

Sierra Bettis

HWRS 401

October 12, 2021

Cheat Sheet 4

Packages in python: check for packages in directories using a GUI

1. os: files and directories
 2. glob: used to create the list for files and directories
 3. matplotlib: used to plot data (alias: mpl)
 4. numpy: used to work with data in array formats (alias: np)
 5. pandas: used to work with tabular data (alias: pd)
 6. rasterio: used to work with raster data (alias: rio)
 7. geopandas: used to work with vector format (alias: gpd)
 8. earthpy: used to plot raster and vector data (alias: et)
- there can be packages in python (ex: inserting .pyplot at the end of a package)
- there can also be an alias for python package

Numpy arrays: all elements must all be of the same type, similar to lists where it is composed with ordered values

1. can have mathematical operations applied since the data can only be int or float types (unlike lists)
2. cannot be edited, but if it is changed, the old array is deleted and changed
3. can work with vectors, so it is good for large sets of data → can be 1D, 2D, or 3D
4. indexing is the same as lists → (0,1,2,3, etc. and -1,-2,-3,-4, etc.)
 - a. [start:stop:step]
 - b. [rows, columns] → [y,x] of a matrix
5. Can have attributes → myarray.shape/ndim/size,dtype
6. Can have functions such as: min, max, median, add, subtract, sum, var, std, etc.
7. Broadcasting: element by element basis → if you add +5 to a numpy, it will add the 5 to each of the elements inside or you can add arrays together and it will add in order of rows
8. You can use functions to find values from the array that you are searching for and it will determine whether they are either true or false from the data in the array (good for zero

and non-zeros in the data) → also useful to find a certain value from the data and whether it exists or not

9. Operators: $\&$, \wedge , \sim , $|$

- a. 'and' or 'or' are looking for falsehood in the whole object, whereas $\&$ and $|$ are looking for falsehood within the object