PYTHON NOTES

Data- it can be meaningful or meaningless-

information- Processed data which gives some insights to us

Definition -

1. Raw data

2. Analysis/Processing/Visualize/Cleaning

3. Meaningful information (insights)

python programmer- Data analyst

BI(Business Intelligence tools)- Power BI, tableau, Qilksense , congons BI(IBM's BI tool)

business analyst- non-tech,business,HR,Team Lead

whats has happened to something-- analysis

what is gonna happen next?-- prediction/forecasting-- ML engineering/Data Scientist/AI Enthusiast

Hidden patterns-- trend- ML-Python/R,statistics+algorithm

Python is 99% statistics in data analysis

100% accuracy is not mandatory it needs to predict approximate values

Types of data:-

structured data-tabular data prediction:

database- excel/CSV

SQL

unstructured data:

Audio/Voice -- NLP Natural Language Processing

Image/Video--Self Driving Car, Face Detection System -- Computer Vision-- AI

Neural Network/ Deep Learning--Mimic The Human Brain

Steps of data sci/AI Project:-

Understanding the Business Problem

Gathering/Collecting Data(Past data)

Data cleaning/Processing

Data Visualization/analysis

Build a Model

Train the ML Algorithm

Prediction/Evaluation

Hyper-parameter Training

Prediction

Model Deployment

From the Past Data- understand the hidden patterns/trends- based on that gives us the future Prediction/Forecast something.

Python Install

Many PCs and Macs will have python already installed.

To check if you have python installed on a Windows PC, search in the start bar for Python or run the following on the Command Line (cmd.exe):

C:\Users\Your Name>python --version

To check if you have python installed on a Linux or Mac, then on linux open the command line or on Mac open the Terminal and type:

python --version

If you find that you do not have Python installed on your computer, then you can download it for free from the following website: https://www.python.org/

Python Quickstart

Python is an interpreted programming language, this means that as a developer you write Python (.py) files in a text editor and then put those files into the python interpreter to be executed.

The way to run a python file is like this on the command line:

C:\Users\Your Name>python helloworld.py

Where "helloworld.py" is the name of your python file.

Let's write our first Python file, called helloworld.py, which can be done in any text editor.

helloworld.py

print("Hello, World!")

Simple as that. Save your file. Open your command line, navigate to the directory where you saved your file, and run:

C:\Users\Your Name>python helloworld.py

The output should read:

Hello, World!

Execute Python Syntax

As we learned in the previous page, Python syntax can be executed by writing directly in the Command Line:

>>> print("Hello, World!")

Hello, World!

On this page

Execute Python Syntax

Python Indentation

Python Variables

Python Comments

Exercises

Or by creating a python file on the server, using the .py file extension, and running it in the Command Line:

C:\Users\Your Name>python myfile.py

Python Indentation

Indentation refers to the spaces at the beginning of a code line.

Where in other programming languages the indentation in code is for readability only, the indentation in Python is very important.

Python uses indentation to indicate a block of code.

ExampleGet your own Python Server

if 5 > 2:

print("Five is greater than two!")

Variables

Variables are containers for storing data values.

Creating Variables

Python has no command for declaring a variable.

A variable is created the moment you first assign a value to it.

ExampleGet your own Python Server

x = 5

y = "John"

print(x)

print(y)

Variables do not need to be declared with any particular type, and can even change type after they have been set.

Example

x = 4 # x is of type int

x = "Sally" # x is now of type str

print(x)

Casting

If you want to specify the data type of a variable, this can be done with casting.

Example

x = str(3) # x will be '3'

y = int(3) # y will be 3

z = float(3) # z will be 3.0

VariablE

Names

A variable can have a short name (like x and y) or a more descriptive name (age, carname, total\_volume). Rules for Python variables:

A variable name must start with a letter or the underscore character

A variable name cannot start with a number

A variable name can only contain alpha-numeric characters and underscores (A-z, 0-9, and \_ )

Variable names are case-sensitive (age, Age and AGE are three different variables)

A variable name cannot be any of the Python keywords.

ExampleGet your own Python Server

Legal variable names:

myvar = "John"

my\_var = "John"

\_my\_var = "John"

myVar = "John"

MYVAR = "John"

myvar2 = "John

Built-in Data Types

In programming, data type is an important concept.

Variables can store data of different types, and different types can do different things.

Python has the following data types built-in by default, in these categories:

Text Type: str

Numeric Types: int, float, complex

Sequence Types: list, tuple, range

Mapping Type: dict

Set Types: set, frozenset

Boolean Type: bool

Binary Types: bytes, bytearray, memoryview

None Type: NoneType

**PYTHON**

History&Features:- Python (Interesting Facts)

Guido Van Rossum--1991--hobby Prog. language-- Monty Python Flying Circus

Feature-- High level language-- English like syntax

OOP

Easy to use-- Simple Syntax

Platform independent--Any OS

Back end (Flash/Django)  
Open Source

Advance Features--

Dynamically typed language

interpreted

rich library support

indentation

IDE - Integrated Development Environment

for C= turbo C, code block, turbo c++

for JAVA= Eclipse,Net beans

for Python= Pycharm,Spyder, ATOM, VS code

For R= R studio

Distribution S/w --- Anaconda ---- Jupyter Notebook (client server A/c)

# Emergent properties of AI

AI Alignment

Claude AI model(better than Chat GPT)

Perplexity(another AI model)