Experiment No - 1

19UCS122

Title: Write a program to implement function & structure in C++.

Objectives:

1. To understand the basic structure and function in C++.
2. To understand use of function and structure.

Key concepts:

function prototype, arguments, function call, function defination, structure.

Theory:

* What is function:

→ A function is a block of code that performs some operation.

→ A function can optionally define input parameters that enable callers to pass arguments into the function

→ A function can optionally return a value as output

→ functions are useful for encapsulating common parameters in a single reusable block.

→ Ideally with a name that clearly describes what the function does.

* To use a C++ function, you must do the following:

→ provide a function defination

→ Provide a function prototype

→ Call the function

* If you are using a library function, the function has already been defined and compiled for you. Also, you can use a standard library header file to provide the prototype.

All that's left to do is call the function properly

19/05/22

For example, the standard C library includes the strlen() function for finding the length of the string. The associated standard header file cstring contains the function prototype for strlen() and several other string-related functions.

But when you create your own functions, you have to handle all three aspects - prototyping, defining, and calling - yourself.

* You can group functions into two categories:

→ function that don't have return values, function without return values are termed type void functions

→ function that return values.

* What prototypes do for you:

They greatly reduce the chances of program errors. In particular, prototype ensure the following:

→ The compiler correctly handles the function return value.

→ the compiler checks that you use the correct number of function arguments.

→ the compiler checks that you use the correct type of arguments. If you don't, it converts the arguments to the correct type, if possible

* What is structure:

A structure is a user-defined data type in c/c++. A structure creates a data type that can be used to group items of possibly different types into a single type.

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The 'struct' keyword is used to create a structure the general syntax to create a structure is shown below:

```
struct structureName {
    member1;
    member2;
    member3;
      .
      .
      .
    member N;
};
```

* structures in C++ can contain two types of members

Data Member: These members are normal C++ variable. We can create a structure with variables of different data types in C++.

Member functions: These members are normal C++ functions. Along with variables, we can also include functions inside a structure declaration.