Lab 4

Objective

The objective of this lab is to perform network analysis on the migration dataset and gain insights into the migration patterns in the world.

Dataset

The dataset we will be using is the migration dataset for the year 2015 . The dataset can be accessed using the following link:
https://raw.githubusercontent.com/masterfloss/data/main/migracoes2015.csv

Prerequisites

To complete this lab, you should have a basic understanding of Python programming and the following Python libraries:

- pandas
- networkx
- community

Tasks

1. Load the migration dataset into a Pandas DataFrame.
2. Perform origin-destination network analysis using NetworkX and create a directed graph.
3. Compute the degree centrality of nodes and identify the top 10 states with the highest number of migrants.
4. Perform community detection using Louvain algorithm and identify the communities of states with similar migration patterns.
5. Compute the betweenness centrality of nodes and identify the states that act as intermediaries in the migration flows.
6. Compute the PageRank of nodes and identify the most influential states in the migration network.

Ints:

Install: community, louvain, python-louvain

!pip install community

!pip install louvain

!pip install python-louvain