Assignment

Assignment no: 11

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Arrays Class in java:

The Arrays class is present in "`java.util`" package and it is a part of java framework collection. This class provide static methods to dynamically create and access Java arrays. The Package name for Arrays class is "`java.util.Arrays`".

Why we need arrays class when we are able to initialize, declare and compute operation over arrays. Generally, we use loops to do many operations in array which makes code heavier and more complex. To make it simple, short and optimized, Arrays class provides several static methods that can be used to perform these tasks directly without the use of loops.

Below are few methods of Arrays class and its functionality with examples,

Methods	Action Performed
binarySearch()	Searches for the specified element in the array with the help of the Binary Search Algorithm
sort(originalArray)	Sorts the complete array in ascending order.
copyOf(originalArray, newLength)	Copies the specified array, truncating or padding with the default value (if necessary) so the copy has the specified length.
copyOfRange(originalArray, fromIndex, endIndex)	Copies the specified range of the specified array into a new Arrays.
equals(array1, array2)	Checks if both the arrays are equal or not.
fill(originalArray, fillValue)	Assigns this fill value to each index of this arrays.
toString(originalArray)	It returns a string representation of the contents of this array.

Examples:

1) binarySearch():

```java
import java.util.Arrays;

public class BinarySearch {

    public static void main(String[] args) {
        // TODO Auto-generated method stub
        int arr[]= {10,20,23,26,56,89,76,45,23,49};

        int element=56;

        System.out.println(element+" present at index : "
                           +Arrays.binarySearch(arr, element));

    }

}
```

```
Console ×
<terminated> BinarySearch [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (Sep 13, 20
56 present at index : 4
```

2) sort(originalArray):

```java
import java.util.Arrays;

public class Sort {

    public static void main(String[] args) {

        int arr[]= {10,20,23,26,56,89,76,45,23,49};
        Arrays.sort(arr);
        System.out.println("Sorted Array : ");
        for(int i=0;i<=arr.length-1;i++) {
            System.out.print(arr[i]+" ");
        }
    }
}
```

```
Console ×
<terminated> Sort [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (Sep
Sorted Array :
10 20 23 23 26 45 49 56 76 89
```

3) copyOf(originalArray, newLength):

```java
import java.util.Arrays;

public class CopyArray {

    public static void main(String[] args) {
        // TODO Auto-generated method stub
        int arr[]= {10,20,23,26,56,89,76,45,23,49};

        int arrcopy[]=Arrays.copyOf(arr,8);

        for(int i=0;i<=arrcopy.length-1;i++) {
            System.out.print(arrcopy[i]+" ");
        }
    }

}
```

```
Console ×
<terminated> CopyArray [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe
10 20 23 26 56 89 76 45
```

4) copyOfRange(originalArray, fromIndex, endIndex):

```java
import java.util.Arrays;

public class CopyOfRange {

    public static void main(String[] args) {
        // TODO Auto-generated method stub
        int arr[]= {10,20,23,26,56,89,76,45,23,49};

        int arrcopy[]=Arrays.copyOfRange(arr,3,9);

        for(int i=0;i<=arrcopy.length-1;i++) {
            System.out.print(arrcopy[i]+" ");
        }
    }

}
```

```
Console ×
<terminated> CopyOfRange [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.e
26 56 89 76 45 23
```

5) equals(array1, array2):

```java
import java.util.Arrays;

public class Equal {

    public static void main(String[] args) {
        // TODO Auto-generated method stub
        int arr[]= {10,20,23,26,56,89,76,45,23,49};

        int arr2[]= {28,32,54,23,13,76,89,};

            System.out.print(Arrays.equals(arr, arr2));
    }

}
```

```
Console ×
<terminated> Equal [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe  (Sep 13, 20
false
```

6) fill(originalArray, fillValue):

```java
import java.util.Arrays;

public class FillArray {

    public static void main(String[] args) {
        // TODO Auto-generated method stub
        int arr[]= {10,20,12,45,32};
        Arrays.fill(arr,1,3,3);
        for(int i=0;i<=arr.length-1;i++) {
            System.out.print(arr[i]+" ");
        }
    }

}
```

```
Console ×
<terminated> FillArray [Java Application] C:\Program Files\Java\jdk-17\bin\javaw
10 3 3 45 32
```

7) toString(originalArray):

```java
import java.util.Arrays;

public class ToString {

    public static void main(String[] args) {
        // TODO Auto-generated method stub
        int arr[]={12,34,23,56,33,12,43};

        System.out.print(Arrays.toString(arr));
    }

}
```

```
Console ×
<terminated> ToString [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe
[12, 34, 23, 56, 33, 12, 43]
```

****