Sygnos **DB**

Optimised for Demographic Data

SygnosDB Data Processing

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Demographic data is traditionally stored on relational databases. This means that the tables will contain multiple empty cells for missing data. While this is a common occurrence, on smaller database the effect is negligible. On large databases, however, missing data created a tangible slowdown in the system, especially in search and retrieval.

Our system transformed demographic data into a graph, consisting of a source node containing identifiers, connected to nodes containing the properties and attributes of the source node, and the labelled relationships between them. Essentially creating a small ego graph, independent from other graphs in the same domain. This small ego graph was built on top of a predefined ontology that remains persistent as the graphs changed.

To link the various ego graphs, we apply our machine learning systems to group similar graphs together, and split dissimilar graphs apart. This allows for graphs to be linked across domains in a hypergraph structure, in which the same machine learning algorithms work to further refine the structure of said hypergraph.

Our database managed this hypergraph scalably, so that whenever new data is ingested, users need to only expand on the ontology schema and let the intelligent database process the rest.

We also design the demographic ontology to be easily indexed by the system, so that every attributes can be related with one another in a different domain graph, creating a structure that would massively increase computational efficiency for search and retrieval protocols.

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