
Eclipse Plug-in to Manage User-Centred Design

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Team

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Outline

- Users' involvement and UCD management in software development processes
- Our approach of integrating UCD into software development environment
- The Eclipse UCD Management Plug-in
- Summary

Users' Involvement in Development

- Focus is on the ease of usability for the real end-users by involving them in designing and development activities, such as:
 - By representing or modelling users in some way like scenarios or personas
 - Through user testing of prototypes (either paper or working prototype)
 - By involving users in making design decisions (e.g. through participatory design)
 - Etc etc

UCD Management in Software Development Processes

- UCD Management
 - The ability to steer and control the UCD activities within the development environment of the project.

- Integration of UCD management at Integrated Development Environment (**IDE**) level automates UCD activities across different development phases; hence,
 - Decreases the time and cost to manage UCD activities and to evaluate each unit
 - Enhances the collaboration among the people in development
 - Improves the overall quality of both: the development process and the product

Our Approach of Integrating UCD into Software Development Environment

■ **Iterative design activities**

- The design is updated regularly as the product evolved
- The user evaluation is fostered by performing UCD tasks in each iteration, and the design is updated according to the evaluation on-going outcomes

■ **Measures**

- Taking measurements is a basic activity in software development processes
- The set of user evaluation tools is built and refined during the process and is used iteratively as a complement to the process and product measures

■ **Roles**

- Different roles are defined to support software development environments
- The UCD roles, like for example the Evaluation Manager role are defined

Use Cases to Establish Plug-in Specification

- We present six representative use cases to establish the plug-in specification, categorised into three themes:
 - Development process
 - Evaluation activity
 - Design improvement
- Examples:
 - **User Involvement:** The customer sets high priority for the following task. 'Explore who are the kinds of users who should use the product that we develop; what are their characteristics; what are their needs; what are their expectations from the product.'
 - **Design Improvement:** One of the team-mates browses over the system reports and sees for each user experiment, which was conducted in the last two releases, what were the results and what were the implications on design. For each implication, he sees the development tasks that are related.

The Eclipse UCD Management Plug-in

The Eclipse Plug-in (**User Experiments**)

- Creation and deployment of different kinds of user experiments, e.g.
 - **Task-based user experiment:**
 - The participant uses the target product and receives the tasks to perform along the experiment
 - The system measures different performance times
 - **Questionnaire-based experiment:**
 - The user specifies the level of her agreement with the presented set of statements after using the target product
- Experiments can run in two styles:
 - **Locally:** On the server on which the data is stored
 - **Remotely:** Users receive emails with the experiments files attached and the results are stored back to the server
- Experiments can be shared among different projects

The Plug-in (Task-based User Experiment)

Experiment name:

Planned execution time:

Experiment status: **Configuration**

Participating users:

Id	First name	Last name
200880920	Alberto	Valero
22295330	Ugo	Colesanti
161218095	Matteo	Di Gioia
634364223	Gabriele	Randelli
116864207	Fabio	Patrizi

Teammates in charge:

Id	First name	Last name
725932705	Silvia	Bonomi
382108871	Ilaria	Bordino
448116168	Shah Rukh	Humayoun

Description:

Music Album:
The user creates a new music album for his/her music library. He/She adds songs into this music album from songs already in his/her music library or from personal collection.

Instructions:

Please make sure you understand the task before starting.
Do the task to the best of your understanding.
Please make sure that you already have few songs in your personal collection.

Tasks:

1. Creating Music Library
2. Editing Music Album Details
3. Creating Album Cover Page
4. Burning Album CD

Path to project's jar:

The snapshots are taken from Technion project that was performed by the students: Haimovitch Y., Ben-David D., Pele L., Einav T., Nirenberg B., and Vinikov A.

The Plug-in (Task-based Experiment' Result)

Results

Experiment status: **Completed**

Experiment started: 13/07/2008 00:27:00

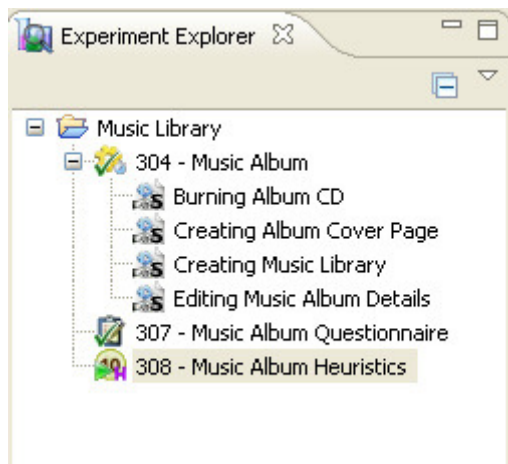
5 users have answered out of 5

Experiment ended: 13/07/2008 00:49:00

Num...	Task	Average timing	Participation
1	Creating Music Library	44.1	100%
2	Editing Music Album Details	53.1	100%
3	Creating Album Cover Page	75.5	100%
4	Burning Album CD	61.7	80%

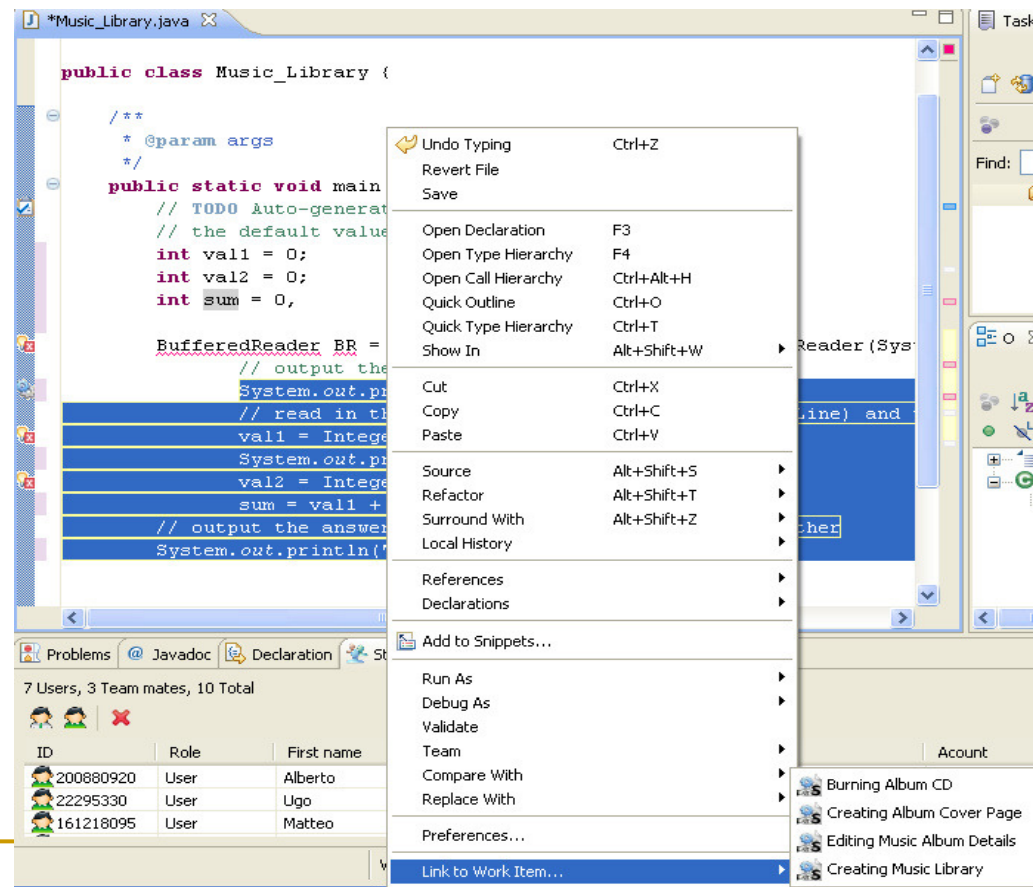
The Plug-in (**Experiment Explorer**)

- To support experiments of a specific project
- New tasks can be derived as a consequences of already conducted experiments



The Plug-in (Traceability between Tasks & Code Parts)

- To keep traceability, the code part/s can be associated to the appropriate task/s and vice versa.



The Plug-in (Traceability between Tasks & Code Parts)

```
.....  
// output the question.  
System.out.print("Write the first number : ");  
// read in the console input one line (BR.readLine) and  
val1 = Integer.parseInt(BR.readLine());  
System.out.print("Write the second number : ");  
val2 = Integer.pa  
sum = val1 + val2  
// output the answer of adding both of the values together  
System.out.println("Answer = " + sum);
```

Linked to work item: Creating Music Library at Jul 13, 2008 12:56:01 AM
Press 'F2' for focus.

Summary

- We present an Eclipse-based UCD management plug-in to automate the UCD activities in software development processes at IDE level
- We base the capabilities suggested on use cases that were emerged when performing UCD activities with agile teams
- Future directions:
 - Continue developing the plug-in to support more UCD activities
 - Evaluate the plug-in with different size of software development teams

Thank you!

Questions???