

## Straight Forward Questions

1. What are the basic data types in Python?
2. Difference between list and tuple in Python.
3. Difference between mutable and immutable objects in Python.
4. What is the difference between shallow copy and deep copy in Python?
5. What is the difference between == and is in Python?
6. What is the difference between args and kwargs?
7. What is the difference between multithreading and multiprocessing in Python?
8. What is a generator and yield in Python?
9. What are Python decorators?
10. How does exception handling work in Python (try, except, finally)?
11. What is boto3 and how do you use it?
12. How do you install Python packages/modules?
13. What is requirements.txt used for?
14. How do you reverse a string or list in Python?
15. How do you read and write files in Python?
16. What is a dictionary in Python?
17. How do you run Linux/shell commands from Python?
18. What is monkey patching in Python?
19. What are docstrings and slicing in Python?
20. How does garbage collection work in Python?
21. What is the difference between return and yield?
22. What is the purpose of init in Python classes?
23. How do you handle command-line arguments in Python?
24. What Python libraries/modules have you used in DevOps/automation?

## Scenario Questions

25. Write a Python script to read a file, count word frequency, and print the top 5 most common words.
26. Write a Python program to check if a number is prime.
27. Write a Python script to print a star/pattern pyramid.
28. Write a Python script to generate the nth Fibonacci number (using loop and using generator).
29. Write a Python script to reverse a string or list without using built-in reverse functions.
30. Write a Python script using boto3 to list all running EC2 instances.
31. Write a Python script using boto3 to start/stop an EC2 instance by instance ID.
32. Write a Python script to monitor CPU/memory/disk usage and send alert if threshold exceeds (e.g., 85%).
33. Write a Python script to list all S3 buckets and objects using boto3.
34. Write a Python script that continuously tails a log file and prints only lines containing "error"error"".
35. Write a Python script to swap two numbers/variables without using a third variable.
36. Write a Python script to find duplicate elements in a list.
37. Write a Python script to find the longest substring without repeating characters.
38. Write a Python script to check if a string/word is palindrome.
39. Write a Python script to remove duplicates from a list without using set.
40. Write a Python script to parse JSON and extract a specific key value (e.g., "status").
41. Write a Python script to trigger a Jenkins job using REST API.
42. Write a Python script to automate weekly database backup.
43. Write a Python script to read a directory, find all YAML files, validate them, and extract Kubernetes metadata (apiVersion, kind, metadata.name).
44. Write a Python script to call an API and handle different HTTP status codes (200s continue, 400s exit, 500s retry/pass).
  

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45. You have 100 log files rotated daily. Write a Python script to collect logs from the last 7 days, zip them with date in filename, and upload to S3.

46. A Kubernetes pod is in CrashLoopBackOff. Write a Python script using kubernetes-client to check pod status, fetch logs, and send Slack/email alert.
47. Your company runs EC2 instances 24/7 but wants to save cost. Write a Python + boto3 script that stops instances on weekends and starts them on Monday morning.
48. Prometheus alerts are too noisy. Write a Python script that filters alerts, adds runbook links and sends consolidated Slack message instead of individual alerts.
49. Developers push large files (>100MB) to Git, breaking the repo. Write a Python pre-commit hook or GitHub Action script to scan and block commits with large files.
50. You need to rotate IAM access keys automatically every 90 days. Write a Python + boto3 script that creates new keys, updates Jenkins/GitLab secrets, and deactivates old keys.
51. Trivy scan reports 50+ vulnerabilities. Write a Python script to parse Trivy JSON output, filter only Critical/High, and fail the pipeline if any found.
52. An application generates 10k+ lines of logs per minute. Write a Python script that tails the log in real time, extracts ERROR lines with timestamps, and pushes to Elasticsearch.
53. You manage 500 EC2 instances across accounts. Write a Python script that assumes role, collects CPU > 90% instances, and auto-adds them to Auto Scaling group.
54. During deployment, a bad config caused outage. Write a Python script that compares current Kubernetes manifests with Git (last deployed), highlights differences, and alerts on drift.