THE ARRAYS CLASS

The `java.util.Arrays` class contains various static methods for sorting and searching arrays, comparing arrays, and filling array elements. These methods are overloaded for all primitive types.

	Methods with Description
1	public static int **binarySearch**(Object[] a, Object key) Searches the specified array of Object (Byte, Int , double, etc.) for the specified value using the binary search algorithm. The array must be sorted prior to making this call. This returns index of the search key, if it is contained in the list; otherwise, (-(insertion point + 1).
2	public static boolean **equals**(long[] a, long[] a2) Returns true if the two specified arrays of longs are equal to one another. Two arrays are considered equal if both arrays contain the same number of elements, and all corresponding pairs of elements in the two arrays are equal. This returns true if the two arrays are equal. Same method could be used by all other primitive data types (Byte, short, Int, etc.)
3	public static void **fill**(int[] a, int val) Assigns the specified int value to each element of the specified array of ints. Same method could be used by all other primitive data types (Byte, short, Int etc.)
4	public static void **sort**(Object[] a) Sorts the specified array of objects into ascending order, according to the natural ordering of its elements. Same method could be used by all other primitive data types (Byte, short, Int, etc.)

EXAMPLES

As arrays are extremely useful for JAVA programming, let us study several simple examples.

EVEN ODD NUMBER EXAMPLE

```
/* This Java Even Odd Number Example shows how to check if the given
number is even or odd. */

public class FindEvenOrOddNumber {

        public static void main(String[] args) {
                //create an array of 10 numbers
                int[] numbers = new int[]{1,2,3,4,5,6,7,8,9,10};

                for(int i=0; i < numbers.length; i++){
                        /* Use modulus operator to check if the
                             number is even or odd: If we divide
                             any number by 2 and reminder is 0 then
                             the number is even, otherwise it is odd.
                        */

                         if(numbers[i]%2 == 0)
                                System.out.println(numbers[i]
                                   + " is even number.");

                         else
```

```
                                        System.out.println(numbers[i]
                                            + " is odd number.");

                        }
                }
        }
```

Output of the program would be

```
1 is odd number.
2 is even number.
3 is odd number.
4 is even number.
5 is odd number.
6 is even number.
7 is odd number.
8 is even number.
9 is odd number.
10 is even number.
```

FIND LARGEST AND SMALLEST NUMBER IN AN ARRAY EXAMPLE

```
/* This Java Example shows how to find largest and smallest number in
an array. */
public class FindLargestSmallestNumber {
        public static void main(String[] args) {

                //array of 10 numbers
                int numbers[] = new
int[]{32,43,53,54,32,65,63,98,43,23};

                //assign first element of an array to largest and
smallest
                int smallest = numbers[0];
                int largetst = numbers[0];

                for(int i=1; i< numbers.length; i++)
                {
                        if(numbers[i] > largetst)
                                largetst = numbers[i];
                        else if (numbers[i] < smallest)
                                smallest = numbers[i];
                }
                System.out.println("Largest Number is : " +
largetst);
                System.out.println("Smallest Number is : " +
smallest);
        }
}
```

Output of this program would be

```
Largest Number is : 98
Smallest Number is : 23
```

I/O

```
import java.io.BufferedReader;
import java.io.IOException;
import java.io.InputStreamReader;

public class JavaFactorialUsingRecursion {

        public static void main(String args[]) throws
NumberFormatException, IOException{
                System.out.println("Enter the number: ");


                //get input from the user
                BufferedReader br=new BufferedReader(new
InputStreamReader(System.in));
                int a = Integer.parseInt(br.readLine());

                //call the recursive function to generate factorial
                int result= fact(a);

                System.out.println("Factorial of the number is: "
                  + result);
        }

        static int fact(int b)
        {
                if(b <= 1)
                        //if the number is 1 then return 1
                        return 1;
                else
                        //else call same function with the value-1
                        return b * fact(b-1);
        }

}
```

Output of this Java example would be

```
Enter the number:
5
Factorial of the number is: 120
```