

Python (and every other app that has data, users, code etc...)

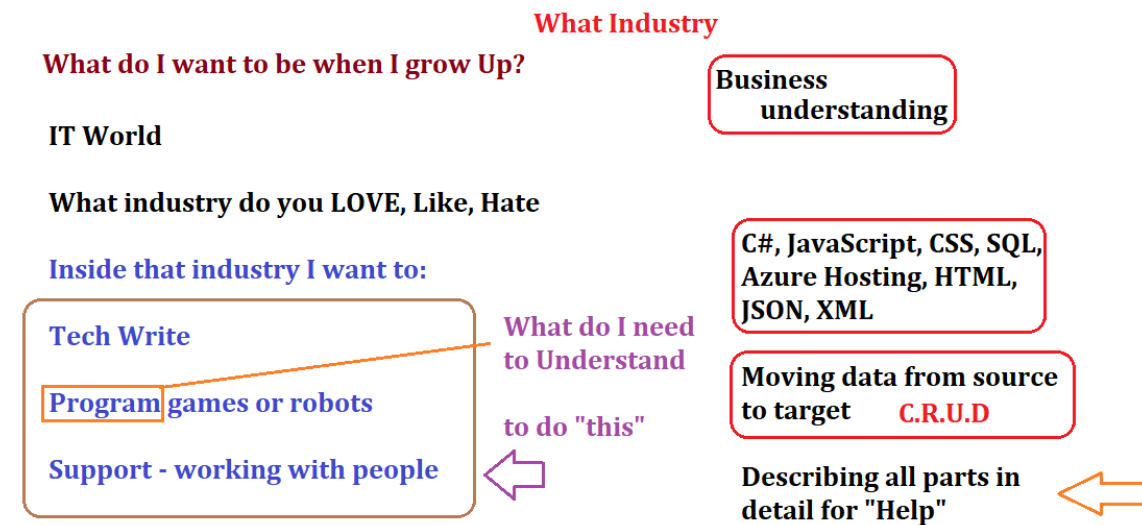
Why do I Python? - [Solving Word Questions \(mathsisfun.com\)](https://mathsisfun.com)

The BIG Q and U!

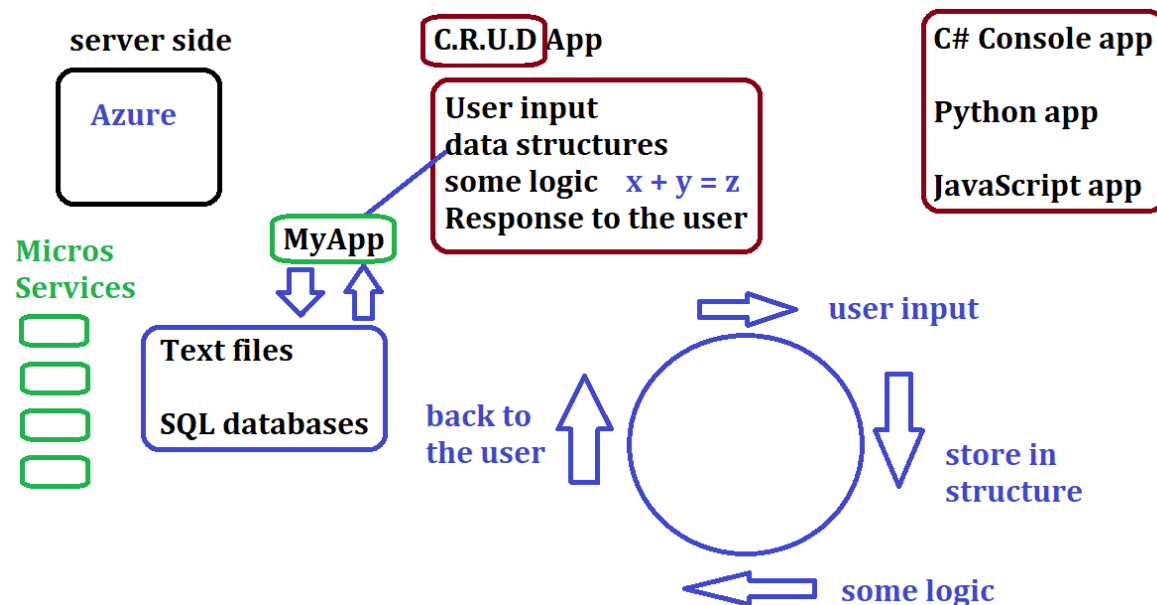
C.R.U.D. Ops are where - anytime we Extract data somehow to a structure then Transform it somehow with code then Load if for the next step - user - storage - next step in the Pipeline Workflow...

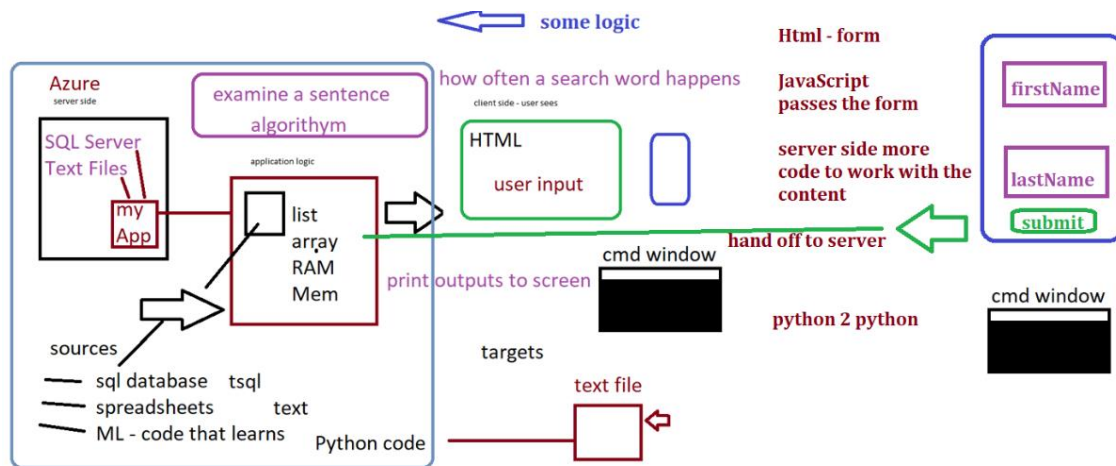
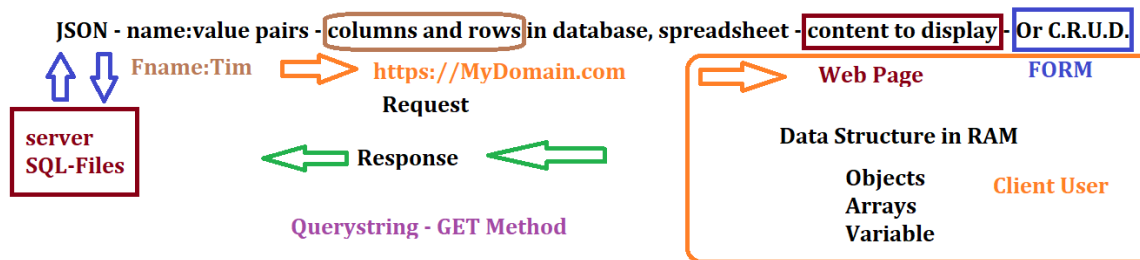
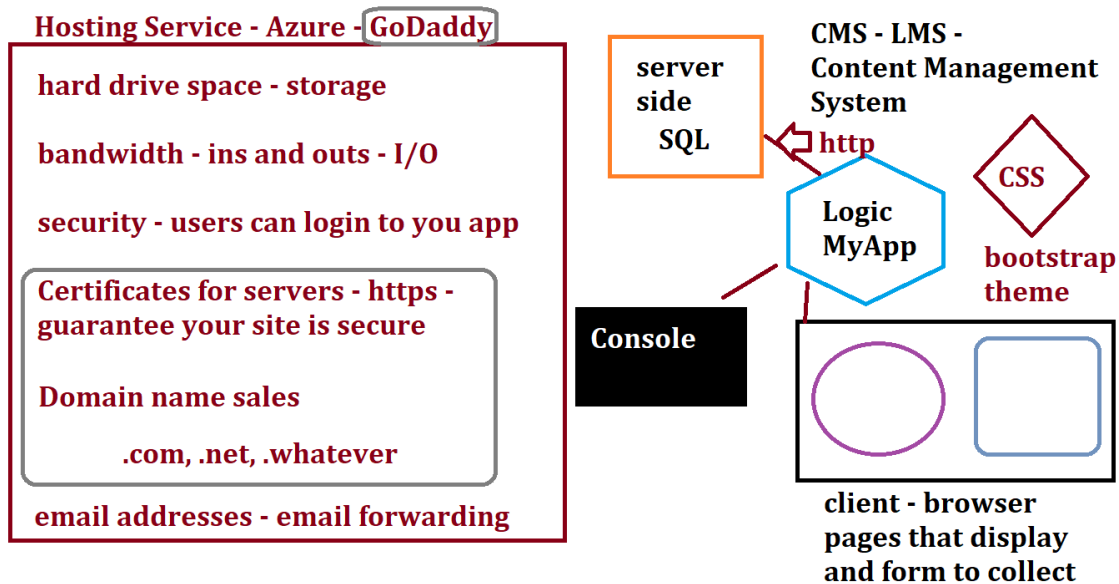
Gallery...

App Structure: C.R.U.D App

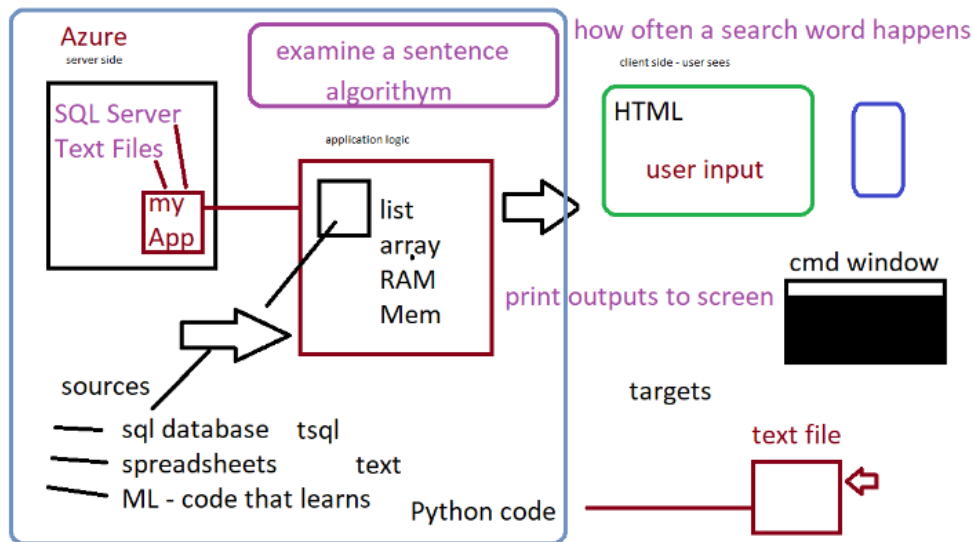


What is the App "Parts" or "Assets"?

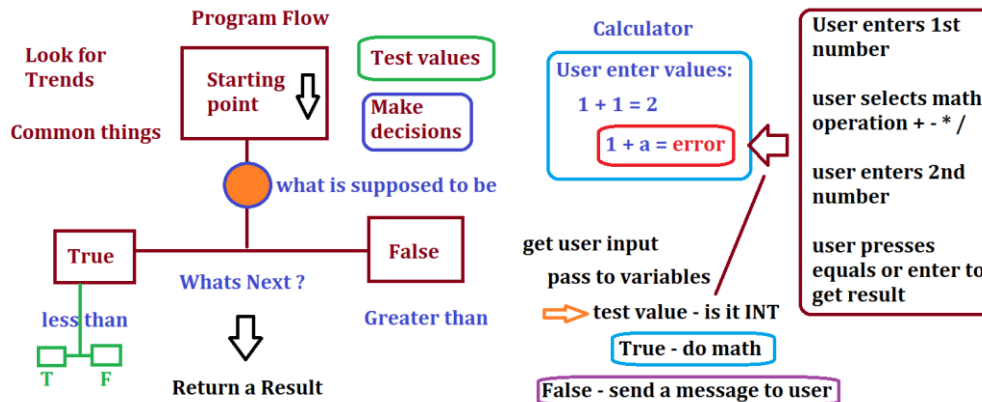


More detail on "Client": Separating the "Parts" then connect them**Thinking about moving content from Point A to Point B...**Real Life Object in Code - **Manipulate it - Store it Again?****Hosting**

Azure as "Server Side"



Program Flowcharts: What are the functions the app requires?

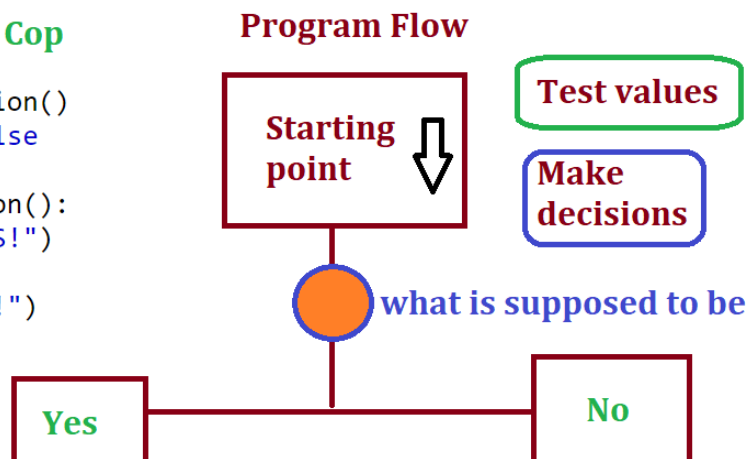


Controlling Program Flow: What happens or happens next?

Play Traffic Cop

```
def myFunction()
    return False

if myFunction():
    print("YES!")
else:
    print("NO!")
```



Creating Objects/Classes: Real World to the Machine

__init__

The `__init__` method is similar to **constructors** in C++ and Java. Constructors are used to initialize the object's state. The task of constructors is to initialize (assign values) to the data members of the class when an object of class is created. Like methods, a constructor also contains collection of statements (i.e. instructions) that are executed at time of Object creation. It is run as soon as an object of a class is instantiated. The method is useful to do any initialization you want to do with your object.

Example:

```
# A Sample class with init method
class Person:

    # init method or constructor
    def __init__(self, name):
        self.name = name

    # Sample Method
    def say_hi(self):
        print('Hello, my name is', self.name)

p = Person('Nikhil')
p.say_hi()
```

Output: **Hello, my name is Nikhil**

Working with JSON

Convert from JSON to Python:

```
import json

# some JSON: Give variable 'x' a value from external source
x = '{ "name":"John", "age":30, "city":"New York"}'

# parse x:
y = json.loads(x)

# the result is a Python dictionary:
print(y["age"])
```

imports pandas and uses a data frame:

Python

running a Python script in Power BI Desktop

 Copy

```
import pandas as pd
data = [['Alex',10],['Bob',12],['Clarke',13]]
df = pd.DataFrame(data,columns=['Name','Age'],dtype=float)
print (df)
```

When run, this script returns:

Python

 Copy

	Name	Age
0	Alex	10.0
1	Bob	12.0
2	Clarke	13.0

Containers

var x = 5 //numeric can do math - has no quotes around the 5

var x = "5" - string

Know the value of variable as it moves around you code.

array = [0, 1, 2]

variables in other containers that could be a variable

JSON - Name:Value pairs

Key:Value pairs

x + y = z

myNumbers = {};

const letters = new Set(["a","b","c"]);

containers of some sort - how to access content - C.R.U.D.

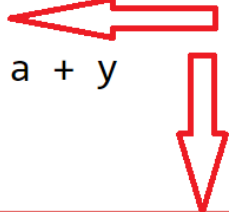
Can it be sorted ?

Are duplicate values allowed?

Can I change or add values

CR.U.D. Ops

```
y = input()  
x = lambda a: a + y  
print(x(5))
```



```
Traceback (most recent call last):  
  File "./prog.py", line 1, in <module>  
EOFError: EOF when reading a line
```

EOF stands for End of File in Python. Unexpected EOF implies that the interpreter has reached the end of our program before executing all the code.

This message literally means that the program called `input()` but failed to have any available input to read.

[EOFError: EOF when reading a line - DEV Community](#)

Some general notes & vocabulary

The Default `__init__` Constructor in C++ and Java.

The `__init__` method is **the Python equivalent of the C++ constructor in an object-oriented approach**. The `__init__` function is called every time an object is created from a class. The `__init__` method lets the class initialize the object's attributes and serves no other purpose.

1. [Python def Keyword \(w3schools.com\)](#)
 - a. The `def` keyword is used to create, (or define) a function.
2. [What is difference between self and __init__ methods in python Class? \(tutorialspoint.com\)](#)
3. [Python __init__ \(\) Function \(w3schools.com\)](#)
4. [__init__ in Python - GeeksforGeeks](#)
5. [Python Self \(w3schools.com\)](#)
 - a. The `self` parameter is a reference to the current instance of the class, and is used to access variables that belongs to the class.
6. [Python super\(\) Function \(w3schools.com\)](#)

References

Python & VS Code

1. Get started with Python in Visual Studio Code: [Start Here](#)
 - a. <https://docs.microsoft.com/en-us/learn/modules/python-install-vscode/>
 - b. Hello World – no debug step

2. [Get Started Tutorial for Python in Visual Studio Code](#)
 - a. Hello World - With debugging
3. [Introduction to Python - Learn | Microsoft Docs](#): Learn how to write basic Python code, declare variables, and work with console input and output. (Homework day1)

Python & Machine Learning

4. [Introduction to machine learning - Learn | Microsoft Docs](#)
 - a. Use Python to create and train data models
5. [Build classical machine learning models with supervised learning - Learn | Microsoft Docs](#)
6. [Foundations of data science for machine learning - Learn | Microsoft Docs](#)
7. [Understand data science for machine learning - Learn | Microsoft Docs](#)

Python & Visual Studio

8. Visual Studio | Python documentation:
 - c. <https://docs.microsoft.com/en-us/visualstudio/python/?view=vs-2022space>
9. [Visual Studio Python IDE - Python Development Tools for Windows \(microsoft.com\)](#)
10. [Quickstart - Create a Python project using a template - Visual Studio \(Windows\) | Microsoft Docs](#)
11. Python Web App using Visual Studio (not from template – Install Flask for routing)
 - d. <https://docs.microsoft.com/en-us/visualstudio/ide/quickstart-python>

Python & Power BI

12. Create Power BI visuals by using Python
 - e. <https://docs.microsoft.com/en-us/power-bi/connect-data/desktop-python-visuals>
13. Run Python scripts in Power BI Desktop
 - f. <https://docs.microsoft.com/en-us/power-bi/connect-data/desktop-python-scripts#run-python-scripts>

Python & Other Areas

14. [Build an AI web app by using Python and Flask - Learn | Microsoft Docs](#)
 - a. Azure acct required
15. Get started using Python for web development on Windows:
 - g. <https://docs.microsoft.com/en-us/windows/python/web-frameworks>
16. Get started using Python on Windows for scripting and automation:
 - a. <https://docs.microsoft.com/en-us/windows/python/scripting>
17. Pipelines
 - h. <https://docs.microsoft.com/en-us/azure/devops/pipelines/ecosystems/python-webapp?view=azure-devops>
18. [Code Style — The Hitchhiker's Guide to Python \(python-guide.org\)](#)
19. [BeginnersGuide/Programmers - Python Wiki](#)

Online Code Spaces

20. [Python Online Compiler & Interpreter - Replit](#)
 - a. Test EOF errors etc...
21. [Python Programming Language - GeeksforGeeks](#)

