rencana dari minggu 0-7 + TA

Revised 8-Week Structure

Week 0: Setting Up & Your First Program

- **Concepts:** Introduction to programming, algorithms, and Python.
- **Lab:** Installing Python, choosing a code editor (like VS Code), writing the "Hello, World!" program, pushing to GitHub.
- **Materials:** A checklist for local environment setup.

Week 1: Data Types, Variables, and User Input

- **Concepts:** How computers store and process information.
- **Lab:** Introduce **data types** (`string`, `integer`, `float`, `boolean`). Demonstrate **variable assignment** and basic arithmetic operators (`+`, `-`, `*`, `/`).
- **Lab:** Show how to use `input()` to get user data, making the programs interactive.
- **Materials:** A cheat sheet on basic data types, operators, and the `input()` function.

Week 2: Typecasting and Simple Calculations

- **Concepts:** Converting between data types to perform accurate calculations.
- **Lab:** Explain why **typecasting** is necessary. Demonstrate how to use `int()`, `float()`, and `str()` to convert data types.
- **Lab:** Create a simple calculator program that takes user input, converts it, and performs a calculation.
- **Materials:** A quick guide on typecasting functions and their common uses.

Week 3: Decision Making (Selection)

- **Concepts:** Controlling the flow of a program.
- **Lab:** Introduce **selection** using `if`, `elif`, and `else` statements.
- **Lab:** Use comparison operators (`==`, `!=`, `<`, `>`) and logical operators (`and`, `or`, `not`) to create a simple decision-making program.
- **Materials:** A diagram showing the flow of an `if/else` statement.

Week 4: Repetition (Loops)

- **Concepts:** Automating repetitive tasks.

- **Lab:** Teach both `for` and `while` loops in the same session, explaining the use case for each.
- **Lab:** `for` loops are great for iterating over sequences (like lists). `while` loops are best for repeating until a certain condition is met.
- **Materials:** A side-by-side comparison of `for` and `while` loop syntax.

Week 5: Collections (Lists and Tuples)

- **Concepts:** Storing multiple items in a single variable.
- **Lab:** Introduce **lists** as a mutable, ordered collection.
- **Lab:** Introduce **tuples** as an immutable, ordered collection and explain the difference.
- **Materials:** A reference sheet on common list methods (`.append()`, `.remove()`, etc.).

Week 6: Collections (Dictionaries and Sets)

- **Concepts:** Storing and accessing data in different ways.
- **Lab:** Introduce **dictionaries** for key-value pairs.
- **Lab:** Introduce **sets** for storing unique items.
- **Materials:** A cheat sheet on dictionary and set methods.

Week 7: Building Blocks (Functions)

- **Concepts:** Creating reusable blocks of code.
- **Lab:** Teach how to define and call functions, including arguments and `return` values.
- **Lab:** Show how to use functions to make code cleaner and more modular.
- **Materials:** A template for writing well-documented functions.

Week 8: Tes Akhir

```
minggu-0/
├── README.md                    # penjelasan minggu 0.
│
├── TUGAS/
│   ├── T0_hello_world.py        # Lembar Tugas minggu 0
│   │
│   └── tests/
│       └── test_T0_hello_world.py # Unit test untuk menilai tugas.
│
├── TUTOR/
```

```
|   ├── tutor0_setup_lab.md        # Buklet panduan lab mingguan (Markdown).
|   |
|   ├── tutor0_setup_lab.pdf       # Versi PDF dari buklet.
|   |
|   └── pretest-minggu-0.pdf       # Tes Awal mingguan.
|
├── CONFIDENTIAL_MATERI/
|   ├── M0_hello_world.md          # Soal Materi mingguan (Markdown).
|   |
|   └── M0_hello_world.pdf
|
├── CONFIDENTIAL_PEMBAHASAN/
|   ├── kunci_T0_hello_world.md          # Soal Materi mingguan (Markdown).
|   |
|   └── kunci_M0_hello_world.md
|
└── README_assets/
    ├── git-flowchart.png
    └── diagram-venv.png
```

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Rencana Lab Lengkap

- **Minggu 0:** Persiapan Lingkungan & Dasar-dasar Git.
  - Tujuannya adalah agar siswa siap menulis kode.
- **Minggu 1:** Variabel & Masukan Pengguna.
  - Fokus pada `string`, `int`, dan `float`, serta fungsi `input()`.
- **Minggu 2:** Typecasting & Perhitungan Dasar.
  - Fokus pada penggunaan `int()`, `float()`, dan operator matematika untuk menyelesaikan masalah masukan.
- **Minggu 3:** Selection (`if`, `elif`, `else`).
  - Fokus pada membuat program yang dapat membuat keputusan.
- **Minggu 4:** Iterasi (`for` dan `while` loops).
  - Fokus pada mengotomatiskan tugas berulang.
- **Minggu 5:** Pemecahan Masalah.
  - Minggu penyangga untuk melatih konsep yang sudah dipelajari.
- **Minggu 6:** Struktur Data (`list` dan `tuple`).
  - Fokus pada mengelola koleksi data.
- **Minggu 7:** Fungsi & Prosedur.
  - Fokus pada menulis kode yang dapat digunakan kembali.
- **Minggu 8:** Tes Akhir.
  - Fokus pada menggunakan kode yg sudah dibuat di tugas selama ini.