EXERCISE 6

Date: 20/03/2024

AIM: -

Search an element in an array.

ALGORITHM: -

1. Import the Scanner class from java.util.
2. Define a class named "array" with instance variables "sc" (Scanner), "arr" (array of integers), and "size" (integer).
3. Implement a constructor "array" that takes an integer "n" as a parameter to initialize the size of the array.
    a. Initialize the "size" variable with the given parameter.
    b. Initialize the "arr" array with size "n".
    c. Prompt the user to input elements for the array using Scanner.
    d. Use a for loop to iterate through the array and store the input elements.
4. Implement a method "search" in the "array" class that takes an integer "n" as a parameter to search for it in the array.
    a. Initialize a variable "c" to track if the number is found.
    b. Use a for loop to iterate through the array and check if each element is equal to "n".
    c. If "n" is found, set "c" to 1, print a message indicating that "n" is found, and break out of the loop.
    d. If "n" is not found, print a message indicating that "n" is not an element of the array.
5. Define a class named "search_array" with the main method.
6. Inside the main method:
    a. Create a Scanner object named "sc" to read user input.
    b. Prompt the user to input the number of elements in the array.
    c. Create an object "a" of the "array" class with the specified number of elements.
    d. Prompt the user to input the number to be searched.
    e. Call the "search" method of the "a" object with the user-input number.

PROGRAM: -

```
import java.util.*;

class array

{

   Scanner sc=new Scanner(System.in);

   int arr[],size;
```

```
    array(int n)
    {
        size=n;
        arr=new int[n];
        System.out.println("Enter elements to the array: ");
        for(int i=0;i<n;i++)
            arr[i]=sc.nextInt();
    }
    void search(int n)
    {
        int c=0;
        for(int i=0;i<size;i++)
            if(arr[i]==n)
            {
                c=1;
                System.out.println(n+" is found in the array.");
                break;
            }
        if(c==0)
            System.out.println(n+" is not an element of the array.");
    }
}
class search_array
{
    public static void main(String[] args)
    {
        Scanner sc=new Scanner(System.in);
        System.out.print("Enter no:of elements in the array: ");
        int n=sc.nextInt();
```

```
        array a=new array(n);
        System.out.print("Enter number to be searched: ");
        int num=sc.nextInt();
        a.search(num);
    }
}
```

OUTPUT: -

```
C:\Users\Jazz\Desktop\CET Joint\Lab\cet-mca\mca.java>java search_array
Enter no:of elements in the array: 5
Enter elements to the array:
12 23 34 45 56
Enter number to be searched: 23
23 is found in the array.
```

```
C:\Users\Jazz\Desktop\CET Joint\Lab\cet-mca\mca.java>java search_array
Enter no:of elements in the array: 5
Enter elements to the array:
12 23 34 45 56
Enter number to be searched: 32
32 is not an element of the array.
```

RESULT: -

The program was executed successfully, and output is obtained.

EXERCISE 7

Date: 27/03/2024

AIM: -

Perform string manipulations.

ALGORITHM: -

1. Import the Scanner class from java.util.
2. Define a class named "word" with instance variables "sc" (Scanner) and "s" (String).
3. Implement a constructor "word" without parameters:
    a. Initialize the Scanner object "sc".
    b. Prompt for and store a string in "s".
4. Implement a method "str_functions" in the "word" class without parameters:
    a. Print lowercase and uppercase versions of "s".
    b. Print the length of "s".
    c. Print substrings of "s" starting from index 2 and from index 2 to 5.
    d. Print "s" after trimming leading and trailing whitespaces.
    e. Print the index of the first occurrence of 'o' in "s" and from index 10.
    f. Concatenate "s" with "CR7" and print the result.
5. Define a class named "string_manipulation" with the main method:
    a. Create an object "w" of the "word" class.
    b. Call the "str_functions" method of "w".

PROGRAM: -

```
import java.util.*;

class word{

   Scanner sc=new Scanner(System.in);

   String s;

   word(){

      System.out.print("Enter a string: ");

      s=sc.nextLine();
```

```
    }
    void str_functions() {
        System.out.println("Lower case: "+s.toLowerCase());
        System.out.println("Upper case: "+s.toUpperCase());
        System.out.println("Length: "+s.length());
        System.out.println("substring(2): "+s.substring(2));
        System.out.println("substring(2,6): "+s.substring(2,6));
        System.out.println("trim: "+s.trim());
        System.out.println("indexOf('o'): "+s.indexOf('o'));
        System.out.println("indexOf('o',10): "+s.indexOf('o',10));
        System.out.println("concat('hello'): "+s.concat("hello"));
    }
}
class string_manipulation {
    public static void main(String[] args) {
        word w=new word();
        w.str_functions();
    }
}
class string_manipulation {
    public static void main(String[] args) {
        word w=new word();
        w.str_functions();
    }
}
```

OUTPUT: -

```
C:\Users\Jazz\Desktop\CET Joint\Lab\cet-mca\mca.java>javac string_manipulation.java

C:\Users\Jazz\Desktop\CET Joint\Lab\cet-mca\mca.java>java string_manipulation
Enter a string: hello world hello world
Lower case: hello world hello world
Upper case: HELLO WORLD HELLO WORLD
Length: 23
substring(2): llo world hello world
substring(2,6): llo
trim: hello world hello world
indexOf('o'): 4
indexOf('o',10): 16
concat('hello'): hello world hello worldhello
```

RESULT: -

The program was executed successfully, and output is obtained.

EXERCISE 8

Date: 27/03/2024

AIM: -

Program to create a class for Employee having attributes eNo, eName, eSalary. Read n employee information and Search for an employee given eNo, using the concept of Array of Objects.

ALGORITHM: -

1. Import Scanner from java.util.
2. Define a class "employee" with integer variables "eNo" and "eSalary", and a String variable "eName".
3. Implement a method "read" to input employee details:
    a. Prompt and read ID, name, and monthly salary.
4. Implement a method "display" to print the employee name.
5. Define the main method:
    a. Initialize integer variables "i" and "n".
    b. Create an array "emp" of size "n".
    c. Input details for each employee.
    d. Continuously prompt for an employee ID to search.
    e. If found, display the employee name.

PROGRAM : -

```
import java.util.*;

class employee {

   int eNo;

   String eName;

   int eSalary;


   public void read(){

      Scanner sc= new Scanner(System.in);

      System.out.print("Enter ID : ");

      eNo = Integer.parseInt(sc.nextLine());

      System.out.print("Enter Name : ");
```

```
        eName = sc.nextLine();
        System.out.print("Enter monthly salary : ");
        eSalary = Integer.parseInt(sc.nextLine());
    }
    public void display(){
        System.out.println("Name : "+ eName );
    }
    public static void main(String []args){
        int i,n=3;
        int No;
        employee emp[] = new employee[n];
        for(i=0;i<n;i++){
            emp[i] = new employee();
            emp[i].read();
        }
        System.out.println("Search");
        while(true){
            Scanner sc= new Scanner(System.in);
            System.out.print("Enter ID : ");
            No = Integer.parseInt(sc.nextLine());
            for(i=0;i<n;i++){
                if(emp[i].eNo == No){
                    emp[i].display();
                    break;
                }
            }
        }
    }
}
```

OUTPUT: -

```
C:\Users\Jazz\Desktop\CET Joint\Lab\cet-mca\mca.java>java employee
Enter ID : 1
Enter Name : Employee1
Enter monthly salary : 10000
Enter ID : 2
Enter Name : Employee2
Enter monthly salary : 20000
Enter ID : 3
Enter Name : Employee3
Enter monthly salary : 30000
Search
Enter ID : 2
Name : Employee2
Enter ID : 3
Name : Employee3
Enter ID : 1
Name : Employee1
```

RESULT: -

The program was executed successfully, and output is obtained.