

Exercise – 2

- a) Write a JAVA program to search for an element in a given list of elements using binary search mechanism.

Binary Search Algorithm

Select the middle item in the array and compare it with the key value to be searched. If it is matched, return the position of the median.

- If it does not match the key value, check if the key value is either greater than or less than the median value.
- If the key is greater, perform the search in the right sub-array; but if the key is lower than the median value, perform the search in the left sub-array.
- Repeat Steps 1, 2 and 3 iteratively, until the size of sub-array becomes 1.
- If the key value does not exist in the array, then the algorithm returns an unsuccessful search.

Programme

```
public class BinarySearch {
    public static void main(String args[]){
        int array[] = {10, 20, 25, 57, 63, 96};
        int size = array.length;
        int low = 0;
        int high = size-1;
        int value = 25;
        int mid = 0;
        mid = low +(high-low)/2;
        while(low<=high){
            if(array[mid] == value){
                System.out.println(mid);
                break;
            }
            else if(array[mid]<value)
                low = mid+1;
            else high = mid - 1;
        }
    }
}
```

```

}
mid = (low+high)/2;
}
}

```

out put
2

- b) Write a JAVA program to sort for an element in a given list of elements using bubble sort

```

import java.util.Scanner;

public class CodesCracker
{
    public static void main(String[] args)
    {
        int n=10, i, j, x;
        int[] array = new int[n];
        Scanner s = new Scanner(System.in);

        System.out.print("Enter 10 Elements in Random Order: ");
        for(i=0; i<n; i++)
        {
            array[i] = s.nextInt();
        }

        for(i=0; i<(n-1); i++)
        {
            for(j=0; j<(n-i-1); j++)
            {
                if(array[j]>array[j+1])
                {
                    x = array[j];
                    array[j] = array[j+1];
                    array[j+1] = x;
                }
            }
        }

        System.out.println("\nThe new sorted array is:");
        for(i=0; i<n; i++)
            System.out.print(array[i]+ " ");
    }
}

```

out put
Enter 10 Elements in Random Order:
34
45
90

21
66
69
12
49
55
3

The new sorted array is:
3 12 21 34 45 49 55 66 69 90

c) Write a JAVA program using String Buffer to delete, remove character.

String buffer to delete

```
public class StringBufferDemo {  
    public static void main(String[] args) {  
  
        StringBuffer sb = new StringBuffer("Java lang package");  
        System.out.println("Before deletion the string is: " + sb);  
  
        int index = 3;  
        System.out.println("The given index value is: " + index);  
  
        System.out.println("After deletion the character at the specified index " +  
            index + " index is: " + sb.deleteCharAt(index));  
    }  
}
```

out put

Before deletion the string is: Java lang package
The given index value is: 3
After deletion the character at the specified index 3 index is: Jav lang package

Remove charcter

```
public class Example {  
    public static void main(String[] args) {  
        StringBuffer sb = new StringBuffer("Hello World");  
        System.out.println("Original StringBuffer Object: " + sb);  
        sb.delete(4,8);  
        System.out.println("New StringBuffer Object: " + sb);  
    }  
}
```

out put

Original StringBuffer Object: Hello World
New StringBuffer Object: Hellrld