

ave\OneDrive\Desktop\anuj\assignm6\Ques10.java - Notepad++

Search View Encoding Language Settings Tools Macro Run Plugins Window ?

ch.java BinarySearch.java SortElementsByFrequency.java SortColors.java

```
enqueueStack.push(element);}

public int dequeue() {
    if (isEmpty()) {
        throw new IllegalStateException("Queue is empty");
    }
    if (dequeueStack.isEmpty()) {

        while (!enqueueStack.isEmpty()) {
            dequeueStack.push(enqueueStack.pop());
        }
    }
    return dequeueStack.pop();
}

public int peek() {
    if (isEmpty()) {
        throw new IllegalStateException("Queue is empty");
    }
    if (dequeueStack.isEmpty()) {

        while (!enqueueStack.isEmpty()) {
            dequeueStack.push(enqueueStack.pop());
        }
    }
    return dequeueStack.peek();
}

public boolean isEmpty() {
    return enqueueStack.isEmpty() && dequeueStack.isEmpty();
}

class QueueElement {
    public static void main(String[] args) {
        QueueUsingStacks queue = new QueueUsingStacks();

        queue.enqueue(1);
        queue.enqueue(2);
        queue.enqueue(3);

        System.out.println("Front element of queue: " + queue.peek());

        System.out.println("Elements dequeued from queue:");
        while (!queue.isEmpty()) {
            System.out.println(queue.dequeue());
        }
    }
}
```

C:\Windows\System32\cmd.exe

```
C:\Users\weave\OneDrive\Desktop\anuj\assignm6>java StackElement
Top element of stack: 3
Elements popped from stack:
3
2
1

C:\Users\weave\OneDrive\Desktop\anuj\assignm6>javac Ques10.java

C:\Users\weave\OneDrive\Desktop\anuj\assignm6>java QueueElement
Front element of queue: 1
Elements dequeued from queue:
1
2
3

C:\Users\weave\OneDrive\Desktop\anuj\assignm6>
```

length : 1,616 lines : 63 Ln: 47 Col: 20 Sel: 12 / 1 Windows (CR LF) / UTF-8

80°F Partly cloudy ENG IN 02:15 16-04-2024