NANYANG TECHNOLOGICAL UNIVERSITY SINGAPORE

School of Computer Science and Engineering
College of Engineering

Singapore-Based UrbanKG

with site selection application

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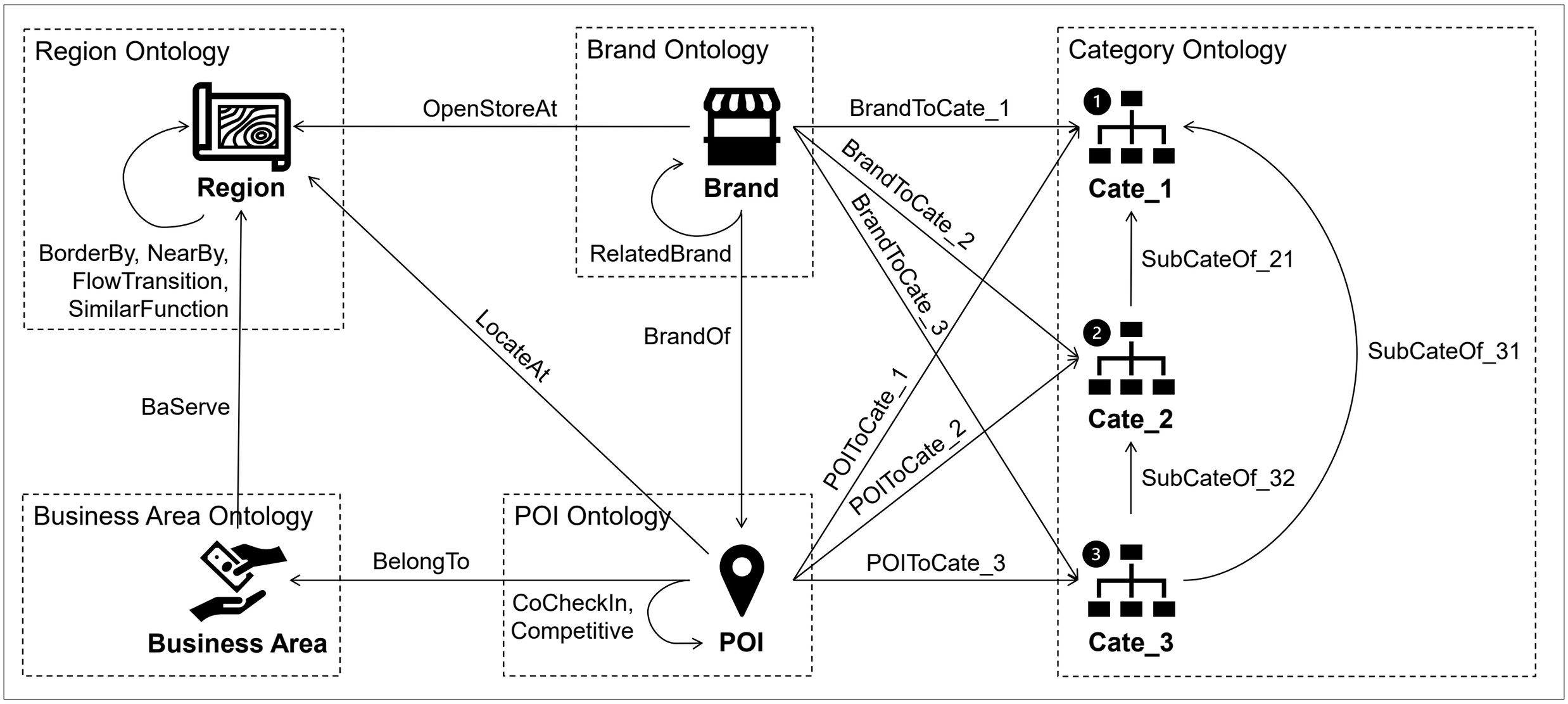


UrbanKG Ontologies

Project Objectives:

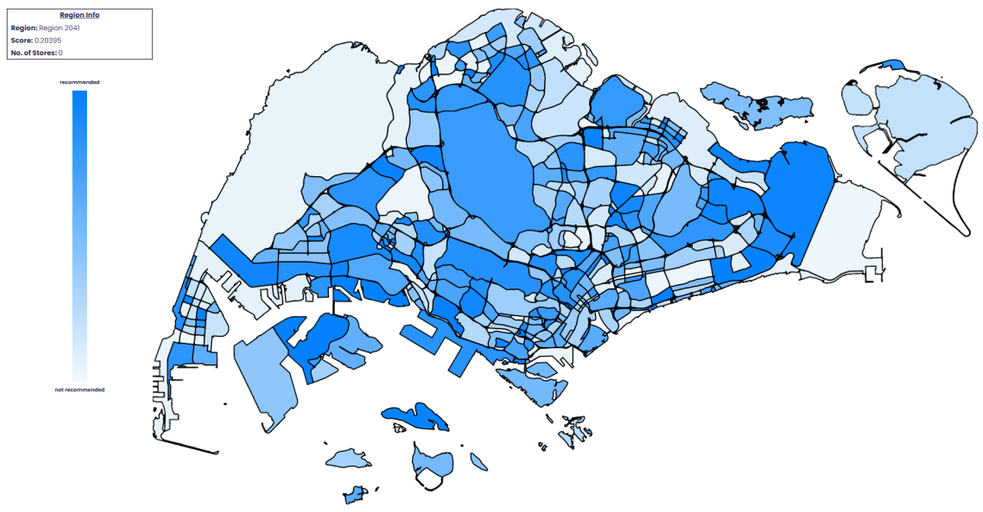
The objective of this project was to construct a Singapore-based urban knowledge graph (UrbanKG). UrbanKGs are graph-based data models that model the formal semantics of concepts or entities within urban spaces through the use of ontologies. The UrbanKG in this project was centred around businesses, their stores and geographical regions within Singapore. This project also aimed to implement a site selection application of the UrbanKG. Site selection is the task of selecting optimal locations to open new stores at. As part of the implementation, a site selection machine learning model was trained, and a web application (app) was developed. The construction of the UrbanKG and the implementation of the site selection model was based off a research project conducted by Liu, Ding and Li. [1]

Site Selection Application:

The model used was KnowSite, which is a knowledge-driven model that produces explainable site selection predictions.

The web app provides a high-level showcase of the KnowSite model's results. It has 2 main features:

1. Site recommendation heat map.
2. Criteria weightage breakdown via pie chart.



Site Recommendation Heat Map

[1] Y. Liu, J. Ding and Y. Li, "Knowledge-driven Site Selection via Urban Knowledge Graph," arXiv, 2021