**Sobuz Sir’s Part**

# Lab problem 01

1.Write the assignment based on how to compile and run java program using command prompt.  
 2. Write step by step for compiling and run java program  through IDE like Netbeans, IDEAJ  eclipse etc.

# Lab Problem 02

1.  Write a Java program to print 'Hello' on screen and then print your name on a separate line. Go to the editor  
 :  
Hello  
Alexandra Abramov  
Click me to see the solution  
 2. Write a Java program to print the sum of two numbers. Go to the editor  
Test Data:  
74 + 36  
 :  
110  
Click me to see the solution  
 Write a Java program to divide two numbers and print on the screen. Go to the editor  
Test Data :  
50/3  
 :  
16  
Click me to see the solution  
 Write a Java program to print the result of the following operations. Go to the editor  
  
a. -5 + 8 \* 6  
b. (55+9) % 9  
c. 20 + -3\*5 / 8  
d. 5 + 15 / 3 \* 2 - 8 % 3  
 :  
43  
1  
19  
13  
Click me to see the solution  
 Write a Java program that takes two numbers as input and display the product of two numbers. Go to the editor  
  
Input first number: 25  
Input second number: 5  
 :  
25 x 5 = 125  
Click me to see the solution  
 Write a Java program to print the sum (addition), multiply, subtract, divide and remainder of two numbers. Go to the editor  
  
Input first number: 125  
Input second number: 24  
 :  
125 + 24 = 149  
125 - 24 = 101  
125 x 24 = 3000  
125 / 24 = 5  
125 mod 24 = 5  
Click me to see the solution  
 Write a Java program that takes a number as input and prints its multiplication table upto 10. Go to the editor  
  
Input a number: 8  
 :  
8 x 1 = 8  
8 x 2 = 16  
8 x 3 = 24  
...  
8 x 10 = 80  
Click me to see the solution  
 Write a Java program to display the following pattern. Go to the editor  
J a v v a  
J a a v v a a  
J J aaaaa V V aaaaa  
JJ a a V a a  
  
Click me to see the solution  
 Write a Java program to compute the specified expressions and print the output. Go to the editor  
  
((25.5 \* 3.5 - 3.5 \* 3.5) / (40.5 - 4.5))  
  
2.138888888888889  
Click me to see the solution  
 Write a Java program to compute a specified formula. Go to the editor  
  
4.0 \* (1 - (1.0/3) + (1.0/5) - (1.0/7) + (1.0/9) - (1.0/11))  
  
2.9760461760461765  
Click me to see the solution  
 Write a Java program to print the area and perimeter of a circle. Go to the editor  
  
Radius = 7.5  
  
Perimeter is = 47.12388980384689  
Area is = 176.71458676442586  
Click me to see the solution  
 Write a Java program that takes three numbers as input to calculate and print the average of the numbers. Go to the editor  
Click me to see the solution  
 Write a Java program to print the area and perimeter of a rectangle. Go to the editor  
  
Width = 5.5 Height = 8.5  
Area is 5.6 \* 8.5 = 47.60  
Perimeter is 2 \* (5.6 + 8.5) = 28.20  
Click me to see the solution  
 Write a Java program to print an American flag on the screen. Go to the editor  
\* \* \* \* \* \* ==================================  
\* \* \* \* \* ==================================  
\* \* \* \* \* \* ==================================  
\* \* \* \* \* ==================================  
\* \* \* \* \* \* ==================================  
\* \* \* \* \* ==================================  
\* \* \* \* \* \* ==================================  
\* \* \* \* \* ==================================  
\* \* \* \* \* \* ==================================  
==============================================  
==============================================  
==============================================  
==============================================  
==============================================  
==============================================  
  
Click me to see the solution  
 Write a Java program to swap two variables. Go to the editor  
Click me to see the solution  
 Write a Java program to print a face. Go to the editor  
+"""""+  
[| o o |]  
| ^ |  
| '-' |  
+-----+

# Lab problem set 3

Write a Java program to compare two numbers. Go to the editor  
  
Input Data:  
  
Input first integer: 25  
  
Input second integer: 39  
  
  
25 != 39  
25 < 39  
25 <= 39  
  
  
Click me to see the solution  
  
Write a Java program and compute the sum of the digits of an integer. Go to the editor  
  
Input Data:  
  
Input an integer: 25  
  
  
The sum of the digits is: 7  
  
  
Click me to see the solution  
  
Write a Java program to compute the area of a hexagon. Go to the editor  
  
Area of a hexagon = (6 \* s^2)/(4\*tan(π/6))  
  
where s is the length of a side  
  
Input Data:  
  
Input the length of a side of the hexagon: 6  
  
  
The area of the hexagon is: 93.53074360871938  
  
  
Click me to see the solution  
  
Write a Java program to compute the area of a polygon. Go to the editor  
  
Area of a polygon = (n\*s^2)/(4\*tan(π/n))  
  
where n is n-sided polygon and s is the length of a side  
  
Input Data:  
  
Input the number of sides on the polygon: 7  
  
Input the length of one of the sides: 6  
  
  
The area is: 130.82084798405722  
  
  
Click me to see the solution  
  
Write a Java program to compute the distance between two points on the surface of earth. Go to the editor  
  
Distance between the two points [ (x1,y1) & (x2,y2)]  
  
d = radius \* arccos(sin(x1) \* sin(x2) + cos(x1) \* cos(x2) \* cos(y1 - y2))  
  
Radius of the earth r = 6371.01 Kilometers  
  
Input Data:  
  
Input the latitude of coordinate 1: 25  
  
Input the longitude of coordinate 1: 35  
  
Input the latitude of coordinate 2: 35.5  
  
Input the longitude of coordinate 2: 25.5  
  
  
The distance between those points is: 1480.0848451069087 km  
  
  
Click me to see the solution  
  
Write a Java program to reverse a string. Go to the editor  
  
Input Data:  
  
Input a string: The quick brown fox  
  
  
Reverse string: xof nworb kciuq ehT  
  
  
Click me to see the solution  
  
Write a Java program to count the letters, spaces, numbers and other characters of an input string. Go to the editor  
  
  
The string is : Aa kiu, I swd skieo 236587. GH kiu: sieo?? 25.33  
letter: 23  
space: 9  
number: 10  
other: 6  
  
  
Click me to see the solution  
  
Write a Java program to create and display  
unique three-digit number using 1, 2, 3, 4. Also count how many  
three-digit numbers are there. Go to the editor  
  
  
123  
124  
...  
  
431  
432  
Total number of the three-digit-number is 24  
  
  
Click me to see the solution  
  
Write a Java program to list the available character sets in charset objects. Go to the editor  
  
  
List of available character sets:  
Big5  
Big5-HKSCS  
CESU-8  
EUC-JP  
EUC-KR  
GB18030  
GB2312  
GBK  
  
...  
  
x-SJIS\_0213  
x-UTF-16LE-BOM  
X-UTF-32BE-BOM  
X-UTF-32LE-BOM  
x-windows-50220  
x-windows-50221  
x-windows-874  
x-windows-949  
x-windows-950  
x-windows-iso2022jp  
  
  
Click me to see the solution  
  
Write a Java program to print the ascii value of a given character. Go to the editor  
  
  
The ASCII value of Z is :90  
  
  
Click me to see the solution  
  
Write a Java program to input and display your password. Go to the editor  
  
  
Input your Password:  
Your password was: abc@123  
  
  
Click me to see the solution  
  
Write a Java program to print the following string in a specific format (see the output). Go to the editor  
  
  
Twinkle, twinkle, little star,  
   How I wonder what you are!  
       Up above the world so high,          
       Like a diamond in the sky.  
Twinkle, twinkle, little star,  
   How I wonder what you are  
  
  
Click me to see the solution  
  
Write a Java program that accepts an integer (n) and computes the value of n+nn+nnn. Go to the editor  
  
  
Input number: 5  
5 + 55 + 555  
  
  
Click me to see the solution  
  
Write a Java program to find the size of a specified file. Go to the editor  
  
  
/home/students/abc.txt : 0 bytes  
/home/students/test.txt : 0 bytes  
  
  
Click me to see the solution  
  
Write a Java program to display the system time. Go to the editor  
  
  
Current Date time: Fri Jun 16 14:17:40 IST 2017  
  
  
Click me to see the solution  
  
Write a Java program to display the current date time in specific format. Go to the editor  
  
  
Now: 2017/06/16 08:52:03.066  
  
  
Click me to see the solution  
  
Write a Java program to print the odd numbers from 1 to 99. Prints one number per line. Go to the editor  
  
  
1  
3  
5  
7  
9  
11  
....  
  
91  
93  
95  
97  
99  
  
  
Click me to see the solution  
  
Write a Java program to accept a number and  
check the number is even or not. Prints 1 if the number is even or 0 if  
the number is odd. Go to the editor  
  
  
Input a number: 20  
1  
  
  
Click me to see the solution  
  
Write a Java program to print numbers between 1 to 100 which are divisible by 3, 5 and by both. Go to the editor  
  
  
Divided by 3:  
3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 48, 51, 54, 57  
, 60, 63, 66, 69, 72, 75, 78, 81, 84, 87, 90, 93, 96, 99,  
  
Divided by 5:  
5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90,  
95,  
  
Divided by 3 & 5:  
15, 30, 45, 60, 75, 90,

# Lab problem 4

Write a Java program to convert a string to an integer in Java. Go to the editor  
  
  
Input a number(string): 25  
The integer value is: 25  
  
  
Click me to see the solution  
  
Write a Java program to calculate the sum of two integers and return true if the sum is equal to a third integer. Go to the editor  
  
  
Input the first number : 5  
Input the second number: 10  
Input the third number : 15  
The result is: true  
  
  
Click me to see the solution  
  
Write a Java program that accepts three integers  
from the user and return true if the second number is greater than  
first number and third number is greater than second number. If "abc" is  
true second number does not need to be greater than first number. Go to the editor  
  
  
Input the first number : 5  
Input the second number: 10  
Input the third number : 15  
The result is: true  
  
  
Click me to see the solution  
  
Write a Java program that accepts three integers  
from the user and return true if two or more of them (integers ) have  
the same rightmost digit. The integers are non-negative. Go to the editor  
  
  
Input the first number : 5  
Input the second number: 10  
Input the third number : 15  
The result is: true  
  
  
Click me to see the solution  
  
Write a Java program to convert seconds to hour, minute and seconds. Go to the editor  
  
  
Input seconds: 86399  
23:59:59  
  
  
Click me to see the solution  
  
Write a Java program to find the number of values in a given range divisible by a given value. Go to the editor  
  
For example x = 5, y=20 and p =3, find the number of integers within the  
range x..y and that are divisible by p i.e. { i :x ≤ i ≤ y, i mod p = 0  
}  
  
  
5  
  
  
Click me to see the solution  
  
Write a Java program to accepts an integer and count the factors of the number. Go to the editor  
  
  
Input an integer: 25  
3  
  
  
Click me to see the solution  
  
Write a Java program to capitalize the first letter of each word in a sentence. Go to the editor  
  
  
Input a Sentence: the quick brown fox jumps over the lazy dog.  
The Quick Brown Fox Jumps Over The Lazy Dog.  
  
  
Click me to see the solution  
  
Write a Java program to convert a given string into lowercase. Go to the editor  
  
  
Input a String: THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG.  
the quick brown fox jumps over the lazy dog.  
  
  
Click me to see the solution  
  
Write a Java program to find the penultimate (next to last) word of a sentence. Go to the editor  
  
  
Input a String: The quick brown fox jumps over the lazy dog.  
Penultimate word: lazy  
  
  
Click me to see the solution  
  
Write a Java program to reverse a word. Go to the editor  
  
  
Input a word: dsaf  
Reverse word: fasd  
  
  
Click me to see the solution  
  
Write a Java program that accepts three integer  
values and return true if one of them is 20 or more and less than the  
substractions of others. Go to the editor  
  
  
Input the first number : 15  
Input the second number: 20  
Input the third number : 25  
false  
  
  
Click me to see the solution  
  
Write a Java program that accepts two integer  
values from the user and return the larger values. However if the two  
values are the same, return 0 and return the smaller value if the two  
values have the same remainder when divided by 6. Go to the editor  
  
  
Input the first number : 12  
Input the second number: 13  
Result: 13  
  
  
Click me to see the solution  
  
Write a Java program that accepts two integer  
values between 25 to 75 and return true if there is a common digit in  
both numbers. Go to the editor  
  
  
Input the first number : 35  
Input the second number: 45  
Result: true  
  
  
Click me to see the solution  
  
Write a Java program to calculate the modules of two numbers without using any inbuilt modulus operator. Go to the editor  
  
  
Input the first number : 19  
Input the second number: 7  
5  
  
  
Click me to see the solution  
  
Write a Java program to compute the sum of the first 100 prime numbers. Go to the editor  
  
  
Sum of the first 100 prime numbers: 24133  
  
  
Click me to see the solution  
  
Write a Java program to insert a word in the middle of the another string. Go to the editor  
Insert "Tutorial" in the middle of "Python 3.0", so result will be Python Tutorial 3.0  
  
  
Python Tutorial 3.0  
  
  
Click me to see the solution  
  
Write a Java program to create a new string of 4  
copies of the last 3 characters of the original string. The length of  
the original string must be 3 and above. Go to the editor  
  
  
3.03.03.03.0  
  
  
Click me to see the solution  
  
Write a Java program to extract the first half of a string of even length. Go to the editor  
  
Test Data: Python  
  
  
  
Pyt  
  
Click me to see the solution  
  
Write a Java program to create a string in the  
form short\_string + long\_string + short\_string from two strings. The  
strings must not have the same length. Go to the editor  
  
Test Data: Str1 = Python  
  
Str2 = Tutorial  
  
  
PythonTutorialPython  
  
Click me to see the solution

# Lab Problem 5

Write a Java program to create the concatenation  
of the two strings except removing the first character of each string.  
The length of the strings must be 1 and above. Go to the editor  
  
Test Data: Str1 = Python  
  
Str2 = Tutorial  
  
  
ythonutorial  
  
Click me to see the solution  
  
Write a Java program to create a new string  
taking first three characters from a given string. If the length of the  
given string is less than 3 use "#" as substitute characters. Go to the editor  
  
Test Data: Str1 = " "  
  
  
###  
  
Click me to see the solution  
  
Write a Java program to create a new string  
taking first and last characters from two given strings. If the length  
of either string is 0 use "#" for missing character. Go to the editor  
  
Test Data: str1 = "Python"  
  
str2 = " "  
  
  
P#  
  
Click me to see the solution  
  
Write a Java program to test if 10 appears as  
either the first or last element of an array of integers. The length of  
the array must be greater than or equal to 2. Go to the editor  
  
  
  
Test Data: array = 10, -20, 0, 30, 40, 60, 10  
true  
  
Click me to see the solution  
  
Write a Java program to test if the first and  
the last element of an array of integers are same. The length of the  
array must be greater than or equal to 2. Go to the editor  
  
Test Data: array = 50, -20, 0, 30, 40, 60, 10  
  
  
false  
  
Click me to see the solution  
  
Write a Java program to test if the first or the  
last element of two array of integers are same. The length of the array  
must be greater than or equal to 2. Go to the editor  
Test Data: array1 = 50, -20, 0, 30, 40, 60, 12  
  
array2 = 45, 20, 10, 20, 30, 50, 11  
  
  
false  
  
Click me to see the solution  
  
Write a Java program to create a new array of  
length 2 from two arrays of integers with three elements and the new  
array will contain the first and last elements from the two arrays. Go to the editor  
  
Test Data: array1 = 50, -20, 0  
  
array2 = 5, -50, 10  
  
  
Array1: [50, -20, 0]  
Array2: [5, -50, 10]  
New Array: [50, 10]  
  
Click me to see the solution  
  
Write a Java program to test that a given array of integers of length 2 contains a 4 or a 7. Go to the editor  
  
  
Original Array: [5, 7]  
true  
  
Click me to see the solution  
  
Write a Java program to rotate an array (length 3) of integers in left direction. Go to the editor  
  
  
Original Array: [20, 30, 40]  
Rotated Array: [30, 40, 20]  
  
Click me to see the solution  
  
Write a Java program to get the larger value between first and last element of an array (length 3) of integers . Go to the editor  
  
  
Original Array: [20, 30, 40]  
Larger value between first and last element: 40  
  
Click me to see the solution  
  
Write a Java program to swap the first and last elements of an array (length must be at least 1) and create a new array. Go to the editor  
  
  
Original Array: [20, 30, 40]  
New array after swaping the first and last elements: [40, 30, 20]  
  
Click me to see the solution  
  
Write a Java program to find the largest element  
between first, last, and middle values from an array of integers (even  
length). Go to the editor  
  
  
Original Array: [20, 30, 40, 50, 67]  
Largest element between first, last, and middle values: 67  
  
Click me to see the solution  
  
Write a Java program to multiply corresponding elements of two arrays of integers. Go to the editor  
  
  
Array1: [1, 3, -5, 4]  
  
Array2: [1, 4, -5, -2]  
  
Result: 1 12 25 -8  
  
Click me to see the solution  
  
Write a Java program to take the last three  
characters from a given string and add the three characters at both the  
front and back of the string. String length must be greater than three  
and more. Go to the editor  
  
Test data: "Python" will be "honPythonhon"  
  
  
honPythonhon  
  
Click me to see the solution  
  
Write a Java program to check if a string starts with a specified word. Go to the editor  
Sample Data: string1 = "Hello how are you?"  
  
  
true  
  
  
Click me to see the solution  
  
Write a Java program start with an integer n,  
divide n by 2 if n is even or multiply by 3 and add 1 if n is odd,  
repeat the process until n = 1. Go to the editor  
  
  
Click me to see the solution  
  
Write a Java program than read an integer and  
calculate the sum of its digits and write the number of each digit of  
the sum in English. Go to the editor  
  
  
Click me to see the solution  
  
Write a Java program to get the current system environment and system properties. Go to the editor  
  
Click me to see the solution  
  
Write a Java program to check whether a security manager has already been established for the current application or not. Go to the editor  
  
Click me to see the solution  
  
Write a Java program to get the value of the environment variable PATH, TEMP, USERNAME. Go to the editor  
  
Click me to see the solution  
  
Write a Java program to measure how long some code takes to execute in nanoseconds. Go to the editor  
  
Click me to see the solution  
  
Write a Java program to count the number of even and odd elements in a given array of integers. Go to the editor  
  
Click me to see the solution  
  
Write a Java program to test if an array of  
integers contains an element 10 next to 10 or an element 20 next to 20,  
but not both. Go to the editor  
  
Click me to see the solution  
  
Write a Java program to rearrange all the  
elements of a given array of integers so that all the odd numbers come  
before all the even numbers. Go to the editor  
  
Click me to see the solution  
  
Write a Java program to create an array (length #  
0) of string values. The elements will contain "0", "1", "2" … through  
... n-1. Go to the editor  
  
Click me to see the solution  
  
Write a Java program to check if there is a 10 in a given array of integers with a 20 somewhere later in the array. Go to the editor  
  
Click me to see the solution  
  
Write a Java program to check if an array of  
integers contains a specified number next to each other or there are two  
same specified numbers separated by one element. Go to the editor  
  
Click me to see the solution  
  
Write a Java program to check if the value 20  
appears three times and no 20's are next to each other in a given array  
of integers. Go to the editor  
  
Click me to see the solution  
  
Write a Java program to check if a specified number appears in every pair of adjacent element of a given array of integers. Go to the editor  
  
Click me to see the solution  
  
Write a Java program to count the two elements of two given arrays of integers with same length, differ by 1 or less. Go to the editor  
  
Click me to see the solution

# Lab Problem set 06

101. Write a Java program to check if the number of 10 is greater than number to 20 in a given array of integers. Go to the editor  
Click me to see the solution  
  
102. Write a Java program to check if a specified array of integers contains 10 or 30. Go to the editor  
Click me to see the solution  
  
103. Write a Java program to create a new array from a given array of integers, new array will contain the elements from the given array after the last element value 10. Go to the editor  
Click me to see the solution  
  
104. Write a Java program to create a new array from a given array of integers, new array will contain the elements from the given array before the last element value 10. Go to the editor  
Click me to see the solution  
  
105. Write a Java program to check if a group of numbers (l) at the start and end of a given array are same. Go to the editor  
Click me to see the solution  
  
106. Write a Java program to create a new array that is left shifted from a given array of integers. Go to the editor  
Click me to see the solution  
  
107. Write a Java program to check if an array of integers contains three increasing adjacent numbers. Go to the editor  
Click me to see the solution  
  
108. Write a Java program to add all the digits of a given positive integer until the result has a single digit. Go to the editor  
Click me to see the solution  
  
109. Write a Java program to form a staircase shape of n coins where every k-th row must have exactly k coins. Go to the editor  
Click me to see the solution  
  
110. Write a Java program to check whether a given integer is a power of 4 or not. Go to the editor  
Given num = 64, return true. Given num = 6, return false.  
Click me to see the solution  
  
111. Write a Java program to add two numbers without using any arithmetic operators. Go to the editor  
Given x = 10 and y = 12; result = 22  
Click me to see the solution  
  
112. Write a Java program to compute the number of trailing zeros in a factorial. Go to the editor  
7! = 5040, therefore the output should be 1  
Click me to see the solution  
  
113. Write a Java program to merge two given sorted array of integers and create a new sorted array. Go to the editor  
array1 = [1,2,3,4]  
array2 = [2,5,7, 8]  
result = [1,2,2,3,4,5,7,8]  
Click me to see the solution  
  
114. Write a Java program to given a string and an offset, rotate string by offset (rotate from left to right). Go to the editor  
Click me to see the solution  
  
115. Write a Java program to check if a positive number is a palindrome or not. Go to the editor  
Input a positive integer: 151  
Is 151 is a palindrome number?  
true  
Click me to see the solution  
  
116. Write a Java program which iterates the integers from 1 to 100. For multiples of three print "Fizz" instead of the number and print "Buzz" for the multiples of five. When number is divided by both three and five, print "fizz buzz". Go to the editor  
Click me to see the solution  
  
117. Write a Java program to compute the square root of a given integer. Go to the editor  
Input a positive integer: 25  
Square root of 25 is: 5  
Click me to see the solution  
  
118. Write a Java program to get the first occurrence (Position starts from 0.) of a string within a given string. Go to the editor  
Click me to see the solution  
  
119. Write a Java program to get the first occurrence (Position starts from 0.) of an element of a given array. Go to the editor  
Click me to see the solution  
  
120. Write a Java program that searches a value in an m x n matrix. Go to the editor  
Click me to see the solution  
  
121. Write a Java program to reverse a given linked list. Go to the editor  
Example: For linked list 20->40->60->80, the reversed linked list is 80->60->40->20 Click me to see the solution  
  
122. Write a Java program to find a contiguous subarray with largest sum from a given array of integers. Go to the editor  
Note: In computer science, the maximum subarray problem is the task of finding the contiguous subarray within a one-dimensional array of numbers which has the largest sum. For example, for the sequence of values −2, 1, −3, 4, −1, 2, 1, −5, 4; the contiguous subarray with the largest sum is 4, −1, 2, 1, with sum 6. The subarray should contain one integer at least. Click me to see the solution  
  
123. Write a Java program to find the subarray with smallest sum from a given array of integers. Go to the editor  
Click me to see the solution  
  
124. Write a Java program to find the index of a value in a sorted array. If the value does not find return the index where it would be if it were inserted in order. Go to the editor  
Example:  
[1, 2, 4, 5, 6] 5(target) -> 3(index)  
[1, 2, 4, 5, 6] 0(target) -> 0(index)  
[1, 2, 4, 5, 6] 7(target) -> 5(index)  
Click me to see the solution  
  
125. Write a Java program to get the preorder traversal of its nodes' values of a given a binary tree. Go to the editor  
Example:  
    10  
   / \  
  20   30  
 / \  
40   50  
Expected output: 10 20 40 50 30  
Click me to see the solution

# Lab Problem Set 07

1. Write a Java program to convert temperature from Fahrenheit to Celsius degree. Go to the editor  
Test Data  
Input a degree in Fahrenheit: 212  
Expected Output:  
212.0 degree Fahrenheit is equal to 100.0 in Celsius  
  
Click me to see the solution  
  
2. Write a Java program that reads a number in inches, converts it to meters. Go to the editor  
Note: One inch is 0.0254 meter.  
Test Data  
Input a value for inch: 1000  
Expected Output :  
1000.0 inch is 25.4 meters  
  
Click me to see the solution  
  
3. Write a Java program that reads an integer between 0 and 1000 and adds all the digits in the integer. Go to the editor  
  
Test Data  
Input an integer between 0 and 1000: 565  
Expected Output :  
The sum of all digits in 565 is 16  
  
Click me to see the solution  
  
4. Write a Java program to convert minutes into a number of years and days. Go to the editor  
  
Test Data  
Input the number of minutes: 3456789  
Expected Output :  
3456789 minutes is approximately 6 years and 210 days  
  
Click me to see the solution  
  
5. Write a Java program that prints the current time in GMT. Go to the editor  
  
Test Data  
Input the time zone offset to GMT: 256  
Expected Output:  
Current time is 23:40:24  
  
Click me to see the solution  
  
6. Write a Java program to compute body mass index (BMI). Go to the editor  
  
Test Data  
Input weight in pounds: 452  
Input height in inches: 72  
Expected Output:  
Body Mass Index is 61.30159143458721  
  
Click me to see the solution  
  
7. Write a Java program to takes the user for a distance (in meters) and the time was taken (as three numbers: hours, minutes, seconds), and display the speed, in meters per second, kilometers per hour and miles per hour (hint: 1 mile = 1609 meters). Go to the editor  
  
Test Data  
Input distance in meters: 2500  
Input hour: 5  
Input minutes: 56  
Input seconds: 23  
Expected Output :  
Your speed in meters/second is 0.11691531  
Your speed in km/h is 0.42089513  
Your speed in miles/h is 0.26158804  
  
Click me to see the solution  
  
8. Write a Java program that reads a number and display the square, cube, and fourth power. Go to the editor  
  
Expected Output:  
Square: .2f  
Cube: .2f  
Fourth power: 50625.00  
Click me to see the solution  
  
9. Write a Java program that accepts two integers from the user and then prints the sum, the difference, the product, the average, the distance (the difference between integer), the maximum (the larger of the two integers), the minimum (smaller of the two integers). Go to the editor  
  
Test Data  
Input 1st integer: 25  
Input 2nd integer: 5  
Expected Output :  
Sum of two integers: 30  
Difference of two integers: 20  
Product of two integers: 125  
Average of two integers: 15.00  
Distance of two integers: 20  
Max integer: 25  
Min integer: 5  
  
Click me to see the solution  
  
10. Write a Java program to break an integer into a sequence of individual digits. Go to the editor  
  
Test Data  
Input six non-negative digits: 123456  
Expected Output :  
1 2 3 4 5 6  
  
Click me to see the solution  
  
11. Write a Java program to test whether a given double/float value is a finite floating-point value or not. Go to the editor  
Click me to see the solution  
  
12. Write a Java program to compare two given signed and unsigned numbers. Go to the editor  
Click me to see the solution  
  
13. Write a Java program to compute the floor division and the floor modulus of the given dividend and divisor. Go to the editor  
Click me to see the solution  
  
14. Write a Java program to extract the primitive type value from a given BigInteger value. Go to the editor  
A primitive type is predefined by the language and is named by a reserved keyword. Primitive values do not share state with other primitive values. The eight primitive data types supported by the Java programming language are byte, short, int, long, float, double, Boolean and char.  
BigInteger() translates the sign-magnitude representation of a BigInteger into a BigInteger. The sign is represented as an integer signum value: -1 for negative, 0 for zero, or 1 for positive. The magnitude is a byte array in big-endian byte-order: the most significant byte is in the zeroth element. A zero-length magnitude array is permissible, and will result in a BigInteger value of 0, whether signum is -1, 0 or 1.  
Click me to see the solution  
  
15. Write a Java program to get the next floating-point adjacent in the direction of positive and negative infinity from a given float/double number. Go to the editor

# Lab problem set 08

1. Write a Java program to get a number from the user and print whether it is positive or negative. Go to the editor  
  
Test Data  
Input number: 35  
Expected Output :  
Number is positive  
  
Click me to see the solution  
  
2. Write a Java program to solve quadratic equations (use if, else if and else). Go to the editor  
  
Test Data  
Input a: 1  
Input b: 5  
Input c: 1  
Expected Output :  
The roots are -0.20871215252208009 and -4.7912878474779195  
  
Click me to see the solution  
  
3. Take three numbers from the user and print the greatest number. Go to the editor  
  
Test Data  
Input the 1st number: 25  
Input the 2nd number: 78  
Input the 3rd number: 87  
Expected Output :  
The greatest: 87  
  
Click me to see the solution  
  
4. Write a Java program that reads a floating-point number and prints "zero" if the number is zero. Otherwise, print "positive" or "negative". Add "small" if the absolute value of the number is less than 1, or "large" if it exceeds 1,000,000. Go to the editor  
  
Test Data  
Input a number: 25  
Expected Output :  
Input value: 25  
Positive number  
  
Click me to see the solution  
  
5. Write a Java program that keeps a number from the user and generates an integer between 1 and 7 and displays the name of the weekday. Go to the editor  
  
Test Data  
Input number: 3  
Expected Output :  
Wednesday  
  
Click me to see the solution  
  
6. Write a Java program that reads in two floating-point numbers and tests whether they are the same up to three decimal places. Go to the editor  
  
Test Data  
Input floating-point number: 25.586  
Input floating-point another number: 25.589  
Expected Output :  
They are different  
  
Click me to see the solution  
  
7. Write a Java program to find the number of days in a month. Go to the editor  
  
Test Data  
Input a month number: 2  
Input a year: 2016  
Expected Output :  
February 2016 has 29 days  
  
Click me to see the solution  
  
8. Write a Java program that takes the user to provide a single character from the alphabet. Print Vowel or Consonant, depending on the user input. If the user input is not a letter (between a and z or A and Z), or is a string of length > 1, print an error message. Go to the editor  
  
Test Data  
Input an alphabet: p  
Expected Output :  
Input letter is Consonant  
  
Click me to see the solution  
  
9. Write a Java program that takes a year from user and print whether that year is a leap year or not. Go to the editor  
  
Test Data  
Input the year: 2016  
Expected Output :  
2016 is a leap year  
  
Click me to see the solution  
  
10. Write a program in Java to display the first 10 natural numbers. Go to the editor  
  
Expected Output :  
  
The first 10 natural numbers are:                                                  
                                                                                   
1                                                                                  
2                                                                                  
3                                                                                  
4                                                                                  
5                                                                                  
6                                                                                  
7                                                                                  
8                                                                                  
9                                                                                  
10  
Click me to see the solution  
  
11. Write a program in Java to display n terms of natural numbers and their sum. Go to the editor  
  
Test Data  
Input the number: 2  
Expected Output :  
  
Input number:                                                                      
2                                                                                  
The first n natural numbers are :                                                  
2                                                                                  
1                                                                                  
2                                                                                  
The Sum of Natural Number upto n terms :                                          
23  
Click me to see the solution.  
  
12. Write a program in Java to input 5 numbers from keyboard and find their sum and average. Go to the editor  
  
Test Data  
Input the 5 numbers : 1 2 3 4 5  
Expected Output :  
  
Input the 5 numbers :                                                              
1                                                                                  
2                                                                                  
3                                                                                  
4                                                                                  
5                                                                                  
The sum of 5 no is : 15                                                            
The Average is : 3.0                            
Click me to see the solution  
  
13. Write a program in Java to display the cube of the number upto given an integer. Go to the editor  
  
Test Data  
Input number of terms : 4  
Expected Output :  
  
Number is : 1 and cube of 1 is : 1                                                
Number is : 2 and cube of 2 is : 8                                                
Number is : 3 and cube of 3 is : 27                                                
Number is : 4 and cube of 4 is : 64  
Click me to see the solution  
  
14. Write a program in Java to display the multiplication table of a given integer. Go to the editor  
  
Test Data  
Input the number (Table to be calculated) : Input number of terms : 5  
Expected Output :  
  
5 X 0 = 0                                                                          
5 X 1 = 5                                                                          
5 X 2 = 10                                                                        
5 X 3 = 15                                                                        
5 X 4 = 20                                                                        
5 X 5 = 25  
Click me to see the solution  
  
15. Write a program in Java to display the n terms of odd natural number and their sum. Go to the editor  
  
Test Data  
Input number of terms is: 5  
Expected Output :  
  
The odd numbers are :                                                              
1                                                                                  
3                                                                                  
5                                                                                  
7                                                                                  
9                                                                                  
The Sum of odd Natural Number upto 5 terms is: 25  
Click me to see the solution  
  
16. Write a program in Java to display the pattern like right angle triangle with a number. Go to the editor  
  
Test Data  
Input number of rows : 10  
Expected Output :  
  
1                                                                                  
12                                                                                
123                                                                                
1234                                                                              
12345                                                                              
123456                                                                            
1234567                                                                            
12345678                                                                          
123456789                                                                          
12345678910  
Click me to see the solution  
  
17. Write a program in Java to make such a pattern like right angle triangle with a number which will repeat a number in a row.The pattern is as follows : Go to the editor  
  
1  
22  
333  
4444  
Click me to see the solution  
  
18. Write a program in Java to make such a pattern like right angle triangle with number increased by 1.The pattern like : Go to the editor  
  
1  
2 3  
4 5 6  
7 8 9 10  
Click me to see the solution  
  
19. Write a program in Java to make such a pattern like a pyramid with a number which will repeat the number in the same row. Go to the editor  
  
       1  
      2 2  
     3 3 3  
    4 4 4 4  
Click me to see the solution  
  
20. Write a program in Java to print the Floyd's Triangle. Go to the editor  
  
Test Data  
Input number of rows : 5  
Expected Output :  
  
Input number of rows :  5  
1  
2 3  
4 5 6  
7 8 9 10  
11 12 13 14 15  
Click me to see the solution  
  
21. Write a program in Java to display the pattern like a diamond. Go to the editor  
  
Test Data  
Input number of rows (half of the diamond) : 7  
Expected Output :  
  
                                                                                   
      \*                                                                            
     \*\*\*                                                                          
    \*\*\*\*\*                                                                          
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    \*\*\*\*\*                                                                          
     \*\*\*                                                                          
      \*                      
   
Click me to see the solution  
  
22. Write a Java program to display Pascal's triangle. Go to the editor  
  
Test Data  
Input number of rows: 5  
Expected Output :  
  
Input number of rows: 5                                                            
      1                                                                            
     1 1                                                                          
    1 2 1                                                                          
   1 3 3 1                                                                        
  1 4 6 4 1                        
   
Click me to see the solution  
  
23. Write a java program to generate a following \*'s triangle. Go to the editor  
  
Test Data  
Input the number: 6  
Expected Output :  
  
\*\*\*\*\*\*                                                    
 \*\*\*\*\*                                                    
  \*\*\*\*                                                    
   \*\*\*                                                    
    \*\*                                                    
     \*  
Click me to see the solution  
  
24. Write a java program to generate a following @'s triangle. Go to the editor  
  
Test Data  
Input the number: 6  
Expected Output :  
  
      @                                                    
     @@                                                    
    @@@                                                    
   @@@@                                                    
  @@@@@                                                    
 @@@@@@  
Click me to see the solution  
  
25. Write a Java program to display the number rhombus structure. Go to the editor  
  
Test Data  
Input the number: 7  
Expected Output :  
  
                                     
      1                                                    
     212                                                  
    32123                                                  
   4321234                                                
  543212345                                                
 65432123456                                              
7654321234567                                              
 65432123456                                              
  543212345                                                
   4321234                                                
    32123                                                  
     212                                                  
      1    
Click me to see the solution  
  
26. Write a Java program to display the following character rhombus structure. Go to the editor  
  
Test Data  
Input the number: 7  
Expected Output :  
  
                                       
      A                                                    
     ABA                                                  
    ABCBA                                                  
   ABCDCBA                                                
  ABCDEDCBA                                                
 ABCDEFEDCBA                                              
ABCDEFGFEDCBA                                              
 ABCDEFEDCBA                                              
  ABCDEDCBA                                                
   ABCDCBA                                                
    ABCBA                                                  
     ABA                                                  
      A      
Click me to see the solution  
  
27. Write a Java program that reads an integer and check whether it is negative, zero, or positive. Go to the editor  
  
Test Data  
Input a number: 7  
Expected Output :  
  
Number is positive  
Click me to see the solution  
  
28. Write a Java program that reads a floating-point number. If the number is zero it prints "zero", otherwise, print "positive" or "negative". Add "small" if the absolute value of the number is less than 1, or "large" if it exceeds 1,000,000. Go to the editor  
  
Test Data  
Input a number: -2534  
Expected Output :  
  
Negative  
Click me to see the solution  
  
29. Write a Java program that reads an positive integer and count the number of digits the number (less than ten billion) has. Go to the editor  
  
Test Data  
Input an integer number less than ten billion: 125463  
Expected Output :  
  
Number of digits in the number: 6  
Click me to see the solution  
  
30. Write a Java program that accepts three numbers and prints "All numbers are equal" if all three numbers are equal, "All numbers are different" if all three numbers are different and "Neither all are equal or different" otherwise. Go to the editor  
  
Test Data  
Input first number: 2564  
Input second number: 3526  
Input third number: 2456  
Expected Output :  
  
All numbers are different  
Click me to see the solution  
  
31. Write a program that accepts three numbers from the user and prints "increasing" if the numbers are in increasing order, "decreasing" if the numbers are in decreasing order, and "Neither increasing or decreasing order" otherwise. Go to the editor  
  
Test Data  
Input first number: 1524  
Input second number: 2345  
Input third number: 3321  
Expected Output :  
  
Increasing order  
Click me to see the solution  
  
32. Write a Java program that accepts two floating­point numbers and checks whether they are the same up to two decimal places. Go to the editor  
  
Test Data  
Input first floating­point number: 1235  
Input second floating­point number: 2534  
Expected Output :  
  
These numbers are different.

# Lab problem 10 Method

Write a Java method to find the smallest number among three numbers. Go to the editor  
Test Data:  
Input the first number: 25  
Input the Second number: 37  
Input the third number: 29  
Expected Output:The smallest value is 25.0  
  
Click me to see the solution  
 Write a Java method to compute the average of three numbers. Go to the editor  
Test Data:  
Input the first number: 25  
Input the second number: 45  
Input the third number: 65  
Expected Output:The average value is 45.0  
  
Click me to see the solution  
 Write a Java method to display the middle character of a string. Go to the editor  
Note: a) If the length of the string is odd there will be two middle characters.  
b) If the length of the string is even there will be one middle character.  
Test Data:  
Input a string: 350  
Expected Output:  
The middle character in the string: 5  
  
Click me to see the solution  
 Write a Java method to count all vowels in a string. Go to the editor  
Test Data:  
Input the string: w3resource  
Expected Output:Number of Vowels in the string: 4  
  
Click me to see the solution  
 Write a Java method to count all words in a string. Go to the editor  
Test Data:  
Input the string: The quick brown fox jumps over the lazy dog.  
Expected Output:Number of words in the string: 9  
  
Click me to see the solution  
 Write a Java method to compute the sum of the digits in an integer. Go to the editor  
Test Data:  
Input an integer: 25  
Expected Output:The sum is 7  
  
Click me to see the solution  
 Write a Java method to display the first 50 pentagonal numbers. Go to the editor  
Note: A pentagonal number is a figurate number that extends the concept of triangular and square numbers to the pentagon, but, unlike the first two, the patterns involved in the construction of pentagonal numbers are not rotationally symmetrical.  
Expected Output:1 5 12 22 35 51 70 92 117 145  
176 210 247 287 330 376 425 477 532 590  
651 715 782 852 925 1001 1080 1162 1247 1335  
1426 1520 1617 1717 1820 1926 2035 2147 2262 2380  
2501 2625 2752 2882 3015 3151 3290 3432 3577 3725  
  
Click me to see the solution  
 Write a Java method to compute the future investment value at a given interest rate for a specified number of years. Go to the editor  
Sample data (Monthly compounded) and Output:  
Input the investment amount: 1000  
Input the rate of interest: 10  
Input number of years: 5  
Expected Output:Years FutureValue  
1 1104.71  
2 1220.39  
3 1348.18  
4 1489.35  
5 1645.31  
  
Click me to see the solution  
 Write a Java method to print characters between two characters (i.e. A to P ). Go to the editor  
Note: Prints 20 characters per line  
Expected Output:( ) \* + , - . / 0 1 2 3 4 5 6 7 8 9 : ;  
< = > ? @ A B C D E F G H I J K L M N O  
P Q R S T U V W X Y Z [ \ ] ^ \_ ` a b c  
d e f g h i j k l m n o p q r s t u v w  
x y z  
  
Click me to see the solution  
 Write a Java method to check whether a year (integer) entered by the user is a leap year or not. Go to the editor  
Expected Output:Input a year: 2017  
false  
  
Click me to see the solution  
 Write a Java method to check whether a string is a valid password. Go to the editor  
Password rules:  
A password must have at least ten characters.  
A password consists of only letters and digits.  
A password must contain at least two digits.  
Expected Output:1. A password must have at least eight characters.  
2. A password consists of only letters and digits.  
3. A password must contain at least two digits  
Input a password (You are agreeing to the above Terms and Conditions.): abcd1234  
Password is valid: abcd1234  
  
Click me to see the solution  
 Write a Java method (takes a number n as input) to displays an n-by-n matrix. Go to the editor  
Expected Output:Input a number: 10  
1 0 0 1 1 0 0 0 1 1  
0 0 1 0 1 0 1 0 0 0  
0 1 0 1 0 0 0 0 0 1  
1 1 1 0 0 0 0 1 1 1  
1 1 0 1 1 1 0 1 0 0  
1 0 0 0 1 1 0 0 0 0  
0 0 1 0 0 0 0 1 1 1  
1 1 0 1 0 1 0 0 1 0  
0 0 1 0 0 0 0 1 1 0  
1 1 1 0 0 1 1 1 1 0  
  
Click me to see the solution  
 Write Java methods to calculate the area of a triangle. Go to the editor  
Expected Output:Input Side-1: 10  
Input Side-2: 15  
Input Side-3: 20  
The area of the triangle is 72.6184377413890  
  
Click me to see the solution  
 Write a Java method to create the area of a pentagon. Go to the editor  
Expected Output:Input the number of sides: 5  
Input the side: 6  
The area of the pentagon is 61.93718642120281  
  
Click me to see the solution  
 Write a Java method to display the current date and time. Go to the editor  
Expected Output:Current date and time: Wednesday January 25, 2017 7:47:43  
  
Click me to see the solution  
 Write a Java method to find all twin prime numbers less than 100. Go to the editor  
Expected Output:(3, 5)  
(5, 7)  
(11, 13)  
(17, 19)  
(29, 31)  
(41, 43)  
(59, 61)  
(71, 73)  
  
Click me to see the solution  
 Write a Java method to count the number of digits in an integer that have the value 2. The integer may be assumed to be non-negative. Go to the editor  
Expected Output:Input a number: 12541  
1  
  
Click me to see the solution  
 Write a Java method that accept three integers and check whether they are consecutive are not. Return true or false. Go to the editor  
Expected Output:Input the first number: 15  
Input the second number: 16  
Input the third number: 17  
Check whether the three said numbers are consecutive or not!true  
  
Click me to see the solution  
 Write a Java method that accepts three integers and returns true if one of them is the middle point between the other two integers, otherwise false. Go to the editor  
Expected Output:Input the first number: 2  
Input the second number: 4  
Input the third number: 6  
Check whether the three said numbers has a midpoint!  
true  
  
Click me to see the solution  
 Write a Java method to develop a Java method for extracting the first digit from a positive or negative integer. Go to the editor  
Expected Output:Input an integer(positive/negative): 1234  
Extract the first digit from the said integer:  
1  
  
Click me to see the solution  
 Write a Java method to display the factors of 3 in a given integer. Go to the editor  
Expected Output:Input an integer(positive/negative): 81  
  
Factors of 3 of the said integer:  
81 = 3 \* 3 \* 3 \* 3 \* 1  
  
Click me to see the solution  
 Write a Java method to check whether every digit of a given integer is even. Return true if every digit is odd otherwise false. Go to the editor  
Expected Output:Input an integer: 8642  
Check whether every digit of the said integer is even or not!  
true  
  
Click me to see the solution  
 Write a Java method that checks whether all the characters in a given string are vowels (a, e,i,o,u) or not. Return true if each character of the string is a vowel, otherwise return false. Go to the editor  
Expected Output:Input a string: AIEEE  
Check all the characters of the said string are vowels or not!  
true  
  
Click me to see the solution

Lab problem set 09 Array

1. Write a Java program to sort a numeric array and a string array. Go to the editor  
  
Click me to see the solution  
  
2. Write a Java program to sum values of an array. Go to the editor  
  
Click me to see the solution  
  
3. Write a Java program to print the following grid. Go to the editor  
  
Expected Output :  
  
- - - - - - - - - -                                                                                            
- - - - - - - - - -                                                                                            
- - - - - - - - - -                                                                                            
- - - - - - - - - -                                                                                            
- - - - - - - - - -                                                                                            
- - - - - - - - - -                                                                                            
- - - - - - - - - -                                                                                            
- - - - - - - - - -                                                                                            
- - - - - - - - - -                                                                                            
- - - - - - - - - -    
Click me to see the solution  
  
4. Write a Java program to calculate the average value of array elements. Go to the editor  
  
Click me to see the solution  
  
5. Write a Java program to test if an array contains a specific value. Go to the editor  
  
Click me to see the solution  
  
6. Write a Java program to find the index of an array element. Go to the editor  
  
Click me to see the solution  
  
7. Write a Java program to remove a specific element from an array. Go to the editor  
  
Click me to see the solution  
  
8. Write a Java program to copy an array by iterating the array. Go to the editor  
  
Click me to see the solution  
  
9. Write a Java program to insert an element (specific position) into an array. Go to the editor  
  
Click me to see the solution  
  
10. Write a Java program to find the maximum and minimum value of an array. Go to the editor  
  
Click me to see the solution  
  
11. Write a Java program to reverse an array of integer values. Go to the editor  
  
Click me to see the solution  
  
12. Write a Java program to find the duplicate values of an array of integer values. Go to the editor  
  
Click me to see the solution  
  
13. Write a Java program to find the duplicate values of an array of string values. Go to the editor  
  
Click me to see the solution  
  
14. Write a Java program to find the common elements between two arrays (string values). Go to the editor  
  
Click me to see the solution  
  
15. Write a Java program to find the common elements between two arrays of integers. Go to the editor  
  
Click me to see the solution  
  
16. Write a Java program to remove duplicate elements from an array. Go to the editor  
  
Click me to see the solution  
  
17. Write a Java program to find the second largest element in an array. Go to the editor  
  
Click me to see the solution  
  
18. Write a Java program to find the second smallest element in an array. Go to the editor  
  
Click me to see the solution  
  
19. Write a Java program to add two matrices of the same size. Go to the editor  
  
Click me to see the solution  
  
20. Write a Java program to convert an array to ArrayList. Go to the editor  
  
Click me to see the solution  
  
21. Write a Java program to convert an ArrayList to an array. Go to the editor  
  
Click me to see the solution  
  
22. Write a Java program to find all pairs of elements in an array whose sum is equal to a specified number. Go to the editor  
  
Click me to see the solution  
  
23. Write a Java program to test the equality of two arrays. Go to the editor  
  
Click me to see the solution  
  
24. Write a Java program to find a missing number in an array. Go to the editor  
  
Click me to see the solution  
  
25. Write a Java program to find common elements from three sorted (in non-decreasing order) arrays. Go to the editor  
  
Click me to see the solution  
  
26. Write a Java program to move all 0's to the end of an array. Maintain the relative order of the other (non-zero) array elements. Go to the editor  
  
Click me to see the solution  
  
27. Write a Java program to find the number of even and odd integers in a given array of integers. Go to the editor  
  
Click me to see the solution  
  
28. Write a Java program to get the difference between the largest and smallest values in an array of integers. The length of the array must be 1 and above. Go to the editor  
  
Click me to see the solution  
  
29. Write a Java program to compute the average value of an array of integers except the largest and smallest values. Go to the editor  
  
Click me to see the solution  
  
30. Write a Java program to check if an array of integers without 0 and -1. Go to the editor  
  
Click me to see the solution  
  
31. Write a Java program to check if the sum of all the 10's in the array is exactly 30. Return false if the condition does not satisfy, otherwise true. Go to the editor  
  
Click me to see the solution  
  
32. Write a Java program to check if an array of integers contains two specified elements 65 and 77. Go to the editor  
  
Click me to see the solution  
  
33. Write a Java program to remove the duplicate elements of a given array and return the new length of the array.  
Sample array: [20, 20, 30, 40, 50, 50, 50]  
After removing the duplicate elements the program should return 4 as the new length of the array.  Go to the editor  
  
Click me to see the solution  
  
34. Write a Java program to find the length of the longest consecutive elements sequence from a given unsorted array of integers.  
Sample array: [49, 1, 3, 200, 2, 4, 70, 5]  
The longest consecutive elements sequence is [1, 2, 3, 4, 5], therefore the program will return its length 5.  Go to the editor  
  
Click me to see the solution  
  
35. Write a Java program to find the sum of the two elements of a given array which is equal to a given integer.  
Sample array: [1,2,4,5,6]  
Target value: 6.  Go to the editor  
  
Click me to see the solution  
  
36. Write a Java program to find all the unique triplets such that sum of all the three elements [x, y, z (x ≤ y ≤ z)] equal to a specified number.  
Sample array: [1, -2, 0, 5, -1, -4]  
Target value: 2.  Go to the editor  
  
Click me to see the solution  
  
37. Write a Java program to create an array of its anti-diagonals from a given square matrix.  Go to the editor  
  
Example:  
Input :  
1 2  
3 4  
Output:  
[  
[1],  
[2, 3],  
[4]  
]  
  
Click me to see the solution  
  
38. Write a Java program to get the majority element from a given array of integers containing duplicates.  Go to the editor  
Majority element: A majority element is an element that appears more than n/2 times where n is the size of the array.  
  
Click me to see the solution  
  
39. Write a Java program to print all the LEADERS in the array.   Go to the editor  
Note: An element is leader if it is greater than all the elements to its right side.  
  
Click me to see the solution  
  
40. Write a Java program to find the two elements from a given array of positive and negative numbers such that their sum is closest to zero.   Go to the editor  
  
Click me to see the solution

# Lab problem 11 Sorting and searching

1) Linear Search in Java

2) Binary Search in Java

3) Bubble Sort in Java

4) Selection Sort in Java

5) Insertion Sort in Java

# Problem 12 String

Write a Java program to get the character at the given index within the string.  
Sample Output:Original String = Java Exercises!  
The character at position 0 is J  
The character at position 10 is i  
  
Click me to see the solution  
 Write a Java program to get the character (Unicode code point) at the given index within the string.  
Sample Output:Original String : w3resource.com  
Character(unicode point) = 51  
Character(unicode point) = 101  
  
Click me to see the solution  
 Write a Java program to get the character (Unicode code point) before the specified index within the string.  
Sample Output:Original String : w3resource.com  
Character(unicode point) = 119  
Character(unicode point) = 99  
  
Click me to see the solution  
 Write a Java program to count Unicode code points in the specified text range of a string.  
Sample Output:Original String : w3rsource.com  
Codepoint count = 9  
  
Click me to see the solution  
 Write a Java program to compare two strings lexicographically.  
Two strings are lexicographically equal if they are the same length and contain the same characters in the same positions.  
Sample Output:String 1: This is Exercise 1  
String 2: This is Exercise 2  
"This is Exercise 1" is less than "This is Exercise 2"  
  
Click me to see the solution  
 Write a Java program to compare two strings lexicographically, ignoring case differences.  
Sample Output:String 1: This is exercise 1  
String 2: This is Exercise 1  
"This is exercise 1" is equal to "This is Exercise 1"  
  
Click me to see the solution  
 Write a Java program to concatenate a given string to the end of another string.  
Sample Output:String 1: PHP Exercises and  
String 2: Python Exercises  
The concatenated string: PHP Exercises and Python Exercises  
  
Click me to see the solution  
 Write a Java program to test if a given string contains the specified sequence of char values.  
Sample Output:Original String: PHP Exercises and Python Exercises  
Specified sequence of char values: and  
true  
  
Click me to see the solution  
 Write a Java program to compare a given string to the specified character sequence.  
Sample Output:Comparing example.com and example.com: true  
Comparing Example.com and example.com: false  
  
Click me to see the solution  
 Write a Java program to compare a given string to a specified string buffer.  
Sample Output:Comparing example.com and example.com: true  
Comparing Example.com and example.com: false  
  
Click me to see the solution  
Write a Java program to create a String object with a character array.  
Sample Output:The book contains 234 pages.  
  
Click me to see the solution  
 Write a Java program to check whether a given string ends with another string.  
Sample Output:"Python Exercises" ends with "se"? false  
"Python Exercise" ends with "se"? true  
  
Click me to see the solution  
 Write a Java program to check whether two String objects contain the same data.  
Sample Output:"Stephen Edwin King" equals "Walter Winchell"? false  
"Stephen Edwin King" equals "Mike Royko"? false  
  
Click me to see the solution  
 Write a Java program to compare a given string to another string, ignoring case considerations.  
Sample Output:"Stephen Edwin King" equals "Walter Winchell"? false  
"Stephen Edwin King" equals "stephen edwin king"? true  
  
Click me to see the solution  
 Write a Java program to print the current date and time in the specified format.  
Sample Output:Current Date and Time :  
June 19, 2017  
3:13 pm  
  
Click me to see the solution  
 Write a Java program to get the contents of a given string as a byte array.  
Sample Output:The new String equals This is a sample String.  
  
Click me to see the solution  
 Write a Java program to get the contents of a given string as a character array.  
Sample Output:The char array equals "[C@2a139a55"  
  
Click me to see the solution  
 Write a Java program to create a distinct identifier for a given string.  
Sample Output:The hash for Python Exercises. is 863132599  
  
Click me to see the solution  
 Write a Java program to get the index of all the characters of the alphabet.  
Sample Output:a b c d e f g h i j  
=========================  
36 10 7 40 2 16 42 1 6 20  
  
k l m n o p q r s t  
===========================  
8 35 22 14 12 23 4 11 24 31  
  
u v w x y z  
================  
5 27 13 18 38 37  
  
Sample string of all alphabet: "The quick brown fox jumps over the lazy dog."  
Click me to see the solution  
 Write a Java program to get the Canonical representation of the string object.  
Sample Output:str1 == str2? false  
str1 == str3? true  
  
Click me to see the solution  
 Write a Java program to get the last index of a string within a string.  
Sample Output: a b c d e f g h i j  
===========================  
36 10 7 40 33 16 42 32 6 20  
  
k l m n o p q r s t  
===========================  
8 35 22 14 41 23 4 29 24 31  
  
u v w x y z  
=================  
21 27 13 18 38 37  
  
Sample string of all alphabet: "The quick brown fox jumps over the lazy dog."  
Click me to see the solution  
 Write a Java program to get the length of a given string.  
Sample Output:The string length of 'example.com' is: 11  
  
Click me to see the solution  
 Write a Java program to find out whether a region in the current string matches a region in another string.  
Sample Output:str1[0 - 7] == str2[28 - 35]? true  
str1[9 - 15] == str2[9 - 15]? false  
  
Click me to see the solution  
 Write a Java program to replace a specified character with another character.  
Sample Output:Original string: The quick brown fox jumps over the lazy dog.  
New String: The quick brown fox jumps over the lazy fog.  
  
Click me to see the solution  
 Write a Java program to replace each substring of a given string that matches the given regular expression with the given replacement.  
Sample string : "The quick brown fox jumps over the lazy dog."  
In the above string replace all the fox with cat.  
Sample Output:Original string: The quick brown fox jumps over the lazy dog.  
New String: The quick brown cat jumps over the lazy dog.  
  
Click me to see the solution  
 Write a Java program to check whether a given string starts with another string.  
Sample Output:Red is favorite color. starts with Red? true  
Orange is also my favorite color. starts with Red? false  
  
Click me to see the solution  
 Write a Java program to get a substring of a given string at two specified positions.  
Sample Output:old = The quick brown fox jumps over the lazy dog.  
new = brown fox jumps  
  
Click me to see the solution  
 Write a Java program to create a character array containing a string.  
Sample Output:Java Exercises.  
  
Click me to see the solution  
 Write a Java program to convert all characters in a string to lowercase.  
Sample Output:Original String: The Quick BroWn FoX!  
String in lowercase: the quick brown fox!  
  
Click me to see the solution  
 Write a Java program to convert all characters in a string to uppercase.  
Sample Output:Original String: The Quick BroWn FoX!  
String in uppercase: THE QUICK BROWN FOX!  
  
Click me to see the solution  
 Write a Java program to trim leading or trailing whitespace from a given string.  
Sample Output:Original String: Java Exercises  
New String: Java Exercises  
  
Click me to see the solution  
 Write a Java program to find the longest Palindromic Substring within a string.  
Sample Output:The given string is: thequickbrownfoxxofnworbquickthe  
The longest palindrome substring in the giv  
en string is; brownfoxxofnworb  
The length of the palindromic substring is: 16  
  
Click me to see the solution  
 Write a Java program to find all interleavings of given strings.  
Sample Output:The given strings are: WX YZ  
The interleavings strings are:  
YWZX  
WYZX  
YWXZ  
WXYZ  
YZWX  
WYXZ  
  
Click me to see the solution  
 Write a Java program to find the second most frequent character in a given string.  
Sample Output:The given string is: successes  
The second most frequent char in the string is: c  
  
Click me to see the solution  
 Write a Java program to print all permutations of a given string with repetition.  
Sample Output:The given string is: PQR  
The permuted strings are:  
PPP  
PPQ  
PPR  
...  
RRP  
RRQ  
RRR  
  
Click me to see the solution  
 Write a Java program to check whether two strings interlive of a given string. Assuming that unique characters are present in both strings.  
Sample Output:The given string is: PMQNO  
The interleaving strings are MNO and PQ  
The given string is interleaving: true  
  
The given string is: PNQMO  
The interleaving strings are MNO and PQ  
The given string is interleaving: false  
  
Click me to see the solution  
 Write a Java program to find the length of the longest substring of a given string without repeating characters.  
Sample Output:Input String : pickoutthelongestsubstring  
The longest substring : [u, b, s, t, r, i, n, g]  
The longest Substring Length : 8  
  
Click me to see the solution  
 Write a Java program to print the result of removing duplicates from a given string.  
Sample Output:The given string is: w3resource  
After removing duplicates characters the new string is: w3resouc  
  
Click me to see the solution  
 Write a Java program to find the first non-repeating character in a string.  
Sample Output:The given string is: gibblegabbler  
The first non repeated character in String is: i  
  
Click me to see the solution  
 Write a Java program to divide a string into n equal parts.  
Sample Output:The given string is: abcdefghijklmnopqrstuvwxy  
The string divided into 5 parts and they are:  
  
abcde  
fghij  
klmno  
pqrst  
uvwxy  
  
Click me to see the solution  
 Write a Java program to remove duplicate characters from a given string that appear in another given string.  
Sample Output:The given string is: the quick brown fox  
The given mask string is: queen  
  
The new string is:  
th ick brow fox  
  
Click me to see the solution  
 Write a Java program to print a list of items containing all characters of a given word.  
Sample Output:The given strings are: rabbit bribe dog  
The given word is: bib  
  
The strings containing all the letters of the given word are:  
rabbit  
bribe  
  
Click me to see the solution  
 Write a Java program to find the character in a string that occurs the most frequently.  
Sample Output:The given string is: test string  
Max occurring character in the given string is: t  
  
Click me to see the solution  
 Write a Java program to reverse a string using recursion.  
Sample Output:The given string is: The quick brown fox jumps  
The string in reverse order is:  
spmuj xof nworb kciuq ehT  
  
Click me to see the solution  
 Write a Java program to reverse words in a given string.  
Sample Output:The given string is: Reverse words in a given string  
The new string after reversed the words: string given a in words Reverse  
  
Click me to see the solution  
 Write a Java program to reverse every word in a string using methods.  
Sample Output:The given string is: This is a test string  
The string reversed word by word is:  
sihT si a tset gnirts  
  
Click me to see the solution  
 Write a Java program to rearrange a string so that the same characters are positioned a distance away.  
Sample Output:The given string is: accessories  
The string after arrange newly is:  
secrsecisao  
  
Click me to see the solution  
 Write a Java program to remove "b" and "ac" from a given string.  
Sample Output:The given string is: abrambabasc  
After removing the new string is: aramaasc  
  
Click me to see the solution  
 Write a Java program to find the first non-repeating character from a stream of characters.  
Sample Output:String: godisgood  
Reading: g  
The first non-repeating character so far is: g  
Reading: o  
The first non-repeating character so far is: g  
Reading: d  
The first non-repeating character so far is: g  
Reading: i  
The first non-repeating character so far is: g  
Reading: s  
The first non-repeating character so far is: g  
Reading: g  
The first non-repeating character so far is: o  
Reading: o  
The first non-repeating character so far is: d  
Reading: o  
The first non-repeating character so far is: d  
Reading: d  
The first non-repeating character so far is: i  
  
Click me to see the solution  
 Write a Java program to find the lexicographic rank of a given string.  
Sample Output:The Given String is: BDCA  
The Lexicographic rank of the given string is: 12  
  
N.B.: Total possible permutations of BDCA are(lexicographic order) :  
ABCD ABDC ACBD ACDB ADBC ADCB BACD BADC BCAD BCDA BDAC BDCA  
1   2   3   4   5   6   7   8   9   10   11   12  
The BDCA appear in 12 position of permutation (lexicographic order).  
Click me to see the solution

**The End**

**Ma’am Part**

**Inheritance**

1. Create a class with a method that prints "This is parent class" and its subclass with another method that prints "This is child class". Now, create an object for each of the class and call

1 - method of parent class by object of parent class  
2 - method of child class by object of child class  
3 - method of parent class by object of child class

1. In the above example, declare the method of the parent class as private and then repeat the first two operations (You will get error in the third).
2. Create a class named 'Member' having the following members:  
   Data members  
   1 - Name  
   2 - Age  
   3 - Phone number  
   4 - Address  
   5 – Salary

It also has a method named 'printSalary' which prints the salary of the members.  
Two classes 'Employee' and 'Manager' inherits the 'Member' class. The 'Employee' and 'Manager' classes have data members 'specialization' and 'department' respectively. Now, assign name, age, phone number, address and salary to an employee and a manager by making an object of both of these classes and print the same.

1. Create a class named 'Rectangle' with two data members 'length' and 'breadth' and two methods to print the area and perimeter of the rectangle respectively. Its constructor having parameters for length and breadth is used to initialize length and breadth of the rectangle. Let class 'Square' inherit the 'Rectangle' class with its constructor having a parameter for its side (suppose s) calling the constructor of its parent class as 'super(s,s)'. Print the area and perimeter of a rectangle and a square.
2. Now repeat the above example to print the area of 15 squares.  
   Hint-Use array of objects
3. Create a class named 'Shape' with a method to print "This is This is shape". Then create two other classes named 'Rectangle', 'Circle' inheriting the Shape class, both having a method to print "This is rectangular shape" and "This is circular shape" respectively. Create a subclass 'Square' of 'Rectangle' having a method to print "Square is a rectangle". Now call the method of 'Shape' and 'Rectangle' class by the object of 'Square' class.
4. Write an inheritance hierarchy for classes Quadrilateral, Trapezoid, Parallelogram, Rectangle and Square. Use Quadrilateral as the superclass of the hierarchy. Create and use a Point class to represent the points in each shape. Make the hierarchy as deep (i.e., as many levels) as possible. Specify the instance variables and methods for each class. The private instance variables of Quadrilateral should be the *x-y* coordinate pairs for the four endpoints of the Quadrilateral. Write a program that instantiates objects of your classes and outputs each object’s area (except Quadrilateral).

## Abstraction

1. Create an abstract class 'Parent' with a method 'message'. It has two subclasses each having a method with the same name 'message' that prints "This is first subclass" and "This is second subclass" respectively. Call the methods 'message' by creating an object for each subclass.
2. Create an abstract class 'Bank' with an abstract method 'getBalance'. $100, $150 and $200 are deposited in banks A, B and C respectively. 'BankA', 'BankB' and 'BankC' are subclasses of class 'Bank', each having a method named 'getBalance'. Call this method by creating an object of each of the three classes.
3. We have to calculate the percentage of marks obtained in three subjects (each out of 100) by student A and in four subjects (each out of 100) by student B. Create an abstract class 'Marks' with an abstract method 'getPercentage'. It is inherited by two other classes 'A' and 'B' each having a method with the same name which returns the percentage of the students. The constructor of student A takes the marks in three subjects as its parameters and the marks in four subjects as its parameters for student B. Create an object for eac of the two classes and print the percentage of marks for both the students.
4. An abstract class has a construtor which prints "This is constructor of abstract class", an abstract method named 'a\_method' and a non-abstract method which prints "This is a normal method of abstract class". A class 'SubClass' inherits the abstract class and has a method named 'a\_method' which prints "This is abstract method". Now create an object of 'SubClass' and call the abstract method and the non-abstract method. (Analyse the result)
5. Create an abstract class 'Animals' with two abstract methods 'cats' and 'dogs'. Now create a class 'Cats' with a method 'cats' which prints "Cats meow" and a class 'Dogs' with a method 'dogs' which prints "Dogs bark", both inheriting the class 'Animals'. Now create an object for each of the subclasses and call their respective methods.
6. We have to calculate the area of a rectangle, a square and a circle. Create an abstract class 'Shape' with three abstract methods namely 'RectangleArea' taking two parameters, 'SquareArea' and 'CircleArea' taking one parameter each. The parameters of 'RectangleArea' are its length and breadth, that of 'SquareArea' is its side and that of 'CircleArea' is its radius. Now create another class 'Area' containing all the three methods 'RectangleArea', 'SquareArea' and 'CircleArea' for printing the area of rectangle, square and circle respectively. Create an object of class 'Area' and call all the three methods.
7. Repeat the above question for 4 rectangles, 4 squares and 5 circles.  
   Hint- Use array of objects.
8. Create an interface TVremote and use it to inherit another interface smart TVremote. Create a class TV which implements TVremote interface.

**Polymorphism**

1. Write a console based program to implement polymorphism using inheritance. Consider the example of Shape as base class with method show(). And then a child class Circle and Rectangle which inherit the base class Shape and override its method show(). Add one more Method with the name of getInfo(). This method would display the class name in which it is implemented. Do not override this method. When you will call the method getInfo() with child object it would still show the name of the base class, which implies that method has been directly inherited and was not overridden.
2. Write a subclass called SubClass that is derived from SuperClass and that adds an integer data field called data2 and a public method called checkCondition() that will check if data1 is equal to 10 and data2 is equal to 15, the checkCondition () method should return “Condition True!”. Also, create methods called setData2() and getData2() for setting and retrieving the value of data1 and data2, as well as a constructor that accepts arguments for the starting values of data1 and data2. data1 is data member of SuperClass.
3. Create a class named Pizza that stores information about a single pizza. It should contain the following:

* Private instance variables to store the size of the pizza (either small, medium, or large), the number of cheese toppings, the number of pepperoni toppings, and the number of ham toppings
* Constructor(s) that set all of the instance variables.
* Public methods to get and set the instance variables.
* A public method named calcCost( ) that returns a double that is the cost of the pizza.

Pizza cost is determined by: Small: $10 + $2 per topping

Medium: $12 + $2 per topping

Large: $14 + $2 per topping

* public method named getDescription( ) that returns a String containing the pizza size, quantity of each topping.

Write test code to create several pizzas and output their descriptions. For example, a large pizza with one cheese, one pepperoni and two ham toppings should cost a total of $22. Now Create a PizzaOrder class that allows up to three pizzas to be saved in an order. Each pizza saved should be a Pizza object. Create a method calcTotal() that returns the cost of order. In the runner order two pizzas and return the total cost.

**Exception Handling Exercises**

1. Write a java program using multiple catch blocks. Create a class CatchExercise inside the try block declare an array a[] and initialize with value a[5] =30/5; . In each catch block show Arithmetic exception and ArrayIndexOutOfBoundsException.

*Test Data:* a[5] =30/5; *Expected Output :*

ArrayIndexOutOfBoundsException occurs Rest of the code

1. Create a program to ask the user for a real number and display its square root. Errors must be trapped using "try..catch".
2. *(Catching Exceptions with Superclasses)* Use inheritance to create an exception superclass (called ExceptionA) and exception subclasses ExceptionB and ExceptionC, where ExceptionB inherits from ExceptionA and ExceptionC inherits from ExceptionB. Write a program to demonstrate that the catch block for type ExceptionA catches exceptions of types ExceptionB and ExceptionC.
3. *(Catching Exceptions Using Class Exception)* Write a program that demonstrates how various exceptions are caught with catch (Exception exception ) This time, define classes ExceptionA (which inherits from class Exception) and ExceptionB (which inherits from class ExceptionA). In your program, create try blocks that throw exceptions of types ExceptionA, ExceptionB, NullPointerException and IOException. All exceptions should be caught with catch blocks specifying type Exception.
4. *(Order of catch Blocks)* Write a program that shows that the order of catch blocks is important. If you try to catch a superclass exception type before a subclass type, the compiler should generate errors.
5. *(Constructor Failure)* Write a program that shows a constructor passing information about constructor failure to an exception handler. Define class SomeClass, which throws an Exception in the constructor. Your program should try to create an object of type SomeClass and catch the exception that’s thrown from the constructor.
6. *(Rethrowing Exceptions)* Write a program that illustrates rethrowing an exception. Define methods someMethod and someMethod2. Method someMethod2 should initially throw an exception. Method someMethod should call someMethod2, catch the exception and rethrow it. Call someMethod from method main, and catch the rethrown exception. Print the stack trace of this exception.
7. *(Catching Exceptions Using Outer Scopes)* Write a program showing that a method with its own try block does not have to catch every possible error generated within the try. Some exceptions can slip through to, and be handled in, other scopes.

**Only 52 page. Jibon sundor.**