

Python Interview Questions

1. Python Basics (Comments, Type Casting, Variables, Data Types, etc.) – 7 Questions

1. What are the different types of comments available in Python? Provide examples of each.
2. Explain the concept of dynamic typing in Python.
3. What are mutable and immutable data types in Python? Give suitable examples.
4. How does type casting work in Python? Explain the functions `int()`, `float()`, and `str()` with examples.
5. What are Python identifiers and what naming conventions should be followed?
6. What is the difference between a variable defined inside a function and one defined outside a function?
7. Explain the use of the `input()` function. How can user input be converted into an integer?

2. Strings – 4 Questions

8. How are strings stored in Python memory? Are Python strings mutable or immutable?
 9. What is string slicing in Python? Provide examples demonstrating different ways of slicing.
 10. What is the difference between the methods `strip()`, `lstrip()`, and `rstrip()`?
 11. Explain how the string methods `find()`, `index()`, `count()`, and `replace()` work.
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3. Data Collections – List, Tuple, Set, Dictionary – 8 Questions

12. What is the difference between a list and a tuple in Python?
 13. How do you add, update, and delete elements from a list?
 14. What is list comprehension? Explain with an example.
 15. What is a set in Python, and how is it different from a list?
 16. Why are sets faster than lists for membership testing in Python?
 17. What are dictionary keys and values? Can a list be used as a dictionary key? Explain why or why not.
 18. What is the difference between the methods `append()` and `extend()` in lists?
 19. How can you merge two dictionaries in Python?
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4. Operators – 3 Questions

20. What is the difference between the `==` operator and the `is` operator in Python?
 21. What are logical operators in Python? Provide examples demonstrating each one.
 22. Explain the use of membership operators `in` and `not in` with examples.
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5. Conditional Statements – 3 Questions

23. Explain the use of `if`, `elif`, and `else` statements in Python with an example.
 24. What is a nested `if` statement? Provide an example.
 25. What is the ternary operator (conditional expression) in Python? Provide its syntax and an example.
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6. Loops – 4 Questions

26. What is the difference between the `for` loop and the `while` loop in Python?

- 27. How can you iterate over a list using a for loop?
 - 28. Explain the purpose of the `range()` function when used in loops.
 - 29. What is the purpose of using an `else` clause with loops? Provide an example.
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7. Control Statements – 3 Questions

- 30. What is the difference between the `break` and `continue` statements in Python?
 - 31. What is the purpose of the `pass` statement in Python?
 - 32. How does the `assert` statement work? Give an example.
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8. Functions, Recursion, Lambda, Generators, Iterators – 8 Questions

- 33. What is a function in Python? How do you define and call a function?
 - 34. What is the difference between `*args` and `**kwargs` in Python functions?
 - 35. What is recursion? Provide an example of a recursive function.
 - 36. What is a lambda function in Python? Give an example of its usage.
 - 37. What is the difference between the functions `map()`, `filter()`, and `reduce()` in Python?
 - 38. What is an iterator in Python? How do the `iter()` and `next()` functions work?
 - 39. What is a generator in Python? How does `yield` differ from `return`?
 - 40. How does Python handle default arguments in functions?
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9. Try-Exception Handling – 4 Questions

- 41. Explain how a `try-except` block works in Python. Provide an example.
- 42. What is the purpose of the `finally` block in Python exception handling?
- 43. How do you raise a custom exception in Python?

44.What is the difference between the base `Exception` class and specific exceptions like `ValueError` or `TypeError`?

10. File Handling – 3 Questions

45.Explain the different file modes in Python (`r`, `w`, `a`, `rb`, `wb`).

46.Why is the `with open()` statement preferred over using `open()` and `close()` manually?

47.What is the difference between the methods `read()`, `readline()`, and `readlines()`?

11. Object-Oriented Programming (OOPs) – 5 Questions

48.What are the four pillars of object-oriented programming (OOP)? Explain each.

49.What is the difference between a class variable and an instance variable?

50.What is inheritance in Python? Provide an example demonstrating its use.

51.What is polymorphism in Python?

52.What is the difference between `@staticmethod` and `@classmethod` in Python?

12. Pandas – 8 Questions

53.What are the main data structures provided by the Pandas library?

54.How do you read a CSV file into a Pandas `DataFrame`?

55.What is the difference between `loc[]` and `iloc[]` in Pandas?

56.How do you handle missing values (`NaN`) in a `DataFrame`?

57.How do you merge, join, or concatenate `DataFrames` in Pandas?

58.What are some common ways to filter rows in a Pandas `DataFrame`?

59.How can you group data in a Pandas DataFrame and perform aggregate operations?

60.How do you change the data type of columns in a Pandas DataFrame?
