



SRI KANYAKA PARAMESWARI

ARTS & SCIENCE COLLEGE FOR WOMEN

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"Linguistic (Telugu) Minority Institution

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Affiliated to University of Madras



TECH-BYTES NEWSLETTER DECEMBER 2020

PYTHON AND DATA SCIENCE TECHNOLOGY

DEPARTMENT OF
COMPUTER SCIENCE

Python is an interpreted, object-oriented, high-level programming language with dynamic semantics. Its high-level built in data structures, combined with dynamic typing and dynamic binding; Make it very attractive for Rapid Application Development, as well as for use as a scripting or glue language to connect existing components together. Python's simple, easy to learn syntax emphasizes readability and therefore reduces the cost of program maintenance.

Python supports modules and packages, which encourages program modularity and code reuse.

The Python interpreter and the extensive standard library are available in source or binary form without charge for all major platforms, and can be freely distributed.



HISTORY

Python was conceived in the late 1980s by Guido van Rossum at **Centrum Wiskunde & Informatica** (CWI) in the Netherlands as a successor to ABC programming language, which was inspired by SETL), capable of exception handling and interfacing with the Amoeba operating system. Its implementation began in December 1989. Van Rossum shouldered sole responsibility for the project, as the lead developer, until 12 July 2018, when he announced his "permanent vacation" from his responsibilities as Python's Benevolent Dictator For Life, a title the Python community bestowed upon him to reflect his long-term commitment as the project's chief decision-maker.



GUIDO VAN ROSSUM

Guido Van Rossum is one of the world's most influential programmers. Van Rossum is the author of the general purpose programming language python, which he started working on in 1989, and is now among the most popular languages in use. In 1999, Van Rossum submitted a funding proposal to DARPA called "Computer Programming for Everybody", in which he further defined his goals for python: An easy and intuitive language just as powerful as major Competitors. Open sources, so anyone can contribute to its development.

PYTHON QUOTES

PYTHON IS AN EXPERIMENT IN HOW MUCH FREEDOM PROGRAMMERS NEED. TOO MUCH FREEDOM AND NOBODY CAN READ ANOTHER'S CODE; TOO LITTLE AND EXPRESSIVENESS IS ENDANGERED

"IF YOU DECIDE TO DESIGN YOUR OWN LANGUAGE, THERE ARE THOUSANDS OF SORT OF AMATEUR LANGUAGE DESIGNER PITFALLS."

PYTHON JOKES

```
#include<stdio.h>
```

```
#include<conio.h>
```

```
#include<ctype.h>
```

```
#include<string.h>
```

```
#include<iostream.h>
```

```
Print("python")
```

ME

is the syntax for comments in python



C PROGRAMMERS

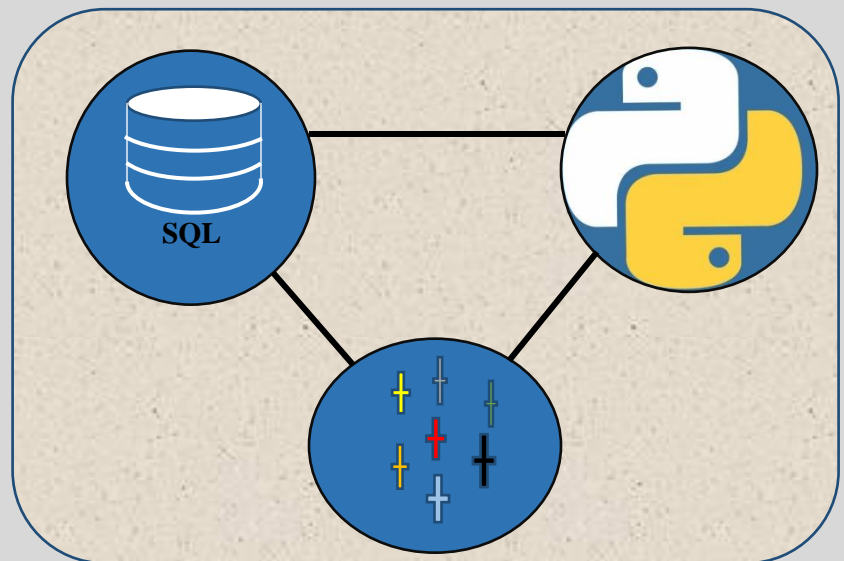
why did this idiot include all those header files to print a string?



WHO USES PYTHON TODAY

- ❖ Python is being applied in real revenue – generating products by real companies. For instance
- ❖ Google makes extensive use of python in its web search system and employs python's creator.
- ❖ Intel, Cisco, Hewlett – Packard, Seagate, Qualcomm and IBM use Python for hardware testing.
- ❖ ESRI uses python as an end – user customization tool for its popular GIS mapping products.
- ❖ The YouTube video sharing service is largely written in python.

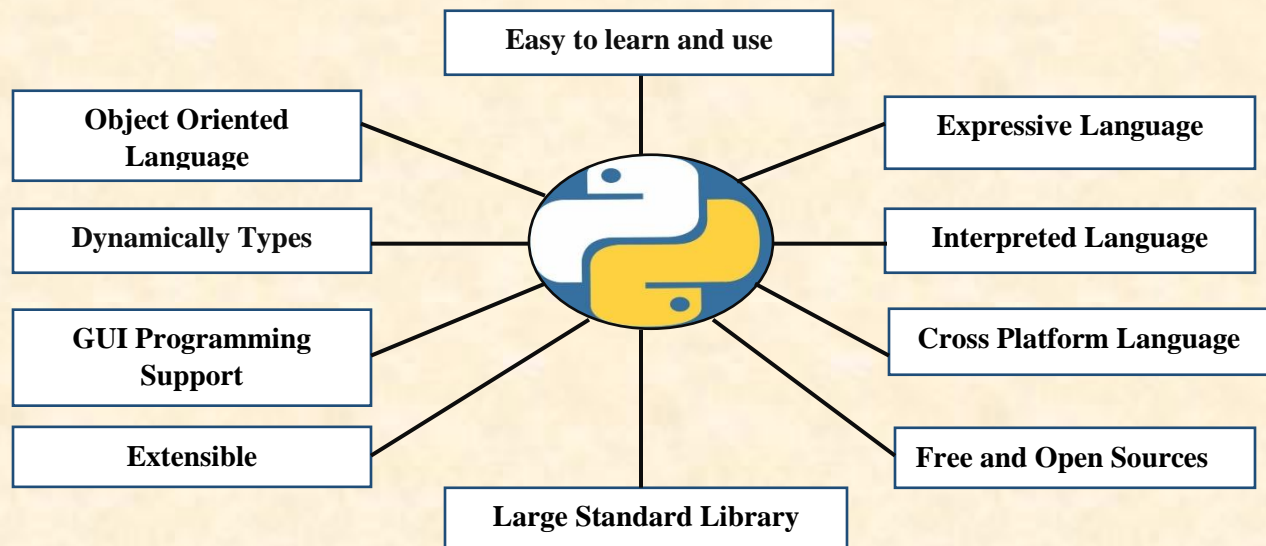
THREE PILLARS OF PYTHON



Top 5 companies that use python

- Acyclic Labs, Bangalore.
- Comat Technologies Pvt. Ltd., Richmond Town, Bangalore.
- DIQ Technologies, Bangalore.
- Hidden Reflex, Bangalore.

FEATURES OF PYTHON



Merits of python

- ❖ Presence of Third Party Modules
- ❖ Extensive Support Libraries
- ❖ Open Source and Community Development
- ❖ Learning Ease and Support Available
- ❖ User-friendly Data Structures
- ❖ Productivity and Speed

Demerits of python

- ❖ **Speed:** Python is slower than C or C++.
- ❖ **Mobile Development:** Python is not a very good language for mobile development.
- ❖ **Memory Consumption:** Python is not a good choice for memory intensive tasks.
- ❖ **Database Access:** Python has limitations with database access
- ❖ Runtime Errors.

EVALUATION OF PYTHON

- ✦ Python was originally conceptualized by Guido Van Rossum in the late 1980s as a member of the National Research Institute of Mathematics and Computer science.
- ✦ Initially, it was designed as a response to the ABC programming language that was also foregrounded in the Netherlands.
- ✦ Among the main features of python compared to the ABC language was that python had exception handling and was targeted for the Amoeba operating system (go python!).
- ✦ Of course, Python, like other languages, has gone through a number of versions. Python 0.9.0 was first released in 1991.

DATA SCIENCE

DATA SCIENCE HISTORY

In 1962, John Tukey described a field he called “Data analysis,” which resembles modern data science. In 1985, in a lecture given to the Chinese Academy of Sciences in Beijing, C.F. Jeff Wu used the term Data Science for the first time as an alternative name for statistics. Later, attendees at a 1992 statistics symposium at the University of Montpellier II acknowledged the emergence of a new discipline focused on data of various origins and forms, combining established concepts and principles of statistics and data analysis with computing. In 1996, the International Federation of Classification Societies became the first conference to specifically feature data science as a topic. However, the definition was still in flux. After the 1985 lecture in the Chinese Academy of Sciences in Beijing, in 1997 C.F. Jeff Wu again suggested that statistics should be renamed data science.

Top 6 Data Science Programming Languages

A programming language is a formal language comprising a set of instructions that produce various kinds of output. These languages are used in computer program to implement algorithms and have multiple applications. There are several programming languages for data science as well. Data scientists should learn and master at least one language as it is an essential tool to realize various data science functions.

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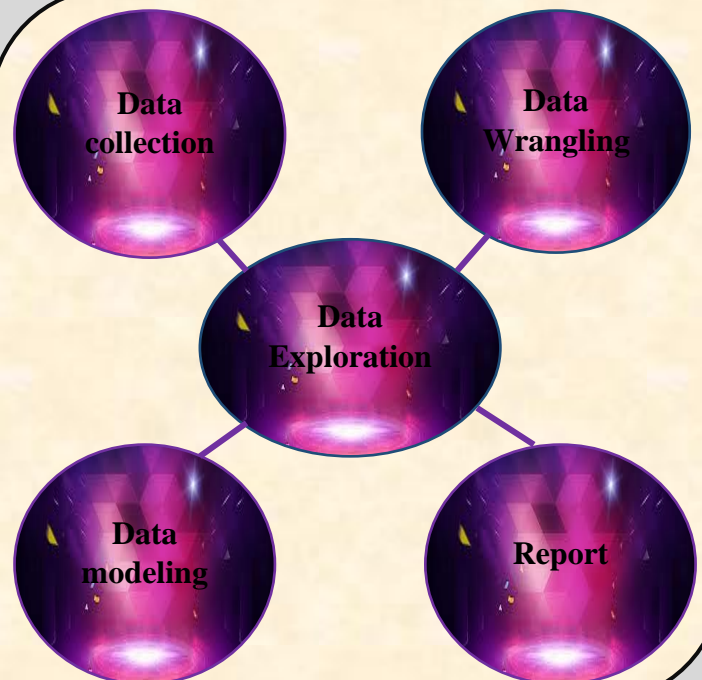
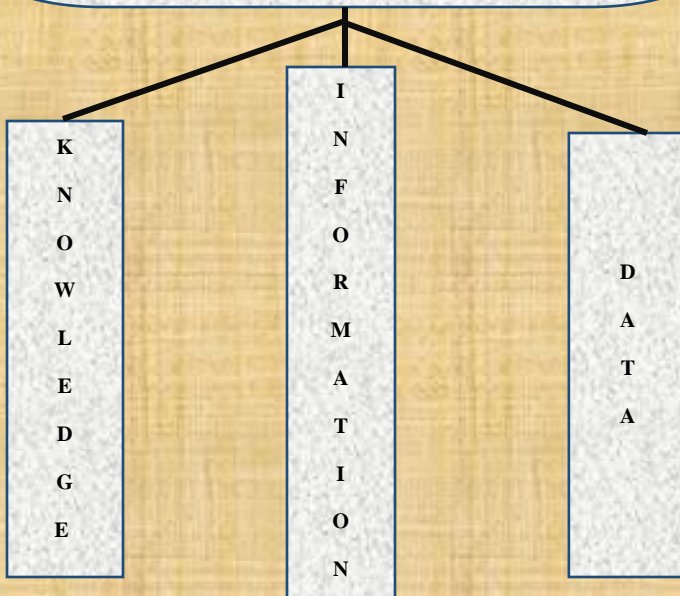
Low-level and High-level Programming Languages, Programming Languages for Data Science

1. Python
2. JavaScript
3. Scala
4. R
5. SQL
6. Julia

Programming Languages for Data Science

- 1. Python:** Python is the most widely used data science programming language in the world today.
- 2. JavaScript:** JavaScript is another object-oriented programming language used by data scientists.
- 3. Scala:** This modern and elegant programming language was created way more recently, in 2003. It is also a scalable and effective language for handling big data.
- 4. R:** R is a high-level programming language built by statisticians. R can come handy for exploring data sets and conducting ad hoc analysis.
- 5. SQL:** Over the years, Structured Query Language or SQL has become a popular programming language for managing data.
- 6. Julia:** Julia is a data science programming language that has been purpose-developed for speedy numerical analysis and high-performance computational science.

THREE PILLARS OF DATASCIENCE



Advantages of Data Science

- ❖ Data Science is Versatile.
- ❖ Data Science Makes Data Better.
- ❖ Data Scientists are Highly Prestigious.
- ❖ No More Boring Tasks.
- ❖ Data Science Makes Products Smarter.

Disadvantages of Data Science

- ❖ Data Science is a very general term and does not have a definite definition.
- ❖ Mastering Data Science is near to impossible.
- ❖ Large Amount of Domain Knowledge Required.
- ❖ Problem of Data Privacy.
- ❖ Arbitrary Data May Yield Unexpected Results.