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User stories, epics in agile methods vs use case models in unified modeling language

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The objective of this study was to compare user stories and epics with use case models, for the purpose of transformation. While our overall focus was on modular transformations and ontologies, for this study we focused on a specific form of modular transformations, which arose due to the extremely rapid developments in the software engineering field, which led to the emergence of the agile development processes, such as Extreme Programming (XP), Scrum, Kanban, Scrumban, Crystal, Lean, etc. User stories and use case models are two of the most popular requirement analysis documents used in Sri Lanka according to a survey of the techniques used in software engineering. Both user stories and use case models are techniques used in requirement gathering during software development. A difference between them is that while user stories are used in agile methods, use case models are part of unified modeling language (UML). While many experts refused to recognize any connection or compatibility between the two techniques, we recognized and concluded that use case models relate to user stories through epics, which are at the same time both large user stories, and collections of smaller user stories. We surveyed a sample of about 100 user stories on the internet, and 56 of them which followed the format defined in the traditional user story template had roles which matched actors in use case models, and goals / desires which matched the use case. Due to this matching between elements of user stories / epics and between use case model elements, we were able to design a software prototype to transform roles and goals / desires of epics into actors and use cases of use case models. As an example, when an epic or user story such as "As a Manager I want to view Reports so that I can manage my branch" is given as an input to our software prototype, it generates a use case model where the actor is "manager" and the use case is "viewreports".