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Variables
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Introduction to Coding

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Hello World

- The first program that every programmer writes

- How to start a Python program

- How to print to the console

In Terminal

```
code hello_world.py
```

hello_world.py

```python
print("Hello, World!")
```

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What are Variables?

- Variables are used to store data

- Variables are assigned a value

- Variables can be changed

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Variable Naming Rules

- Variables must start with a letter or underscore

- Variables can only contain letters, numbers, and underscores

- Variables are case-sensitive

- Variables cannot be reserved words

Variable Naming Conventions

- Camel Case: myVariableName

- Pascal Case: MyVariableName

- Snake Case: my_variable_name

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Scope

- Global Variables: Variables declared outside of a function
  - Can be accessed anywhere

- Local Variables: Variables declared inside of a function
  - Can only be accessed within the function

```python
def my_function()\:
    x = 10
x = 20
my_function()
print(x)
```

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Data Types

- Integers: Whole numbers

- Floats: Numbers with decimals

- Strings: Text

- Booleans: True or False

- Lists: Ordered collection of items

- Tuples: Ordered collection of items that cannot be changed

- Dictionaries: Unordered collection of items

- Sets: Unordered collection of unique items

Importance of Type Checking

- There are advantages and disadvantages to using each data type

- Interacting with different data types can cause errors

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```
random_int = 10
random_float = 10.0
random_string = "10"
```

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Type Casting

- Converting between data types

- Can be done using built-in functions

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converted_int = **int** (random_float)