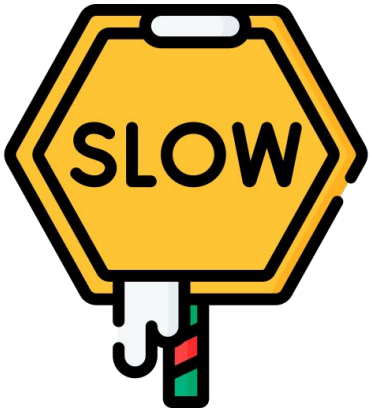
The Materials for 2024 H2

1. We have 50% theory and 50% demo or showcase
2. Slides components:
   a. Basic Python
   b. Two Hands-On for Python Fundamentals
3. Revamp slides for the materials
4. Removing Data Analysis to ILT-2

* Delete this slide when you going to deliver materials in ILT class

Kind of Students



Slow Pace

Fast Pace

* Delete this slide when you going to deliver materials in ILT class

The Evaluations from 2024 H1

Feedback from Instructors

- Hmm.. i think more illustration and and more material highlight would be better for the students.
- The students seems to be struggling in following the material topic, since the vast majority of the needed material weren't in the slide
- Duration, it's really hard to teach within 2 hours. This is gonna be the common theme for all of the ILT session that i delivered.
- Contains very much explanations, but too much to be delivered in 2 hours pace.

* Delete this slide when you going to deliver materials in ILT class

The Evaluations from 2024 H1

- Don’t just read the speaker notes without any improvement or tempo
  - Students think you are like reading a book
- Don’t adjust the materials too much
  - Because some materials appears on the quiz
- Another:
  - Control your tempo
  - Interactive
  - Tell the cohort that the demos no need to follow immediately
  - Time management

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The Evaluations from 2024 H1

Feedback from Students

- Many participants felt that the instructors had a good understanding of the material and delivered it in a clear and understandable manner.
- Participants felt that this session really helped them to understand more about Python programs and improve their programming skills.
- Some participants mentioned that the materials presented were very good and in line with their expectations.

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The Evaluations from 2024 H1

Feedback from Students

- Some participants felt that the session went too fast, making it difficult for them to keep up.
- Some participants felt that the time allotted for the session was too short, making it insufficient to delve deeper into the material.
- Some mentioned that some topics, especially those related to hands on, were difficult to understand and required further exploration.
- Some participants felt that the session like watching a movie because of the lack of interaction.

* Delete this slide when you going to deliver materials in ILT class

The Evaluations from 2024 H1

Recommendations

- Adjusting the speed of material delivery
- Improved Explanation of Difficult Topics
- Increase Session Interactivity

* Delete this slide when you going to deliver materials in ILT class

Understanding the Basics of Python Programming

Your Name

Title
Company

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About Me

Your Name

Latest Work Experiences:

- Your Role, X Company — **Year - present**
- Your Role, X Company — **Year - Year**

Education:

- Y University — **Year - Year**
  Master of XX
- X University — **Year - Year**
  Bachelor of XX

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Ground Rules

Observe the following rules to ensure a supportive, inclusive, and engaging classes

Give full attention in class

Mute your microphone when you're not talking

Keep your camera on

Turn on the CC Feature on Meet

Use raise hand or chat to ask questions

Make this room a safe place to learn and share

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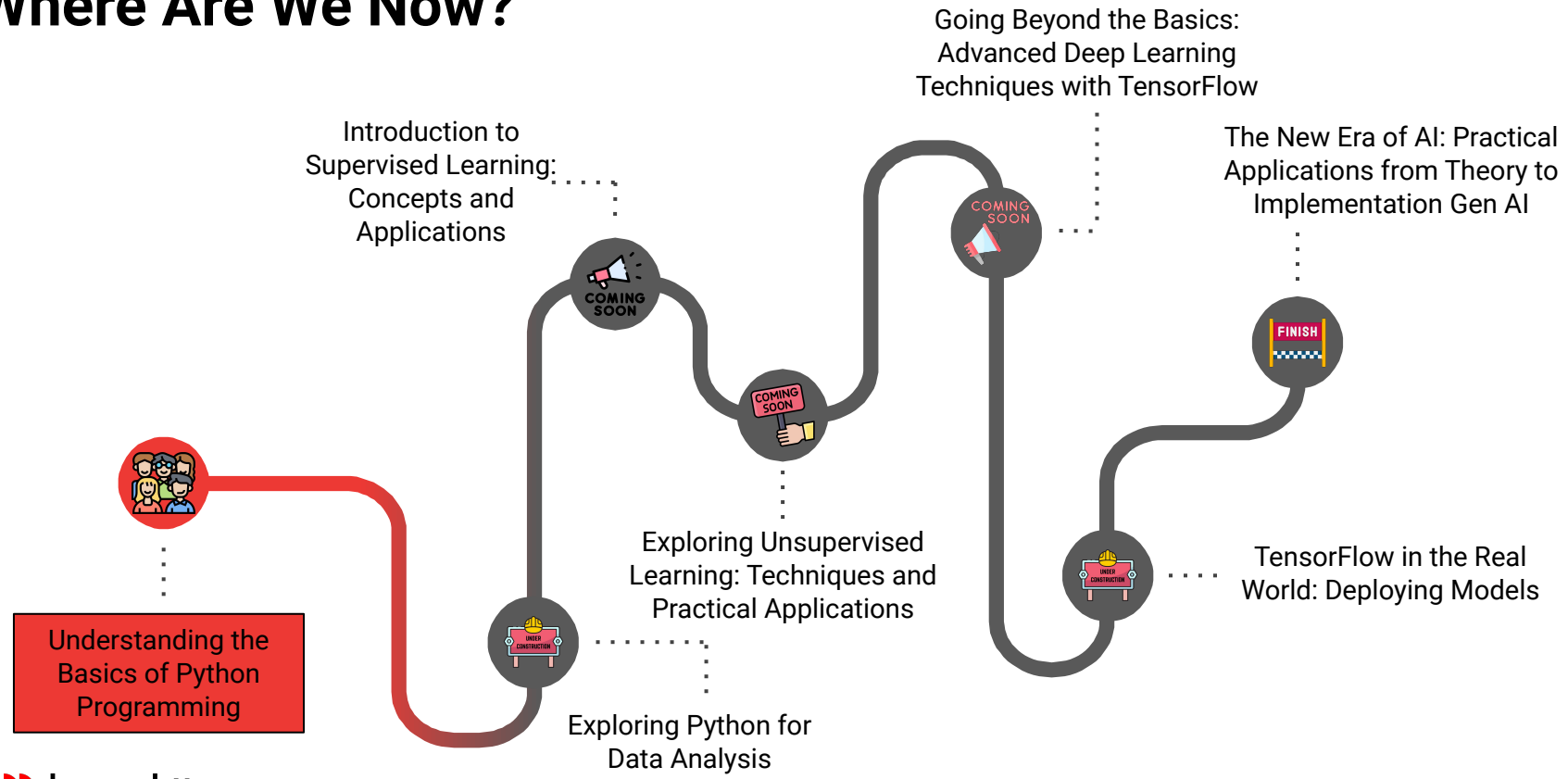
Where Are We Now?



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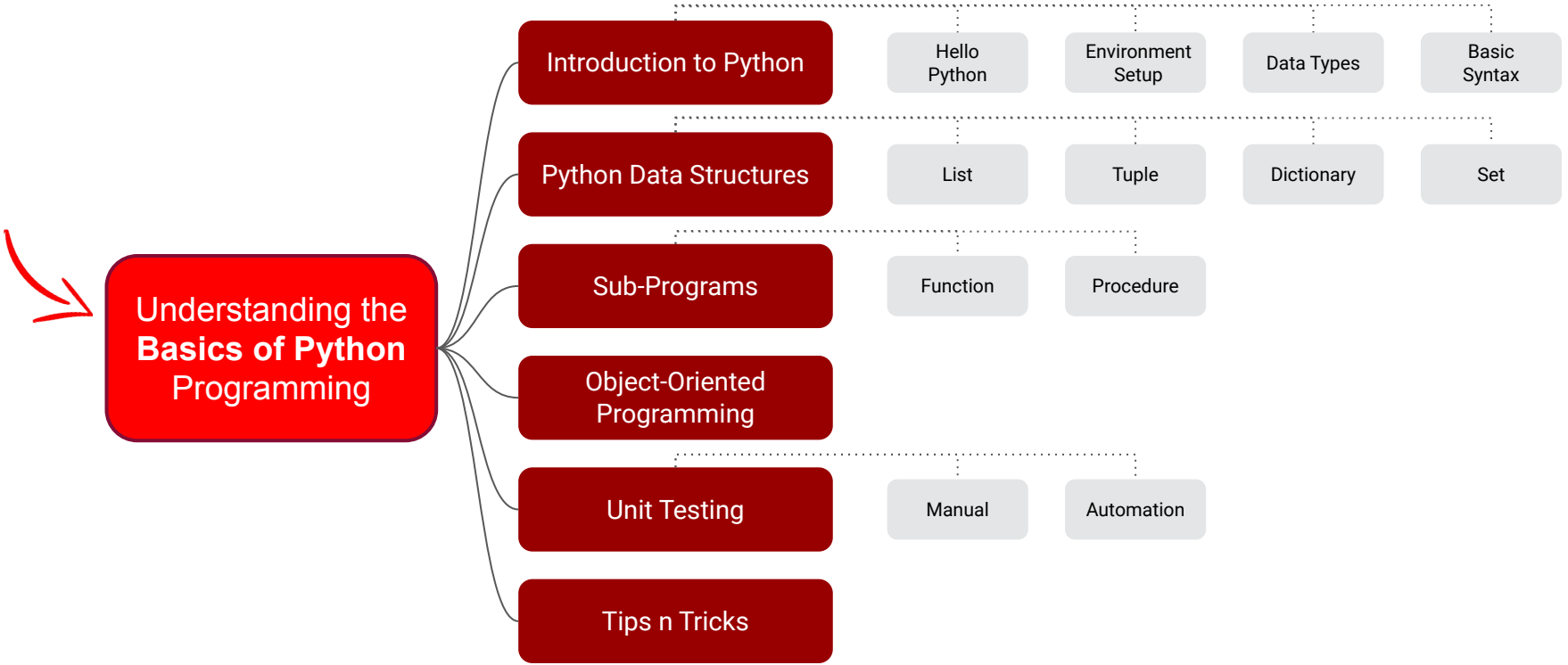
Today's Agenda



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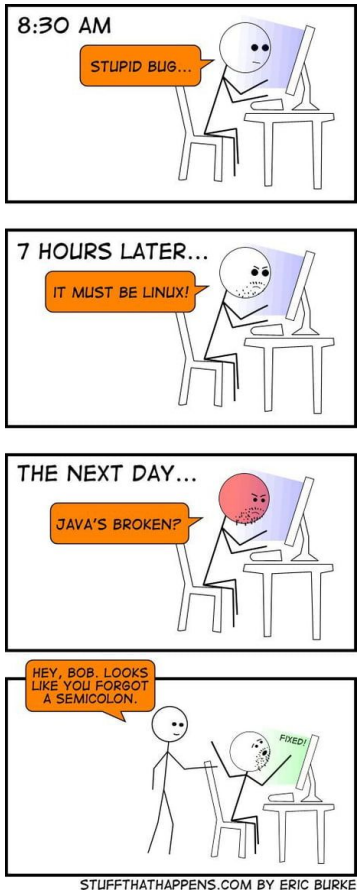
Learning Objectives

1. Identifying how to program with Python.
2. Utilizing Python to execute a simple program.
3. Operating Python abilities.
4. Diagnosing Python Code with Unit Testing.

Have you ever tried learning a programming language?


8:30 AM
STUPID BUG...
7 HOURS LATER...
IT MUST BE LINUX!
THE NEXT DAY...
JAVA'S BROKEN?
HEY, BOB. LOOKS LIKE YOU FORGOT A SEMICOLON.
FIXED!
STUFFTHATHAPPENS.COM BY ERIC BURKE


HIDE AND SEEK CHAMPION
;
SINCE 1958

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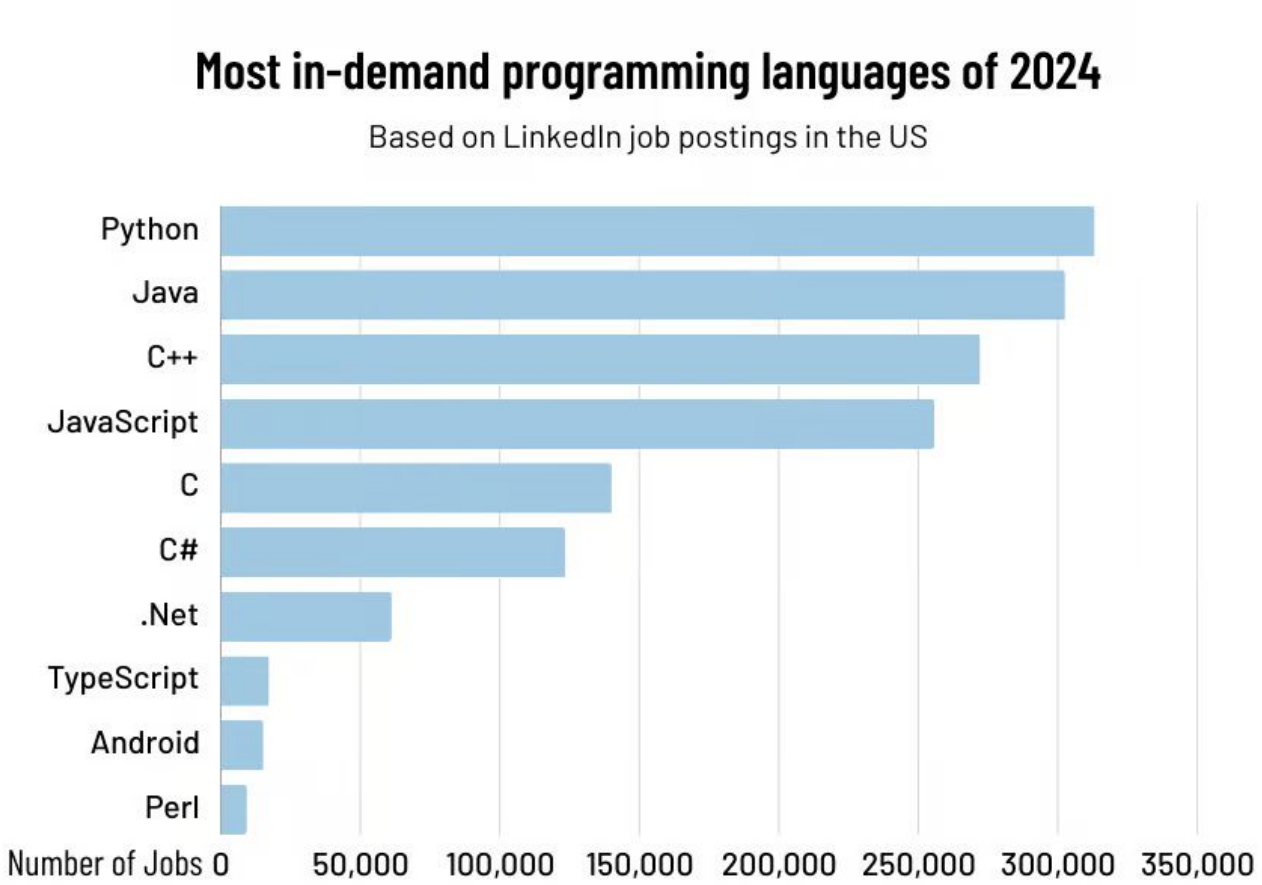
;
PYTHON



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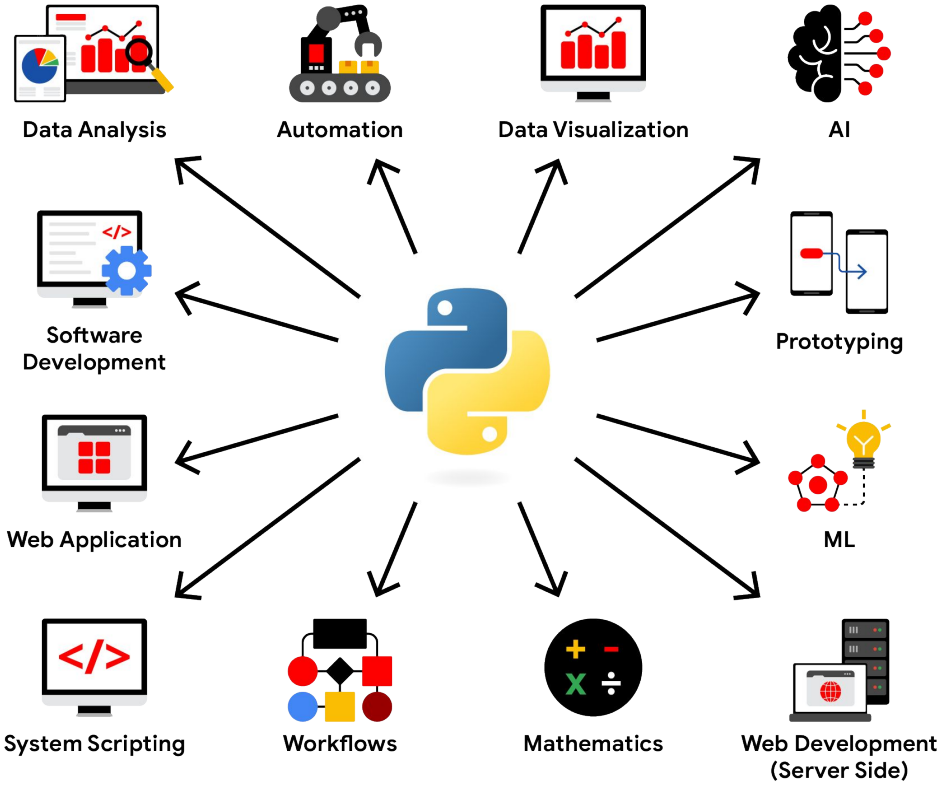
Source: https://codingnomads.com/blog/the-best-programming-languages-to-learn

What Python Can Do



Introduction to Python

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Hello, Python

What is Python? A dynamic, interpreted (bytecode-compiled) language.

How to install Python?

- Official Python distribution
- Anaconda distribution

Hello, World! in Python

Python Environment Setup

How to check an installed Python?

- open a terminal or command prompt.
- execute Python command.
- passing **--version** or **-V** as a parameter.

Check on terminal

Check on Command Prompt or PowerShell

Basic Python Syntax: Common Data Types

Name	Type	Description
Integers	int	Whole numbers, such as: 3 300 200
Floating point	float	Numbers with a decimal point: 2.3 4.6 100.0
Strings	str	Ordered sequence of characters: "hello" 'Sammy' "2000" "楽しい"
Lists	list	Ordered sequence of objects: [10,"hello",200.3]
Dictionaries	dict	Unordered Key:Value pairs: {"mykey" : "value" , "name" : "Frankie"}
Tuples	tup	Ordered immutable sequence of objects: (10,"hello",200.3)
Sets	set	Unordered collection of unique objects: {"a","b"}
Booleans	bool	Logical value indicating **True** or **False**

Basic Python Syntax: Other Data Types

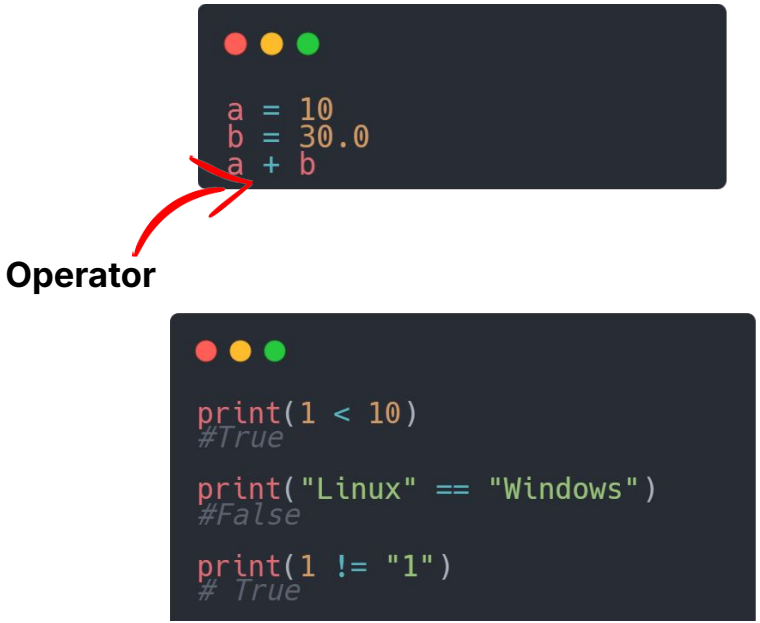
	Data Type	Example
Text Type	str	"Hello World"
Numeric Types	int	-1, 0, 1, 2, 10, 100, 1000
	float	10.5, 3.14, -0.001, 2.0, 2.718, 1.23e4
	complex	1j, 1 + 2j, -1 - 4j, 3 - 2j, 1.2e3 + 4.5e-2j
Sequence Types	list	["apple", "banana", "orange"]
	tuple	("apple", "banana", "orange")
	range	range(5)
Mapping Type	dict	{"name": "vishnu", "age" : 27}

	Data Type	Example
Set Types	set	{"apple", "banana", "orange"}
	frozenset	frozenset({"apple", "banana", "orange"})
Boolean Type	bool	True, False
Binary Types	bytes	b'Hello"
	bytearray	bytearray(5)
	memoryview	memoryview(bytes(5))

Basic Python Syntax: Operators

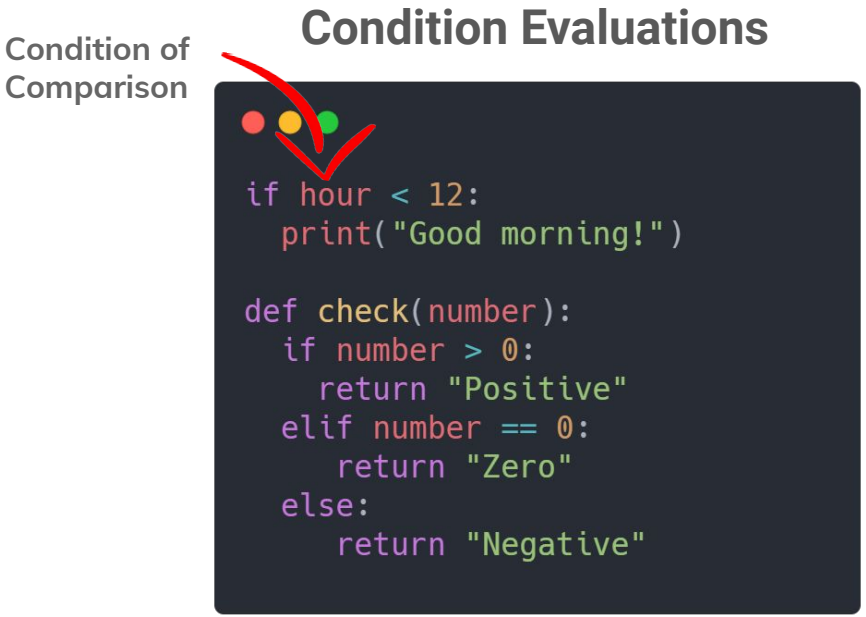
Operators are used to perform **operations** on **variables** and **values**.

- Arithmetic
- Assignment
- Comparison
- Logical
- Identity
- Membership
- Bitwise



Basic Python Syntax: If Statements

- The ability of a program to **alter its execution sequence** is called branching.
- The if block will be executed only if the condition is True.
- Use elif & else statement to handle multiple conditions.



Basic Python Syntax: Loops

- The ability of a program to **execute a sequence multiple times** is called looping.
- while loop instruct computer to continuously execute code based on the value of a condition.
- for loop iterates over a sequence of values.

while loop

```
x = 7  # Initialization of variable

while x > 0:
  print("positive x=" + str(x))
  x = x - 1

print("now x=" + str(x))
```

The sequence

for loop

```
for x in range(3):  # 0, 1, 2
  print("x=" + str(x))
```

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Basic Python Syntax: break & continue

- Both while and for loops can be interrupted using the break keyword.
- Use the continue keyword to skip the current iteration and continue with the next one.

break

```
for x in range(3):
  print("x=" + str(x))
  if x == 1:
    break  # quit from loop
```

continue

```
for x in range(3, 0, -1):
  if x % 2 == 0:
    continue  # skip even
  print(x)
```

Python Data Structure

What is Data Structure?

A specific container (variable) type that can be used to **collect**, **access**, and **organize data** more efficiently.

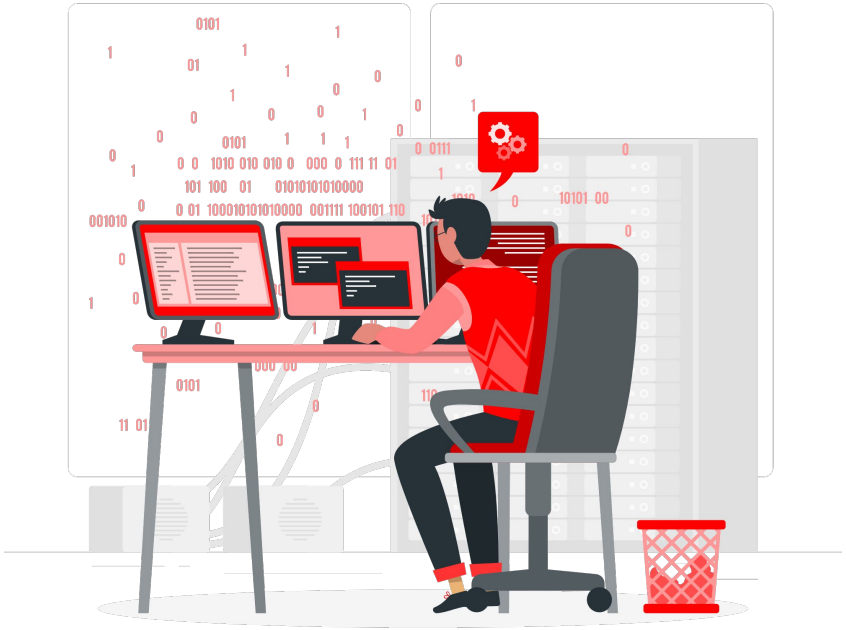
List **Tuple** **Dictionary** **Set**

Why we need data structure?

Data structures are fundamental components in programming that help in organizing and storing data efficiently.

- Efficient Data Organization
- Time and Memory Savings
- Code Simplification
- Supports Specialized Algorithms
- Faster Data Processing

Let’s Play
with Python



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Break Time!

Sub-Programs

What is Sub-Programs?

A subprogram is a **set of instructions** designed to perform **frequently used operations** in a program.

Function **Procedure**

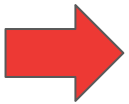
Sub-Programs

```
# Luas pertama
panjang = 5
lebar = 10

luas_persegi_panjang = panjang * lebar
print(luas_persegi_panjang)

# Luas kedua
panjang = 4
lebar = 15

luas_persegi_panjang = panjang * lebar
print(luas_persegi_panjang)
```



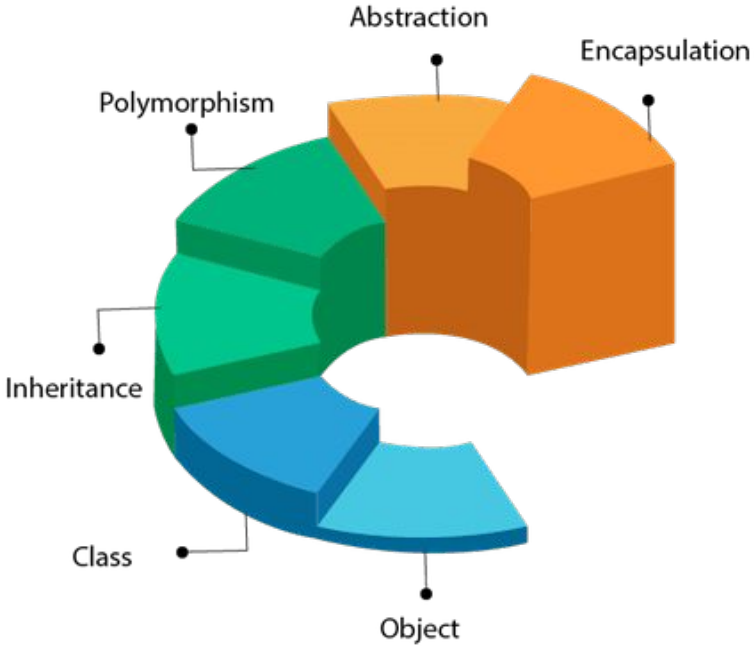
```
def mencari_luas_persegi_panjang(panjang,lebar):
    luas_persegi_panjang = panjang*lebar
    return luas_persegi_panjang
```

By breaking down code into smaller functions and methods you can write more efficient, structured, and maintainable code.

Object-Oriented Programming

Object-Oriented Programming

OOP is a programming paradigm that uses "objects" to represent data and methods that work on that data.



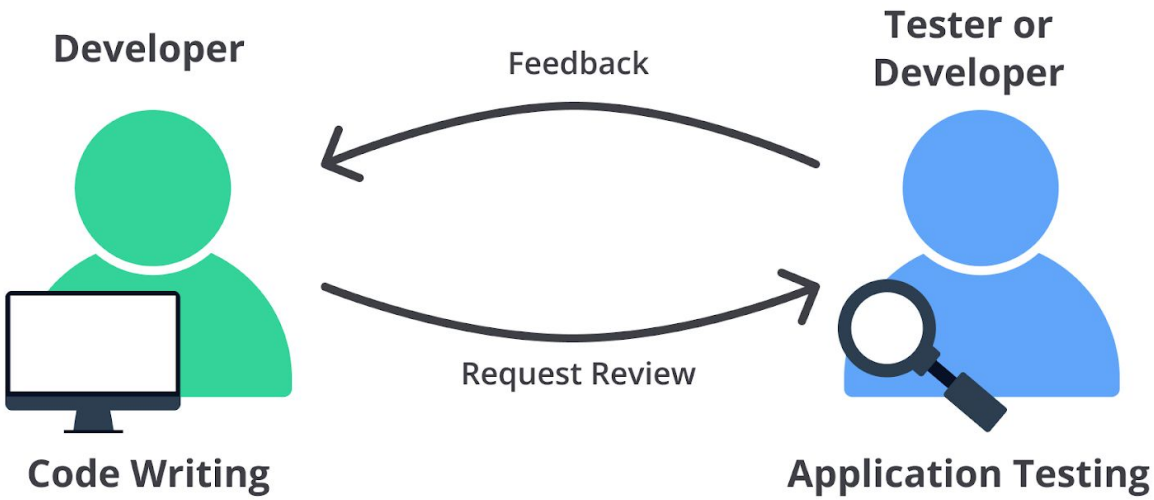
Unit-Testing

Unit-Testing

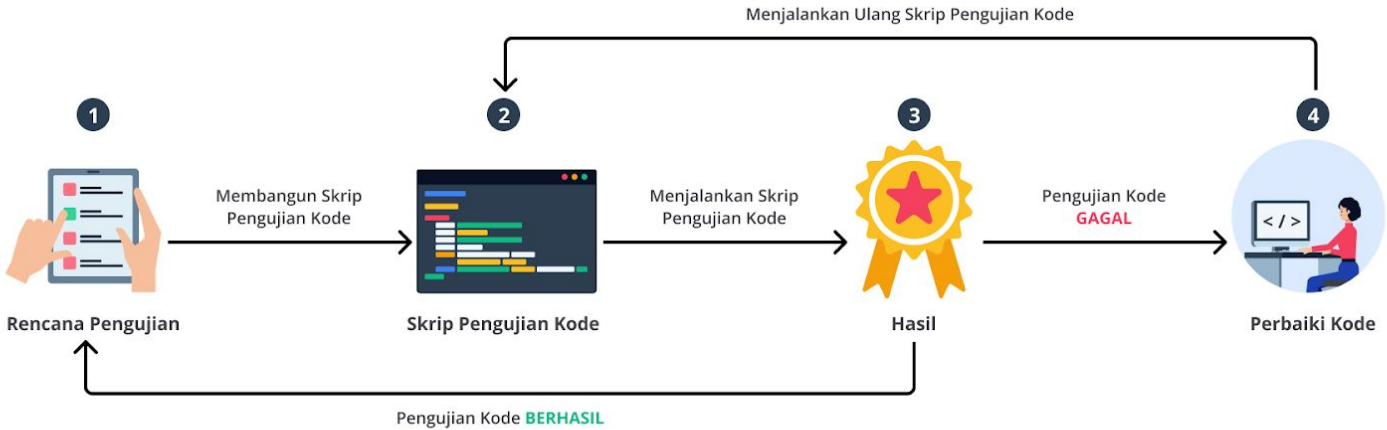
Unit testing is the process of **testing individual components** of a program to ensure that they function as **expected**. Python's built-in **unittest** framework is often used for this purpose.

Manual **Automate**

Manual Testing



Automated Testing



Python Journey: Understanding Sub-Programs, OOP, and Unit Testing

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Tips n Trick Playing with Python 🐍

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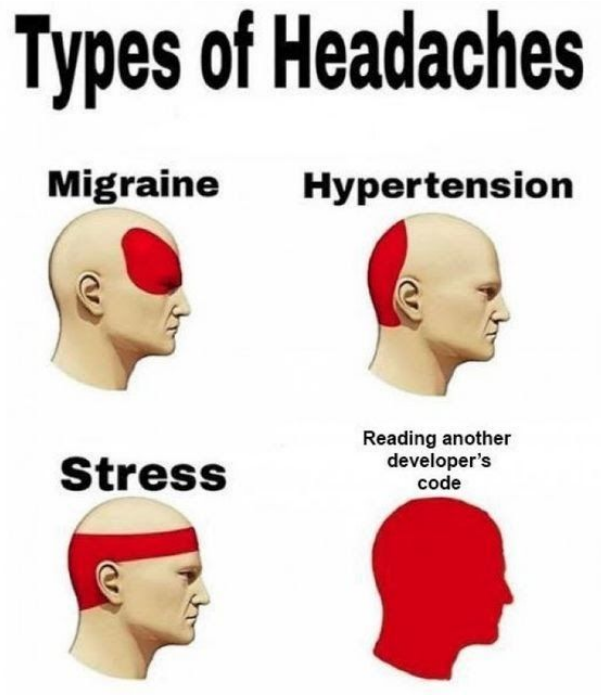
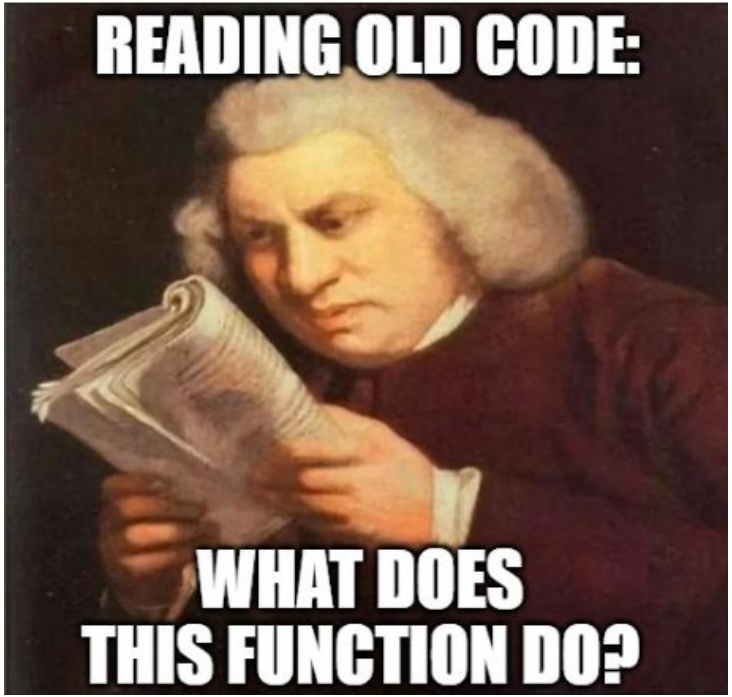
Style Guide in Python

PEP 8 is the official Python style guide that promotes **writing clean, readable, and maintainable code**. By following its guidelines on indentation, line length, whitespace, comments, naming conventions, and more, developers can ensure **consistency and improve collaboration** in their projects.


Types of Headaches
Migraine
Hypertension
Stress
Reading another developer's code


READING OLD CODE:
WHAT DOES THIS FUNCTION DO?

Library in Python

Python libraries are **collections of pre-written code and functions** that **extend the capabilities** of the Python programming language.

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Discussions

Quiz

You have learned basic Python. These knowledges will be helpful for your day-to-day work as a developer in the future. Now, you can write a simple Python program and be ready to use the data in real life!

Conclusion

Thank You

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