Agenda

- Syllabus and Module Introduction
- Phases in object oriented software development.
- OOPS theory and its advantages.
- Major and minor pillars of oops.
- History of C++.
- C++ versions.
- Characterstics
- Data type and its type
- type modifiers and qualifiers
- Flow of execution
- Structure in C/C++
- Access specifier
- Class implementation

Module Implementation

- 100 Marks
  - 40 -> Lab Exam (Pratical Exam)
  - 20 -> Internals (Assignment Evaluations, Case Study Implemenation and Quiz)
  - 40 -> Theory Exams

POP (procedure Oriented Programming Language)

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- No data Security
- reusibility is less
- complexity increases with the increase in the size of code
- to overcome this we can use OOP Language
```

Phases in object oriented software development.

- 1. OOA -> Object Oriented Analysis
- 2. OOD -> Object Oriented Design
- 3. OOP -> Object Oriented Programming

OOPS

```
- If any programming want to term it as an OOP language then it should
follow the major pillars given by the OOP
```

Major Pillars

```
1. Abstraction
2. Encapsulation
3. Hirerachy
    - it comprises of 2 relations
        - has-a (Association)
        - is-a (Inheritance)
4. Modularity
```

Minor Pillars

- Following the minor pillars is optional
    1. Polymorphism/ typing
    2. Concurrency
    3. Persistance

History of C++

- It is developed/invented by Bjarane Stroustrup
- It was initially called as C with classes
- ANSI standard -> renamed to CPP / C++

C++ versions

1985-86 - First Edition of CPP 1988 - CPP 2.0 1996 - stantarerized version of cpp 1998 - C++ 98 2000 - CPP 2003 - C++ 03(g++ -E demo01.cpp -o demo.txt) 2011 - C++ 11 2017 - C++ 17

Characterstics of CPP

- It has its own syntax
- It consists of token
    - Keywords
    - Identifiers
    - Seperators/Punctuators
- It has its own set of libraries

Flow of execution

1. Preprocessing (g++ -E demo01.cpp -o demo.txt)
2. Compilation
3. Assembly (g++ -S demo01.cpp -o demo.txt)
4. Linking

Datatypes

- It defines 3 things
    - 1. Nature
    - 2. Memory
    - 3. Operations
- 3 categories of datatypes
    - 1. Fundamental Datatype
        - void, int,float,double,char,bool, wchar_t
    - 2. Derived Datatypes
        - Array, Function, Pointer, Reference
    - 3. User defined Datatypes
        - structure, union, enum, typedef , class

bool (demo02)

wchar_t (demo03)

type modifiers

- signed
- unsigned
- long
- short

type qualifiers

- const
- volatile

Structure in C in CPP (demo04)

Access Specifiers in structure (demo05)

- By default members of the structure are public.

- private (Accessiable only within the structure)
- public (Accessiable outside the structure on structure object)

Class implementation (demo06)

- use class keyword follwed by the name of class.
- class members are by default private.

Access Specifiers in class

- 1. private
- 2. public
- 3. protected (example we will look at the time of inheritance)