1.What is Python and why is it called an interpreted language?

*Python is a high-level programming language

*Simple and easy-to-learn syntax

*open-source

*Execute faster compared to some other programs

*Need only less memory

*Large standard library

*Python is an interpreted language.

Python is called an interpreted language because its code is executed line-by-line at runtime by an interpreter.

2.What are the key features of Python that make it popular for beginners and professionals?

1)Simple and Easy-to-Learn Syntax: Python's syntax is clear, readable, and similar to English, making it beginner-friendly.

2)Interpreted Language: Python code is executed line-by-line, allowing quick testing and debugging.

3)platform-independent: Python is platform-independent, meaning the same code can run on Windows, macOS, Linux, etc., without modification.

4)Open-Source and Free: Python is free to use, distribute, and modify

5)Large Standard Library: Comes with a built-in standard library for tasks like file handling, web development, database management, and more,Reduces the need to write extra code from scratch.

6)Object-Oriented Programming: Object-Oriented Programming (OOP) for creating reusable and structured code.

3.What is the difference between Python 2 and Python 3?

*In Python 2, you write print without brackets.

*in Python 3, you must use brackets like print("Hello").

*In Python 2, dividing two numbers will only give you answer as integers.

*while in Python 3 it gives decimal values also.

*Python 2 is an older version that is no longer supported.

*Python 3 is the current and actively developed version.

4.What are Python's applications in real-world projects?

1)Web Development

2)Data Science and Data Analysis

3)Artificial Intelligence and Machine Learning

4)Game Development

5)Cybersecurity and Ethical Hacking

6)Desktop Application Development

7)Internet of Things (IoT)

8)Automation

5.What is PEP 8 and why is it important in Python programming?

PEP 8 is Python Enhancement Proposal 8, which is the style guide for writing Python code.PEP 8 makes Python code look clean, readable, and consistent, which is why it is widely used in the Python community.

-Readability: Code that follows PEP 8 is easier for others (and your future self) to read.

-Consistency: If everyone follows the same style, projects look uniform.

-Collaboration: In team projects, PEP 8 ensures all developers write code in the same way.

-Professionalism: Following PEP 8 is a mark of clean, high-quality Python code.

-Fewer errors: Consistent formatting reduces mistakes and confusion.

6.Who developed Python and in which year was it released?

-Developer: Guido van Rossum (a Dutch programmer).

-Year of release: 1991.

7.What do you mean by “dynamically typed” in Python?

Dynamically typed in Python means:

-You don’t have to say the type of a variable (like int, string, etc.) when creating it.

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Python will decide the type automatically when the program runs.

8.What is the difference between a compiler and an interpreter, and which does Python use?

Compiler

-Translates the whole program into machine code at once.

-Runs faster after compilation.

-Example: C, C++ use compilers.

Interpreter

-Translates and runs the program line by line.

-Easier to debug, but slower.

-Example: Python, JavaScript use interpreters.

*Python is an interpreted language it runs code line by line using the Python interpreter.