CLASS – 2

Functions and Modules

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Python for Everybody

FUNCTIONS

- *We implement code that we want to use over and over again at different places.*
- *This can make the over all code very large.*
- *We can use functions*
- *Defining a function*
  - *Def hello():*
    - *Print("Hello")*

PARAMETERS

- *Def print_sum(number1,number2):*
  - *Print(number1 + number2)*
- *Return value*
  - *The keyword return is used to return the function result back as a variable*
  - *Def add(num1,num2):*
    - *Return num1+num2*

Default parameter

```
Def say(text="Hello")
        print(text)
```

SCOPE

- *Scope is not only important for functions but also important for loops.*
- *Local and global variable*

 # program show local and global variable

STRING FUNCTIONS

- *Name,age = "john",25*
- *Print("My name is {} and I am {} years old".format(name,age))*
- *Placeholders*

Placeholders	DataType
%c	Character
%s	String
%d or %i	Integer
%f	float

CASE MANIPULATING FUNCTIONS

Function	Description
String.lower()	*Converts all letters to lowercase*
String.upper()	*Converts all letters to uppercase*
String.title()	*Converts all letters to title case*
String.capitalize()	*Converts first letter to upper case*
String.swapcase()	*Swaps the case of all letters*

COUNT, FIND , REPLACE AND SPLIT FUNCTION

- *Counts – counts how many times a specific string occurs in another string*
- *Find – the first occurrence of a certain string in another string*
- *Join – With the join function we can join a sequence to a string and separate each element by this particular string*
- *Replace – One string within a text by another one.*
- *Split – we want to split specific parts of a string and put them into a list.*

MODULES NUMPY

What is NumPy?

- *NumPy is a Python library used for working with arrays.*
- *It also has functions for working in domain of linear algebra, fourier transform, and matrices.*
- *NumPy was created in 2005 by Travis Oliphant. It is an open source project and you can use it freely.*
- *NumPy stands for Numerical Python.*

Why Use NumPy?

- *In Python we have lists that serve the purpose of arrays, but they are slow to process.*
- *NumPy aims to provide an array object that is up to 50x faster than traditional Python lists.*
- *The array object in NumPy is called ndarray, it provides a lot of supporting functions that make working with ndarray very easy.*
- *Arrays are very frequently used in data science, where speed and resources are very important.*

NUMPY INSTALL

- *Pip install numpy*
- *Import numpy*

NumPy has some extra data types, and refer to data types with one character, like `i` for integers, `u` for unsigned integers etc.

Below is a list of all data types in NumPy and the characters used to represent them.

- `i` - integer – (Python)
- `b` - Boolean – (Python)
- `u` - unsigned integer
- `f` - float – (Python)
- `c` - complex float
- `m` - timedelta
- `M` - datetime
- `O` - object
- `S` - string – (python)
- `U` - unicode string
- `V` - fixed chunk of memory for other type (void)

MODULE PANDAS

What is Pandas?

- *Pandas is a Python library used for working with data sets.*
- *It has functions for analyzing, cleaning, exploring, and manipulating data.*
- *The name "Pandas" has a reference to both "Panel Data", and "Python Data Analysis" and was created by Wes McKinney in 2008.*

Why Use Pandas?

- *Pandas allows us to analyze big data and make conclusions based on statistical theories.*
- *Pandas can clean messy data sets, and make them readable and relevant.*
- *Relevant data is very important in data science*

GETTING STARTED PANDAS

- *Pip install pandas*
- *Import pandas*

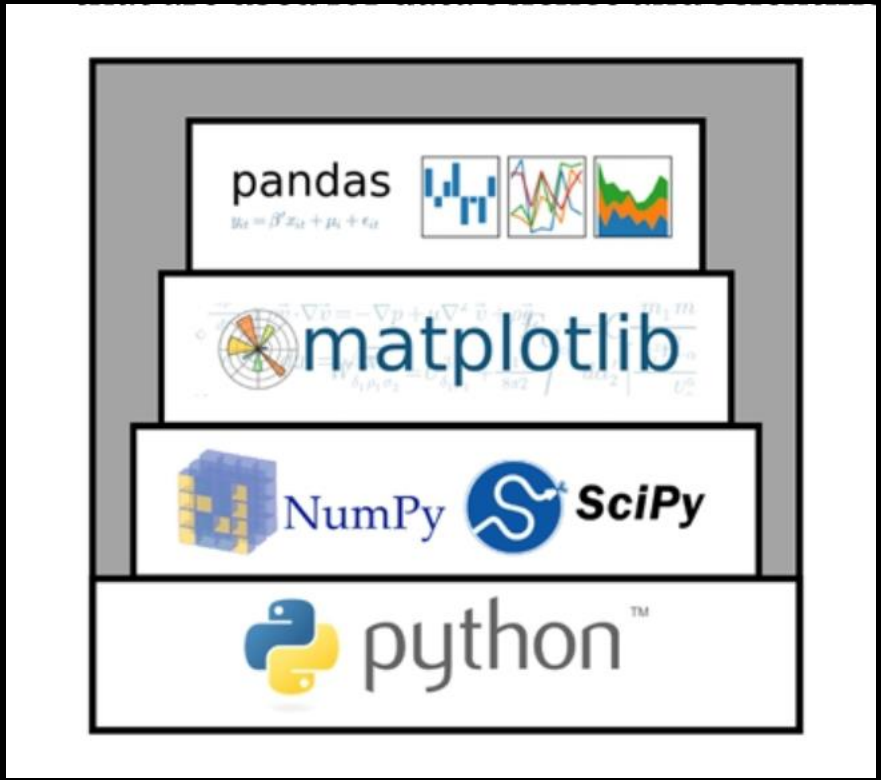
 # reading file with pandas

- ```
  import pandas as pd

  df = pd.read_csv('data.csv')

  print(df.to_string())
  ```
  ```

INSTALLING MODULES



TYPES OF PYTHON ENVIRONMENTS

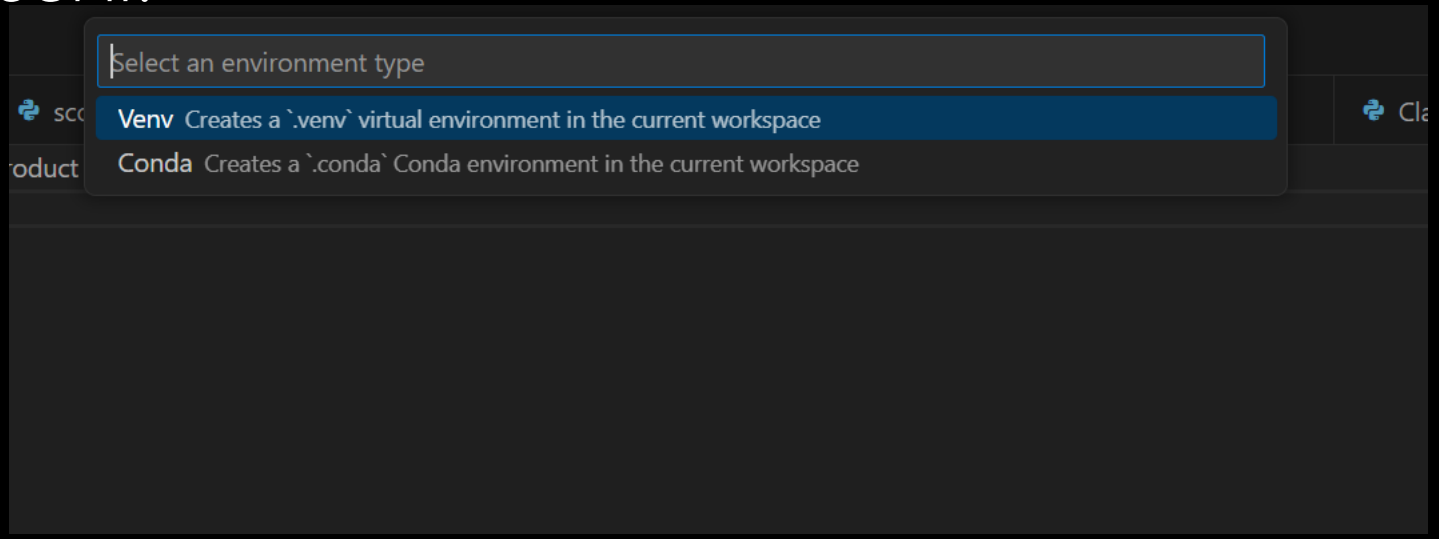
- *Global Environment*
- *Local Environment*
  - *Virtual Environment (venv)*
  - *Conda Environment (https://conda.io/projects/conda/en/latest/user-guide/getting-started.html)*

PYTHON ENVIRONMENT TOOLS

- *Pip (install python3-pip)*
- *Venv (install python3-venv)*
- *Conda (installed with miniconda)*

CREATING ENVIRONMENTS

- *Ctrl+shift+P search for the python : Create Environment command and select it.*



COMMANDS TO RUN