NANYANG TECHNOLOGICAL UNIVERSITY SINGAPORE

School of Computer Science and Engineering
College of Engineering

Knowledge Graph Construction

From Text With Coreference Resolution

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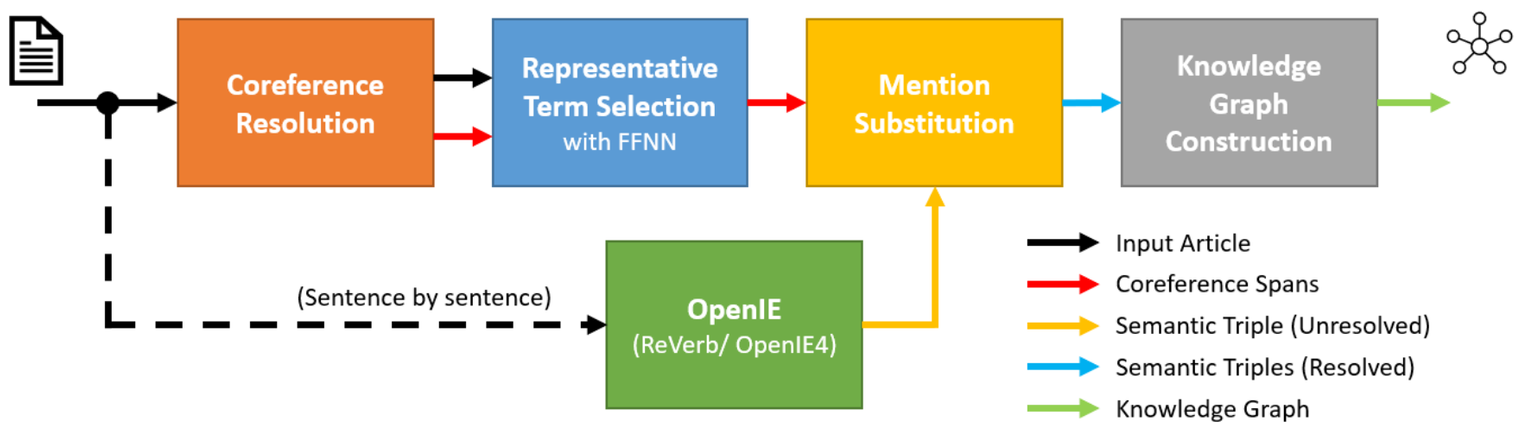
Project Objective:

This project aims to construct concise, unambiguous knowledge graph from text. Through this project, Relation Extraction and Coreference Resolution tools were integrated together to produce the desired relations between entities. To resolve coreferential ambiguities, a new approach of selecting representative term within each coreferential clusters which involves a Feed Forward Neural Network (FFNN) is introduced. The resolved coreferential cluster is then used to alter the extracted relations for knowledge graph construction.



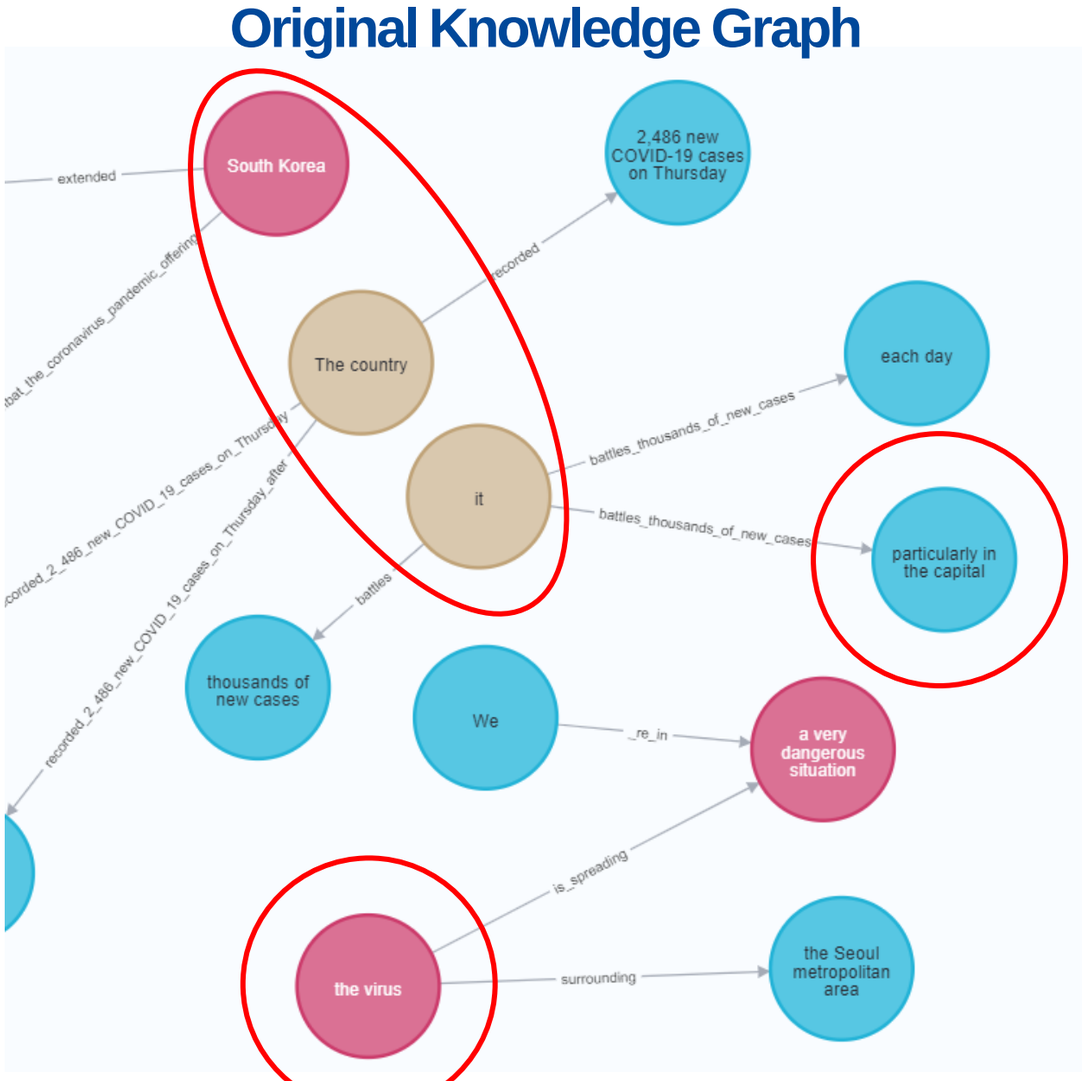
Representative Term Selection Methods

Existing Methods	**Selecting Antecedent *(First Term)***	Cluster 1 : ***South Korea***, *it, The Country* Cluster 2 : ***the capital***, *Seoul, The capital Seoul, Seoul* Cluster 3 : ***COVID-19***, *the virus*
	Selecting Longest Term	Cluster 1 : ***South Korea***, *it,* ***The Country*** Cluster 2 *: the capital, Seoul,* ***The capital Seoul***, *Seoul* Cluster 3 : *COVID-19,* ***the virus***
Proposed Method	**Selection by FFNN**	Cluster 1 : ***South Korea***, *it, The Country* Cluster 2 *: the capital,* ***Seoul***, *The capital Seoul, Seoul* Cluster 3 : ***COVID-19***, *the virus*

Evaluation

Method	Accuracy
Selecting Antecedent *(First Term)*	0.58
Selecting Longest Term	0.58
Selection by FFNN	**0.75**

Original Knowledge Graph



Processed Knowledge Graph