Python Basics

for Data Analytics and Visualization
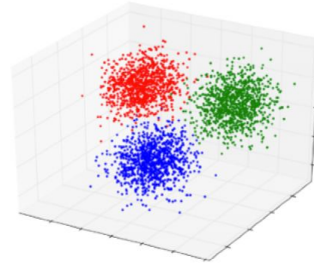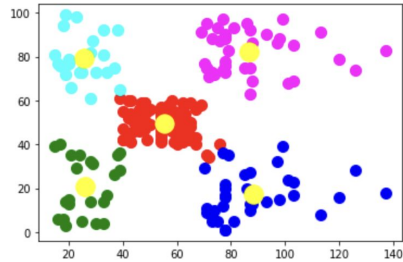
Haris Gulzar
AI Researcher

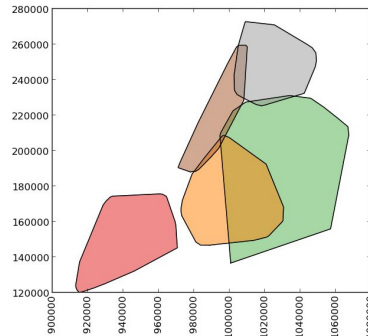# Lecture 4. Data Clustering and GeoSpatial Data

Data Clustering

1. K-means clustering (2D visualization)
2. K-means clustering (3D visualization)

Plotting and Manipulating GeoSpatial Data with Python

4. Introduction to Python for GIS Visualization

Pandas

Series

Series Labels

index   data

Dataframe

Can read files from
- Excel
- CSV
- Text

And then use as Pandas dataframe in Python.

Pandas DataFrame Example

	longitude	latitude	housing_median_age	total_rooms	total_bedrooms
0	-122.05	37.37	27.0	3885.0	661.0
1	-118.30	34.26	43.0	1510.0	310.0
2	-117.81	33.78	27.0	3589.0	507.0
3	-118.36	33.82	28.0	67.0	15.0
4	-119.67	36.33	19.0	1241.0	244.0

4. Introduction to Python for GIS Visualization

GeoPandas
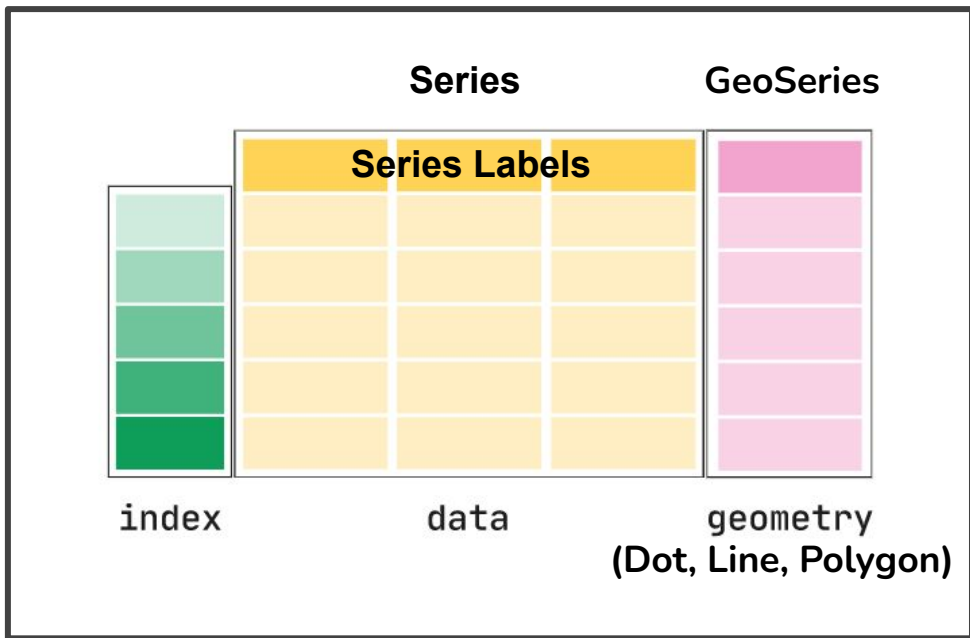
Can read files from
- shapefiles
- geopackages
- geojson
- spatial database tables such as PostGIS.

And then use as Geodataframe in Python.

GeoDataframe