UNIVERSITY OF
WESTMINSTER▦

INFORMATICS
INSTITUTE OF
TECHNOLOGY

INFORMATICS INSTITUTE OF TECHNOLOGY

In Collaboration with

UNIVERSITY OF WESTMINSTER (UOW)

BSc. (Hons) Computer Science

Final year Project 2018/2019

Classy – The Class Diagram Generator

From User Requirements Text

A dissertation

By

Mr. H. D. S. Shalitha - 2015157

Supervised By

Ms. Sulochana Rupasinghe

Submitted in partial fulfilment of the requirements for the

BSc (Hons) Computer Science degree

Department of Computing

University of Westminster

Abstract

Class diagrams play an important role in the software development process. As the Class diagram represents the structure of the system to be developed, a great effort is required to conduct the Class diagramming process accurately, to prevent system failure in the future. However, the creation of Class diagrams manually from lengthy text requirement specifications is a daunting and time-consuming task for Software Engineers and students alike.

As a solution to ease the process of identifying class, attributes, relationships and methods from a requirement specification, and creating a Class diagram, a semi-automated solution is introduced. The implemented system uses Natural Language Processing techniques such as syntactic and semantic analysis to transform a requirement specification provided in the English language to a Class diagram.

The system was tested against a set of case studies and could acquire 80% precision and 82.5% recall. Expert opinion on the system resulted in positive responses. It's hoped that the solution will be beneficial to the target audience to reduce the time and effort required to manually create a class diagram.

Subject Descriptors:

I.2.7: Natural Language Processing

Keywords

Natural Language Processing, Class Diagram, NLP, Automated Class Diagram, Semi-Automated Class Diagram, Class Generation