Monthly Report: HNX

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Completed hnx.StaticEntity and hnx.StaticEntitySet classes and methods to hold many to many datasets provided in a csv format. These classes generate a single StaticEntity instance holding all data as opposed to the original Entity instances, which held a single node or edge in the hypergraph. The new classes work well when all of the data is known at the time of construction. Also wrote tests and a tutorial using Kaggle’s Harry Potter dataset.

Created decorator for hnx.Hypergraph functions to distinguish between static hypergraphs (nodes and edges are StaticEntitySets) and dynamic hypergraphs (nodes and edges are EntitySets). Refactored several Hypergraph methods to optimize performance for Static Hypergraphs.

Created Python bindings to link C++ optimized code in NWHy methods with HNX methods using PyBind. At present it can generate s-linegraphs, s-connected components, s-distance and s-neighbors metrics. Ran test examples of code and verified results with current implementation in HNX using NetworkX.

Created docker container to hold testing environment with NWHy, HNX and all support libraries. Generated sample jupyter notebooks illustrating the use of NWHy with HNX.