**DEPARTEMENT OF INFORMATION TECHNOLOGY**

**IT232 Object Oriented Programming Lab**

**LAB CYCLE (2018- 22 BATCH)**

**Basic Experiments (WEEK-1)**

1. Write a program to find the prime factors of a given number.
2. Write a program to check whether a given number is palindrome or not.
3. Write a program to print Fibonacci series up to n.
4. Write a program which prompts the user for a 3-digit integer and use a function to check whether the middle digit is numerically equal to the sum of the other two digits and return the result.
5. Write a program to sort an array of integer in ascending order using a function

**EXPERIMENT NO : 1**

1. Write a program to row wise sort a square matrix using functions with default arguments.
2. Write a program to find the compound interest using function with arguments and return interest.
3. Write a program to swap two number by call by value, call by address and call by reference mechanism, using tthe functions swap\_value(), swap\_address() and swap\_reference respectively , by getting the choice from the user and executing the user’s choice by switch-case.

**EXPERIMENT NO : 2**

1. Define a class to represent a bank account, include the following members:

Data members

1. Name of the depositor
2. Account number
3. Type of account
4. Balance amount in the account

Member Functions

1. To assign initial values
2. To deposit an amount
3. To withdraw an amount after checking the balance.
4. To display name and balance.
5. Write an object oriented program to accept and count of votes of valid candidates. Also print the discarded votes if the candidate ID is invalid. Use constructor to initialize the candidate\_votes as 0 and declare total\_votes as static data member. Assume valid candidate ID is from 1-5 and use array of objects to keep the count of votes of valid candidates.
6. Write a program to use pointer to an object for getting information about a book in a library.

Data members are: Accno, Title, Author, Price, Issue\_date, Return\_date and Fine.

Member functions are: to Assign values to the data members calculate fine and print details of the particular book

Use the data members Title and Author as pointer data members

**EXPERIMENT NO : 3**

1. Write a program to count the number of persons inside a bank, by increasing count whenever a person enters a bank, using an increment (++) operator overloading function, and decrease the count whenever a person leaves the bank using a decrement (--) operator overloading function inside a class.
2. Program to define an overloaded function to perform different types of sum such as (a) sum of two numbers (b) sum of the digits of a number. (c) Sum of two string (joining).
3. Construct a class “Figure” for storage of dimensions of circles, triangle and rectangle and calculate their area using constructor overloading.

**EXPERIMENT NO :4**

1. Assume that a bank maintains two kinds of accounts for customers, one called as savings account and other as current account. Create a class *account* that stores customer name, account number and type of account. From this derive the classes **cur\_acct** and **sav\_acct** to make them more specific to their requirements. Include necessary member functions to achieve the following tasks.
2. Accept deposit from a customer and update the balance.
3. Display the balance.
4. Compute and deposit interest.
5. Permit withdrawal and update balance.
6. Write a C++ program to create a programmer derived from employee which is derived from person using Multilevel Inheritance.

Class name Data Members

Person Name, Age, Gender

Employee Company, Salary

Programmer languages\_known

1. Write a program to print the marklist of student using student class representing name and roll. No and two derived classes “subject” and “language”. The “subject” and “language” class should be inherited by a “result” class having the functionality to add the marks of both subject and language and print the marklist for a student. Use virtual functions to eliminate the ambiguity.

**EXPERIMENT NO : 5**

1. Write a program to write text in the file. Read the text from the file from end of file. Display the contents of the file in reverse order.
2. Store n numbers in a file numbers.txt. Write a menu driven program to do the following
3. Find odd numbers from numbers.txt and store it in odd.txt
4. Find even numbers from numbers.txt and store it in even.txt
5. Write a menu driven program to enter the details of a student (id, name, address, age, marks) into a file, to display records from the file and to modify records in the file.

**EXPERIMENT NO : 6**

1. Two integers are taken from keyboard. Then perform division operation.

a) A try block to throw an exception when a wrong type of data is keyed.

b) When division by zero occurs.

Write appropriate catch block to handle the exception thrown.

1. Write a program to display the best student information by comparing marks of two students, use ‘this ‘ pointer and friend function.
2. Write a function calculateAverage() which takes four int arguments which are marks for four courses in the semester and returns their average as a float. The calculateAverage() function should take only valid range for marks which is between 0 - 100. If the marks are out of range throw an OutOfRangeException

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