

Placement Training: Interview Questions on Python and Django (Basic to Intermediate)

Python – Basics to Intermediate Level Questions

- Q: What are the key features of Python?

A: - Easy to learn and read

- Interpreted and dynamically typed
- Supports multiple paradigms (OOP, procedural, functional)
- Extensive standard libraries
- Cross-platform

- Q: What is the difference between a list, tuple, and set in Python?

A: - List: Ordered, mutable, allows duplicates → []

- Tuple: Ordered, immutable, allows duplicates → ()

- Set: Unordered, mutable, no duplicates → {}

- Q: What are Python's data types?

A: - Numeric: int, float, complex

- Sequence: list, tuple, range, str

- Set types: set, frozenset

- Mapping: dict

- Boolean: True, False

- None type: None

- Q: What is the difference between is and == in Python?

A: - == compares values

- is compares memory locations (identity)

- Q: Explain list comprehension with an example.

A: List comprehension offers a concise way to create lists.

Example: squares = [x**2 for x in range(5)] → [0, 1, 4, 9, 16]

- Q: What are *args and **kwargs in Python?

A: - *args: Accepts any number of positional arguments

- **kwargs: Accepts any number of keyword arguments

- Q: What is a lambda function in Python?

A: A lambda function is an anonymous function defined using the lambda keyword.

Example: `lambda x, y: x + y`

- Q: What is the difference between deep copy and shallow copy?

A: - Shallow copy copies the outer object only

- Deep copy recursively copies all nested objects

- Q: What is exception handling in Python?

A: Exception handling uses try, except, finally, and raise to manage errors during execution.

- Q: What is the difference between a module and a package in Python?

A: - Module: A single .py file

- Package: A directory containing multiple modules with an `__init__.py` file

Django – Basics to Intermediate Level Questions

- Q: What is Django and why is it used?

A: Django is a high-level Python web framework that encourages rapid development and clean design.

- Q: What is MTV architecture in Django?

A: - Model: Data access layer

- Template: Presentation layer

- View: Business logic

- Q: What is a Django model?

A: A Django model is a Python class that maps to a database table using ORM.

- Q: What is ORM in Django?

A: ORM stands for Object-Relational Mapping and allows interaction with the database using Python objects.

- Q: What is a Django view?

A: A view is a function or class-based component that returns a response to a user request.

- Q: What is the use of `urls.py` in Django?

A: `urls.py` maps URLs to views using `path()` or `re_path()` functions.

- Q: What are Django templates?

A: Templates are HTML files with Django syntax to render dynamic content.

- Q: What are static files and media files in Django?

A: - Static files: CSS, JS, images used in frontend

- Media files: Uploaded user content like profile pictures

- Q: What are Django signals?

A: Signals help decoupled apps get notified when certain actions occur like `post_save` or `pre_delete`.

- Q: How does Django handle forms?

A: Django uses `forms.Form` and `forms.ModelForm` to handle HTML form rendering and validation.