Practical 01

Practical: Create your e-mail account on Gmail/Yahoo mail/Hotmail.

OBJECTIVE: To create a personal e-mail account.

SOFTWARE REQUIRED:

Internet Explorer/ Mozila / Google Chrome (any browser)

PROCEDURE:

* It was ensured that the computer was turned on and that Internet service was enabled.
* A web browser, such as Internet Explorer, Mozilla, or Google Chrome, was opened.
* The URL for Gmail (www.gmail.com) was typed in.
* The sign-up button was clicked.
* The registration form was filled in.
* The terms and conditions were read before being accepted.
* The filled form was submitted.
* Then, the account was created, and it could be used for communication.

PRECAUTIONS:

* A username that can relate to the user is to be chosen.
* A very simple password is not to be used.

OBSERVATION:

Practical 02

Practical: XYZ enterprises, a pharmaceutical company is heading for its annual general body meeting. You have been assigned the work to create a document using OpenOffice Writer highlighting the important achievements of your company. Also form a spreadsheet in Calc showing the item wise sales in each month. The spreadsheet should also show the average sales figures and the total annual sales. Finally, form a 3 minutes presentation using Impress highlighting your company, its objective, estimated sales target and the achieved sales in the last financial year. (Note : You may assume the sales figures)

OBJECTIVE: To use office productivity tools like Writer, Calc and Impress.

SOFTWARE REQUIRED:

* OpenOffice Writer
* OpenOffice Calc
* OpenOffice Impress

PROCEDURE:

* OpenOffice Writer was opened.
* A document was formed to showcase the company and its objectives, as well as the major achievements of the last financial year.
* The document was formatted using appropriate font size, style, and color.
* The file was saved by a chosen name, such as ABCdoc.odt.
* OpenOffice Calc was opened.
* A spreadsheet was formed to show the sales figures of various items produced by the company. At least five items, such as the names of the medicines in this case, were taken into consideration.
* Appropriate functions were used to display average sales and total sales.
* The file was saved with an appropriate name.
* OpenOffice Impress was opened.
* A presentation was created by inserting a minimum of 10-15 slides to show the company's progress and sales.
* Appropriate animations and transitions were inserted in the presentation.
* The document was saved by a chosen name.

PRECAUTIONS:

* The file name and the location where the file is saved is to be remembered.

OBSERVATION:

From this practical I learned about creating a document in OpenOffice in Writer to highlight the important achievements of XYZ enterprise, a spreadsheet in OpenOffice Calc to show item wise sales and average sales for each month and a 3 minute presentation using OpenOffice Impress to cover the company's objectives, estimated sales etc. Through this practical we were able to gain valuable experience in creating documents, spreadsheets and presentations with office productivity software OpenOffice.

PRACTICAL 03

Write a C++ program to accept two numbers, a float and an integer and display the following :-   
a) Sum of two numbers in integer form.  
b) Sum of two numbers in float form.

OBJECTIVE:

To use basic data types, operators and type conversion in C++

SOFTWARE REQUIRED:

MinGw G++ Compiler, Visual Studio Code

PROCEDURE:

* Two numbers were accepted using input stream.
* Two numbers were added using arithmetic operators.
* The numbers were displayed in integer and float form using output stream.

PRECAUTION:

* The name and enrollment number is to be added as a comment on the top of the program.
* The program is to be saved with proper filename having .cpp extension.
* A folder is to be created to store all the programs in the folder.

OBSERVATION:

From this practical I observed that the input output stream belongs to the header file <iostream> that lets us use them. I gained hands-on experience with variables, data types, arithmetic operators and casting a variable’s data type to a desired one using the static\_cast<>() function. The program was an excellent example of how to display results in different data types, which is an essential skill for any programmer.

PRACTICAL 04

Write a C++ program that accepts radius and then displays the area and perimeter of a circle. Consider “Pi” as a constant with value 3.14.

OBJECTIVE:

To use the basic data types, operators, constants and variables in C++.

SOFTWARE REQUIRED:

MinGw G++ Compiler, Visual Studio Code

PROCEDURE:

* Two numbers were accepted using input stream.
* Area of the circle was calculated (pi\*r\*r) and perimeter was calculated (2\*pi\*r).
* Result was displayed in appropriate form using output stream.

PRECAUTIONS:

* The name and enrollment number are to be added as a comment on top of the program.
* The program is to be saved with proper filename having .cpp extension.
* A folder is to be created to store all the programs in the folder.

OBSERVATION:

From this practical I learned about the input and output stream and used the input stream to accept the radius and used the output stream to displays the area and perimeter of a circle. I understood and implemented the mathematical formulae for calculating the area and perimeter of a circle using the given radius and the constant value of Pi. I used the cmath header file to use the pow() function in the program. Through this practical, I learned how to use C++ to solve real-world problems.

PRACTICAL 05

Write a C++ program to accept a number. Using conditional operator print whether the number is even or odd

OBJECTIVE:

To use conditional operator in C++.

SOFTWARE REQUIRED:

MinGw G++ Compiler, Visual Studio Code

PROCEDURE:

* A number was accepted from the user using input stream.
* Conditional operator was used for finding whether the number was even or odd.
* Syntax of conditional operator was:

**(condition)?statement if condition is true: statement if condition is false**

* Result was displayed.

PRECAUTION:

* The name and enrollment number are to be added as a comment on top of the program.
* The program is to be saved with proper filename having .cpp extension.
* A folder is to be created to store all the programs in the folder.

OBSERVATION:

The program was able to accept a number from the user and using the conditional operator, was able to determine whether the number is even or odd. When a number is entered, the program prints "The number is even" if the number is even and "The number is odd" if the number is odd.

PRACTICAL 06

Write a C++ program to accept a character. Print whether the character is an alphabet, digit, or a special character. Display appropriate messages.

OBJECTIVE:

To use conditional statements in C++ like:-

if ….. else   
if …… elseif…else

SOFTWARE REQUIRED:

MinGw G++ Compiler, Visual Studio Code

PROCEDURE:

* A character was accepted from the user.
* If … else statement was used for finding the character was alphabet, digit, or a special character.
* Syntax of if statement was.

if(condition)

{ code when true }

else

{ code when not true }

* Result was displayed.

PRECAUTION:

* The name and enrollment number are to be added as a comment on top of the program.
* The program is to be saved with proper filename having .cpp extension.
* A folder is to be created to store all the programs in the folder.

OBSERVATION:

The program was able to accept a character from the user and determine whether it is an alphabet, digit, or a special character. When a character is entered, the program prints "The character is an alphabet" if it is an alphabet, "The character is a digit" if it is a digit, and "The character is a special character" if it is neither an alphabet nor a digit.

PRACTICAL 07

Write a C++ program to accept a number and display the corresponding number of week day   
E.g., If the user enters “1” display “ Monday”, if the user enters “2” display “ Tuesday”…… and so on.

OBJECTIVE:

To use conditional statement, switch…… case in C++.

SOFTWARE REQUIRED:

MinGw G++ Compiler, Visual Studio Code

PROCEDURE:

* A number was accepted from the input stream.
* Switch case statement was used.

Syntax:

switch (variable)

{

case 1: statement1 ; break;

case 2: statement 2 ; break;

case 3:statement 3; break;

.

.

.

default: default statement break;

}

* Result was displayed.

PRECAUTION:

* The name and enrollment number are to be added as a comment on top of the program.
* The program is to be saved with proper filename having .cpp extension.
* A folder is to be created to store all the programs in the folder.
* Own logic building skill is to be used to develop the program.
* Appropriate messages are to be displayed.

OBSERVATION:

The program was able to accept a number from the user and display the corresponding day of the week. When a number between 1 and 7 is entered, the program prints the corresponding day of the week (Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, or Sunday). If a number outside this range is entered, the program prints "Invalid input".

PRACTICAL 08

Write a C++ program (using while loop ) to display all the multiples of 5 from 100 to 50.

OBJECTIVE:  
To use looping statement while ( ) in C++.

SOFTWARE REQUIRED:

MinGw G++ Compiler, Visual Studio Code

PROCEDURE:

* While loop was used.
* Syntax:

while(test-expression)

{

body of the loop

Increment / decrement

}

* The result was displayed.

PRECAUTION:

* The name and enrollment number are to be added as a comment on top of the program.
* The program is to be saved with proper filename having .cpp extension.
* A folder is to be created to store all the programs in the folder.
* Own logic building skill is to be used to develop the program.

OBSERVATION:

The program was able to display all the multiples of 5 from 100 to 50 using a while loop. The program first initializes a variable "num" to 100, and then enters a while loop that continues until "num" is equal to 50. If "num" is a multiple of 5, the program prints it to the console. The program then decrements the value of "num" by 1 in each iteration of the while loop. The output of the program displays all the multiples of 5 from 100 to 50.

PRACTICAL 09

Write a program using do..while loop to display the Fibonacci series 0, 1, 1, 2, 3, 5… n

OBJECTIVE:

To use do …… while statement in C++.

SOFTWARE REQUIRED:

MinGw G++ Compiler, Visual Studio Code

PROCEDURE:

* Do… while loop was used in the program.
* Logic for displaying Fibonacci series 0,1,1,2,3,5,8…. was used.
* Syntax:

do

{

Body of the loop

Increment / decrement statements

}while(test-expression);

* Fibonacci series was displayed.

PRECAUTION:

* The name and enrollment number are to be added as a comment on top of the program.
* The program is to be saved with proper filename having .cpp extension.
* A folder is to be created to store all the programs in the folder.
* Own logic building skill is to be used to develop the program.

OBSERVATION:

The program was able to display the Fibonacci series using a do..while loop. The program initializes two variables "num1" and "num2" to 0 and 1 respectively. The program then prints the values of "num1" and "num2" to the console. The do..while loop is then used to calculate and print the remaining terms of the Fibonacci series. In each iteration of the loop, the sum of the previous two terms is calculated and printed to the console. The values of "num1" and "num2" are then updated to move to the next term of the series. The loop continues until the sum of the previous two terms is greater than the entered value "n".

PRACTICAL 10

Write a C++ program using for loop to find whether the number is an Armstrong number or not.

OBJECTIVE:

To use “for loop” in C++.

SOFTWARE REQUIRED:

MinGw G++ Compiler, Visual Studio Code

PROCEDURE:

* A number was accepted from the input stream.
* For loop was used in the program.
* Syntax

for (initialization; condition; increment/decrement)

{

Body of the loop

}

* An Armstrong number was one whose sum of cube of digits was the number itself. For example 153 was an Armstrong number.

153=1**3+5**3+3^3

* The required logic was used in the program for finding if the given number was Armstrong or not.
* The relevant result was displayed.

PRECAUTION:

* The name and enrollment number are to be added as a comment on top of the program.
* The program is to be saved with proper filename having .cpp extension.
* A folder is to be created to store all the programs in the folder.
* Own logic building skill is to be used to develop the program.

OBSERVATION:

The program was able to find whether the entered number is an Armstrong number or not using for loop. The program first takes an input from the user, which is stored in the variable "num". The program then calculates the number of digits in the entered number using a while loop. The value of the entered number is then stored in the variable "originalNum". The for loop is then used to calculate the sum of the cubes of the individual digits of the number. The program then checks if the sum of the cubes of the digits is equal to the entered number or not. If it is, the program displays a message that the number is an Armstrong number. Otherwise, the program displays a message that the number is not an Armstrong number.

PRACTICAL 11

Write a menu driven program to swap two numbers using call by value and call by reference.

OBJECTIVE:

To structure a program where a large program can be divided into smaller, simpler modules using user defined functions

SOFTWARE REQUIRED:

MinGw G++ Compiler, Visual Studio Code

PROCEDURE:

* Two numbers were accepted from the input stream.
* Function for swapping two numbers was created.
* Call by value method was used and two numbers were swapped.
* Call by reference method was used and two numbers were swapped.
* Syntax for function prototype:

return-type function\_name( arg-types);

* Syntax of function definition

return-type function\_name( arg-types)

{

declarations;

statements;

}

PRECAUTION:

* The name and enrollment number are to be added as a comment on top of the program.
* The program is to be saved with proper filename having .cpp extension.
* A folder is to be created to store all the programs in the folder.
* Own logic building skill is to be used to develop the program.

OBSERVATION:

The program was able to swap two numbers using call by value and call by reference. The program displays a menu with two options - to swap using call by value, to swap using call by reference. If the user chooses to swap using call by value, the program takes two integers as input from the user and passes them to the function "swapByValue". The function uses a temporary variable to swap the values of the two integers and displays the swapped values. The values of the original variables remain unchanged. If the user chooses to swap using call by reference, the program takes two integers as input from the user and passes them to the function "swapByReference". The function swaps the values of the two integers using reference variables and displays the swapped values. The values of the original variables are also swapped.

PRACTICAL 12

Create three functions by the name CALCULATE() according to the prototypes given below:

* void CALCULATE(int) // to check whether the argument being passed is even or odd
* int CALCULATE(int, int) // to return the sum of two numbers being passed as arguments.
* void CALCULATE() // to display the message “ YOU ARE DOING GREAT”

OBJECTIVE:

To structure a program where a large program can be divided into a smaller, simpler modules using user defined functions.

SOFTWARE REQUIRED:

MinGw G++ Compiler, Visual Studio Code

PROCEDURE:

* CALCULATE function was created.
* Syntax for function prototype:

return-type function\_name( arg-types)

* Syntax of function definition:

return-type function\_name( arg-types)

{

declarations;

statements;

}

* The functions with same function name were distinguished by the number and type of arguments (Function signature).

PRECAUTION:

* The name and enrollment number are to be added as a comment on top of the program.
* The program is to be saved with proper filename having .cpp extension.
* A folder is to be created to store all the programs in the folder.
* Own logic building skill is to be used to develop the program.

OBSERVATION:

The program was able to create three functions by the name CALCULATE() and execute them successfully. The first function takes an integer argument and checks whether it is even or odd. If the argument is even, it displays a message stating that it is even. If the argument is odd, it displays a message stating that it is odd. The second function takes two integer arguments and returns their sum. The third function takes no arguments and displays a message stating "YOU ARE DOING GREAT!". In the main function, these three functions were called in order.

PRACTICAL 13

Write a C++ program to accept two strings and do the following:

1. Compare the two Strings
2. Display the length of the strings
3. Append the strings.

OBJECTIVE:

To use header files and their built in functions in C++.

SOFTWARE REQUIRED:

MinGw G++ Compiler, Visual Studio Code

PROCEDURE:

* Two strings were accepted from the input stream.
* The following string functions were used:

1. strcmp(S1, S2) - to compare two strings
2. strlen(S1) - to find the length of the string
3. strcat(S1,S2) - to append one string after another

(S1 and S2 are string variables)

* The result was displayed.

PRECAUTION:

* The name and enrollment number are to be added as a comment on top of the program.
* The program is to be saved with proper filename having .cpp extension.
* A folder is to be created to store all the programs in the folder.
* Own logic building skill is to be used to develop the program.

OBSERVATION:

The program was able to accept two strings from the user and perform the three required operations successfully. The first operation was to compare the two strings, and the program correctly displayed whether the two strings are equal or not. The second operation was to display the length of the two strings, and the program correctly displayed the length of both strings. The third operation was to append the two strings, and the program correctly appended the two strings and displayed the result.

PRACTICAL 14

Write a C++ program to accept ten numbers using an array. Search for a number in an array using binary search method.

OBJECTIVE:

To create, initialize and traverse a one-dimensional array using C++ and also understand the logic of binary search.

SOFTWARE REQUIRED:

MinGw G++ Compiler, Visual Studio Code

PROCEDURE:

* 10 numbers were accepted in an array.
* A number, say S, was accepted.
* The number S was checked whether it existed in the array using binary search method.
* If number existed “ NUMBER EXITS in … LOCATION” was displayed else “NUMBER NOT FOUND” was displayed.

PRECAUTION:

* The name and enrollment number are to be added as a comment on top of the program.
* The program is to be saved with proper filename having .cpp extension.
* A folder is to be created to store all the programs in the folder.
* Own logic building skill is to be used to develop the program.

OBSERVATION:

The program was able to accept ten numbers from the user and search for a number in the array using binary search method. The program correctly sorted the array in ascending order using sorting algorithm and then performed binary search to find the index of the searched number. The program correctly displayed the index of the number if it was present in the array, or displayed a message that the number is not present in the array.

PRACTICAL 15

Write a C++ program to accept eight numbers in an array. Sort the numbers in ascending order using Bubble sort method. Also insert a number in the sorted array.

OBJECTIVE:

To sort array in ascending or descending order in C++.

SOFTWARE REQUIRED:

MinGw G++ Compiler, Visual Studio Code

PROCEDURE:

* 8 numbers were accepted in an array.
* The numbers were sorted in ascending order using Bubble sort method.
* The sorted list was printed.
* A new number was accepted.
* The number was inserted in the appropriate position in the sorted list.
* All the nine numbers of the array were displayed.

PRECAUTION:

* The name and enrollment number are to be added as a comment on top of the program.
* The program is to be saved with proper filename having .cpp extension.
* A folder is to be created to store all the programs in the folder.
* Own logic building skill is to be used to develop the program.

OBSERVATION:

The program was able to accept eight numbers from the user, sort the number in ascending order and insert a number in the sorted array. The input numbers were accepted into the array and sorted in ascending order using the Bubble sort method. The number to be inserted was also accepted and inserted into the sorted array using a for loop. The final sorted array with the inserted number was displayed as output.