

PYTHON INTERVIEW QUESTIONS

1. What is Python?

Python is a high-level, interpreted programming language used for web development, automation, data science, and more.

2. Is Python an interpreted language? If yes, explain.

Yes, Python is interpreted, meaning code runs line by line using an interpreter, not compiled all at once.

3. What is the difference between interpreter and compiler?

- **Interpreter:** Executes code line by line (e.g., Python).
- **Compiler:** Translates the whole program into machine code before running (e.g., C++).

4. What is data? Data types in Python?

Data is any information (text, numbers, etc.) processed by a program.

Common data types: int, float, str, bool, list, tuple, dict.

5. What is a list? Give an example.

A list is a collection of items that is **ordered and changeable**.

Example: `fruits = ["apple", "banana", "mango"]`

6. What is a dictionary? Give an example.

A dictionary stores data in **key-value** pairs.

Example: `student = {"name": "Devi", "age": 21}`

7. What is a tuple? Give an example.

A tuple is a collection that is **ordered but immutable (cannot be changed)**.

Example: `colors = ("red", "green", "blue")`

8. What is the difference between mutable and immutable data types? Give an example.

- **Mutable:** Can be changed. Example: list, dict
- **Immutable:** Cannot be changed. Example: tuple, str

9. What is the difference between tuple and list?

- **List:** Mutable \rightarrow `["a", "b"]`
- **Tuple:** Immutable \rightarrow `("a", "b")`

10. How can we mutate the list?

You can change the list using methods like `append()`, `insert()`, `remove()`, etc.

Example:

```
my_list = [1, 2, 3]
```

```
my_list.append(4) # list becomes [1, 2, 3, 4]
```

11. What is the difference between append and insert while mutating the list?

- `append()`: Adds item at the end.
- `insert(index, value)`: Adds item at a specific position.

12. What is the difference between `pop()` and `pop(index)` in Python?

- `pop()`: Removes the last item.
- `pop(index)`: Removes the item at the given index.

13. How can you mutate the dictionary in Python? Give an example.

You can **add or update** key-value pairs.

Example:

```
student = {"name": "Devi", "age": 21}
student["age"] = 22 # updated
student["course"] = "MCA" # new key added
```

14. Write nested dictionaries for electronics product.

Example:

```
electronics = {
    "laptop": {"brand": "HP", "price": 45000},
    "mobile": {"brand": "Samsung", "price": 20000}
}
```

15. Write a list of dictionaries.

Example:

```
students = [  
    {"name": "Devi", "age": 21},  
    {"name": "Ravi", "age": 22}  
]
```

16. What is an operator?

Operators are symbols that perform operations on values.

Example: +, -, *, /, ==, and

17. What are different operators in Python?

- **Arithmetic:** +, -, *, /
- **Comparison:** ==, !=, >, <
- **Logical:** and, or, not
- **Assignment:** =, +=, -=
- **Membership:** in, not in
- **Identity:** is, is not