Python Interview Questions + Practice Tasks

■ Interview Questions

Dictionaries
- What is the difference between dictionary and list in Python?
- How do you safely access a value in a dictionary without getting a KeyError?
- How do you merge two dictionaries?

Lists
- What is the difference between append() and extend()?
- How do you remove duplicates from a list?
- What is list comprehension? Give an example.

Functions
- What is the difference between positional and keyword arguments?
- What are *args and **kwargs used for?
- What is the difference between a function and a lambda expression?

Loops
- What is the difference between for and while loop?
- How can you break out of a nested loop in Python?
- Explain the use of enumerate() in loops.

requests Library
- What is the difference between requests.get() params and data arguments?
- How do you handle timeouts and retries in requests?
- What is the purpose of response.raise_for_status()?

uuid Library
- When would you use uuid4 vs uuid5?
- How do you convert a UUID to a string and back to a UUID object?

random Library
- What is the difference between random.choice() and random.sample()?
- Why should you not use random for generating passwords? Which library should be used instead?

time Library
- What is the difference between time.time() and time.perf_counter()?
- How do you format the current time in YYYY-MM-DD format?

json Library
- What is the difference between json.dumps() and json.dump()?
- How do you handle non-serializable objects like datetime or UUID in json?

REST API
- What is the difference between GET and POST in REST?
- What are common HTTP status codes you have used?
- How do you send headers and query parameters in requests.get()?

■ Practice Tasks

1. Create a dictionary of 5 students with names as keys and marks as values. Print the student with the highest marks.

2. Create a list of 10 numbers. Use list comprehension to generate a new list containing only even numbers.

3. Write a function that takes a list of numbers and returns the sum of squares of all numbers.

4. Write a loop that prints Fibonacci numbers up to 100.

5. Using requests, fetch data from 'https://jsonplaceholder.typicode.com/posts' and print titles of the first 5 posts.

6. Use requests POST to send a new post to the same API with your own data and print the response.

7. Generate 5 unique UUIDs using uuid4 and store them in a list.

8. Use random.choice() to simulate rolling a dice 10 times and count how many times you get 6.

9. Use time.sleep() to create a countdown timer from 5 to 0 seconds.

10. Convert a Python dict with UUID and datetime into a JSON string using json.dumps() with a custom serializer.