# Python Fundamentals

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# Agenda for Discussion

1. Python: Why do I need it?
   - Are you happy with Bash?
2. Python Basics
   - The Python Interpreter
   - Python Data Structures
   - Comments and Indentation
   - Examples and Practice

# Motivation

Python is a scripting language which is a way ahead of BASh. It provides additional data structures and many advanced features as a programming tool.

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It possesses an extensive set of data structures, libraries, pre-implemented frameworks and has capabilities that can cover various research and industry based tasks.

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Here is the first program! Python is an high-level interpreted language, which support object-orientation as well. This example shows that Python is interactive. You can save the same command in a file with the extension ".py" and execute it on BASh by "python filename.py".

# Variables and Basic Data Structures

```
apples = 100
distance = 93.5
name = "Castiel"
print(apples)
print(distance)
print(name)
```

- Try executing the lines shown above on both the interpreter, and as a python script file.
- Do you need to define each variable type?
- Try multiple assignments like:
  `j = k = 1`
- Further, try:
  `j, k, name = 1, 1.1, "Castiel"`
- Find out how many basic data types does Python support?

*Find out how complex numbers are assigned values!*

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**Indentation rules are pretty strict in Python and you cannot avoid them. Let us see on the Terminal what that means.**

# Example Python Commands

```
int x = 1
str(x)
print(type(x))

hel = "Hello World!"
print(hel[1])

str1 = "Hello"
str2 = "World!"
print(str1+" "+str2)

hell = "Hello World!"
print(hell[1:3])
```

# References

- Python: Basics
- W3Schools: Python
- e-Yantra Homepage

# Thank You!

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Post your queries at: resources@e-yantra.org