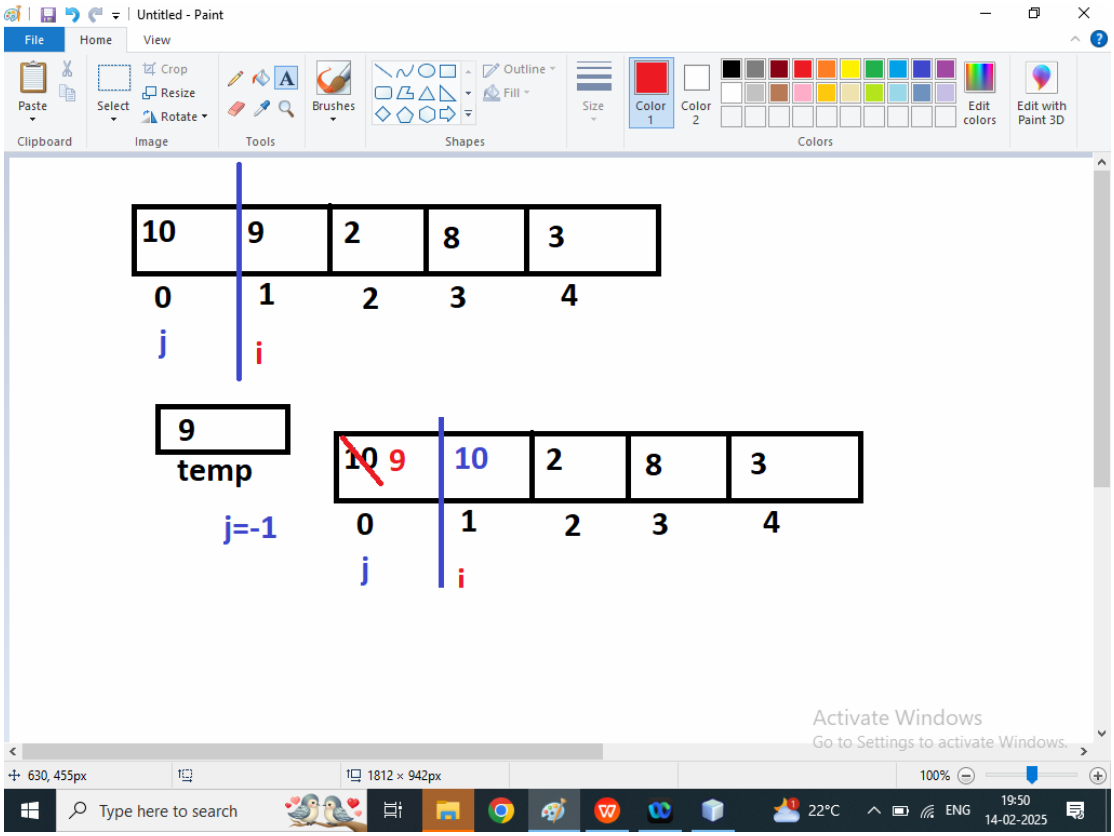
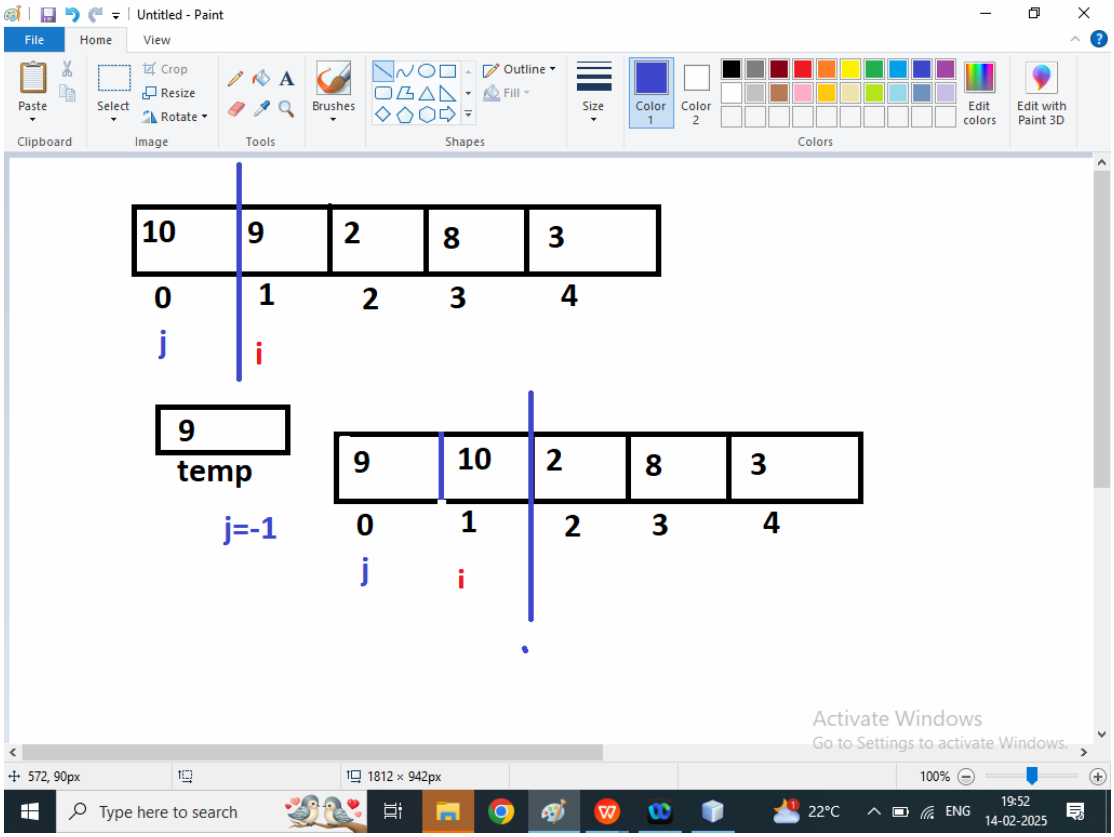
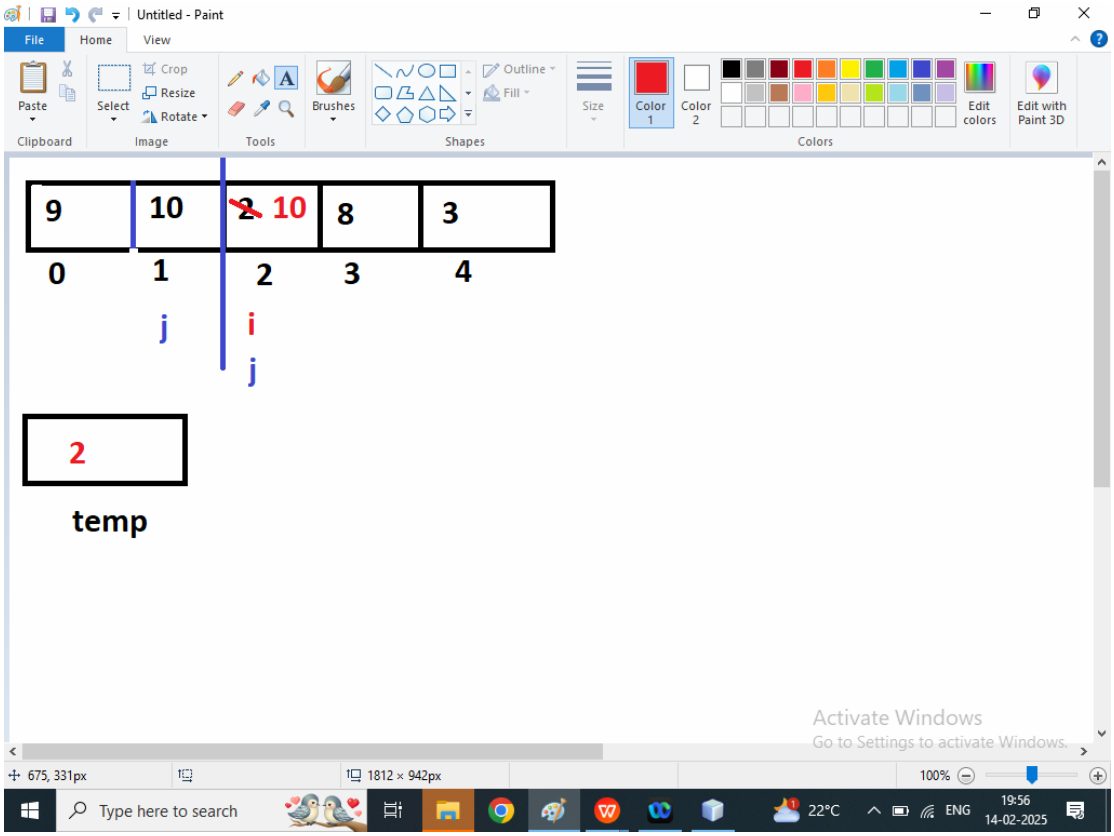
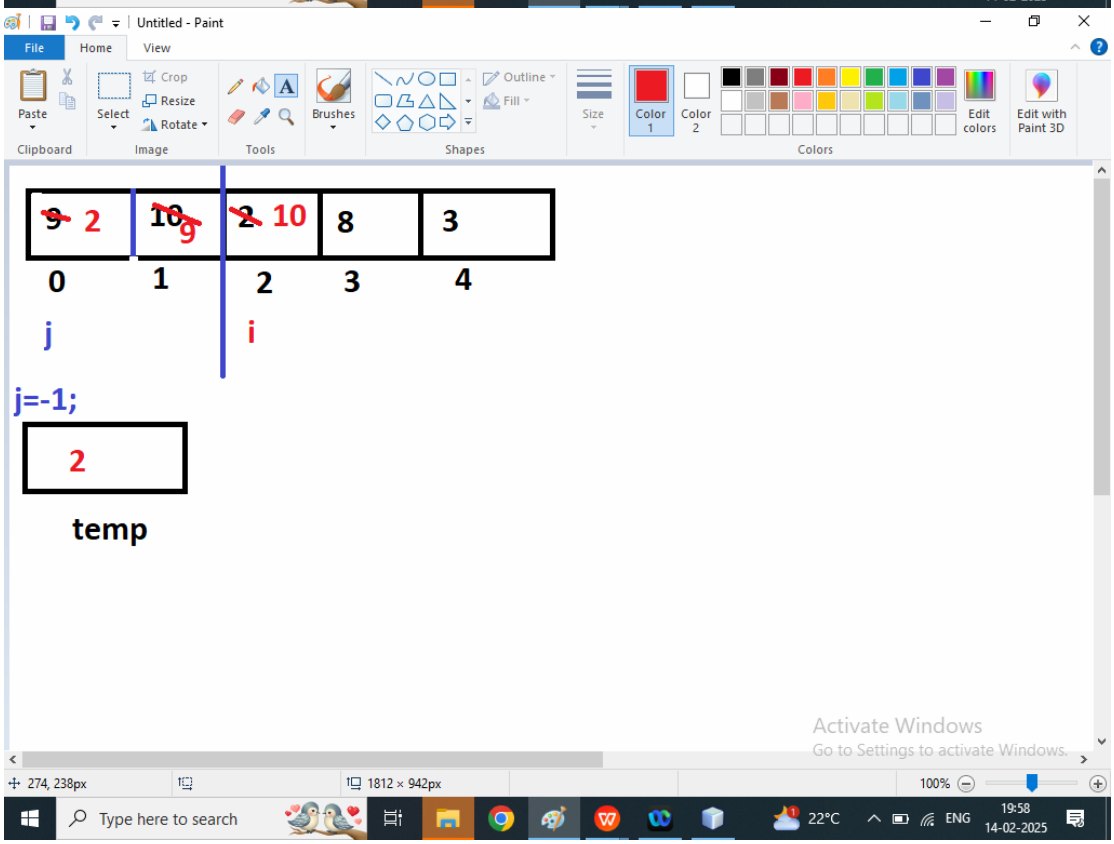
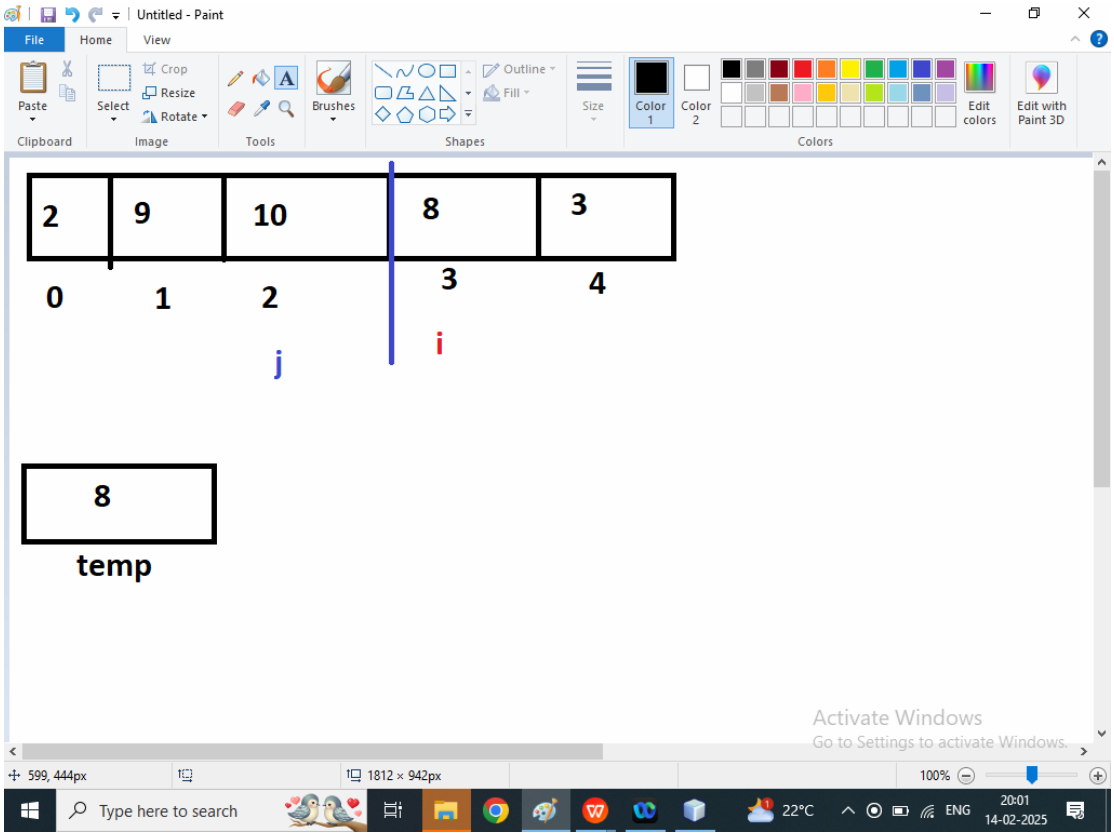
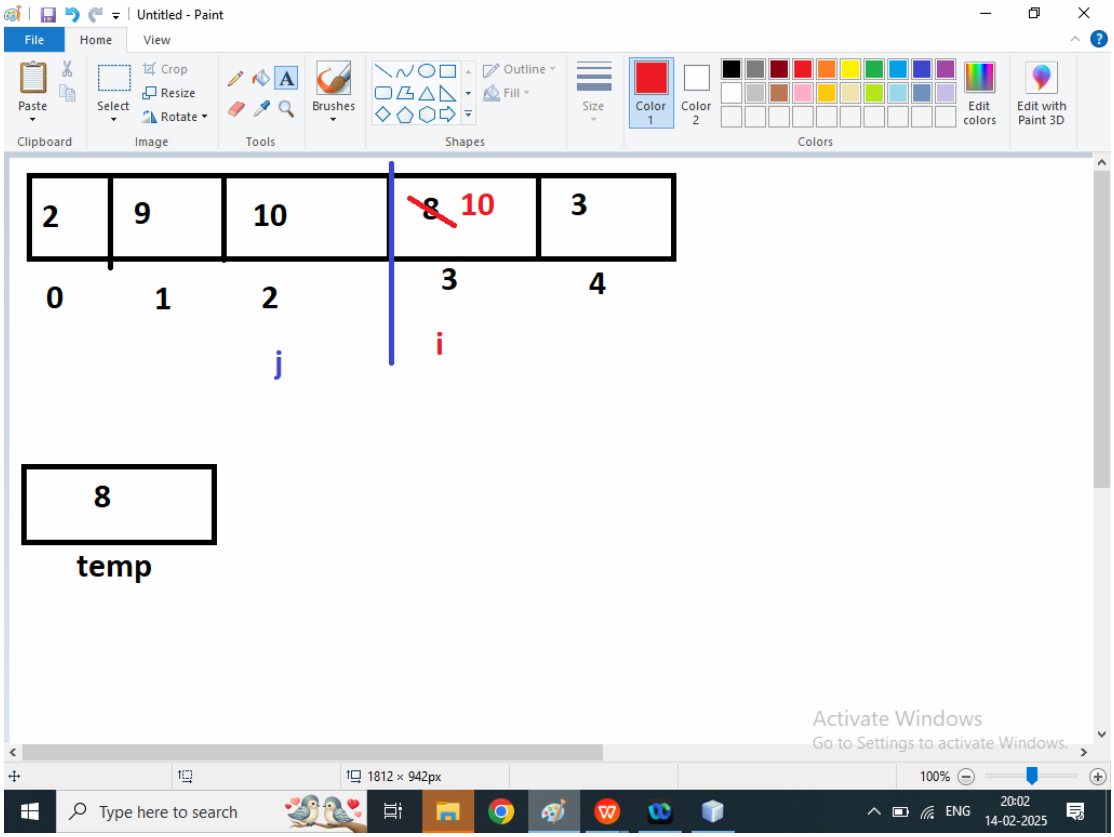

Untitled - Paint
File
Home
View
Paste
Select
Crop
Resize
Rotate
Brushes
Outline
Fill
Size
Color 1
Color 2
Edit colors
Edit with Paint 3D
Clipboard
Image
Tools
Shapes
Colors
10
9
2
8
3
0
1
2
3
4
j
i
9
temp
j=-1
10
9
10
2
8
3
0
1
2
3
4
j
i
Activate Windows
Go to Settings to activate Windows.
630, 455px
1812 × 942px
100%
Type here to search
22°C
ENG
19:50
14-02-2025

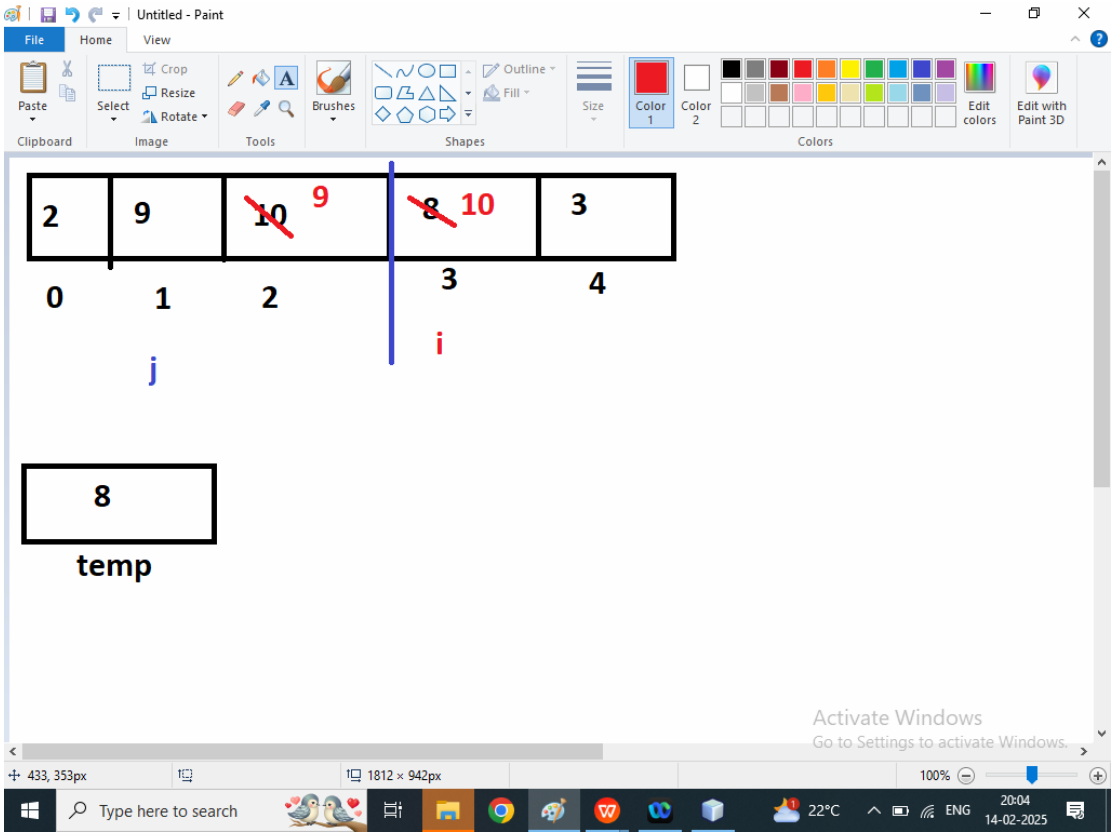

Untitled - Paint
File
Home
View
Paste
Select
Crop
Resize
Rotate
Brushes
Outline
Fill
Size
Color 1
Color 2
Edit colors
Edit with Paint 3D
Clipboard
Image
Tools
Shapes
Colors
10
9
2
8
3
0
1
2
3
4
j
i
9
temp
j=-1
9
10
2
8
3
0
1
2
3
4
j
i
Activate Windows
Go to Settings to activate Windows.
572, 90px
1812 × 942px
100%
Type here to search
22°C
ENG
19:52
14-02-2025

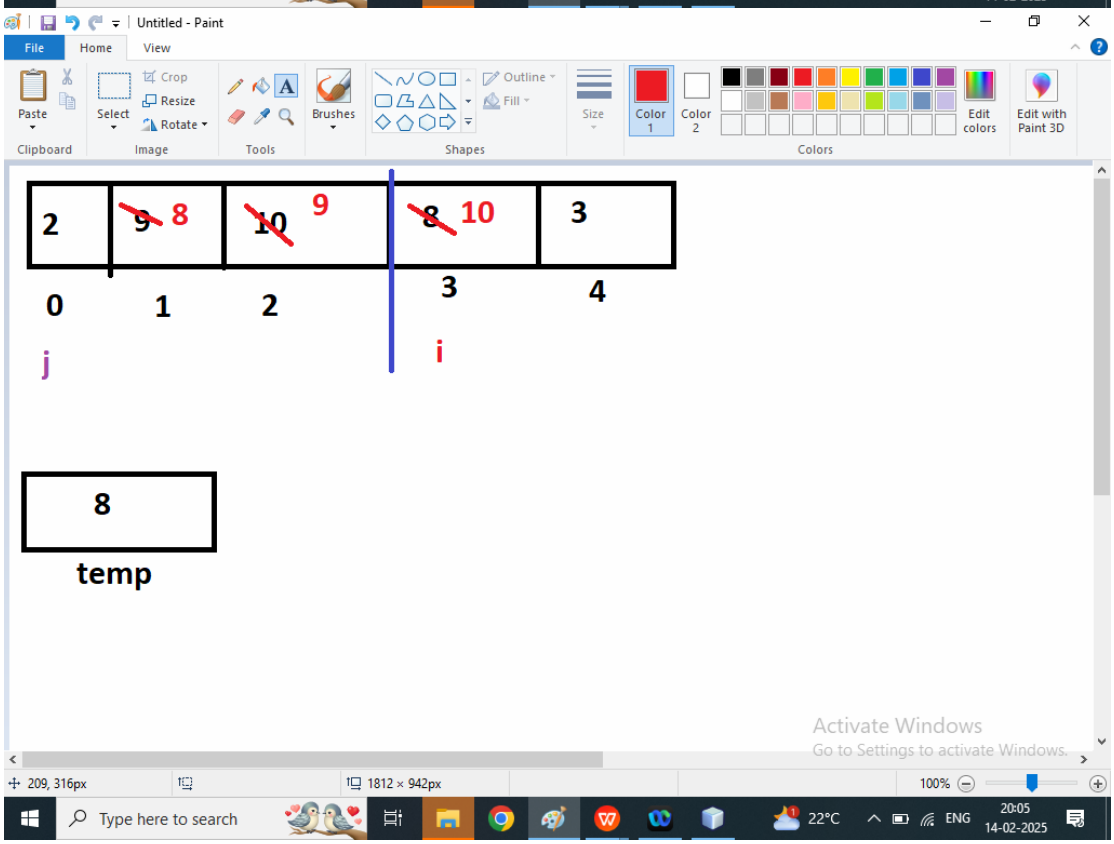

Untitled - Paint
File
Home
View
Paste
Select
Crop
Resize
Rotate
Brushes
Outline
Fill
Size
Color 1
Color 2
Edit colors
Edit with Paint 3D
Clipboard
Image
Tools
Shapes
Colors
9
10
2 10
8
3
0
1
2
3
4
j
i
j
2
temp
Activate Windows
Go to Settings to activate Windows.
675, 331px
1812 × 942px
100%
Type here to search
22°C
ENG
19:56
14-02-2025

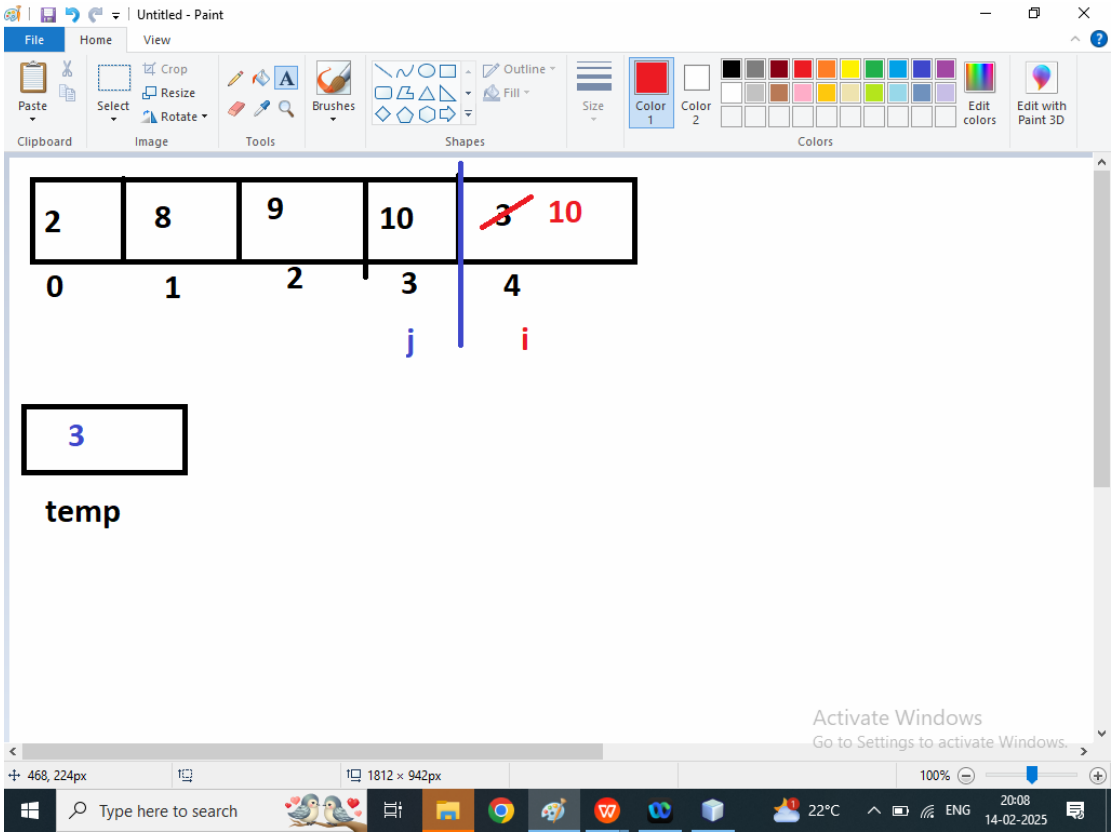

Untitled - Paint
File
Home
View
Paste
Select
Crop
Resize
Rotate
Brushes
Outline
Fill
Size
Color 1
Color 2
Edit colors
Edit with Paint 3D
Clipboard
Image
Tools
Shapes
Colors
9 2
10 9
2 10
8
3
0
1
2
3
4
j
i
j=-1;
2
temp
Activate Windows
Go to Settings to activate Windows.
274, 238px
1812 × 942px
100%
Type here to search
22°C
ENG
19:58
14-02-2025

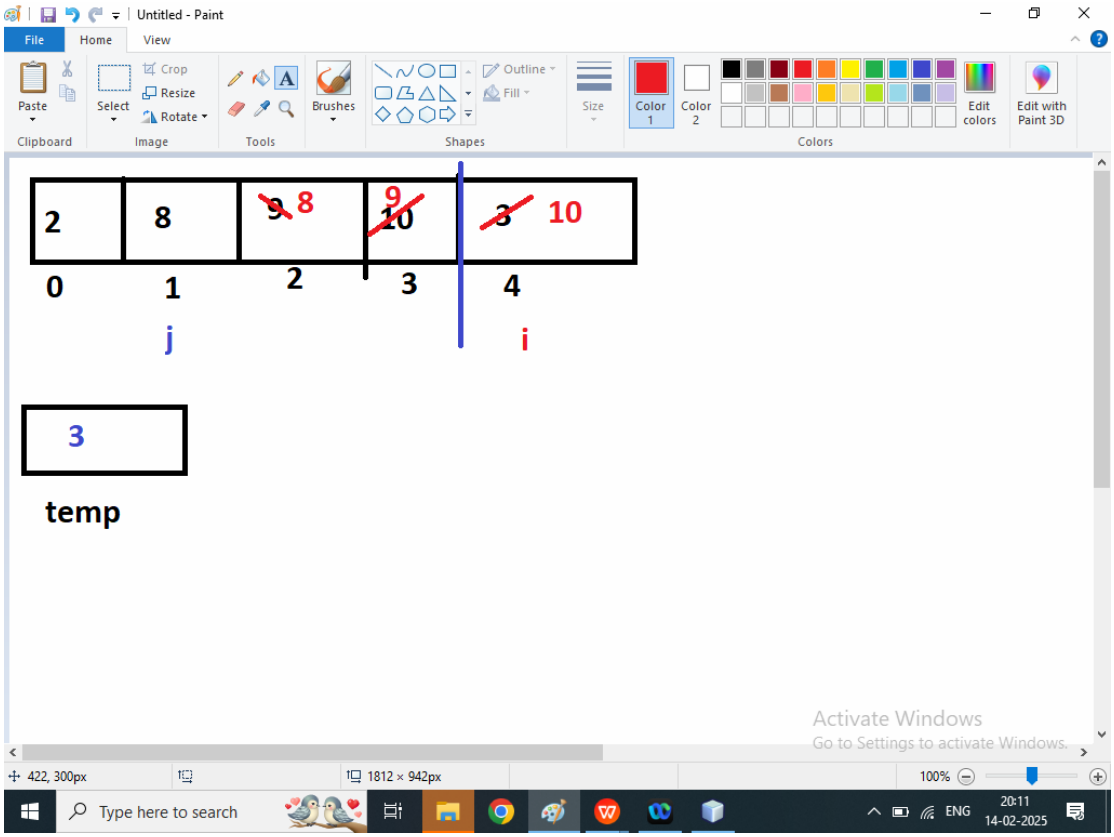

Untitled - Paint
File
Home
View
Paste
Select
Crop
Resize
Rotate
Brushes
Outline
Fill
Size
Color 1
Color 2
Edit colors
Edit with Paint 3D
Clipboard
Image
Tools
Shapes
Colors
2
9
10
8
3
0
1
2
3
4
j
i
8
temp
Activate Windows
Go to Settings to activate Windows.
599, 444px
1812 × 942px
100%
Type here to search
22°C
ENG
20:01
14-02-2025

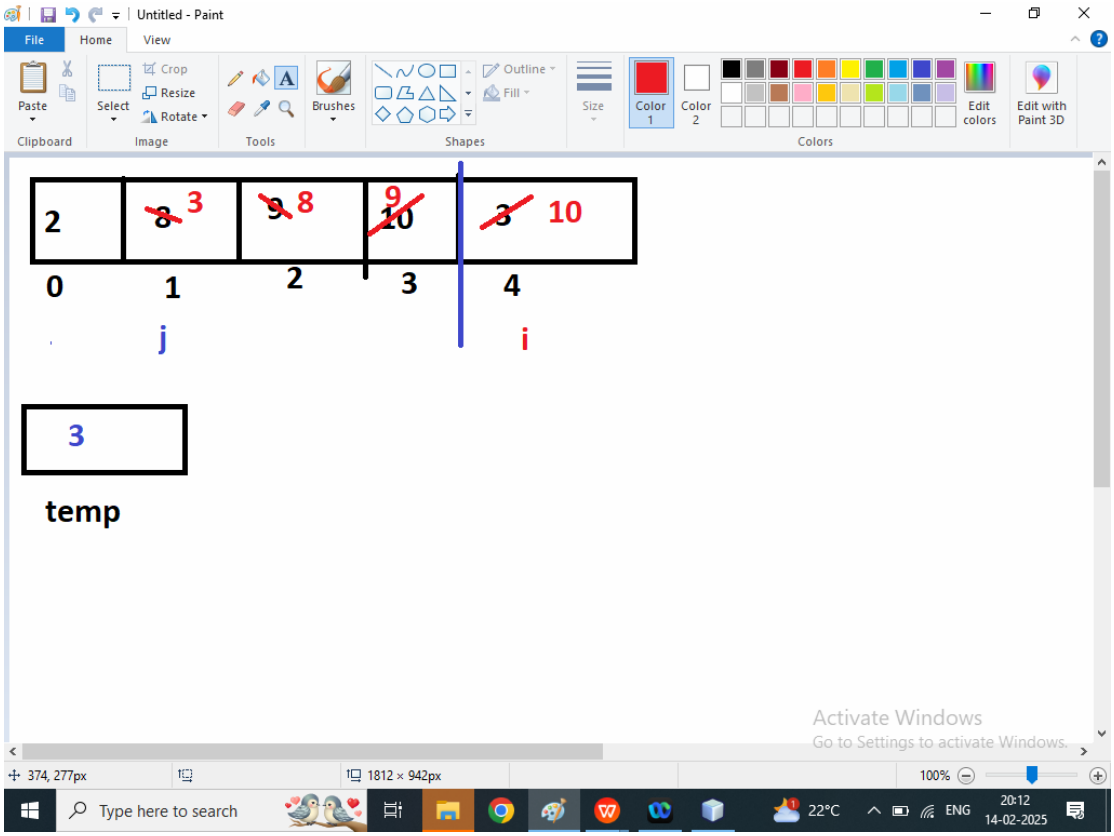

Untitled - Paint
File
Home
View
Paste
Select
Crop
Resize
Rotate
Brushes
Outline
Fill
Size
Color 1
Color 2
Edit colors
Edit with Paint 3D
Clipboard
Image
Tools
Shapes
Colors
2
9
10
8
10
3
0
1
2
3
4
j
i
8
temp
Activate Windows
Go to Settings to activate Windows.
1812 × 942px
100%
Type here to search
ENG
20:02
14-02-2025


Untitled - Paint
File
Home
View
2
9
10
9
8
10
3
0
1
2
3
4
j
i
8
temp
Activate Windows
Go to Settings to activate Windows.
433, 353px
1812 × 942px
100%
Type here to search
22°C
ENG
20:04
14-02-2025


Untitled - Paint
File
Home
View
2
9
8
10
9
8
10
3
0
1
2
3
4
j
i
8
temp
Activate Windows
Go to Settings to activate Windows.
209, 316px
1812 × 942px
100%
Type here to search
22°C
ENG
20:05
14-02-2025


Untitled - Paint
File
Home
View
Paste
Select
Crop
Resize
Rotate
Brushes
Outline
Fill
Size
Color 1
Color 2
Edit colors
Edit with Paint 3D
Clipboard
Image
Tools
Shapes
Colors
2
8
9
10
3
10
0
1
2
3
4
j
i
3
temp
Activate Windows
Go to Settings to activate Windows.
468, 224px
1812 × 942px
100%
Type here to search
22°C
ENG
20:08
14-02-2025


Untitled - Paint
File
Home
View
Paste
Select
Crop
Resize
Rotate
Brushes
Outline
Fill
Size
Color 1
Color 2
Edit colors
Edit with Paint 3D
Clipboard
Image
Tools
Shapes
Colors
2
8
9
8
10
9
3
10
0
1
2
3
4
j
i
3
temp
Activate Windows
Go to Settings to activate Windows.
422, 300px
1812 × 942px
100%
Type here to search
ENG
20:11
14-02-2025




```
/*
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */
package dsafeb2025;

/**
 *
 * @author Admin
 */
public class InsertionSort {

 public static void insertionSort(int arr[]){
     int i,j,temp;
     for(i=1;i<arr.length;i++){//i=4
        temp=arr[i];//temp=3
        for(j=i-1;j>=0&&arr[j]>temp;j--){//j=0
           arr[j+1]=arr[j];
        }
        arr[j+1]=temp;
     }
   }
   public static void main(String[] args) {
      int arr[]={10,9,2,8,3};
      System.out.println("Print Before Sorting ");
      for(int i=0;i<arr.length;i++){
         System.out.print("\t"+arr[i]);
      }
      insertionSort(arr);
```

```
            System.out.println("\nPrint After Sorting ");
       for(int i=0;i<arr.length;i++){
          System.out.print("\t"+arr[i]);
       }
    }
}
```

```
/*
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */
package dsafeb2025;

/**
 *
 * @author Admin
 */
public class InsertionSort {

 public static void insertionSort(int arr[]){
     int i,j,temp;
     for(i=1;i<arr.length;i++){//i=4
        temp=arr[i];//temp=3
        for(j=i-1;j>=0&&arr[j]<temp;j--){//j=0
           arr[j+1]=arr[j];
        }
        arr[j+1]=temp;
     }
   }
   public static void main(String[] args) {
       int arr[]={10,9,2,8,3};
       System.out.println("Print Before Sorting ");
       for(int i=0;i<arr.length;i++){
          System.out.print("\t"+arr[i]);
       }
      insertionSort(arr);
            System.out.println("\nPrint After Sorting ");
       for(int i=0;i<arr.length;i++){
          System.out.print("\t"+arr[i]);
       }
   }
}
```

Q1. Explain Divide and Conquer algorithm in data structure?
Ans: Divide and conquer is an algorithm that breaks(**divide**) the problem into smaller sub problems, **Solving** each sub problem recursively, and then **combines** their solutions to solve the original problem

Steps for Divide and Conquer

Step1: Divide split the problem into sub problems
Step: Conquer: Solve the sub problem recursively
Step3: Merge the results to solve the original problem

Application of Divide and Conquer
1. Merge Sort
2. Quick Sort
3. Binary Search