Week 3

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Types of Identifiers

1. **Constant identifier**:
   - Constants are the identifiers that refer to the fixed value, which do not change during the execution of a program. Both C and C++ support various kinds of literal constants, and they do have any memory location.
   - Examples : const int LIGHT_SPEED = 299792458;
   - **A few more constant examples are :**
   - The number of days in a week represents a constant.
   - In 2a, 2 is a constant.
   - In -7mn, -7 is a constant.
   - In 3x, 3 is constant.

Types of Identifiers

2. User-defined Identifiers.

- Used to construct names to represent various entities in C++.
- User defined Identifiers are used as the general terminology for naming of variables, functions and arrays.
- Examples: int money; double accountBalance; Here, money and accountBalance are identifiers.

Declaration and Initializing of Variable/ Identifier

- Declaration :
  - Assigning the name and data type that a variable can hold.
  - All variable that are used in a program, must be declared.
  - Syntax*: type list of variables;*
  - *List* of variables should be separated by commas.
  - *In* a single statement more than one variable of same data type can be declared.
  - The declaration of variables with different data types must be separate statements ended with semi colon (;).
  - *Example;*
    1. *int days, month, b , d;*
    2. *float temp, age;*

Declaration and Initializing of Variable/ Identifier

- Initializing :
  - The process of assigning a value to a variable at a time of declaration.
  - Symbol = is used to assign a value . This symbol is called assignment operator in programming language.
  - If a variable is declared but not initialized , it may contain meaningless data and it can produce unexpected results in some computation.
  - All variable should be initialized to avoid this problem.
  - Syntax : datatype variable = value;
  - Examples : int n=100;

    float avg= 23.34;

Constants

- A quantity that doesn't change its value during program execution is called constants .
- It has four different types: integer, floating point, character and string.
- Int and float constants can be positive(+) or negative (-).
- The exponent in floating point can also be negative or positive.
- The Const Qualifier:
  - Syntax : const datatype variable=value;
  - Here const is the reserved word representing constant qualifier.
  - Example: const float pi=3.14;
- The "define" Directive:
  - It is a preprocessor directive. It is used to define a constant quantity.
  - Its used at beginning of the program.
  - Syntax : # define identifier constant
  - Here identifier is the character to which constant value is to be assigned and constant specifies the value that is being assigned.
  - Example : # define pi 3.14

Statements

- Single statement in C++
  - A simple C++ statement is **each of the individual instructions of a program**, like the variable declarations.
  - They always end with a semicolon (;), and are executed in the same order in which they appear in a program.
  - Example : int a;
- Compound statements
  - A single or group of declaration and statements collected together usually to form a single logical unit.
  - Its is always surrounded by braces which is also known as block.
  - A single simple statement is also a compound statement.

Statements

- It is usually comes with two different ways :
  - Conditional
    - If /else
    - Switch
  - Loop
    - for
    - while
    - do while