Week 1 Lecture : 1 (Intro)

Wednesday, 26 June 2024 3:20 PM

Lecture : 1. Intro

Hey Everyone :-)

Basic Competitive programming Module FAQs

1. Lecture Timings - As per lecture timing (4 Lectures per Week).
2. Language taught - Competitive programming
3. Any prerequisites - None. I will start from scratch.
4. Goal of this module - To make you comfortable with programming fundamentals using python.
5. Do we get notes - Notes will be provided with every class.
6. Do we get assignments - Yes assignment will be given in every class.

What you will learn in this module?

1. Programming Fundamentals

2. Control Statements - if else
3. Control Statements - Loops (While, For)
4. Pattern Problems
5. Functions
6. Lists
7. Tuples
8. 2D Lists
9. Strings
10. Sets
11. Dictionaries
12. Functions
13. Scope of a variable.
14. Modules
15. Exceptional handling
16. File handling
17. Regular Expression
18. So on …

Instructor

Suyash Chaudhary

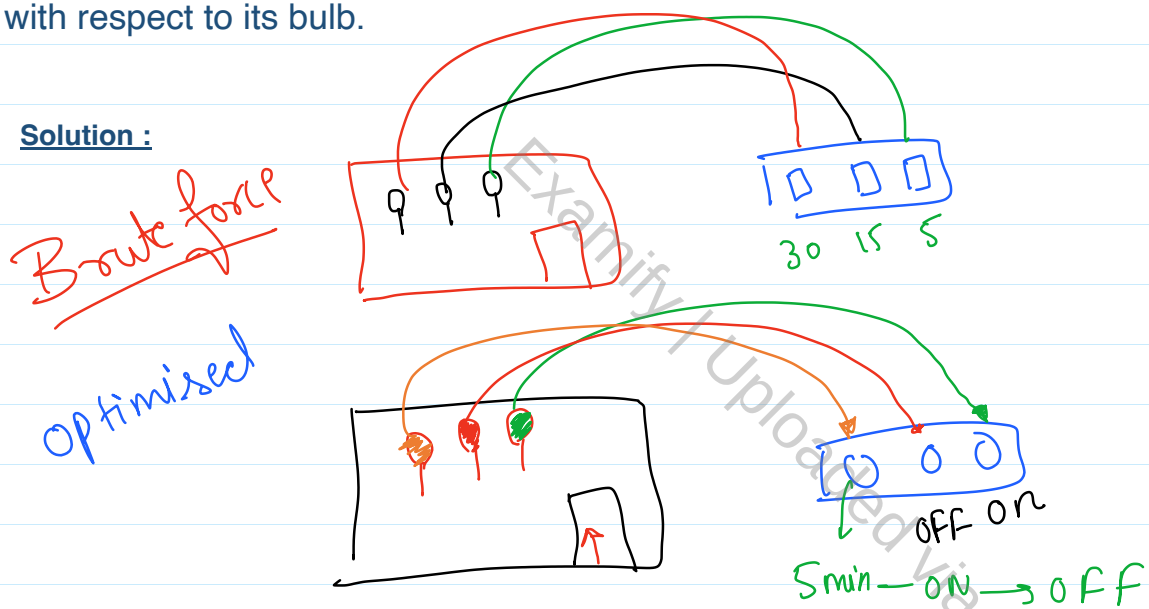
Product Engineer and Instructor **@Coding Blocks**

9:32

Puzzle I (3 Bulbs and 3 Switches)

There is a room with a door (closed) and three light bulbs inside the room. Outside the room, there are three switches, connected to the bulbs. You may manipulate the switches as you wish, but once you open the door you can't change them. All bulbs are in working condition and you can open the door only once. Identify each switch with respect to its bulb.

Solution :



Puzzle - Apples & Oranges

You are blindfolded and presented with three baskets:

1. The first basket has a label that says "Apples."
2. The second basket has a label that says "Oranges."
3. The third basket has a label that says "Apples and Oranges."

You are told that all the labels are incorrect.

To figure out which basket has what, you are allowed to pick one fruit from one of the baskets. Which basket do you choose to pick from, and how can you determine the correct labelling of all three baskets?

Solution :

Why do we need Programming Language ?

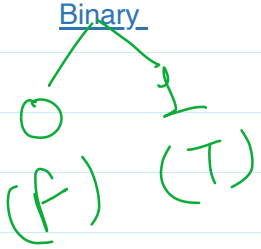
Programming

Language

C, C++
Java, Python ...

Binary

English



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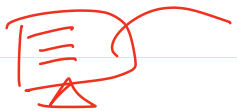


What is Program ?

A set of instructions that you give to a computer so that it will do a particular task.

Language

The System of Communication in speech and writing that is used by people of a particular country.

But to communicate with the computer we use different languages such as C , C++, Java, Python, JavaScript and many more.

Computer only understand 0 and 1 (Binary Numbers) to communicate.

What do you understand by programming language?

A programming language is a set of instructions written by a programmer to deliver instructions to the computer to perform

and accomplish a task.

High Level language

A high-level language (HLL) is a programming language such as C or Python, that allows a programmer to develop programmes

that are independent of the type of machine they are running on.

Ex - C, C++,Python

Low Level language

Low-level languages are programming languages that provide little or no abstraction from a computer's instruction set

architecture. They are closer to machine code and are often used for system programming, hardware manipulation, and

performance-critical tasks.

Ex - Machine Language, Assembly Language.

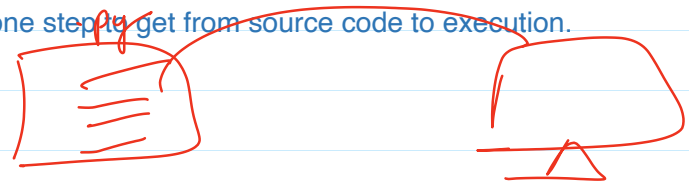
Interpreted Programming language

An Interpreted language executes its statements line by line.

Languages such as Python, JavaScript, R, PHP, and Ruby are prime examples of Interpreted languages.

Programs written in an interpreted language runs directly from the source code, with no intermediary compilation step.

Interpreted language follows one step to get from source code to execution.



Flow Chart

(Source code is basic text file / English word file)

Source Code →Interpreter →Read line to object →directly run on computer.

.py → PVM(Python Virtual M/C) (C++) → object code interact with computer

Complied Programming language

A compiled language is a programming language that is converted into machine code so that the processor can execute it.

Programs that are compiled into native machine code tend to be faster than interpreted code.

Source Code →Compiler→Read file to convert into .exe file[0101] which is directly understand by computer.

Flow Chart

Source Code → Compiler → Read file to convert into .exe file[0101] which is directly understand by computer.

Compilation and Runtime

Compilation is the process of translating source code written in a high-level programming language into a lower-level

language, such as machine code, that can be executed by a computer.

Runtime is the final phase of the program lifecycle in which the machine executes the program's code.

General Purpose language

Being a general-purpose language, it can be used to build almost any type of application with the right tools/libraries.

Additionally, python supports objects, modules, threads, exception-handling, and automatic memory management which

help in modelling real-world problems and building applications to solve these problems.

What is Python?

☆ Python is a high-level, interpreted, general-purpose programming language.