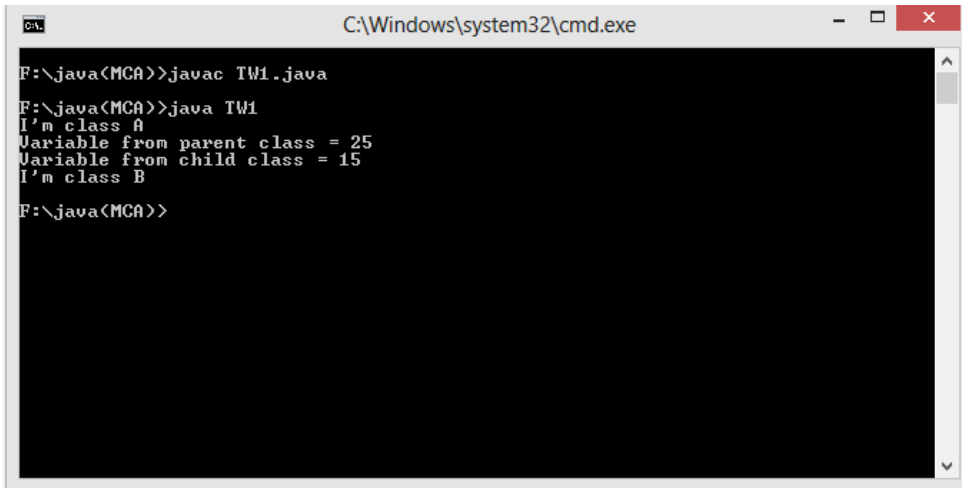
Problem Statement 1:

Write a program to show the use of **"this"** and **"super"** keyword in a single program.

Code:

```
public class TW1 extends B {


	int variable;
	TW1(int variable){
		super(variable);
		this.variable = variable+10;
	}


	public void show() {
		System.out.println("I'm class A");
		System.out.println("Variable from parent class = "+variable);
		System.out.println("Variable from child class = "+super.variable);
	}


	public void display() {
		this.show();
		super.show();
	}


	public static void main(String[] args) {
		TW1 obj = new TW1(15);
		obj.display();
```

```
        }
}
class B{
        int variable;
        B(int variable){
                this.variable = variable;
        }
        public void show() {
                System.out.println("I'm class B");
        }
}
```



Problem Statement 2:

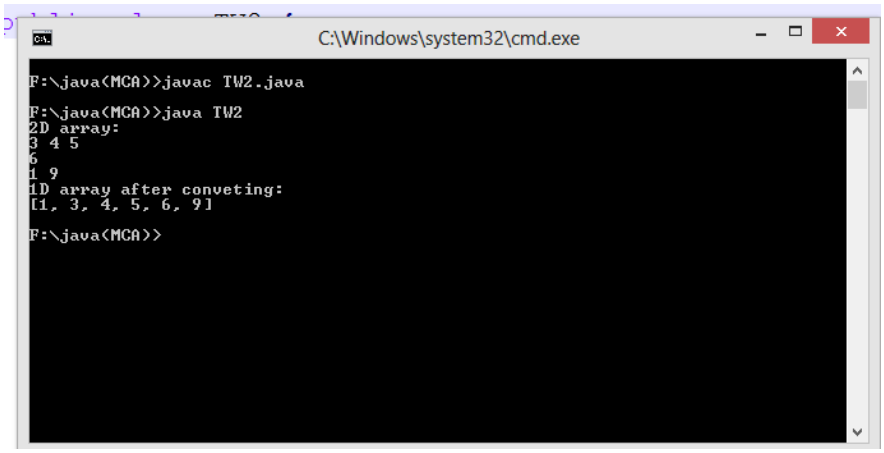
Write a program to convert 2-D array into 1-D array and print it in ascending order.

int a[][]={{3,4,5},{6},{1,9}};

Code:

```
import java.util.Arrays;


public class TW2 {


	public static void main(String[] args) {
		int[][] arr2D={{3,4,5},{6},{1,9}};
		int size=0;
		System.out.println("2D array: ");
		for(int arr1D[]:arr2D) {
			for(int element:arr1D) {
				System.out.print(element+" ");
				size++;
			}
			System.out.println();
		}
		int[] arr = new int[size];
		int k=0;
		System.out.println("1D array after conveting: ");
		for(int arr1D[]:arr2D) {
			for(int element:arr1D) {
				arr[k++] = element;
```

```
                }
            }
            Arrays.sort(arr);
            System.out.println(Arrays.toString(arr));
        }
}
```



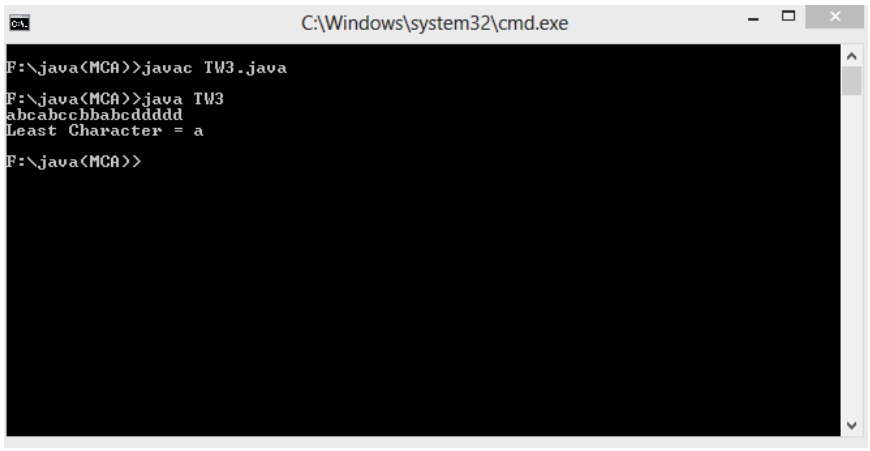
Problem Statement 3:

Initialize a string as **"abcaabccbbabc"**. Find least occurred character.

Code:

```
public class TW3 {


	public static void main(String[] args) {
		String str = "abcabccbbabcddddd";
		System.out.println(str);
		int freq[] = new int[str.length()];
		char minChar = str.charAt(0);
		char[] arr = str.toCharArray();

		for(int i=0; i<arr.length; i++) {
			for(int j=i+1; j<arr.length; j++) {
				if(arr[i] == arr[j] && arr[i] !='0') {
					freq[i]++;
					arr[j] = '0';
				}
			}
		}
		int min = freq[0];
		for(int i=0; i<freq.length; i++) {
			if(freq[i]<min && arr[i] != '0')
				minChar = arr[i];
		}
```

```
                System.out.println("Least Character = "+minChar);

        }

}
```



Problem Statement 4:

Write a program to enter some values into vector of different types and process them as-

i. Print real values after decimal (.)
ii. Print sum of digits of integer values
iii. Print string in reverse order.

Code:

```
import java.util.Vector;


public class TW4
{
	public static void integerSum(Object ob) {
		int num = (int)ob, sum=0;
		while(num !=0) {
			sum = sum + num%10; num/=10;
		}
		System.out.println(sum);
	}

	public static void doubleValues(Object ob) {
		Double num = (double) ob;
		System.out.println(num.toString().substring(num.toString().lastIndexOf('.')));
	}

	public String toString(Object ob) {
		String str = (String) ob;
		return new StringBuffer(str).reverse().toString();
```

```
        }

        public static void main(String[] args) {
        Vector<Object> vector = new Vector<Object>();
        vector.add(12); vector.add(123.456);
        vector.add("StringValue"); vector.add(34);
        vector.add(456.789); vector.add("2gnirtSdesreveR");

        for(int i=0; i<vector.size(); i++) {
                Object ob = vector.get(i);
                if(ob instanceof Integer)
                        integerSum(ob);
                if(ob instanceof Double)
                        doubleValues(ob);
                if(ob instanceof String)
                        System.out.println(new TW4().toString(ob));
        }
        }
}
```