King Saud University
College of Computer & Information Science
CSC111 – Lab09
Arrays – I –
All Sections

Instructions

Web-CAT submission URL:
http://10.131.240.28:8080/Web-CAT/WebObjects/Web-CAT.woa/wa/assignments/eclipse

Objectives:

- To know how to define and create an array.
- To know how to access array elements.
- To know how to iterate over arrays using loops
- To know how to manipulate arrays

ANSWER TO LAB QUESTION

Lab Exercise 1

Part 2

```
import java.util.Scanner;
public class Simple {
    public static void main(String[] args) {
        Scanner s = new Scanner(System.in);
        int[] a = new int[3];
        a[0] = s.nextInt();
        a[1] = s.nextInt();
        a[2] = s.nextInt();
        System.out.print("The numbers are: ");
        System.out.print(a[0]);
        System.out.print(a[1]);
        System.out.print(a[2]);
    }
}
```

Part 3 and 4

```
import java.util.Scanner;
public class ReadInt {
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        // Read array size. Make sure it is greater than 0
        System.out.print("Enter number of ints you want to read (> 0): ");
        int numOfInts =input.nextInt();
        while (numOfInts < 1){
            System.out.print("Number must be > 0. "
                    + "Enter number of ints you want to read: ");
            numOfInts =input.nextInt();
        }
        // create the array
        int a[] = new int[numOfInts];
        // read array elements
        System.out.print("Enter " + numOfInts +" numbers: ");
        for (int i = 0; i < a.length; i++){
            a[i] = input.nextInt();
        }
        // print array elements
        System.out.print("The number you entered are: ");
        for (int i = 0; i < a.length; i++){
            System.out.print(a[i] + " ");
        }
        System.out.println();
        // manipulate the array
        if (a.length > 0)
            a[0] = 6;
        if (a.length > 4)
            a[4] = 5;
        if (a.length > 5)
            a[5] = 6;
        a[a.length - 1] = 100;
        a[a.length - 2] = 50;
        System.out.print("Enter a number i ( > 0): ");
        int i = input.nextInt();
        if (i * 2 > 0 && a.length > i * 2)
            a[i * 2] = 4;
        // printing array elements
        for (int j = 0; j < a.length; j++){
            System.out.print(a[j] + " ");
        }
    }

}
```

Part 5

```
import java.util.Scanner;
public class ReadInReverse {
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        System.out.print("Enter number of ints you want to read (> 0): ");
        int numOfInts =input.nextInt();
        while (numOfInts < 1){
            System.out.print("Number must be > 0. "
                    + "Enter number of ints you want to read: ");
            numOfInts =input.nextInt();
        }
        int a[] = new int[numOfInts];
        System.out.print("Enter " + numOfInts +" the numbers: ");
        // reading array elements
        for (int i = 0; i < a.length; i++){
            a[i] = input.nextInt();
        }
        System.out.print("The number you entered are: ");
        // printing array elements in reverse
        for (int i = a.length - 1; i >= 0; i--){
            System.out.print(a[i] + " ");
        }
    }
}
```

Lab Exercise 2

Part 1

```java
import java.util.Scanner;
public class Unique {
    // gets 5 unique numbers from the user
    public void getNumbers(){
        Scanner input = new Scanner( System.in );
        int numbers[] = new int[5];
        int counter = 0;
        while( counter < numbers.length ){
            System.out.print( "Enter number: " );
            int num = input.nextInt();
            boolean flag = false;
            if( num>=10 && num<=100)
            {
                for(int i=0 ; i<counter ; i++){
                    if(num == numbers[i]){
                        System.out.println(num+" has already been entered.")
                        flag = true;
                        break;
                    }
                }
                if(flag == false){
                    numbers[counter] = num;
                    counter++;
                }
            }
            else
                System.out.println( "number must be between 10 and 100" );

            for(int i=0 ; i<counter ; i++){
                System.out.println(numbers[i])
            }
            System.out.println();

        } // end while
    } // end method getNumbers
} // end class Unique
```

```
public class UniqueTest {
    public static void main(String[] args) {
        Unique application = new Unique();
        application.getNumbers();
    }

}
```

Part 2

```
import java.util.Scanner;
public class Unique2 {
    // gets 5 unique numbers from the user
    public void getNumbers(){
        Scanner input = new Scanner( System.in );
        System.out.print("Enter how many numbers you want to input: ");
        int size = input.nextInt();
        while (size <= 0){
            System.out.print("Wrong number. Enter how many numbers "
                    + "you want to input: ");
            size = input.nextInt();
        }
        //Create an array of five elements
        int numbers[] = new int[ size ]; // list of unique numbers
        int count = 0; // number of uniques read
        while( count < numbers.length ){
            System.out.print( "Enter number: " );
            // Write code here to retrieve the input from the user
            int number = input.nextInt();

            //validate the input
            if( 10<=number && number<=100 )
            {
                //flags whether this number already exists
                boolean containsNumber = false;

                //Compare the user input to the unique numbers in the array using a for
                //statement. If the number is unique, store new number
                for ( int i=0; i<count; i++) {
                    // if new number is duplicate, set the flag
                    if ( number == numbers[ i ] )
                       containsNumber = true;
                }

                //add the user input to the array only if the number is not already
                //in the array
                if ( !containsNumber ){
                    // Write code to add the number to the array and increment
                    // unique items input
                    numbers[ count ] = number;
                    count++;
                } // end if
                else
                        System.out.println( number + " has already been entered.");
            }//endif
            else
                System.out.println( "number must be between 10 and 100" );
```

```
            // print the list of unique values
            for(int i=0; i<count; i++)
                System.out.println( numbers[i] );
            System.out.println();

        } // end while
    } // end method getNumbers
} // end class Unique
```

```
public class UniqueTest2 {
    public static void main(String[] args) {
        Unique2 application = new Unique2();
        application.getNumbers();
    }

}
```