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

Python is a versatile, high-level, and interpreted programming language known for its readability and ease of use. It is called an "interpreted" language because it runs code line by line using an interpreter, which translates the source code directly into machine-readable instru-ctions at runtime, rather than compili-ng the entire program into machine code beforehand.

* Direct execution
* No separate compilation step
* Hidden compilation to bytecode
* Platform independence

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

Easy to learn readable syntax, a vast

ecosystem of libraries, and versatility across various fields like data Science, web development, and AI.

- **FOR BEGINNERS :-**
  * Simple and readable Syntax
  * Interactive and interpreted
  * Dynamic typing
  * Extensive Standard library

- **FOR PROFESSIONALS :-**
  * Vast libraries and frameworks
  * Versatility
  * Cross - platform compatibility
  * Rapid Prototyping
  * Large and active community

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

Comparison Pmter	Python 2	Python 3
Year of Release	Python 2 was released in the year 2000.	Python 3 was released in the year 2008.
"Print" keyword	In Python 2, Print is considered to be a Statement and not a function.	In Python 3, Print is considered to be a function and not a Statement.

Storage of Strings	In Python 2, strings are stored as Ascu by default.	In Python 3, strings are stored as UNICODE by default.
Division of integers	On the division of two integers, we get an integral value in Python 2. For instance, 7/2 yields 3 in Python 2.	On the division of two integers, we get a floating-point value in Python 3. For instance, 7/2 yieds 3.5 in Python 3.
Exceptions	In Python 2, exceptions are enclosed in notations.	In Python 3, exceptions are enclosed in parentheses.
Libraries	A lot of libraries of Python 2 are not forward compatible.	A lot of libraries are created in Python 3 to be strictly used with Python 3.
Application	Python 2 was mostly used to become a DevOps Engineer. It is no longer in use after 2020.	Python 3 is currently used in a lot of field like Software Enginnering, Data Science, etc

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

• **Key Applications:**

* Web Development
* Data Science and Data Analysis
* Machine Learning and Artifical
* Automation and Scripting
* Game Development
* Web Scraping and Data Extraction
* Cybersecurity and Ethical Hacking
* Software Development and Testing
* Desktop GUI Applications
* Internet of Things (IOT)
* Cloud Computing and DevOps
* Education and Research.

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

PEP 8, or Python Enhancement Proposal 8, is the official style guide for Python code. It was created in 2001 by Guido van Rossum, Barry Warsaw, and Nick Coghlan.

PEP 8 is important for several key reasons

* Readability   * Reduced cognitive load
* Consistency
* Collaboration
* Professionalism

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

Python was developed by Guido Van Rossum.

The first version of python, Python 0.9.0 was released in February 1991.

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

In Python, "dynamically typed" refers to the characteristic where the data type of a variable is determined at runtime rather than at compile time.

This means:

* No explicity type declaration:
You don't need to explicitly declare the type of a variable when you create it. Python infers the type based on the value assigned.

8. What is diffence between a compiler & on interpreter, & which does Python use?

Compiler	Interpreter
+ Compiled codes run faster than interpreter.	Interpreter codes run slower than compiler.
* The compiler generates an output in the form of	The interpreter does not generate any output.
* Errors are displayed in compiler after compiling together at the ccurrent time.	Error are displayed in every single line.