Python

Python is a high-level, interpreted programming language known for its simplicity, readability, and versatility. It was created by Guido van Rossum and first released in <mark>1991</mark>. Python has since become one of the most popular programming languages in the world, widely used across various domains such as web development, data science, artificial intelligence, automation, and more.

Python is incredibly valuable for data analysts due to its versatility, efficiency, and the extensive ecosystem of libraries that make data manipulation, analysis, and visualization straightforward.

- o Data Manipulations and Cleaning
- o Data Visualization
- o Statistical Analysis
- o Automating Data Workflows
- o Integration with Databases and Big Data Tools

- **Google Collab**

Google Colab is a cloud-based platform provided by Google that allows users to write, execute, and share Python code directly in their web browser. It's particularly popular among data scientists, machine learning practitioners, educators, and researchers.

- o Interactive Jupyter Notebook
- o Cloud-Based
- o Free Access to Powerful Hardware
- o Integration with Google Drive
- o Support for Python and Libraries

❖ Data Types in Python

int	*Integer*
float	*Floating point*
str	*String*
bool	*Boolean*
complex	*Complex*

- **Internal working Example:**

  Suppose a string,

  str1="Just."

  Where,

  Size is 5

  Index is 0 to 4

0	1	2	3	4
J	u	s	t	.
-5	-4	-3	-2	-1

  str1[3] → t

  str1[-2] → t

  thus, this called Random Access

  because it provides value instantly

- **Typecasting:** Converting one Data type to another Data type

  a=101

  a=type(a)

❖ Important Questions

1. Reversal of the String

   In Python, string reversal can be easily achieved using slicing. Slicing allows you to create a substring by specifying a start, end, and step index.

   To reverse a string, you can use the slicing syntax Str1[::-1], where:
   - Str1 is the original string.
   - The -1 step index indicates that the slicing should be done from right to left.

Input	Output

Str1 = "Just"
 	
# Reversing the string using slicing 	
reversed_str = Str1[::-1]
 	
# Output the reversed string 	
print(reversed_str)
	tsuJ

2. To check whether the string is palindrome or not

   Input:

   ```
   # Step 1: Ask the user to enter a word
   word = input("Enter a word: ")

   # Step 2: Reverse the word
   reversed_word = word[::-1]

   # Step 3: Check if the original word is the same as the reversed word
   If word == reversed_word:
           print("This word is a palindrome!")
   else:
           print("This word is not a palindrome.")
   ```