Assignment 4

1st Raymond 'Akau'ola - raka143
Department of Electrical and Computer Engineering
University of Auckland
raka143@aucklanduni.ac.nz

I. Ranking

List of designs in decreasing order of rank:

1) Design 1001
2) Design 1036
3) Design 1042
4) Design 1025
5) Design 1019
6) Design 1020

II. Methodology

In order to rank the designs according to the goodness of thier object-oriented design, pairs of designs were compared empirically. Metrics were used as a reflective indicator as to whether the empirical relationship between designs held or not i.e. to confirm the relationship.

To compare two designs empirically based on the goodness of thier object-oriented design, the sets objects created from both are compared. The goodness of a object-oriented design depends on the objects and whether the objects created accurately model real world concepts with clear state, behaviour and identity, as well as making sense within the context of the problem being addressed. Therefore, comparing the sets of objects between two designs using this criteria will effectively provide the empirical relationship between them.

To ease the process of ranking the designs, the amount of pairs needed to be compared were reduced by dividing the designs into two sub-groups using the average CBO (Coupling Between Objects) value, with the designs with similar average CBO values being grouped together. This metric measures the number of classes to which a class is coupled with and is indicative of how reusable and maintainable a class is. This can also be a reflective indicator of good object-oriented design because objects that are reusable in other contexts indicate that the real world concept it represents is accurate.

III. Justification

With the given designs, the two sub-groups were formed:

1) Design 1001, 1036, 1042
2) Design 1019, 1020, 1025

A. Comparing Design 1001 and Design 1036