180-Day Python Learning Plan

Note: Learning and Practice Separated

Schedule:

- **9:00 - 10:00 PM:** Learning (detailed lectures and concepts).
- **10:00 - 11:30 PM:** Practice (coding exercises, examples, and mini-projects).

Note: Every Friday is a reflection day.

Day 2: Variables and Data Types

Learning (9:00 - 10:00 PM)
Today we'll cover:

1. **Variables:** What they are and how to create them.
2. **Data types:** Strings, integers, floats, and basic type conversions.

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1. What is a Variable?

A variable is a named container that stores a value. Think of it as a "box" where you can store data.

- You can name a variable with letters, numbers, and underscores (`_`).
- Example: `name = "Alice" age = 25 height = 5.7`
  In the above example:
- `name` holds a string (`"Alice"`)
- `age` holds an integer (`25`)
- `height` holds a float (`5.7`)

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2. Common Data Types in Python

1. **String (`str`):**
   Text enclosed in quotes.
   Example: `"Hello, world!"`
   `greeting = "Hello, world!" print(greeting)`
2. **Integer (`int`):**
   Whole numbers (positive or negative).
   Example: `42` `number = 42 print(number)`
3. **Float (`float`):**
   Decimal numbers.
   Example: `3.14` `pi = 3.14 print(pi)`
4. **Boolean (`bool`):**
   `True` or `False` . `is_sunny = True print(is_sunny)`

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3. Type Conversion (Casting)

You can convert one type to another using `int()`, `float()`, `str()`, etc.
Examples:

```
age = "30"  # This is a string
age_as_int = int(age)  # Converts to integer
print(age_as_int)
```

```
number = 42  # Integer
number_as_str = str(number)  # Converts to string
print(number_as_str)
```

Practice Exercises (10:00 - 11:30 PM)

1. **Exercise 1:** Create and print variables of different types:
2. A string variable holding your name.
3. An integer variable for your age.
4. A float variable for your height.

5. A boolean variable indicating if you like pizza.
   Example:
   ```
   name = "John" age = 28 height = 5.9 likes_pizza = True
   print(name, age, height, likes_pizza)
   ```

6. **Exercise 2:** Use type conversion to do the following:

7. Convert a float to an integer.

8. Convert an integer to a string and print it.
   Example:
   ```
   number = 3.75 number_as_int = int(number) print(number_as_int) # Output: 3
   ```

9. **Exercise 3:** Create a program that asks the user for their name and age, then prints a message like:
   ```
   "Hello, [name]! You are [age] years old."
   ```
   Example:
   ```
   name = input("Enter your name: ") age = input("Enter your age: ")
   print(f"Hello, {name}! You are {age} years old.")
   ```

Let me know when you're done, or if you have any questions while practicing! 😊