Basic Interview Questions

1. What is python?

Answer: Python is a high-level, interpreted programming language known for its simplicity and readability.

2. What are the features of Python?

Answer: - Easy to learn

- Interpreted Language
- Dynamically Typed
- Extensive Libraries
- Community Support
- 3. What is the data type, why do we use it?

Answer: A data type defines the type of value a variable holds (e.g., int, str). It helps in memory allocation and operations.

4. What is the difference between list and tuple?

Answer: List is mutable, while tuple is immutable. Lists use [], tuples use ().

5. Explain insert(), append(), extend() methods of list?

Answer: - insert(): adds an element at specified index.

- append(): adds at the end.
- extend(): adds elements of another list.
- 6. What are the benefits of using python language?

Answer: Rapid development, vast libraries, easy integration, readability, and cross-platform support.

7. Explain list comprehension?

Answer: A concise way to create lists using a single line: [x for x in range(5)]

8. Explain Dictionary comprehension?

Answer: Similar to list comprehension but for dictionaries: {x: x*x for x in range(5)}

9. Explain slicing in detail with any example?

Answer: Slicing allows you to extract a portion of a list or string. Example: list[1:4]

10. What are the keywords in Python?

Answer: Reserved words like `if`, `else`, `class`, `def`, `return`, etc.

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Basic Interview Questions (Cont.)

11. Is Python case sensitive?

Answer: Yes, Python is case-sensitive. 'Variable' and 'variable' are treated as different identifiers.

12. What is type conversion in Python?

Answer: Type conversion is the process of converting one data type to another, e.g., int('5') converts string to integer.

13. What is indentation in Python?

Answer: Indentation refers to the whitespace at the beginning of a line. It defines the block of code. Incorrect indentation leads to errors.

14. What is the difference between list and array?

Answer: Lists can hold items of different types, while arrays (from array module) hold items of the same data type for performance.

15. What is a function in Python, explain with example?

Answer: A function is a reusable block of code. Example:

```python
def greet():
 print("Hello")

16. How many ways to pass a parameter to function?

Answer: - Positional arguments

- Keyword arguments
- Default arguments
- Variable-length arguments (\*args, \*\*kwargs)

17. What is the generator function, where do we use it?

Answer: A generator uses 'yield' to return values one by one. It saves memory and is used for large data

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18. What is the difference between generator function and normal function?

Answer: Normal functions use `return` and return the result once. Generator functions use `yield` and return iterators.

19. What is the lambda function?

Answer: An anonymous function using `lambda` keyword. Example: `lambda x: x\*2`

20. Explain filter, map, reduce methods in lambda?

Answer: - `filter(func, seq)`: Filters items

- `map(func, seq)`: Transforms items

- `reduce(func, seq)`: Aggregates items

21. What is the variable argument passing in Python function?

Answer: `\*args` allows passing variable number of non-keyword arguments, `\*\*kwargs` allows passing keyword arguments.

22. How does break, continue and pass keywords work?

Answer: - `break`: exits the loop

- `continue`: skips to next iteration

- `pass`: does nothing, acts as placeholder

### **Mid-Level Interview Questions**

1. What is class & objects, why do we use it?

Answer: Class is a blueprint; object is an instance. Used in OOP to model real-world entities.

2. What is \_\_init\_\_()?

Answer: `\_\_init\_\_()` is a constructor used to initialize object attributes during creation.

3. Why do we use self as a parameter?