30/10/25 :-

⇒ 1. PYTHON HISTORY ?-

Python is a high-level, interpreted, interactive and obeject-oriented Scripting language. Python is designed to be highly readable. It uses English keywords frequently where as other language use punctuation, and it has fewer Syntactical constructions than other languages.

HISTORY OF PYTHON :-

* Python was developed by Guido Van Rossum in the late eighties and early nineties at the National Research Institute for Mathematics and Computer Science in the Netherlands.
* Python is derived from many other languages, including ABC, Modula-3, C, C++, Algol-68, SmallTalk, Unix Shell, and other Scripting languages.
* Python 1.0 was released on 20 Feb, 1991.
* Python 2.0 was released on 16 October 2000 and had many major new features, including a Cycle detecting garbage collector and Support for Unicode. with this release the development process was changed and became more transparent and community backed.

⇒ PYTHON FEATURES :-

1. Easy - to - learn
2. Easy - to - read
3. Easy - to - maintain
4. A Broad Standard library
5. Interactive Mode
6. Portable
7. Extendable
8. Databases
9. GUI Programming
10. Scalable

1) Easy to learn :-
Python has few keywords, Simple Structure, and a clearly defined Syntax.

2) Easy to ~~read~~ :-
Python code is more clearly defined and visible to the eyes.

3) Easy to maintain :-
Python's Source code is fairly easy to maintain.

4) Protable :-
Python can run on a wide variety of hardware platforms and has the Same interface on all platforms.

⇒ NEED OF PYTHON PROGRAMMING :-

- Software quality
- Developer productivity
- Support libraries
- Component integration
- Enjoyment
- It's Object-Oriented
- It's Free
- It's Portable
- It's Powerful

* Automatic memory management
* Programming-in-the-large Support

⇒ What Are Python's Technical Strengths?

1. It's Object-Oriented and Functional
2. It's Free
3. It's Portable
4. It's Powerful
5. It's Mixable
6. It's Relatively Easy to USE
7. It's Relatively Easy to learn

APPLICATIONS OF PYTHON :-

1. Systems Programming
2. GUIs
3. Internet Scripting
4. Component Integration
5. Database Programming
6. Rapid Prototyping
7. Numeric and Scientific Programming.

2. What are the pros and cons of Python ?

- **PROS OF PYTHON :-**

* **Simplicity and Reabability :-**
Python's Syntax is easy to learn, read, and write, making it a great choice for beginners and improving developer productivity.

* **Vast Libraries and Modules :-**
It has a huge Standard libary and a massive ecosystem of third-party modules (like Pandas, Numpy, and TensorFlow) that simplify tasks in web development, data analysis machine learning, and more.

* **Versatility :-**
Python is a general-purpose language used in a wide range of applications from web development to Scientific Computing and AI.

* **Large and Supportive Community :-**
There is a large and active global community that provides extensive support resources, and tutorials.

* **Interpreted and Dynamic :-**
As an interpreted language, Python

Code can be executed line-by-line, which aids in debugging.

* Portable :-
Python programs can run on different operating system (Windows, Linux, Macos) without needing to be rewritten.

* Open-Source :-
It is free to use and distribute, with its development driven by a global community.

- CONS OF PYTHON :-
* Performance Limitations :-
Python is slower than compiled languages like C or Java because it is interpreted at runtime, which can lead to slower execution speeds.

* Memory Consumption :-
It is more memory-intensive compared to other languages, as it is not as optimized for reducing memory usage.

* Mobile Development :-
It is not the ideal choice for mobile app development due to its performance limitations and less-developed frameworks compared to other languages.

* Runtime Error :-

Being dynamically typed means that errors related to data types are only caught at runtime, which can lead to unexpected issues if not carefully managed.