Assignment 1apspEN

Task goal:

- Installation and creation of a development environment
- Familiarization with a library suitable for working with graphs, e.g. NetworkX
- Load and create a graph
- Calculation of basic graph characteristics
- Application / development of one of the basic graph algorithms

Assignment:

Within the company, you performed measurements in a building to map the availability of access points (APs) to a wireless Wi-Fi network. For selected positions of the detection device (e.g. mobile phone), you will get a list of available access points. Each position of the detection device is identified by a time stamp. The available access point is identified by a MAC address (BSSID) and characterized by other attributes, such as SSID, RSSI, Channel, Security, etc.

The availability network can be logically described as a bipartite graph with two types of nodes, i.e. the MAC address of the access point and the timestamp of the detection device.

1. Create a bipartite graph of the availability network from the measurement records (measurement.zip)
2. View the availability network using a suitable technique.
3. For all pairs of nodes, calculate their distance (path lengths).
4. Create a distance distribution (called a distance histogram) and display it.

The measured data are available in a zipped measurent.zip file. The measurement.csv file has a header on the first line and records on the available AP on the next lines with the data separated by a semicolon. Use BSSID and Timestamp columns.