Java Programs

Armstrong Numbers Programs:

```java
public class AmstrongNumber {

    public static void checkNumberIsArmstrong() {
        int n, a, i = 0, j = 0;
        Scanner input = new Scanner(System.in);
        System.out.println("Enter a number");
        n = input.nextInt();
        a = n;
        while (a > 0) {
            i = a % 10;
            j = j + (i * i * i);
            a = a / 10;
        }
        if (n == j) {
            System.out.println("Armstrong number");
        } else {
            System.out.println("Not armstrong Number");
        }
    }

    public static void countAndPrintOfArmstrongfrom0to1000() {
        int c = 0;
        for (int n = 1; n < 1000; n++) {
            int a, i, j = 0;
            a = n;
            while (a > 0) {
                i = a % 10;
                j = j + (i * i * i);
                a = a / 10;
            }
            if (j == n) {
                System.out.println("armstrong number is = " + j);
                c++;
            }}
        System.out.println("count of armstring number is =" + c);
    }

    public static void main(String[] args) {
    checkNumberIsArmstrong();
    countAndPrintOfArmstrongfrom0to1000();
    }
}
```

Program to check Armstrong number

Program for count and Print Armstrong number

Console

<terminated> AmstrongNumber [Ja

```
Enter a number
153
Armstrong number
```

Console

<terminated> AmstrongNumber [Java Ap

```
armstrong number is = 1
armstrong number is = 153
armstrong number is = 370
armstrong number is = 371
armstrong number is = 407
count of armstring number is =5
```

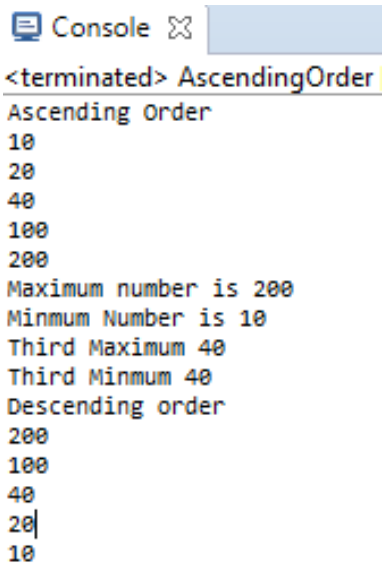
Ascending Numbers Programs:

```
public class AscendingOrder {

    public static void ascendingOrder() {
        int temp;
        int a[] = { 10, 100, 200, 40, 20 };
        for (int i = 0; i < a.length; i++) {
            for (int j = i + 1; j < a.length; j++) {
                if (a[i] > a[j]) {
                    temp = a[i];
                    a[i] = a[j];
                    a[j] = temp;
                }}}
        System.out.println("Ascending Order");
        for (int j = 0; j < a.length; j++) {
            System.out.println(a[j]);
        }
        //Maximum number in an array
        int maximumNumber = a[a.length - 1];
        System.out.println("Maximum number is " + maximumNumber);
        //Minimum number in an array
        int minimumNumber = a[0];
        System.out.println("Minmum Number is " + minimumNumber);
        //Third Maximum Number
        int thirdMaxNumber = a[a.length - 3];
        System.out.println("Third Maximum " + thirdMaxNumber);
        //Third Minimum Number
        int thirdMinNumber = a[2];
        System.out.println("Third Minmum " + thirdMinNumber );
    }
```

Program for Ascending Order, Maximum and minimum number

```
    public static void descendingOrder() {
        int temp;
        int a[] = { 10, 100, 200, 40, 20 };
        for (int i = 0; i < a.length; i++) {
            for (int j = i + 1; j < a.length; j++) {
                if (a[i] < a[j]) {
                    temp = a[j];
                    a[j] = a[i];
                    a[i] = temp;
                }}}
        System.out.println("Descending order");
        for (int i = 0; i < a.length; i++) {
            System.out.println(a[i]);
        }
    public static void main(String[] args) {
        ascendingOrder();
        descendingOrder();
    }
```

Program for descending Order

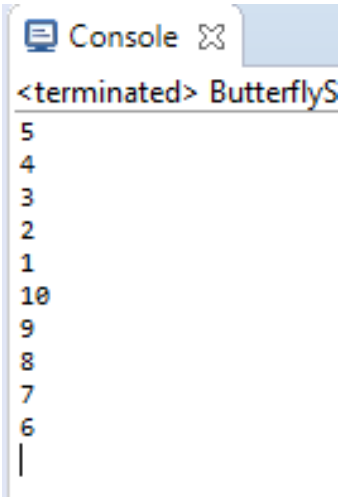


Ind	Max Num Syntax	Min NumSyntax
0	Minimum Number	a[0]
1	Second Minimium	a[1]
2	Third Minimum	a[2]
3	a[a.length-4] ------	a[3]
4	a[a.length-3]	Third Max
5	a[a.length-2]	Second Max
6	a[a.length-1]	Max Number

Butterfly Suffle Programs:

Program for Butterfly Suffle

```
public class ButterflySuffle {

    public static void main(String[] args) {

        int a[] = {1,2,3,4,5,6,7,8,9,10};
        int len = a.length/2;
        for (int i = len-1; i >= 0; i--) {
            System.out.println(a[i]);
        }for (int i = a.length-1; i >=len; i--) {
            System.out.println(a[i]);
        }
    }
}
```



String Manipulations Programs:

```java
public class CountOfLetters {

    public static void countOfEachCharacters() {
        String s = "wElcome To @java123";
        int countOfSmall = 0;
        int countOfCaps = 0;
        int countOfNum = 0;
        int countOfSpecial = 0;
        for (int i = 0; i < s.length(); i++) {
            if ('a' <= s.charAt(i) && s.charAt(i) <= 'z') {
                countOfSmall++;
            } else if ('A' <= s.charAt(i) && s.charAt(i) <= 'Z') {
                countOfCaps++;
            } else if ('0' <= s.charAt(i) && s.charAt(i) <= '9') {
                countOfNum++;
            } else {
                countOfSpecial++;
            }
        }
        System.out.println("count of caps =" + countOfCaps);
        System.out.println("count of small =" + countOfSmall);
        System.out.println("count of nums =" + countOfNum);
        System.out.println("count of special =" + countOfSpecial);
    }
```

Program for Count of Cap, Small letters and Nums, Special Characters in a String

```java
    public static void initCap() {
        String s = "welcome to java class";
        String capitalize = WordUtils.capitalize(s);
        String uncapitalize = WordUtils.uncapitalize(s);
        System.out.println("Uncapitalize first word = " + uncapitalize);
        System.out.println("capitalize first word = " + capitalize);
    }
```

Program for Initial caps in a String

```java
    public static void anotherMethodforInitCaps() {
        String s = "welcome to java";
        String[] a = s.split(" ");
        StringBuffer sb = new StringBuffer();

        for (int i = 0; i < a.length; i++) {
            char c = a[i].charAt(0);
            char capsC = Character.toUpperCase(c);
            String substring = a[i].substring(1);
            sb.append(capsC).append(substring).append(" ");
        }
        String trim = sb.toString().trim();
        System.out.println("Another Method for Init Caps = " + trim);
    }
```

Another Method for Program for Initial caps in a String

```java
    public static void swapCase() {
        String s = "WELCOME to Java";
        String swapCase = StringUtils.swapCase(s);
        System.out.println("Before Swap of Sstring = "+ s);
        System.out.println("Swap Case of string = " + swapCase);
    }
```

Program for Swap Case

Program for Replace a character with # in a string

```
public static void replaceACharInString() {

    String s = " welcome to class";
    String replace = s.replace(" ", "#");
    System.out.println("Replace string with # = " + replace);
}
```

Program for Duplicates in a String

```
public static void duplicatesFromArray() {

 public static void duplicatesFromArray() {

     String[] s = { "ABC", "BCD", "CDE", "ABC", "BCD" };
     java.util.List<String> list = Arrays.asList(s);
     TreeSet<String> tree = new TreeSet<String>(list);
     System.out.println("Duplicates removed in String = " + tree);
     for (int i = 0; i < s.length; i++) {
         for (int j = i + 1; j < s.length; j++) {
             if (s[i] == s[j]) {
                 System.out.println("Duplicates in arrays are = " + s[j]);
             }   }   }   }

    anotherMethodforInitCaps();
    countOfEachCharacters();
    duplicatesFromArray();
    initCap();
    replaceACharInString();
    swapCase();
}
```

Console

<terminated> CountOfLetters

```
count of caps =2
count of small =11
count of nums =3
count of special =3
```

Console

<terminated> CountOfLetters [Java Application] C:\

```
Before Swap of Sstring = WELCOME to Java
Swap Case of string = welcome TO jAVA
Replace string with # = #welcome#to#class
```

Console

<terminated> CountOfLetters [Java Application] C:\Prograr

```
Uncapitalize first word = welcome to java class
capitalize first word = Welcome To Java Class
Another Method for Init Caps = Welcome To Java
```

Console

<terminated> CountOfLetters [Java Application] C:\Proc

```
Duplicates removed in String = [ABC, BCD, CDE]
Duplicates in arrays are = ABC
Duplicates in arrays are = BCD
```

Repeated word and letter Programs:

Program for repetitive Character in a String

```
public class CountOfRepeated {

    public static void repitativeChar() {

        String s = "Weclomegod";
        char[] ch = s.toCharArray();
        Map<Character, Integer> charMap = new HashMap<Character, Integer>();
        for (char c : ch) {
            if (charMap.containsKey(c)) {
                Integer it = charMap.get(c);
                charMap.put(c, it + 1);
            } else {
                charMap.put(c, 1);
            }       }
        Set<Entry<Character, Integer>> entrySet = charMap.entrySet();
        System.out.println("List of dupliate characters ");
        for (Entry<Character, Integer> entry : entrySet) {
            if (entry.getValue() > 1) {
                Character key = entry.getKey();
                Integer value = entry.getValue();
                System.out.println(key + "=" + value);
            }   }   }
```

Program for repetitive Word in a String

```
    public static void repitativeWord() {
        String s = "Weclome god god god here here where";
        String[] words = s.split(" ");
        Map<String, Integer> wordMap = new HashMap<String, Integer>();
        for (String string : words) {
            if (wordMap.containsKey(string)) {
                Integer it = wordMap.get(string);
                wordMap.put(string, it+1);
            }else {
                wordMap.put(string, 1);
            }
        }System.out.println("List of duplicate words");
        Set<Entry<String,Integer>> entrySet = wordMap.entrySet();
        for (Entry<String, Integer> entry : entrySet) {
            if (entry.getValue()>1) {
                String key = entry.getKey();
                Integer value = entry.getValue();
                System.out.println(key +"="+ value);
            } } }

    public static void main(String[] args) {
        repitativeWord();
        repitativeChar();
    }
```

Console

```
<terminated> CountOfRepeated [Ja
List of duplicate words
here=2
god=3
List of dupliate characters
e=2
o=2
```

Count of word and Character Programs:

Program for count of Each Word in a String

```
public class CountOfWord {

    public static void countOfEachWord() {
    String s= "Welcome to java class java course to java";
    String[] split = s.split(" ");
    Map<String, Integer> map = new LinkedHashMap<String, Integer>();
    for (String x : split) {
        if (map.containsKey(x)) {
            Integer count = map.get(x);
            count++;
            map.put(x, count++);
        }else {
            map.put(x, 1);
        }
    }
    System.out.println(map);
}
```

Program for count of Each Character in a String

```
    public static void countOfEachCharacter() {
        String s= "Welcome to java class java course to java";
        Map<Character, Integer> map = new LinkedHashMap<Character, Integer>();
        for (int i = 0; i < s.length(); i++) {
            char c = s.charAt(i);
            if (map.containsKey(c)) {
                Integer count = map.get(c);
                count++;
                map.put(c, count);
            }else {
                map.put(c, 1);
            }
        }
    System.out.println(map);
    }

    public static void main(String[] args) {
        System.out.println("Count of each charcter in string");
        countOfEachCharacter();
        System.out.println("Count of each word in string");
        countOfEachWord();
    }
}
```

Console

```
<terminated> CountOfWord [Java Application] C:\Program Files\Java\jre1.8.0_161\bi
Count of each charcter in string
{W=1, e=3, l=2, c=3, o=4, m=1,  =7, t=2, j=3, a=7, v=3, s=3, u=1, r=1}
Count of each word in string
{Welcome=1, to=2, java=3, class=1, course=1}
```

Even and Odd Programs:

```
public class EvenOdd {

    public static void evenNum() {
        int sum=0, count=0;
        for (int i = 0; i < 30; i++) {
            if (i%2==0) {
                System.out.print(i +", ");
                sum=sum+i;
                count=count+1;
            }
        }
        System.out.println("\n Sum of even number from 0 to 30 = "+ sum);
        System.out.println("count of even number from 0 to 30 = "+ count);

    }
    public static void oddNum() {
        int sum=0, count=0;
        for (int i = 0; i < 30; i++) {
            if (i%2==1) {
                System.out.print(i + ", ");
                sum=sum+i;
                count=count+1;
            }
        }
        System.out.println("\n Sum of odd number from 0 to 30 = "+ sum);
        System.out.println("count of odd number from 0 to 30 = "+ count);
    }

    public static void main(String[] args) {
        evenNum();
        oddNum();
    }
}
```

Program for count of even Number

Program for count of odd Number

Console

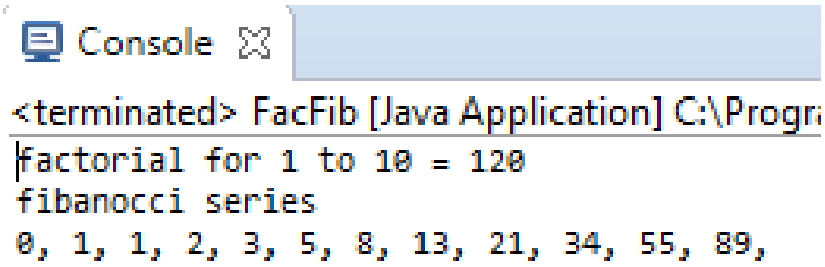
```
<terminated> EvenOdd [Java Application] C:\Program Files\Java\jre1.8.
0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28,
 Sum of even number from 0 to 30 = 210
count of even number from 0 to 30 = 15
1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29,
 Sum of odd number from 0 to 30 = 225
count of odd number from 0 to 30 = 15
```

Factorial and Fibonacci Series Programs:

```java
public class FacFib {

    public static void factorial() {
        int count =1;
        for (int i = 1; i <=5 ; i++) {
            count=count*i;
        }
        System.out.println("factorial for 1 to 10 = " +count);
    }
    public static void fibnaocii() {

        int a=0,b=1,c;
        System.out.println("fibanocci series");
        System.out.print(a+ ", ");
        System.out.print(b+ ", ");
        for (int i = 0; i < 10; i++) {
            c=a+b;
            System.out.print(c + ", ");
            a=b;
            b=c;
        }
    }
    public static void main(String[] args) {
        factorial();
        fibnaocii();
    }
}
```

Program for factorial Number

Program for Fibonacci series



Duplicates in Array Programs:

Program for list of duplicates

```
public class ListDuplicate {

    public static void listOfDuplicates() {
        List<Integer> li = Lists.newArrayList(0, 1, 3, 2, 4, 4, 2, 1, 1, 2, 3, 3, 4);
        List<Integer> list1 = new ArrayList<Integer>();
        for (int i = 0; i < li.size(); i++) {
            for (int j = i + 1; j < li.size(); j++) {
                if (li.get(i) == li.get(j)) {
                    if (list1.contains(li.get(j))) {
                        continue;
                    }
                    list1.add(li.get(j));
                }   }   }
        System.out.println(list1);
    }
```

Program for compare two list are same

```
    public static void compareList() {

    List<Integer> list1 = Lists.newArrayList(0, 1, 3, 4);
    List<Integer> list2 = Lists.newArrayList(0, 1, 3);
    boolean b = Arrays.equals(list1.toArray(), list2.toArray());
    if (b==true) {
        System.out.println("Both list are equal");
    }else {
        System.out.println("both list are not equal");
    }
    }
    public static void main(String[] args) {
        listOfDuplicates();
        compareList();
    }

}
```

Console

<terminated> ListDuplicate [Java App

```
[1, 3, 2, 4]
both list are not equal
```

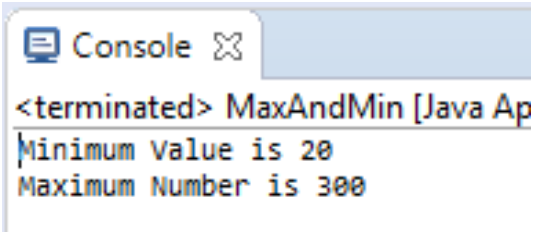
Maximum and Programs:

Program for minimum value in an array

```
public class MaxAndMin {


    public static void minValue() {
        int num[] = {40,300,20,200,100,30};
        int min= num[0];
        for (int i = 0; i < num.length; i++) {
            if (num[i]<min) {
                min=num[i];
            }
        }
        System.out.println("Minimum Value is "+min);
    }
```

Program for maximum value in an array

```
    public static void maxVal() {
        int num[] = {40,300,20,200,100,30};
        int max= num[0];
        for (int i = 0; i < num.length; i++) {
            if (num[i]>max) {
                max=num[i];
            }
        }
        System.out.println("Maximum Number is "+max);
    }


    public static void main(String[] args) {
        minValue();
        maxVal();
    }

}
```



Multiplication Programs:

Program for Multiplication table

```
public class MultiplicationTable {

    public static void main(String[] args) {
        Scanner s = new Scanner(System.in);
        System.out.println("Enter table to multiple");
        int a = s.nextInt();
        System.out.println("Till which number to multiple");
        int b = s.nextInt();
        int c;
        for (int i = 1; i <= b; i++) {
            c= a*i;
            System.out.println(a +" * " +i +" = " + c);
        }
    }

}
```

```
Console
<terminated> MultiplicationTable [J
Enter table to multiple
4
Till which number to multiple
4
4 * 1 = 4
4 * 2 = 8
4 * 3 = 12
4 * 4 = 16
```

Prime Number Programs:

Program for Prime Number

```
public class Prime {

    public static void main(String[] args) {
        int c=0;
        System.out.println("prime numbers");
        for (int n = 1; n < 10; n++) {
            int count=0;
            for (int i =2; i < n/2; i++) {
                if (n%i==0) {
                    count=1;
                }
            }
            if (count==0) {
                //"IF Count is 0 Number is Prime"
                System.out.print(n+", ");
                c++;
            }
        }System.out.println("\n count of prime numbers =" + c);
    }
}
```

```
Console
<terminated> Prime (1) [Java Applic
prime numbers
1, 2, 3, 4, 5, 7,
 count of prime numbers =6
```

Read from File Programs:

```java
public class ReadFromFile {

    public static void countOfWordFromFile() throws IOException {
    File read = new File("D:\\Hello.txt");
    String s = FileUtils.readFileToString(read);
    String[] split = s.split(" ");
    Map<String, Integer> map = new LinkedHashMap<String, Integer>();
    for (String x : split) {
        if (map.containsKey(x)) {
            Integer count = map.get(x);
            count++;
            map.put(x, count);
        }else {
            map.put(x, 1);
        }
    }
    System.out.println(map);
    System.out.println("-----------------------------------------------------");
    System.out.println("-----to get how count of chennai in a file-------");
    System.out.println("Count of chennai " + map.get("Chennai"));
    String replace = s.replace("Chennai", "#");
    System.out.println("----------Chennai  Replaced with # -----------");
    System.out.println(replace);


    }
```

Program for count of word in a file and to get count of particular word and replace a particular word with special character

Program for count of character in a file

```java
public static void countOfCharacter() throws IOException {
    File read = new File("D:\\Hello.txt");
    String s = FileUtils.readFileToString(read);
    Map<Character, Integer> map = new HashMap<Character, Integer>();
    for (int i = 0; i < s.length(); i++) {
        char c = s.charAt(i);
        if (map.containsKey(c)) {
            Integer count = map.get(c);
            count++;
            map.put(c, count);
        }else {
            map.put(c, 1);
        }
    }
    System.out.println("----------- Count of character from file---------");
    System.out.println(map);
}
public static void main(String[] args) throws Throwable {
    countOfWordFromFile();
    countOfCharacter();
}
```

Console

```
<terminated> ReadFromFile [Java Application] C:\Program Files\Java\jre1.8.0_161\bin\javaw.exe (29-Apr-2018, 2:52:28 PM)
{Greens=1, Technology,=1, Rated=1, As=1, Best=2, Selenium=4, training=2, institute=1, in=6, Chennai.=1, We=1,
Learn=1, Testing=1, course=1, the=3, most=1, experienced=1, trainers=1, field.=1, Awarded=1, as=1, Training=1,
-----------------------------------------------------
-----to get how count of chennai in a file-------
Count of chennai 3
----------Chennai  Replaced with # -----------
Greens Technology, Rated As Best Selenium training institute in #. We provide Selenium training in # with real
Learn Selenium Testing course in # with the most experienced trainers in the field. Awarded as the Best Seleni
----------- Count of character from file---------
{A=5, B=2, C=5, G=1, J=1,
=1, L=2,
=1, M=1, O=1, P=1, R=2, S=4, T=4, V=1, W=1,  =56, a=25, b=2, c=7, d=11, e=45, %=1, f=1, g=6, h=11, i=30, j=1,
```

```java
public class ReadLines {
    public static void readlines() throws IOException {
    File read = new File("D:\\ReadLines.txt");
    List<String> lines = FileUtils.readLines(read);
    for (int i = 0; i < lines.size(); i++) {
        if (i%2==0) {
            System.out.println(lines.get(i));
        }
    }
    System.out.println("------------T0 PRINT LAST LINE----------------");
    System.out.println(lines.get(lines.size()-1));

    System.out.println("----------TO PRINT FIRST TEN LINES---------");
    for (int i = 0; i <= 9; i++) {
        System.out.println(lines.get(i));
    }

    System.out.println("------------TO PRINT LAST TEN LINES----------");
    for (int i = lines.size()-10; i < lines.size(); i++) {
        System.out.println(lines.get(i));
    }
    }


    public static void main(String[] args) throws IOException {
        readlines();
    }
}
```

Program for Read lines even number lines , pint last 10 lines, print first ten lines

Recursion of add number Programs:

```java
public class Recursion {

    int sum = 0, j = 0;
    public static void main(String[] args)
    {
        int n;
        Scanner s = new Scanner(System.in);
        System.out.print("Enter the no. of elements you want:");
        n = s.nextInt();
        int a[] = new int[n];
        System.out.print("Enter all the elements you want:");
        for(int i = 0; i < n; i++)
        {
            a[i] = s.nextInt();
        }
        Recursion obj = new Recursion();
        int x = obj.add(a, a.length, 0);
        System.out.println("Sum:"+x);
    }
    int add(int a[], int n, int i)
    {
        if(i < n)
        {
            return a[i] + add(a, n, ++i);
        }
        else
        {
            return 0;
        }  }}
```

```
Console
<terminated> Recursion [Java Application] C:\Progr
Enter the no. of elements you want:4
Enter all the elements you want:4 4 4 4
Sum:16
```

Palindrome Programs:

Program for reverse a number

```
public class Reverse {

    public static void reverseNum() {
        int a,i=0,j=0;
        int num = 12345;
        a=num;
        while (a>0) {
            i=a%10;
            j=(j*10)+i;
            a=a/10;
        }
        System.out.println("Reverse number is = "+j);
    }
```

Program to check palindrome number

```
    public static void palindrome() {
        int a, i=0,j=0;
        int num = 12321;
        a=num;
        while (a>0) {
            i=a%10;
            j=(j*10)+i;
            a=a/10;
        }if (num==j) {
            System.out.println("Given Num is Palindrome");
        }else {
            System.out.println("Given Num is not palindrome");
        }
    }
```

Program to print palindrome numberd

```
     public static void palindromeForRange() {
         int c=0;
         System.out.println("Palindrome number from 1 to 30");
         for (int n = 1; n < 30; n++) {
             int a, i=0,j=0;
             a=n;
             while (a>0) {
                 i=a%10;
                 j=(j*10)+i;
                 a=a/10;
             }
             if (n==j) {
                 System.out.print(j+ ", ");
                 c++;
             }
         }
         System.out.println("\n Count of palindrome numbers = " +c);
     }
     public static void main(String[] args) {
         reverseNum();
         palindrome();
         palindromeForRange();

     }
```

```
Console
<terminated> Reverse (1) [Java Application]
Reverse number is = 54321
Given Num is Palindrome
Palindrome number from 1 to 30
1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 22,
 Count of palindrome numbers = 11
```

Reverse String Programs:

Program for reverse a word in a string

Program for reverse each word in a string

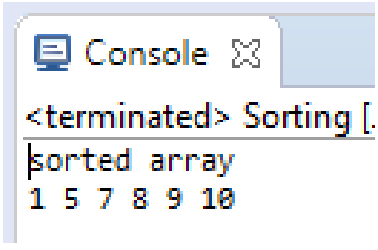
```java
public class ReverseString {

    public static void reverseOfWord() {
        String s = "welcome";
        String reverse = " ";
        for (int i = s.length()-1; i >=0 ; i--) {
            reverse = reverse + s.charAt(i);
        }
        System.out.println("Reverse of Word ="+reverse);
    }

    public static void reverseOfEachWordInString() {
        String s = "Welcome to java";
        String[] split = s.split(" ");
        String reverseString = "";
        for (String x : split) {
            String reverseword= "";
            for (int i = x.length()-1; i >=0; i--) {
                reverseword = reverseword+x.charAt(i);
            }reverseString= reverseString+ reverseword + " ";
        }
        System.out.println("Original String = "+ s);
        System.out.println("Reverse string = "+reverseString);

    }
    public static void main(String[] args) {
        reverseOfWord();
        reverseOfEachWordInString();
    }
}
```

```
Console
<terminated> ReverseString [Java Appli
Reverse of Word = emoclew
Original String = Welcome to java
Reverse string = emocleW ot avaj
```

Sorting Programs:

```java
public class Sorting {

    public int partition(int arr[], int low, int high) {
        int pivot = arr[high];
        int i = (low - 1); // index of smaller element
        for (int j = low; j < high; j++) {
            // If current element is smaller than or
            // equal to pivot
            if (arr[j] <= pivot) {
                i++;

                // swap arr[i] and arr[j]
                int temp = arr[i];
                arr[i] = arr[j];
                arr[j] = temp;
            }
        }

        // swap arr[i+1] and arr[high] (or pivot)
        int temp = arr[i + 1];
        arr[i + 1] = arr[high];
        arr[high] = temp;

        return i + 1;
    }

/*
 * The main function that implements QuickSort() arr[] --> Array to be sorted,
 * low --> Starting index, high --> Ending index
 */
public void sort(int arr[], int low, int high) {
    if (low < high) {
        /*
         * pi is partitioning index, arr[pi] is now at right place
         */
        int pi = partition(arr, low, high);

        // Recursively sort elements before
        // partition and after partition
        sort(arr, low, pi - 1);
        sort(arr, pi + 1, high);
    }
}

/* A utility function to print array of size n */
public static void printArray(int arr[]) {
    int n = arr.length;
    for (int i = 0; i < n; ++i)
        System.out.print(arr[i] + " ");
    System.out.println();
}

// Driver program
public static void main(String args[]) {
    int arr[] = { 10, 7, 8, 9, 1, 5 };
    int n = arr.length;

    Sorting ob = new Sorting();
    ob.sort(arr, 0, n - 1);

    System.out.println("sorted array");
    printArray(arr);
}
```

Program for sorting a number in array from low to high / quick sort



Sum and Count Numbers Programs:

Program for sum of two numbers

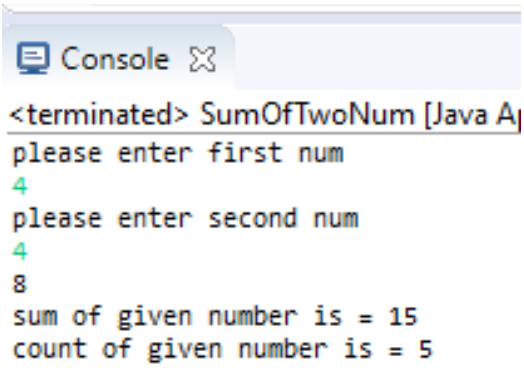
```
public class SumOfTwoNum {

public static void sumofTwoNum() {
        Scanner s =new Scanner(System.in);
        System.out.println("please enter first num");
        int a = s.nextInt();
        System.out.println("please enter second num");
        int b = s.nextInt();
        int c = a+b;
        System.out.println(c);
    }
```

Program for sum of given number

```
public static void sumOfGivenNum() {

    int a,i,j=0, num =12345;
    a=num;
    while (a>0) {
        i=a%10;
        j=j+i;
        a=a/10;
    }
    System.out.println("sum of given number is = "+ j);
}
```

Program for count of given number

```
public static void countOfGivenNum() {

    int n,a,c=0, num=12345;
    a=num;
    while (a>0) {
        a=a/10;
        c++;
    }System.out.println("count of given number is = "+ c);
}

public static void main(String[] args) {
    sumofTwoNum();
    sumOfGivenNum();
    countOfGivenNum();

}
}
```



Triangle Programs:

```java
public class Triangle {

    public static void star() {
        for (int i = 1; i < 10; i++) {
            for (int j = 1; j <= i; j++) {
                System.out.print("*");
            }
            System.out.println();
        }
    }

    public static void doubleStar() {

        for (int i = 1; i < 10; i++) {
            for (int j = 1; j <= i; j++) {
                if (i % 2 == 0) {
                    System.out.print("*");
                }
            }
            System.out.println();
        }
    }

    public static void reverseStar() {
        int n = 10;
        for (int i = 1; i < n; i++) {
            for (int j = n - 1; j >= i; j--) {
                System.out.print("*");
            }
            System.out.println();
        }
    }
```

```
*
**
***
****
*****
******
*******
********
*********
```

```
**

****

******

********
```

```
*********
********
*******
******
*****
****
***
**
*
```

```java
public static void numberTri() {
    int num;
    for (int i = 0; i < 5; i++) {
        num = 1;
        for (int j = 0; j <= i; j++) {
            System.out.print(num + " ");
            num++;
            }
        System.out.println();
    }
}

public static void ReversenumberTri() {
    int num;
    for (int i = 0; i <= 5; i++) {
        num = 1;
        for (int j = 5; j >= i; j--) {
            System.out.print(num + " ");
            num++;
            }
        System.out.println();
    }
}

public static void oddnumberTri() {
    int num =1;
    for (int i = 1; i <= 5; i+=2) {
        for (int j = 0; j <= i; j++) {
            System.out.print(num + " ");
            }
        System.out.println();
        num+=2;
    }
}
```

```
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

```
1 2 3 4 5 6
1 2 3 4 5
1 2 3 4
1 2 3
1 2
1
```

```
1 1
3 3 3 3
5 5 5 5 5 5
```

```java
public static void evennumberTri() {
    int num =2;
    for (int i = 1; i <= 5; i+=2) {
        for (int j = 0; j <= i; j++) {
            System.out.print(num + " ");
            }
        System.out.println();
        num+=2;
    }
}

public static void starEvennumberTri() {
    for (int i = 0; i <= 7; i+=2) {
        for (int j = 1; j <= i; j++) {
            System.out.print("*");
            }
        System.out.println();
    }
}
```

```
2 2
4 4 4 4
6 6 6 6 6 6

**
****
******
```

```java
public class TrianglewithNumbers {

    public static void main(String[] args) {
        int r =5;

    for (int i = r; i >= 1; i--) {
        for (int j = 1; j < i*2; j++) {
            System.out.print(" ");
        }for (int j = i; j <=r; j++) {
            System.out.print(j+ " ");
        }for (int j = r-1; j >= i; j--) {
            System.out.print(j+ " ");
        }
        System.out.println();
    }
    }}
```

```
        5
      4 5 4
    3 4 5 4 3
  2 3 4 5 4 3 2
1 2 3 4 5 4 3 2 1
```

Trim and Vowel Replace Programs:

Program for Trim and replace vowel with #

```java
public class Trim {

    public static void main(String[] args) {
        String s = "  welcome to java   ";
        String trim = s.trim().replace(" ", "");
        System.out.println("Remove space = "+trim);

        s = s.replaceAll("[AaEeIiOoUu]", "*");
        System.out.println("Replace vowel with star = " + s);

    }

}
```

```
Console
<terminated> Trim [Java Application] C:\Program File
Remove space = welcometojava
Replace vowel with star =   w*lc*m* t* j*v*
```

Swapping Numbers Programs:

Program for Swapping number with third variable

```java
public class Swapping {
    public static void swappingwithThirdVariable() {
        Scanner sc=new Scanner(System.in);
        System.out.println("enter 1st num " );
        int a = sc.nextInt();
        System.out.println("enter 2nd num " );
        int b = sc.nextInt();
        System.out.println("before swapping");
        System.out.println(a);
        System.out.println(b);
        int c;
        c=a;
        a=b;
        b=c;
        System.out.println("after swapping ");
        System.out.println(a);
        System.out.println(b);

    }
```

Program for Swapping number without third variable

```java
    public static  void swappingwithoutThirdVariable(int d, int e) {
        System.out.println(" 1st num is " + d);
        System.out.println(" 2nd num is " + e);
        d = d+e;
        e =d-e;
        d =d-e;
        System.out.println("after swapping ");
        System.out.println(d);
        System.out.println(e);
    }

    public static void main(String[] args) {
        swappingwithThirdVariable();
        swappingwithoutThirdVariable(10, 5);
    }

}
```

```
Console
<terminated> Swapping [J
enter 1st num
3
enter 2nd num
2
before swapping
3
2
after swapping
2
3
1st num is 10
2nd num is 5
after swapping
5
10
```

Vowels Programs:

```java
public class Vowels {

    public static void main(String[] args) {

    String s  = "Welcome to java class";
    int vowel=0;
    int nonvowels=0;
    Map<Character, Integer> vowelmap = new HashMap<Character, Integer>();
    Map<Character, Integer> nonvowelmap = new HashMap<Character, Integer>();
    for (int i = 0; i < s.length(); i++) {
        char c = s.charAt(i);
        if (c=='A'||c=='a'||c=='e'||c=='E'||c=='o'||c=='O'||c=='i'||c=='I'
                ||c=='u'||c=='U') {
            if (vowelmap.get(c)==null) {
                vowelmap.put(c, 1);
            }else {
                Integer in = vowelmap.get(c);
                vowelmap.put(c, in+1);
            }
            vowel++;
        }else {
            if (nonvowelmap.get(c)==null) {
                nonvowelmap.put(c, 1);
            }else {
                Integer in = nonvowelmap.get(c);
                nonvowelmap.put(c, in+1);
            }
            nonvowels++;

        }
    }
    System.out.println("Vowels and count");
    Set<Entry<Character,Integer>> entrySet = vowelmap.entrySet();
    for (Entry<Character, Integer> entry : entrySet) {
        Character key = entry.getKey();
        Integer value = entry.getValue();
        System.out.println(key + "= " + value);
    }
    System.out.println("Non vowel and count");
    Set<Entry<Character,Integer>> entrySet2 = nonvowelmap.entrySet();
    for (Entry<Character, Integer> entry : entrySet2) {
        Character key = entry.getKey();
        Integer value = entry.getValue();
        System.out.println(key + "= " + value);
    }
    System.out.println("Vowels Count = " + vowel);
    System.out.println("nonvowels count = " + nonvowels);

}}
```

Program for vowel and its count and non vowel and its count

```
Console
<terminated> Vowels (1) [Java Appl
Vowels and count
a= 3
e= 2
o= 2
Non vowel and count
 = 3
c= 2
s= 2
t= 1
v= 1
W= 1
j= 1
l= 2
m= 1
Vowels Count = 7
nonvowels count = 14
```