Identifying Objects and Classes in System Analysis and Design

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Abstract

In system analysis and design, two typical techniques used to discover objects or classes are natural language analysis (i.e. parts of speech) and CRC cards with role play. Use cases are often used as the starting point. It is recommended collecting objects by doing a natural language analysis from the use case description (or scenario) in the problem domain and use case diagram as a means of validation. These objects are often entity objects. Both ways are inefficient and time consuming when use cases are be described in multiple scenarios with different vocabulary. In addition, the objects used for the interaction between the user and system as well as objects that manage the communications and interactions of other objects are not captured by these two techniques. This paper presents a new analysis process that starts with use case descriptions and prototypes, creates use-case based activity diagrams, develops robustness diagrams to bridge the gap between analysis and design, and last generates a list of objects for a class diagram. This process of discovering objects shares the characteristics of Unified Process: use-case driven, iterative, and incremental. An exemplary case study was presented to show how to follow this process. Feedback from students in software engineering class at graduate level indicates that the process is more effective and easy to follow.