PRACTICE-PROJECT2

IMPLEMENTING THE BINARY SEARCH ALGORITHM –

**package** project;

**import** java.util.Arrays;

**import** java.util.InputMismatchException;

**import** java.util.Scanner;

**public** **class** BinarySearch {

**public** **int** binarySearch(**int** arr[], **int** low, **int** high, **int** key) {

**if**(low <= high) {

**int** mid = low + (high-low)/2;

**if**(key == arr[mid]) {

**return** mid;

}

**else** **if**(key > arr[mid]) {

**return** binarySearch(arr, mid+1, high, key);

}

**else** {

**return** binarySearch(arr, low, mid-1, key);

}

}

**return** -1;

}

**public** **static** **void** main(String[] args) {

Scanner sc = **new** Scanner(System.***in***);

BinarySearch obj = **new** BinarySearch();

**try** {

System.***out***.println("Enter the size of array: ");

**int** size = sc.nextInt();

**int** arr[] = **new** **int**[size];

System.***out***.println("Enter the array elements: ");

**for**(**int** i=0; i<size; i++) {

arr[i] = sc.nextInt();

}

Arrays.*sort*(arr);

System.***out***.println("Sorted array: ");

**for**(**int** i=0; i<size; i++) {

System.***out***.println(arr[i]);

}

System.***out***.println("Enter the value to be searched: ");

**int** key = sc.nextInt();

**int** index = obj.binarySearch(arr, 0, size-1, key);

**if**(index == -1) {

System.***out***.println(key+" is not found");

}

**else** {

System.***out***.println(key+" is found at index "+index);

}

} **catch** (InputMismatchException e) {

System.***out***.println("Invalid input");

}

**catch**(Exception e) {

System.***out***.println(e.getMessage());

}

sc.close();

}

}