**Assignment No 02**

**Code:**

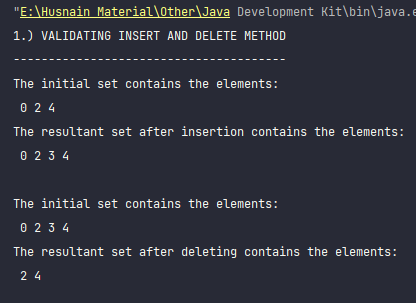
**IntegerSet Class:**

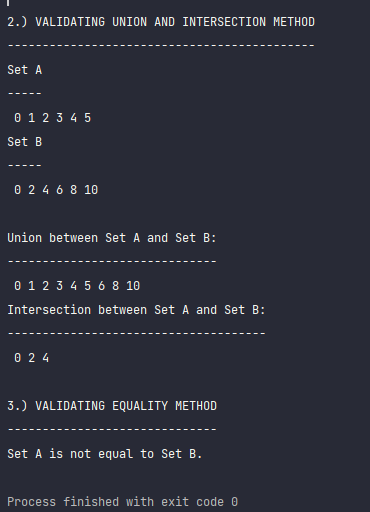
package com.company;  
  
*//Creating our own class IntegerSet*public class IntegerSet {  
 *//Declaring reference type field* boolean [] arr;  
  
 *//No arg constructor for initializing the array* IntegerSet(){  
 arr = new boolean[100];  
 }  
 *//Parameterized constructor initializing the array and calling insertElement method* IntegerSet(int...*x*){  
 arr = new boolean[100];  
 insertElement(*x*);  
 }  
  
 *//Method for inserting elements in the array* public void insertElement(int ... *a*){  
 for (int i : *a*){  
 arr[i] = true;  
 }  
 }  
 *//Method for deleting elements in the array* public void deleteElement(int ... *a*){  
 for (int i : *a*){  
 arr[i] = false;  
 }  
 }  
  
 *//Method for taking union of two arrays* public static boolean [] Union(boolean [] *a*, boolean [] *b*){  
 boolean [] res\_arr = new boolean[100]; *//Creating res\_arr to store the union array* for (int i = 0 ; i < 100; i++){  
 res\_arr[i] = *a*[i] || *b*[i];  
 }  
 return res\_arr;  
 }  
 *//Method for taking intersection of two arrays* public static boolean [] Intersection(boolean [] *a*, boolean [] *b*){  
 boolean [] res\_arr = new boolean[100]; *//Creating res\_arr to store the intersection array* for (int i = 0 ; i < 100; i++){  
 res\_arr[i] = *a*[i] && *b*[i];  
 }  
 return res\_arr;  
 }  
  
 *//Method for comparing two arrays* public static boolean isEqualto(boolean [] *a*, boolean [] *b*){  
 boolean result = true;  
 for (int i = 0 ; i < 100; i++){  
 if (*a*[i] != *b*[i]){  
 result = false;  
 break;  
 }  
 }  
 return result;  
 }  
  
}

**Test Class:**

package com.company;  
  
*//Creating test class IntegerSetTest*public class IntegerSetTest {  
  
 *//Main Method* public static void main(String[] *args*) {  
  
 *//Creating object of IntegerSet class to initialize an empty set* IntegerSet set1 = new IntegerSet();  
  
 *//Creating another object of IntegerSet class for checking the insert and delete methods* IntegerSet set2 = new IntegerSet(0,2,4);  
  
 System.*out*.println("1.) VALIDATING INSERT AND DELETE METHOD");  
 System.*out*.println("---------------------------------------");  
 *//Initial Set* System.*out*.println("The initial set contains the elements:\n 0 2 4");  
 *//Invoking insertElement method* set2.insertElement(3);  
 *//Printing elements of resultant set* System.*out*.println("The resultant set after insertion contains the elements:");  
 for (int i = 0; i < 100; i++){  
 if (set2.arr[i]){  
 System.*out*.printf(" %d", i);  
 }  
 }  
  
 System.*out*.println();  
  
 *//Initial Set* System.*out*.println("\nThe initial set contains the elements:\n 0 2 3 4");  
 *//Invoking deleteElement method* set2.deleteElement(0,3);  
 *//Printing elements of resultant set* System.*out*.println("The resultant set after deleting contains the elements:");  
 for (int i = 0; i < 100; i++){  
 if (set2.arr[i]){  
 System.*out*.printf(" %d", i);  
 }  
 }  
  
 System.*out*.println("\n");  
  
 *//Creating two more objects of the IntegerSet for the validation of the union and intersection methods* IntegerSet set3 = new IntegerSet(0,1,2,3,4,5);  
 IntegerSet set4 = new IntegerSet(0,2,4,6,8,10);  
 System.*out*.println("2.) VALIDATING UNION AND INTERSECTION METHOD");  
 System.*out*.println("--------------------------------------------");  
 *//Printing Set A* System.*out*.println("Set A");  
 System.*out*.println("-----");  
 for (int i = 0; i < 100; i++){  
 if (set3.arr[i]){  
 System.*out*.printf(" %d", i);  
 }  
 }  
 *//Printing Set B* System.*out*.println("\nSet B");  
 System.*out*.println("-----");  
 for (int i = 0; i < 100; i++){  
 if (set4.arr[i]){  
 System.*out*.printf(" %d", i);  
 }  
 }  
 System.*out*.println();  
  
 *//Invoking static Union method* boolean [] union\_arr = IntegerSet.*Union*(set3.arr,set4.arr);  
 *//Printing elements of union set* System.*out*.println("\nUnion between Set A and Set B:");  
 System.*out*.println("------------------------------");  
 for (int i = 0; i < 100; i++){  
 if (union\_arr[i]){  
 System.*out*.printf(" %d", i);  
 }  
 }  
 *//Invoking static Intersection method* boolean [] intersection\_arr = IntegerSet.*Intersection*(set3.arr,set4.arr);  
 *//Printing elements of intersection set* System.*out*.println("\nIntersection between Set A and Set B:");  
 System.*out*.println("-------------------------------------");  
 for (int i = 0; i < 100; i++){  
 if (intersection\_arr[i]){  
 System.*out*.printf(" %d", i);  
 }  
 }  
 System.*out*.println("\n");  
  
 System.*out*.println("3.) VALIDATING EQUALITY METHOD");  
 System.*out*.println("------------------------------");  
 *//Invoking isEqualto method for checking the equality of two sets* boolean check\_equality = IntegerSet.*isEqualto*(set3.arr,set4.arr);  
 *//Printing the result whether the sets are equal or not* if (check\_equality){  
 System.*out*.println("Set A is equal to Set B.");  
 }else{  
 System.*out*.println("Set A is not equal to Set B.");  
 }  
 }  
}

**Output Screenshot:**

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