

PUNE INSTITUTE OF COMPUTER TECHNOLOGY
DHANKAWADI, PUNE – 43.

LIST OF LAB EXPERIMENTS

ACADEMIC YEAR: 2019-2020

Date: 15/06/2019

DEPARTMENT: COMPUTER ENGINEERING

SUBJECT: OBJECT ORIENTED PROGRAMMING LABORATORY(210248)

CLASS: S.E.

SEMESTER: I

Instructions:

- To design assignments list by selecting at least 12 suitable assignments from group A, B, and C along with compulsory assignment.
- Select at least 5 from group A, 4 from group B, 3 from group C
- Program codes with sample output of all performed assignments are to be submitted as softcopy.

GROUP	LAB EXP NO	TOPIC OF ASSIGNMENT
Compulsory Assignment		
	1	Install, Configure 64 bit Linux Operating Systems, study basic architecture, memory system, and learn basic administration
GROUP A (at least 5)		
	2	Implement a class Complex which represents the Complex Number data type. Implement the following operations: <ol style="list-style-type: none">1. Constructor (including a default constructor which creates the complex number 0+0i).2. Overloaded operator+ to add two complex numbers.3. Overloaded operator* to multiply two complex numbers.4. Overloaded << and >> to print and read complex Numbers.

A	3	<p>Implement a class Quadratic that represents degree two polynomials i.e., polynomials of type $ax^2 + bx + c$. The class will require three data members corresponding to a, b and c.</p> <p>Implement the following operations:</p> <ol style="list-style-type: none"> 1. A constructor (including a default constructor which creates the polynomial). 2. Overloaded operator+ to add two polynomials of degree 2. 3. Overloaded << and >> to print and read polynomials. To do this, you will need to decide what you want your input and output format to look like. 4. A function <i>eval</i> that computes the value of a polynomial for a given value of x. 5. A function that computes the two solutions of the equation $ax^2 + bx + c = 0$.
	4	<p>Write a C++ program to create a calculator for an arithmetic operator (+, -, *, /). The program should take two operands from user and performs the operation on those two operands depending upon the operator entered by user. Use a switch statement to select the operation. Finally, display the result.</p> <p>Some sample interaction with the program might look like this:</p> <p><i>Enter first number, operator, second number: 10 / 3</i> <i>Answer = 3.333333</i> <i>Do another (y/n)? y</i> <i>Enter first number, operator, second number: 12 + 100</i> <i>Answer = 112</i> <i>Do another (y/n)? n</i></p>
	5	<p>Develop an object oriented program in C++ to create a database of student information system containing the following information: Name, Roll number, Class, division, Date of Birth, Blood group, Contact address, telephone number, driving license no. etc Construct the database with suitable member functions for initializing and destroying the data viz constructor, default constructor, Copy constructor, destructor, static member functions, friend class, this pointer, inline code and dynamic memory allocation operators-new and delete.</p>
	6	<p>Create employee bio-data using following classes</p> <ol style="list-style-type: none"> i) Personal record ii) Professional record iii) Academic record <p>Assume appropriate data members and member function to accept required data & print bio-data. Create bio-data using multiple inheritances using C++.</p>
GROUP B (at least 4)		
	7	<p>Crete User defined exception to check the following conditions and throw the exception if the criterion does not meet.</p>

B		<p>a. User has age between 18 and 55</p> <p>b. User has income between Rs. 50,000 – Rs. 1,00,000 per month</p> <p>c. User stays in Pune/Mumbai/Bangalore/Chennai</p> <p>d. User has 4-wheeler</p> <p>Accept age, income, city, vehicle from the user and check for the conditions mentioned above. If any of the condition does not met then throw an exception.</p>
	8	Write a C++ program that creates an output file, writes information to it, closes the file and open it again as an input file and read the information from the file.
	9	<p>Write a C++ program using command line arguments to search for a word in a file and replace it with the specified word. The usage of the program is shown below.</p> <p>\$ change <old word> <new word> <file name></p>
	10	Write a function template selection sort. Write a program that inputs, sorts and outputs an int array and a float array.
Group C (At least 3)		
	11	Write C++ program using STL for implementation of stack & queue using SLL
	12	Write C++ program using STL for Dequeue (Double ended queue)
	13	Write C++ program using STL for sorting and searching with user-defined records such as Person Record (Name, birth date, telephone no), item record (item code, item name, quantity and cost)
Mini-projects		
	14	Design and develop the Tic-Tac-Toe game using C++
	15	<p>Develop a Supermarket Billing System using C++. The key features of this application are listed below :</p> <ul style="list-style-type: none"> • Bill Report : It shows the bill report of all the items added in supermarket billing system. • Add, Remove or Edit items: With this feature one can add, remove and modify item details. In add items, one can add information or details such as item no., item name, manufacturing date, price, quantity, tax percent, and many more. • Show item details: This feature allows users to see the items and the corresponding details given for the item while adding the item. <p>Use file to store the data.</p>

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