



PYTHON

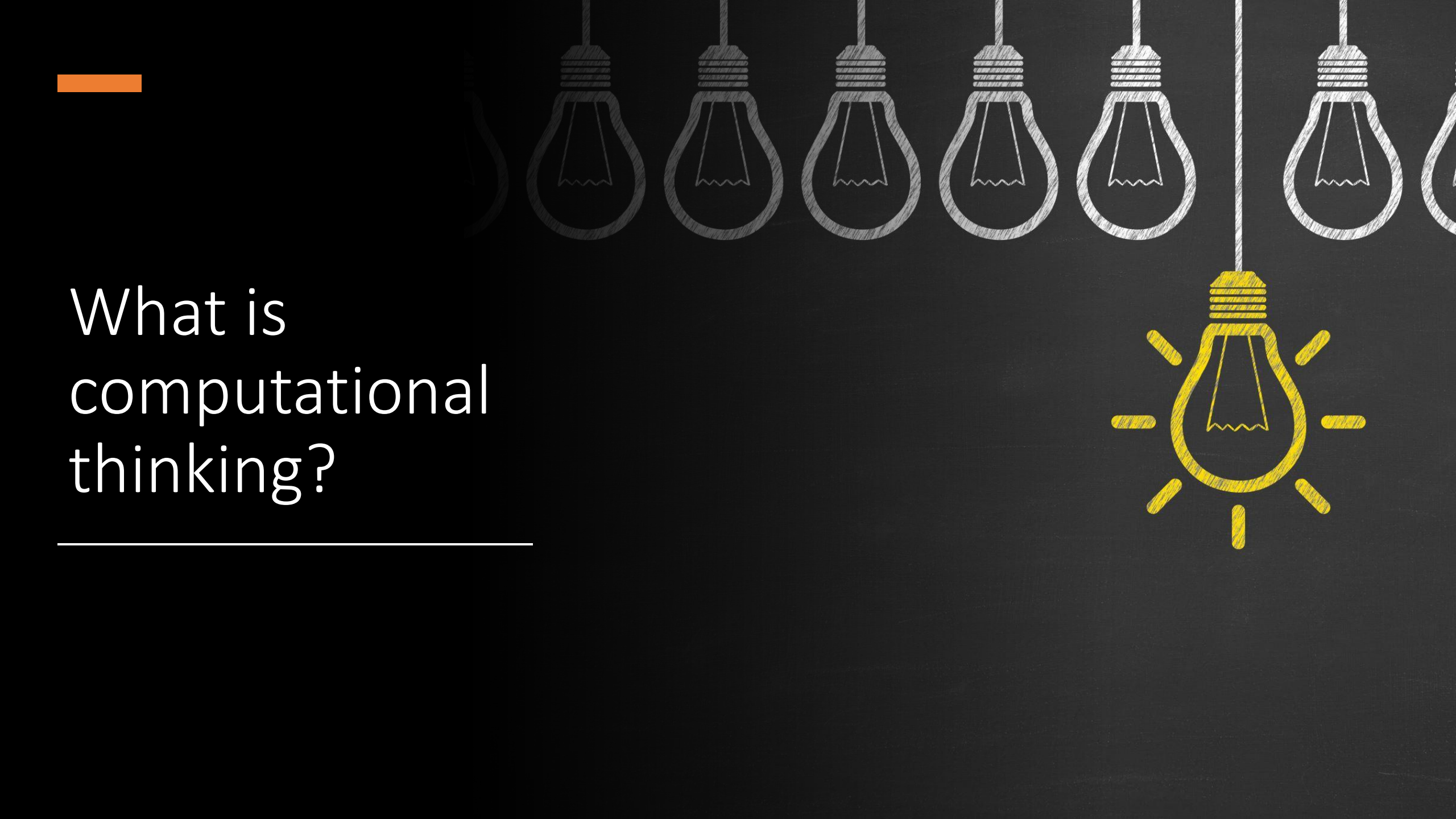
A Highly Expressive
Programming Language..

Computational Thinking with
Programming

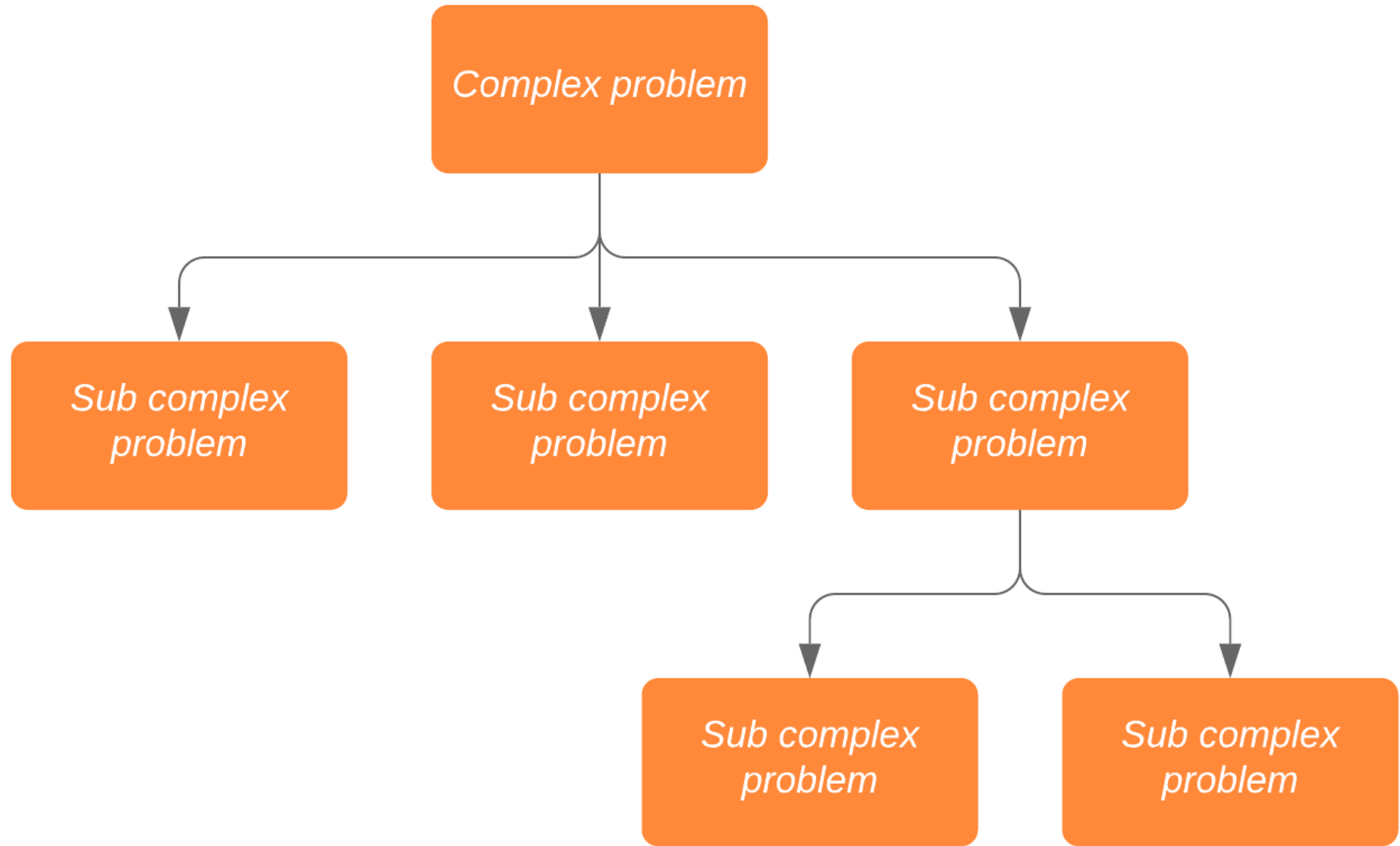
@cse_bennett

@csebennett



A row of light bulbs is shown against a dark background. The bulbs are drawn in a simple, sketchy style. The first six bulbs are dark grey, while the last one is bright yellow and glowing, with several short lines radiating from it to represent light. A thin white line is positioned below the text on the left.

What is
computational
thinking?





















Example Scenario

- Complex problem: Goa trip
 - Subcomplex 1: Convincing own parents
 - Not eating properly, making sad face and sadly roaming inside house for no reason
 - Lying to the parents that trip is about IT Industrial Visit (in Goa 😊)
 - Subcomplex 2: Getting money from Dad
 - Being humble in front of dad
 - Promising that you will not spend too much money for the trip
 - Subcomplex 3: Convincing friend's parents
 - Promising that your friend will be safe during the trip (which never happens)
 - Subcomplex 4: Planning and execution
 - Booking travel and accommodation
 - Going to go go goa...

What is Programming?

- A **program** is a list of instructions that is executed by a computer to accomplish a particular task.
- Creating those instructions is programming by a programmer

Top Programming Languages

| | | | | | |
|----|-------------------|---|----|----------------------|---|
| 1 | Java |  | 11 | MATLAB |  |
| 2 | C |  | 12 | R |  |
| 3 | Python |  | 13 | Perl |  |
| 4 | C++ |  | 14 | Assembly Language |  |
| 5 | Visual Basic .NET |  | 15 | Swift |  |
| 6 | Javascript |  | 16 | Go |  |
| 7 | C# |  | 17 | Delphi/Object Pascal |  |
| 8 | PHP |  | 18 | Ruby |  |
| 9 | SQL |  | 19 | PL/SQL |  |
| 10 | Objective-C |  | 20 | Visual Basic |  |

Types of programming languages

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graph TD; A[Types of programming languages] --> B[/Lowest level language/]; A --> C[/Low level language/]; A --> D[/Middle level language/]; A --> E[/High level language/]; B --> B1([Use 1's & 0's<br/>(Machine language)]); C --> C1([Use mnemonics<br/>(Assembly language)]); D --> D1([C is a step up from<br/>assembler]); E --> E1([C++, Java, C#,<br/>Python, Ruby...]);
```

Lowest
level
language

Use 1's & 0's
(Machine
language)

Low
level
language

Use mnemonics
(Assembly
language)

Middle level
language

C is a step up from
assembler

High
level
language

C++, Java, C#,
Python, Ruby...

7 Reasons Why You Should Learn Python



01

Perfect For Rookies

02

Community

03

Career Opportunities

04

Python in Web Development

05

Python in Artificial Intelligence and Machine Learning

06

Raspberry Pi

07

Startups and Corporates- Python for Both

Random Notes

- Python is not everything. It helps you to get started with programming.
- No need to memorize any programming keywords and syntax i.e. awareness > memorization
- Programming is a highly desired skill across engineering disciplines

Google is a good friend



Common Terms

Coding,
Programming

Programming
language

IDE (Integrated
Development
Environment)

Compiler

Error, Bugs,
Debugging

Variable,
Function

Development,
testing,
deployment