

Day 2

1. What is Python?

Answer: Python is a high-level, interpreted programming language known for its readability, simplicity, and versatility. It supports multiple programming paradigms, including procedural, object-oriented, and functional programming.

2. What are Python's key features?

Answer: Some key features of Python include:

Easy to learn and use

Extensive standard library

Dynamic typing

Interpreted language

Cross-platform support

Open-source

Supports object-oriented and functional programming

3. What is a Python module?

Answer: A module in Python is a file containing Python code, which may include functions, classes, or variables. Modules help organize and reuse code.

4. What are Python's built-in data types?

Answer: Python's built-in data types include:

Numeric Types: int, float, complex

Sequence Types: list, tuple, range

Text Type: str

Mapping Type: dict

Set Types: set, frozenset

Boolean Type: bool

Binary Types: bytes, bytearray, memoryview

5. Explain the difference between a list and a tuple in Python.

Answer:

List: Mutable, can be changed after creation, defined with square brackets [].

Tuple: Immutable, cannot be changed after creation, defined with parentheses ().

6. What is a variable in Python, and how do you declare one?

- Answer: A variable in Python is a name given to a memory location where a value is stored. You declare a variable by assigning a value to a name using the `=` operator.

```
```python
x = 10
name = "John"
```
```

7. How do you assign multiple variables in a single line in Python?

- Answer: You can assign values to multiple variables in a single line by separating them with commas.

```
```python
a, b, c = 1, 2, 3
```
```

8. What happens if you assign a value to a variable that already exists?

- Answer: The existing variable is updated with the new value, and the old value is overwritten.

```
```python
x = 5
x = 10 # x now holds the value 10
```
```

9. How do you check the data type of a variable in Python?

- Answer: You can check the data type of a variable using the `type()` function.

```
```python
x = 10
print(type(x)) # Output: <class 'int'>
```
```

10. What is the difference between `int` and `float` in Python?

- Answer:

- `int` is used for representing whole numbers (e.g., 10, -3).
- `float` is used for representing floating-point numbers, i.e., numbers with a decimal point (e.g., 10.5, -3.14).

11. How do you convert a string to an integer in Python?

- Answer: You can convert a string to an integer using the `int()` function.

```
```python
num_str = "100"

num_int = int(num_str)

```
```

12. What is a dictionary in Python? How do you create one?

- Answer: A dictionary in Python is an unordered collection of items, where each item is a key-value pair. It is defined using curly braces `{}`.

```
```python
my_dict = {"name": "John", "age": 30}

```
```

13. Explain the difference between a set and a list.

- Answer:

- A set is an unordered collection of unique elements, defined using curly braces `{}`. It does not allow duplicate elements.

- A list is an ordered collection of elements, which can include duplicates, defined using square brackets `[]`.

14. What is type casting in Python?

- Answer: Type casting in Python refers to converting one data type to another. It can be done using functions like `int()`, `float()`, `str()`, etc.

```
```python
x = 10.5

y = int(x) # y becomes 10

```
```