

GUJARAT TECHNOLOGICAL UNIVERSITY

Master of Computer Applications (Integrated)

Year II – (Semester-III) (w.e.f. July 2016)

Practical List

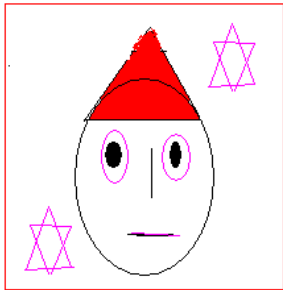
Subject Name: Java Programming
Subject Code: 4430601

Sr NO	Practical
1	<ul style="list-style-type: none"> ○ Install the JDK (Download the JDK and install it.) ○ Set path of the jdk/bin directory. ○ Create the java program ○ Compile and run the java program <p>Write a simple “Hello World” or similar java program, compilation, debugging, executing using java compiler and interpreter.</p>
2	<p>Write a java program to print fibonacci series without using recursion and using recursion.</p> <p>Input: 10 Output: 0 1 1 2 3 5 8 13 21 34</p>
3	<p>Write a java program to check prime number.</p> <p>Input: 44 Output: not prime number Input: 7 Output: prime number</p>
4	<p>Write a java program to check palindrome number.</p> <p>Input: 329 Output: not palindrome number Input: 12321 Output: palindrome number</p>
5	<p>Write a java program to print factorial of a number.</p> <p>Input: 5 Output: 120 Input: 6 Output: 720</p>
6	<p>Write a java program to check Armstrong number.</p> <p>Input: 153 Output: Armstrong number Input: 22 Output: not Armstrong number</p>
7	<p>Write a program in Java to find maximum of three numbers using conditional operator</p>
8	<p>Write a program in Java to find second maximum of n numbers without using arrays</p>
9	<p>Write a program in Java to reverse the digits of a number using while loop</p>
10	<p>Write a program in Java to convert number into words & print it</p>

11	Write a program in Java to multiply two matrix
12	Create a class “Matrix” that would contain integer values having varied numbers of columns for each row. Print row-wise sum of the integer values for each row.
13	Write a Java application which takes several command line arguments, which are supposed to be names of students and prints output as given below: (Suppose we enter 3 names then output should be as follows).. Number of arguments = 3 1.: First Student Name is = Tom 2.: Second Student Name is = Dick 3.: Third Student Name is = Harry Hint: An array may be used for converting from numeric values from 1 to 20 into String
14	Create a class “Student” that would contain enrollmentNo, name, and gender as data members. Create appropriate getter and setter methods for the “Student” class and constructors to initialize the data members. Also demonstrate constructor chaining.
15	Create a class “Rectangle” that would contain length and width as data members. Define constructors [constructor overloading (default, parameterized and copy)] to initialize the data members. Define the member functions to find area and to display the number of objects created. [Note: define initializer block, static initializer block and the static data member and member function. Also demonstrate the sequence of execution of initializer block and static initializer block]
16	Write a program in Java to demonstrate use of this keyword. Check whether this can access the private members of the class or not. [Refer class student in Q14 to perform the task]
17	Write a static block which will be executed before main () method in a class.
18	Write programs in Java to use Wrapper class of each primitive data types
19	Write a class “circle” with radius as data member and count the number of instances created using default constructor only. [Constructor Chaining]
20	Create a class Vehicle with data member vehicle_type. Inherit the class in a class called car with data member model_type, company name etc. display the information of the vehicle by defining the display function in both super and sub class [Method Overriding]
21	Create a class “Account” containing accountNo, and balance as data members. Derive the Account class into two classes named “Savings” and “Current”. The “Savings” class should contain a data member named interestRate, and the “Current” class should contain a data member called overdraftLimit. Create appropriate member functions for all the classes to enable functionalities to check balance, deposit, and withdraw amount in Savings and Current account. [Ensure that the Account class cannot be instantiated.]
22	Write a program in Java to demonstrate the use of ' final ' keyword in the field declaration. How it is accessed using the objects.
23	Develop minimum 4 program based on variation in methods i.e. passing by value, passing by reference, returning values and returning objects from methods
24	Write an application that illustrates how to access a hidden variable. Class A

	declares a static variable x . The class B extends A and declares an instance variable x . display () method in B displays both of these variables.
25	Write a program in Java in which a subclass constructor invokes the constructor of the super class and instantiate the values. [refer class Account and sub classes savingAccount and CurrentAccount in Q 21 for this task]
26	Describe abstract class called Shape which has three subclasses say Triangle, Rectangle, and Circle . Define one method area () in the abstract class and override this area () in these three subclasses to calculate for specific object i.e. area () of Triangle subclass should calculate area of triangle etc. Same for Rectangle and Circle
27	Write an interface called Exam with a method Pass (int mark) that returns a boolean. Write another interface called Classify with a method Division (int average) which returns a String. Write a class called Result which implements both Exam and Classify. The Pass method should return true if the mark is greater than or equal to 50 else false. The Division method must return “First” when the parameter average is 60 or more, “Second” when average is 50 or more but below 60, “No division” when average is less than 50.
28	Assume that there are two packages, student and exam. A student package contains Student class and the exam package contains Result class. Write a program that generates mark sheet for students.
29	Define a class A in package apack. In class A, three variables are defined of access modifiers protected, private and public. Define class B in package bpack which extends A and write display method which accesses variables of class A. Define class C in package cpack which has one method display() in that create one object of class A and display its variables. Define class ProtectedDemo in package dpack in which write main () method. Create objects of class B and C and class display method for both these objects.
30	Write a program that illustrates interface inheritance. Interface P12 inherits from both P1 and P2 . Each interface declares one constant and one method. The class Q implements P12 . Instantiate Q and invoke each of its methods. Each method displays one of the constants.
31	Write a program in Java to demonstrate use of final class.
32	Write a program in Java to develop user defined exception for 'Divide by Zero' error
33	Write a program in Java to demonstrate multiple try block and multiple catch exception
34	Write a small application in Java to develop Banking Application in which user deposits the amount Rs 1000.00 and then start withdrawing of Rs 400.00, Rs 300.00 and it throws exception "Not Sufficient Fund" when user withdraws Rs. 500 thereafter.
35	Write a program that executes two threads. One thread displays “Thread1” every 2,000 milliseconds, and the other displays “Thread2” every 4,000 milliseconds. Create the threads by extending the Thread class

36	Write a program that executes two threads. One thread will print the even numbers and another thread will print odd numbers from 1 to 50.
37	Write a program in Java to demonstrate use of synchronization of threads when multiple threads are trying to update common variable
38	write a program by entering birth date it will display zodiac sign(Hint Aries- March 21-April 20, Taurus- April 21-May 21, Gemini- May 22- June 21, Cancer- June 22-July 22, Leo- July 23-August 21, Virgo- August 22- September 23, Libra- September 24- October 23, Scorpio –October 24-November 22, Sagittarius November 23- December 22, Capricorn December 23- January 20, Aquarius January 21- February 19, Pisces February 20-March 20)
39	Create a class “Schedule” that would contain task and weekDay as data members. The data member weekDay should be created using enum. Inside setter of weekDay ensure that the day is never set to Sunday.
40	Write a program to write at least 10 objects of the Circle class in a File using ObjectOutputStream and perform basic operations: adding, retrieving, updating, removing elements.[Use Generic Data types and Collections for the this task]
41	Write a program for Java Generics and Collections Sorting operations: <ol style="list-style-type: none"> 1. Sorting a list according to natural ordering of elements 2. Reversing sort order 3. Sorting a list whose elements of a custom type 4. Sorting a list using a Comparator
42	Write a program in Java to create, write, modify, read operations on a Text file.
43	Write a program in Java to create the user define package and access the Member variable of classes that contained by package.
44	Make the class CartesianPoint, belong to a package called edu.gtu.geometry, the classes Polygon, Triangle and Rectangle belong to the package edu.gtu.geometry.shapes and the classes TestCartesianPoint, TestTriangle, TestRectangle and TestPolygon belong to the package edu.gtu.test. Use appropriate access specifiers for the classes and the members of the classes defined in the earlier exercises. Now onwards all the classes must be defined in a package.
45	Write a program in Java to create a class component that show control and events handling on that controls (Math calculator).
46	Write a program in Java Draw the Line, Rectangle and Oval using the Graphics class.
47	Create a class StatisticalData, and define a method called loadFromCSV, which takes as parameter an InputStream, where numeric data is available in an ASCII format, in a comma separated form. Overload this method to take a File instance as parameter. Test the new methods using appropriate data.
48	Consider the above exercise and define the following: <ol style="list-style-type: none"> 1. Appropriate class(es) implementing the Comparator interface to make

	<p>comparison of Residence based on the area, rate or price. These class(es) may be defined in the “residence.util” package</p> <p>2. A class called PropertyList as part of the “residence” package, which maintains various Residence objects in an appropriate data structure. It has methods to add residence, remove residence, get residence list in price range, get residence list in area range.</p>
49	<p>Write a program that takes names of a text files as command line argument and searches the files for occurrence of palindromes. The output should print all the occurrences of palindromes in the file, with their filename and line numbers. The end of line in the file will be marked by the newline character, '\n'. (A palindrome is a word which has the same spelling when read from left to right or right to left). Use multithreading to process files in parallel.</p>
50	<p>Create an applet named “UnitConversion”, which allows user to select a particular conversion from following options.(Use list)</p> <ol style="list-style-type: none"> 1. Decimal to Hexadecimal [Use Integer.toHexString()]. 2. Decimal to Octal [Use Integer.toOctalString()]. 3. Feet to Centimeter.(1 feet = 30.48cm) 4. Inches to Feet (1 feet = 12 inches)
51	<p>Write a program in Java to Create Menu using the frame.</p>
52	<p>Write a JFrame to enter the details of the Student (rollno, name, father’s name, mother’s name , age, semester, division, address etc.) and store the Student object in a file on click of a button called “Add Record”. On click of “Search Record” button a dialog box opens to get the rollno of the student. Display the result in dialog box. [Use Proper Layout Managers]</p>
53	<p>Draw applet for the following figure:</p> 
54	<p>Write a program by creating a JPanel object and JCheckBox object. Put the checkbox into the centre of the panel and put the panel into the north section of the frame window. When the checkbox is selected the text should be green ; when the checkbox is not selected the text should be red</p>