Geospatial Analysis course summary:

[COURSE CONTENT MODIFIED AND DIRECTLY TAKEN BOTH][“QUOTES” INDICATES DIRECTLY TAKEN CONTENT]

Maps

- Library used for Geospatial data analysis:Like pandas and tf.keras ,we have a specific libraries for geospatial data analysis and is known as geopandas
  Import Geopandas as gpd.
- gpd_readfile() to read file.
  To read geospatial data, we use gpd_readfile function with () containing the path of the file.
- Loc and iloc functions to sele ct specific sunset of data.
- file.shp is a typical example of geospatial data file.

Coordinate Reference System

- Geo.Dataframe to create geopandas dataframe. Similar to the pandas datafram, geopandas carry its own data frame for performing analysis tasks.
- file.crs to set coordinate reference system.
- to_crs to used to reproject crs system.
- When a point is projected on map , to show its belonging to the actual point on the Earth, we uses Coordinate reference system.(crs).
- Geopandas uses EPSG 32630 system which saves angles and distorts area a little. It is also known as the “Mercator” Projection.It contains longitude and latitude.

Interactive Maps

- Folium package is used to generate interactive maps.
- From folium Chloropleth, Markers and circular are imported.
- From folium.plugins , the things to import are heatmap and MarkerCluster.
- Folium.Marker() is used to add marker to the map.To remove/add items to the map ,folium.plugin.MarkerCluster is used.
- Folium.map to create a map .
- Folium.Circle to create bubble map,used circles instead of markers.
- Folium.plugin.heatmap to create a heat map.
- Folium.chloropleth to create chloropleth map(distributed area and boundaries are highlighted).

Manipulating Geospatial Data

- Geocode process is used to convert address or name of place to geographical codes. From geopandas.tool import geocode.
- Attribute joins is used to join multiple dataframes with matching values in the index.
- Spatial join joins geo dataframes using spatial columns of the geospatial dataframes.

Proximity Analysis

- To calculate distance between two points they should have same format of CRS. File.Geometry.distance() is used. File.buffer (containing polygen objects) is used to created buffer to understand each point that are some radius apart.
- Folium.GeoJson is used plot all polygan on map.
- Unary Union attribute is used to collapse multiple polygen into one. File.geometry.unary_union