**6. Detailed code with relevant comments: ->**

package switchsearch;

import java.util.Scanner;

public class switcsearching {

public static int flag = 0;

//Linear search function

public void linearSearch(int n, int A[]) {

Scanner sc = new Scanner(System.in);

System.out.print("Enter number that you want to search in array(x)");

int x = sc.nextInt();

for (int i = 0; i < n; i++) {

if (x == A[i]) {

flag = 1;

System.out.println("Element found at index =" + i);

break;

}

}

if (flag == 0) {

System.out.println("Element not exist in array");

}

}

//Binary search function

public void binearySearch(int n, int A[]) {

Scanner sc = new Scanner(System.in);

int s = 0, e = n - 1;

flag = 0;

System.out.print("Enter number that you want to search in array(x) = ");

int data = sc.nextInt();

// for a while loop

while (s <= e) {

int mid = (s + e) / 2;

if (data == A[mid]) {

flag = 1;

System.out.println("Element found at index =" + mid);

break;

} else if (data > A[mid]) {

s = mid + 1;

} else {

e = mid - 1;

}

}

if (flag == 0) {

System.out.println("Element not exist in array");

}

}

// main function which takes size and elements of array

public static void main(String[] args) {

switcsearching search = new switcsearching();

Scanner sc = new Scanner(System.in);

int ch;

System.out.print("Enter of size of array = ");

int n = sc.nextInt();

int A[] = new int[n];

System.out.print("Enter Elements of array = ");

for (int i = 0; i < n; i++) {

A[i] = sc.nextInt();

}

// for a while loop

while (true) {

// List of options for choice

System.out.println("Menu for searching : ");

System.out.println("1.Sort by Linear Search method");

System.out.println("2.Sort by Binary Search method");

System.out.println("0.Exit");

System.out.println("Enter youre choice : ");

ch = sc.nextInt();

switch (ch) {

case 1:

// function call for Linear search

search.linearSearch(n, A);

break;

case 2:

// function call for Binary search

search.binearySearch(n, A);

break;

case 0:

System.exit(0);

break;

}

}

}

}

**7.Result :->**

Enter of size of array = 5

Enter Elements of array = 6 3 9 33 66

Menu for searching :

1.Sort by Linear Search method

2.Sort by Binary Search method

0.Exit

Enter youre choice :

1

Enter number that you want to search in array(x) 100

Element not exist in array

Enter of size of array = 5

Enter Elements of array = 6 3 9 33 66

Menu for searching :

1.Sort by Linear Search method

2.Sort by Binary Search method

0.Exit

Enter youre choice :

1

Enter number that you want to search in array(x) 9

Element exist at index =2

Menu for searching :

1.Sort by Linear Search method

2.Sort by Binary Search method

0.Exit

Enter youre choice :

0

Process finished with exit code 0

Process finished with exit code 0

Enter of size of array = 7

Enter Elements of array = 3 6 9 25 33 66 99

Menu for searching :

1.Sort by Linear Search method

2.Sort by Binary Search method

0.Exit

Enter youre choice :

2

Enter number that you want to search in array(x) = 100

Element not exist in array

Enter of size of array = 7

Enter Elements of array = 3 6 9 25 33 66 99

Menu for searching :

1.Sort by Linear Search method

2.Sort by Binary Search method

0.Exit

Enter youre choice :

2

Enter number that you want to search in array(x) = 3

Element found at index =0