

Most Asked Python Interviews Questions

Basic Python Interview Questions

- What are Python's key features?
- What is the difference between a list and a tuple?
- How is memory managed in Python?
- What is the difference between deep copy and shallow copy?
- What are Python's built-in data types?
- What are Python's mutable and immutable data types?
- What is the difference between `is` and `==`?
- How does Python handle memory management?
- What is PEP 8, and why is it important?
- What are Python namespaces?

Intermediate Python Interview Questions

- Explain list comprehension with an example.
- What is the difference between Python arrays and lists?
- How do you handle exceptions in Python?
- What is the purpose of self in Python classes?
- How does Python's garbage collection work?
- Explain the difference between *args and **kwargs.
- What are Python's different file-handling modes?
- What is the difference between a module and a package?
- How does Python implement multithreading, and what is the Global Interpreter Lock (GIL)?

Data Science & Machine Learning with Python

- How do you read and manipulate CSV files using Pandas?
- What is the difference between NumPy arrays and Python lists?
- What is broadcasting in NumPy?
- How do you handle missing values in Pandas?
- What are the key differences between supervised and unsupervised learning?
- Explain feature engineering in machine learning.
- How does Python handle large datasets efficiently?
- What are some common data visualization libraries in Python?
- What is the difference between `apply()`, `map()`, and `vectorize()` in Pandas?
- What is the use of scikit-learn in machine learning?

OOP & Design Principles in Python

- What are the four pillars of Object-Oriented Programming (OOP)?
- How does Python support encapsulation, inheritance, and polymorphism?
- What is method overloading and method overriding in Python?
- What is the purpose of `super()` in Python?
- What is the difference between composition and inheritance?
- What are abstract classes and interfaces in Python?
- How do you implement the Singleton design pattern in Python?
- Explain the Factory design pattern with an example.
- What is the SOLID principle in object-oriented design?
- What is duck typing in Python?

Python for Web Development

- What is Flask, and how does it differ from Django?
- How does Django's ORM work?
- How do you manage database migrations in Django?
- What is Jinja2, and how is it used in Flask?
- How do you implement authentication and authorization in Django?
- What are middleware in Django?
- What is the difference between GET and POST requests in Flask/Django?
- How do you handle file uploads in Flask/Django?
- How do you optimize a Django application for performance?
- What is CSRF protection, and how is it implemented in Django?

Database & SQL with Python

- How do you connect Python to a database?
- What are the differences between SQLite, MySQL, and PostgreSQL in Python?
- How do you execute SQL queries in Python using sqlite3 or SQLAlchemy?
- What is an ORM, and why is it useful?
- How do you handle transactions in a database using Python?
- What is connection pooling in Python database management?
- How do you prevent SQL injection in Python applications?
- How can you store and retrieve JSON data from a database using Python?
- What are indexing and foreign keys in SQL, and how do they impact performance?
- How do you optimize database queries using Python?

Basic Python Coding Questions

- Reverse a String
- Check if a Number is Prime
- Find the Factorial of a Number
- Find the Largest Element in a List
- Check if a String is a Palindrome
- Find the Fibonacci Sequence up to n Terms
- Find the Second Largest Element in a List
- Remove Duplicates from a List
- Find the Intersection of Two Lists
- Find the Missing Number in an Array (1 to N)
- Check if Two Strings are Anagrams
- Group Anagrams from a List
- Find the First Non-Repeating Character in a String
- Find the Longest Common Prefix in an Array of Strings
- Find the Majority Element in an Array
- Rotate an Array by K Positions
- Merge Two Sorted Lists
- Find the Duplicate Number in an Array