



OBJECT ORIENTED PROGRAMMING

Introduction

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Introduction

“The computer is incredibly fast, accurate, and stupid. Human is unbelievably slow, inaccurate, and brilliant. The combination of the two is a challenge and opportunity beyond imagination.”

Stuart G. Welsh

- Programming languages are artificial languages used to allow the combination of the two.
- There are many different programming languages, used to communicate with computers having different flavors and different paradigms



Course Outline

Introduction

- Introduction and programming terminologies
- Object Oriented Approach, algorithm and flowchart

C++ Programming

- Introduction to C++ programming
- Structured C++ programming concepts and programs
- Characteristics of Object Oriented Programming
- Classes & Objects
- Inheritance
- Polymorphism (overloading and overriding)
- Memory Management (Pointers, New and Delete operators)
- Dynamic Arrays and String (String class)
- Virtual and friend function
- Filing
- Graphics

Python

- Introduction
- Data types & expressions
- Control statements
- Strings and text files
- Functions
- Classes & objects
- Simple graphics

Books

- Object Oriented Programming in C++ by Robert Lafore
- The C++ Programming Language by Bjarne Stroustrup
- Fundamentals of Python by Kenneth A. Lambert
- Python Essential Reference by David M. Beazley

Software

- CodeBlocks IDE with G++ Compiler
- Python compiler with IDLE IDE



Introduction to programming languages

- Used to develop system and application software
 - Set of instructions executed in proper order to accomplish a task
- Programming language is converted into machine language for execution with help of translators (i.e. compiler or interpreter)
- Categories
 - Low level
 - High level
- Types
 - Unstructured programming
 - Structured programming
 - Object Oriented programming
 - Visual programming



Terminologies

- Compiler e.g. Turbo C/C++, MS Visual Studio, g++ etc.
- IDE (Interactive Development Environment) e.g. Eclipse, CodeBlocks etc.
- Token
- Syntax
- Errors
 - Syntax
 - Logical
- Instructions
 - Declaration and/or Assignment
 - I/O
 - Arithmetic & logic
 - Control/conditional



Introduction to C++

- C++ was introduced by Bjarne Stroustrup in 1983
- A multi-paradigm, procedural, functional, generic, object oriented programming language
- Its is based on C and Simula programming languages
- Many other programming languages are created using C++ like python, PHP etc.
- ISO Standards
 - C++ 1.0, C++2.0, C++98, C++03, C++11, C++14, C++17(to be announced)
- C++ Program Structure

header files

library namespace

int main()

{

instructions

return 0;

}

#include<iostream>

using namespace std;

int main()

{

cout<<"**Hello world**";

return 0;

}



Questions

