Python List Comprehension Interview Questions & Answers

# ✅ Beginner-Level

* Q: What is list comprehension?

A: It's a concise way to create lists using a single line of code.  
Syntax: [expression for item in iterable if condition]

* Q: Convert loop to list comprehension:

A: result = [i \* i for i in range(10)]

* Q: Even numbers from 1 to 20:

A: evens = [x for x in range(1, 21) if x % 2 == 0]

* Q: Numbers divisible by 3:

A: divisible\_by\_3 = [x for x in [1, 2, 3, 4, 5, 6, 7, 8, 9, 10] if x % 3 == 0]

# 🧠 Intermediate-Level

* Q: If-Else in list comprehension:

A: result = ["Even" if x % 2 == 0 else "Odd" for x in range(5)]

* Q: Flatten a 2D list:

A: flat = [num for row in [[1, 2], [3, 4], [5, 6]] for num in row]

* Q: Uppercase strings:

A: upper = [s.upper() for s in ["hello", "world"]]

* Q: Remove duplicates using set comprehension:

A: unique = list({x for x in [1, 2, 2, 3, 4, 4]})

* Q: Convert integers to strings:

A: str\_nums = [str(x) for x in [1, 2, 3]]

# 🧪 Advanced-Level

* Q: Nested loops for all pairs:

A: pairs = [(i, j) for i in [1, 2, 3] for j in [4, 5]]

* Q: Filter list of dictionaries:

A: names\_over\_30 = [p['name'] for p in people if p['age'] > 30]

* Q: Replace negative numbers with 0:

A: cleaned = [x if x >= 0 else 0 for x in [3, -1, 0, -5, 8]]

* Q: Unique words from sentence:

A: unique\_words = list({word.lower() for word in "Hello world hello".split()})

* Q: Read lines from file and strip newlines:

A: with open('file.txt') as f:  
 lines = [line.strip() for line in f]

* Q: Create dictionary from two lists:

A: result\_dict = {k: v for k, v in zip(['a', 'b', 'c'], [1, 2, 3])}

# 🧱 Data Engineering Context

* Q: Filter columns with prefix 'user\_':

A: user\_cols = [col for col in cols if col.startswith('user\_')]

* Q: Extract field from JSON records:

A: names = [r['name'] for r in records]

* Q: Lambda inside list comprehension:

A: squared = [(lambda x: x \* x)(x) for x in [1, 2, 3]]

* Q: PySpark-like row filtering:

A: active\_values = [row['value'] for row in data if row['status'] == 'active']

* Q: Convert timestamps to datetime:

A: from datetime import datetime  
dt\_objects = [datetime.strptime(ts, '%Y-%m-%d %H:%M:%S') for ts in timestamps]