

Agile Software Development: User Story Conversion

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Abstract—This paper explain the novel technique of extracting useful keywords from user story and generating the use case diagram with the use of those keywords with Automated UML generation through text notation.

Keywords—*Agile Development; User Story; UML Diagrams; Use Case Diagrams;*

I. INTRODUCTION

This paper is extension of my previous paper Online Automated UML Generation published by IJCSIT.com. As we all know the vital importance of software engineering in development of different software, this paper is dedicated to provide advancement in the Agile Software development method. Agile Software development method is most widely use software development technique. In this paper we have taken the user story from a customer in a paragraph format and then converted the user story to use case diagram through extraction of actors and functions from use cases and then through text notation we have converted the keywords to use case diagram.

II. PREVIOUS WORK

Agile Software Development method was firstly introduced by seventeen software developers in February, 2001 at Snowbird resort in Utah. Since then many developers have contributed towards its improvement in every step associated with it. Specifically talking about user story used in agile development has got much advancement; we are listing some of the important papers that marked the importance of use of User Story:

- Manifesto for agile software development-2001:
Firstly introduced the user story for use in agile its origins were from model introduced by Kent Beck, Ward Cunningham, Ron Jeffries (end of 1990s).
- A feasible user story tool for agile software development -2002:

It was published in Software Engineering Conference, 2002. Ninth Asia-Pacific. The author Rees, M.J.

introduced new tool for easily conversion of user story that made agile development more feasible.

- The role of the user story agile practice in innovation-2010

The authors of this paper, C O'hEocha, K Conboy explained the usefulness of user story and described it's the impact in project development

III. PROPOSED WORK

We have implemented this project through PHP and mysql. Through this paper we are trying to introduce a way through which we can directly make use case diagram or any other UML Diagram through the user story.

Let us suppose there is a client who wants software to be developed for him but he is not aware of the predefined format of user story and submit all details in form of paragraph, then developer consume the time for understanding it and extracting out the actors and functions that need to be implemented. We have tried to reduce this time by designing a tool that will convert the user story in paragraph format directly to UML diagrams with the use of Online Automated UML Generation tool developed by us.

The proposed work is divided in three different steps, these are gathering of user story, extracting of important keywords, conversion of keywords to UML diagrams. Now let us see in detail what technique we used in details:

A. User Story Submission

The User story in paragraph form is gathered from the user and the through PHP sessions it is saved for using it in further steps. Then each word of a paragraph is stored in an array through the explode function of PHP. Let's suppose we have paragraph of 100 words then explode function makes an array '\$paragraph[100]' in which each word of paragraph is stored. The view of this step is shown in Fig. 1.

**USER STORY
CONVERSION**

This user story is related Library Management System. Student and Librarian has to login and logout before entering and leaving the system. Student can borrow books and submit books. Student can request book if not available. Librarian will issue book. and maintain record. Librarian will also update record. Librarian and students can view book list that are available. Librarian can update book list that are available.



Fig.1

B. User Story Conversion to text notation

In this step, firstly we fetch the array of actors and functions from our database through mysql_fetch_array function. Then, through array intersect function we extract the matching actors and function from the paragraph. Passed these two arrays to a text field, where developer can modify it based on specified requirements. The web view of page is shown in Fig. 2

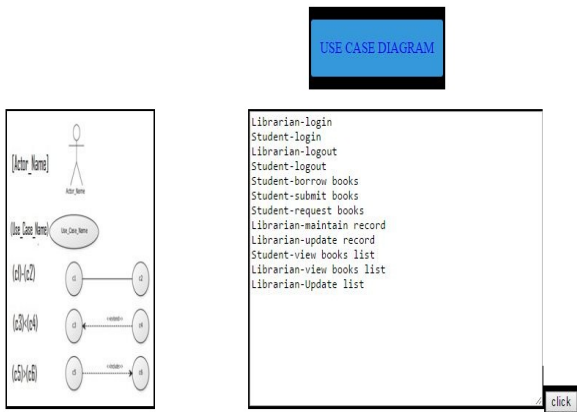


Fig.2

C. Text notation to Use Case Diagram

In this step through use of some predefined notation we have converted the matched words to use case diagram. The detailed process of conversion is mentioned in my previous paper "Online Automated UML Generation".

Now, at the let us see the sample input and output of the proposed work

INPUT:

This user story is related Library Management System. Student and Librarian have to login and logout before entering and leaving the system. Student can borrow books and submit books. Student can request book if not available. Librarian will issue book and maintain record. Librarian will also update record. Librarian and students can view book list that are available. Librarian can update book list that are available.

OUTPUT:

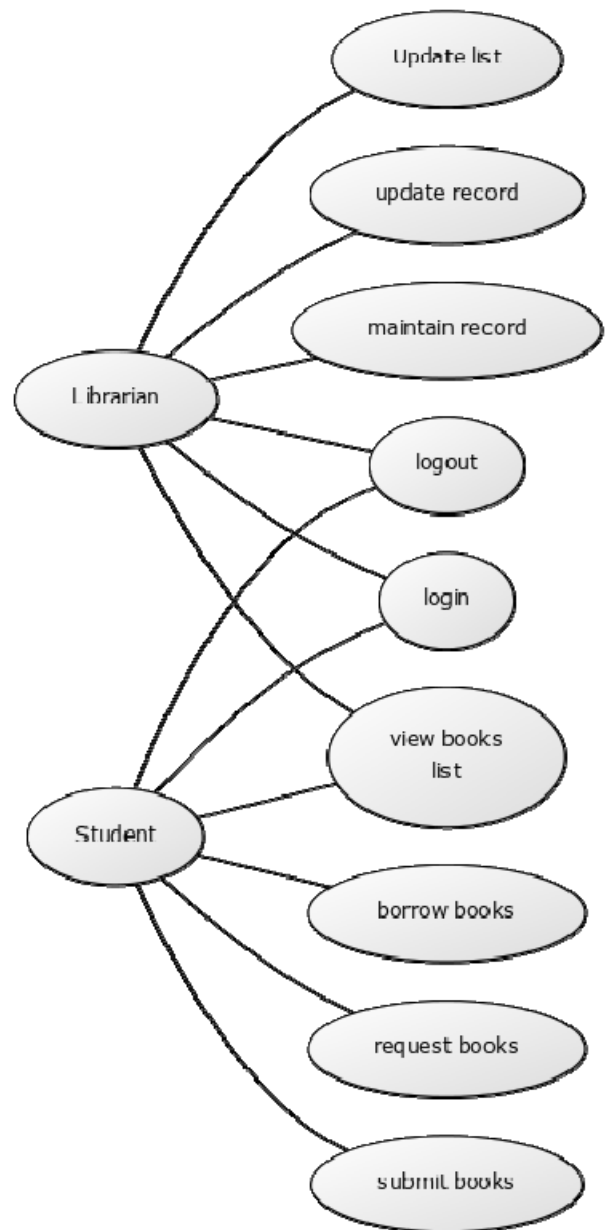


Fig.3

IV. FUTURE WORK

The proposed can we extended to creation all types of available UML diagram. It can be used in the evaluation of story point estimation through assigning the extracted function with some points in database which will ease the process that is followed in user story point estimation.

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