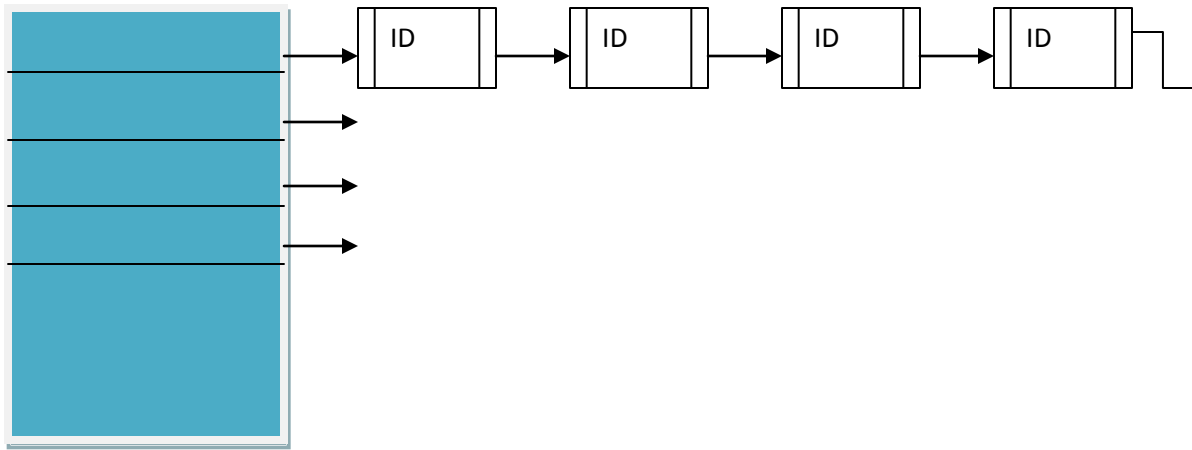**10.2) Data structures and algorithm:**

Simple representation (Single machine):

I will represent all persons as nodes in a graph representation. Moreover, I can create an adjacency list.

Using this data structure, I can implement BFS and obtain a path between two persons.

Facebook and LinkedIn study case:

If we have huge amounts of data, this data is most likely to be distributed across multiple servers. Each server manipulate a range of data. With this representation, I should execute queries in different servers. I can implement a limited graph representation using exclusively IDs per person and relationships with edges. Using this representation I can look for friends on distributed servers using hadoop or spark.