

Python Technical Interview Questions

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Advanced Python Topics

Advanced Python Topics:

1. Advanced Object-Oriented Programming:

- Metaclasses
- Abstract Base Classes
- Multiple Inheritance
- Property Decorators
- Class and Static Methods

2. Generators and Iterators:

- Creating Generators using ``yield``
- Understanding ``next()`` and ``iter()``
- Using ``itertools`` module
- Creating Custom Iterators

3. Decorators:

- Function Decorators
- Class Decorators
- Using ``functools.wraps``
- Chaining Decorators

4. Context Managers:

- Understanding ``with`` statement

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- Creating Custom Context Managers using `__enter__` and `__exit__`
- Contextlib Module (`contextmanager` decorator)

5. Python Multiprocessing and Threading:

- Understanding the Global Interpreter Lock (GIL)
- Using `threading` module
- Using `multiprocessing` module
- Thread Synchronization (Locks, Semaphores)

6. Async Programming:

- Introduction to `asyncio`
- Understanding `async` and `await`
- Creating Asynchronous Generators
- Working with Event Loops

7. Working with Databases:

- Using `sqlite3` module
- Executing SQL Commands from Python
- ORM with SQLAlchemy
- Connecting to Other Databases (MySQL, PostgreSQL)

8. Testing and Debugging:

- Unit Testing with `unittest`
- Test Coverage
- Debugging with `pdb`

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- Logging and Profiling

9. Web Scraping:

- Introduction to `requests` and `BeautifulSoup`
- Handling HTML and XML data
- Using `Scrapy` for advanced web scraping

10. Networking:

- Working with Sockets
- Creating a Simple Web Server
- Using `socket` module for networking
- Sending and Receiving Data

11. Advanced File Handling:

- Working with CSV, JSON, and XML files
- Understanding File I/O Performance
- Data Serialization with `pickle`