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EXPERIMENT - 1

→ Understanding the basics of C++ library, variable & data io.

- C++ standard library :-

It can be categorized in two parts :-

1) Standard function Library = Consist of general purpose, stand-alone functions that are not part of any class. This library is inherited from C.

2) Object oriented Class library = collection of class and associated functions.

- Variables in C++ - A variable is a placeholder for value and can vary i.e, Time, temperature, height, width, username etc. Each value can change. To store temp. in var, make sure that var. can store full value.

- Rules for nomenclature of variable :-

1) Variable must begin with a alphabet or underscore.
2) Var. should not begin with number
3) Var. are case-sensitive i.e, upper-case & lower case are different variables.
4) Var. must not contain any special Ch.

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- Data-type :- A data type is a designation of the kind and size of data.
  For eg :- Char data type store character, int stores only whole no. upto a max size.

- C++ Basic Input :-
  → Streams in C++ : C++ provides users with a number of libraries that they can perform input / output tasks. Those tasks are done in form of type sequence, called streams. They are of two types :-

1) Input Stream = Where byte flow from a device such as keyboard to main-memory.

2) Output Stream = Where byte flows in opposite dirn., i.e from main memory to device such as screen.

- C++ Header File for I/O :-
  C++ provides library that comes with functions for performing basic input / output tasks.

1) Iostream :- Acronym for standard Input / output stream. This header file comes with defn for objects like cin / cout / cerr.

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2) Iomanip : Acronym for Input / output manipulation. It comes with function that can be used for the manipulation of streams.

3) Fstream : This is a header file for describing the file stream.

→ This "cin", "cout" keywords are used for taking the input and printing output respectively in C++. You must include iostream header file in your program.

• Standard output stream (cout):
It is connected with standard output device, which is usually a display screen. It is in conjunction with stream insersion operator (<<) to display output on console:

Ex :

```
# include <iostream>
using namespace std;
int main (){
    cout << " This is C++ programming ";

    return 0;
}
```

output :
This is C++ programming

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- Standard input Stream (cin) :

The 'cin' is a predefined object of class iostream. It is connected with a standard input device, which is usually a keyboard. Stream extraction operator (>>) to read the input from a console.

Ex.))

```
# include <iostream>
using namespace std;
int main (){
    int num;
    cout <<"Enter an integer : ";
    cin >> num;
    cout <<" The number is : " <<num;

    return 0;
}
```

Output >>

Enter an integer : 50
The number is : 50

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EXPERIMENT - 2

C++ program using the concept of structures.

- C++ structures :

Structure is a collection of variables of different data types under a single name. It is similar to class in that, both holds a collection of data of different data types.

- Declaration of Structure :

The struct keyword defines a structure type follow by an identifier. Then inside the curly braces you can declare one or more members (declare variables inside a curly braces) of that structure. For example :

```
struct person {
        char name [50];
        int age ;
        float salary ;
      };
```

Ex ⇒ Define a structure person is defined which has three members : name, age & salary

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```
# include <iostream>
using namespace std;

struct person {
 char name [50];
 int age;
 float salary;
 };

int main ()
    Person P1;
    cout << "Enter full name:";
    cin.get (p1.name, 50);
    cout << "Enter salary :";
    cin >> p1.salary;

    cout << "\n Displaying Information" <<endl;
    cout << "Name :" << p1.name << endl;
    cout << "Age :" << p1.age << end l;
    cout << "salary :" << p1.salary;

    return 0;
}
```

Output :

```
Enter Full name : Pratyush
Enter age       : 20
Enter Salary    : 2 00 00 00
```

Displaying Information ..

```
Name   : Pratyush
Age    : 20
Salary : 2000000
```