An Evaluation Framework For End User Experience in Adaptive Systems (EFEx)

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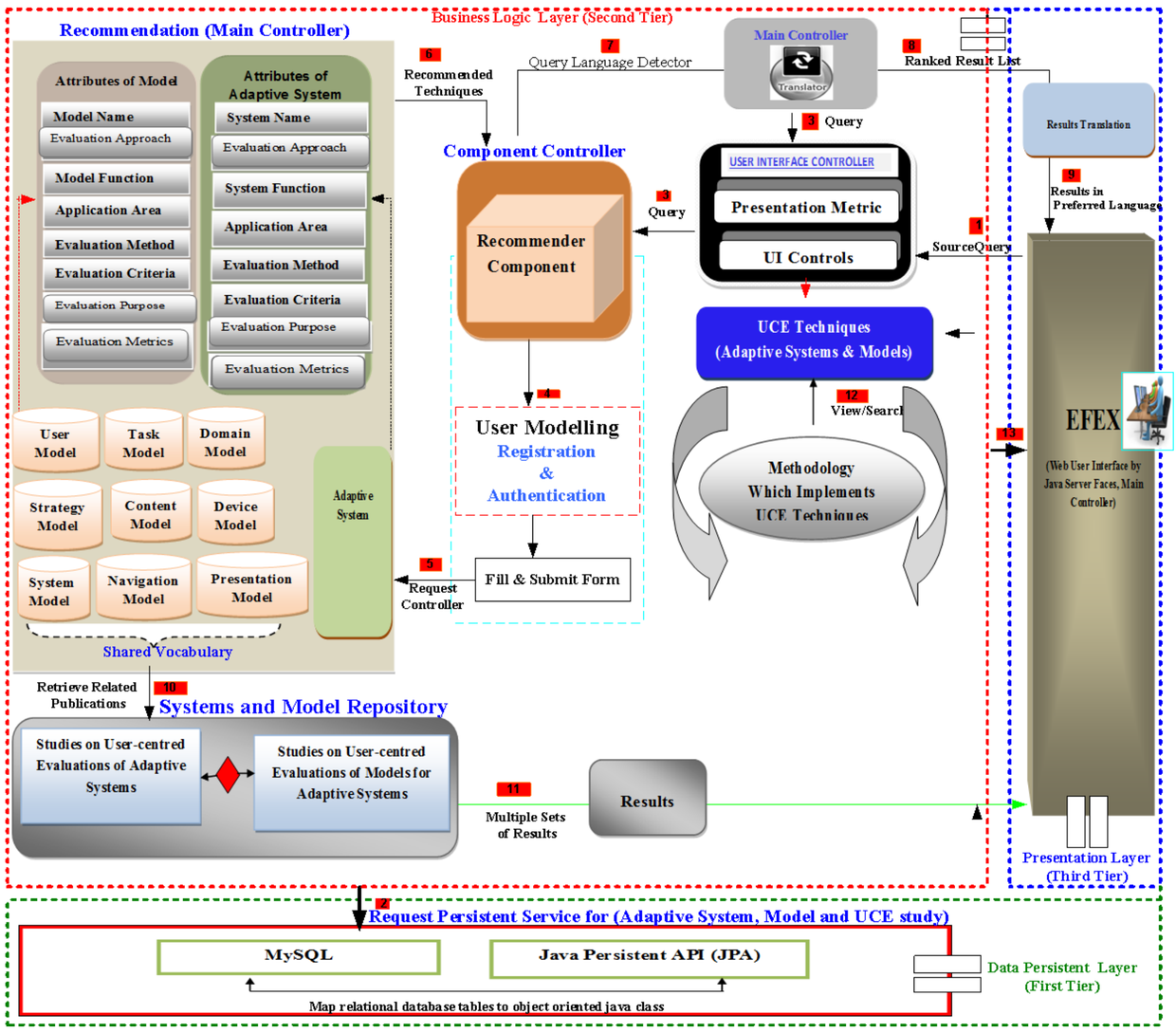
ABSTRACT

The evaluation of adaptive and personalised systems is a difficult, complicated and very demanding endeavour due to the complex nature of these systems and the usability issues encountered. This demonstration introduces a web-based framework to support the evaluation of end-user experience in adaptive and personalised systems. This framework has been developed based upon advice from domain experts and a review of evaluation approaches, methodologies and techniques adopted by existing adaptive systems. The benefits of the framework include: i) the provision of an interactive reference and recommendation tool to encourage the evaluation of adaptive systems; ii) the collaborative nature of the framework facilitates the sharing of evaluation information among researchers from diverse communities; iii) the identification of pitfalls in the planning process as well as in data analysis; and iv) the translation of presented information into users language of choice.

RESEARCH CHALLENGES

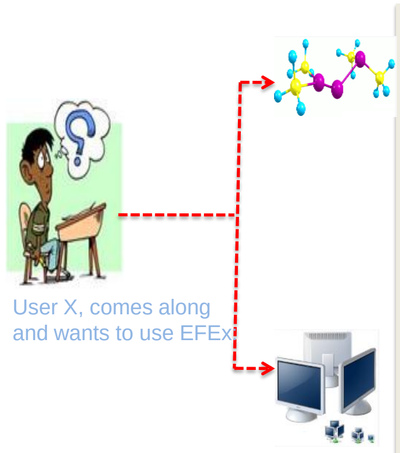
- Evaluators of adaptive systems have a challenge in deciding which evaluation methods(techniques), metrics and criteria to use.
- The biggest problem is the understanding of adaptation when evaluating an adaptive system, what is improved by adaptation
- How to tackle the usability issues associated with adaptive systems

PROPOSED ARCHITECTURAL DESIGN OF EFEx



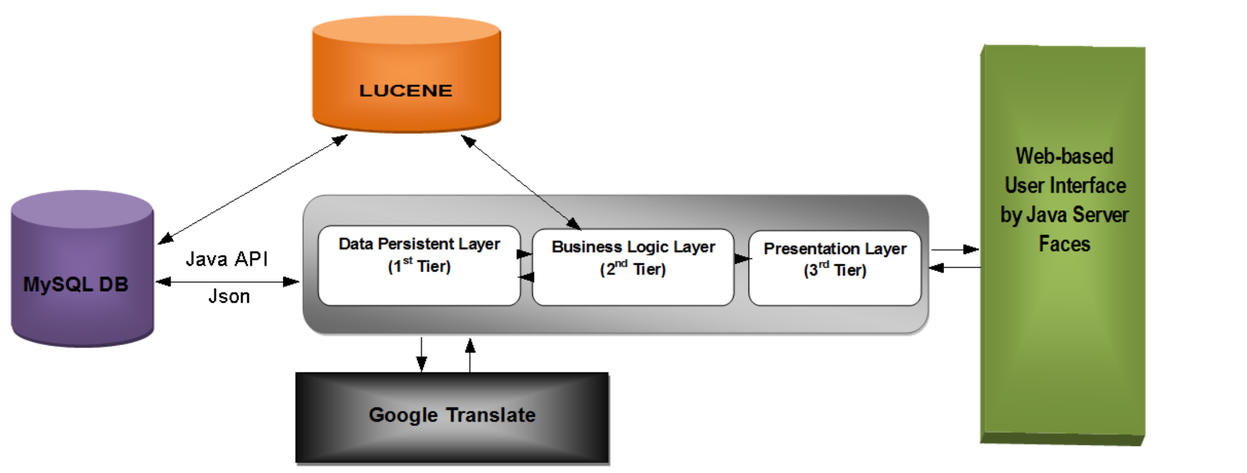
EFEx is designed as a typical 3-tier Web-based architecture which consists of: **i) the presentation layer (1st tier), ii) The business logic layer(2nd tier)** which is pulled out from the presentation tier and, has its own layer, it controls the EFEx functionality by performing detailed processing and iii) **the data persistence layer(3rd tier)**, this tier keeps data neutral and independent from application servers or business logic. The framework consists of 3 major subsections(i.e. i) Recommendation for evaluating adaptive systems, authoring adaptive tools and metadata models for adaptive systems, ii) Repository for user-centred evaluation(UCE) studies of adaptive systems, the models and authoring tools, iii) A UCE methodology which illustrates or explains how to use these UCE techniques and a iv) translator component which translates information presented to user into 49 languages.

USE-CASE SCENARIO



User x has developed an adaptive system and wants to use EFEx framework to find out:
i) how to combine and apply existing evaluation methods (techniques), metrics and measurement criteria in order to evaluate the adaptive system, authoring adaptive technologies and the metadata models (i.e. user, domain, strategy, task, content, device, system, navigation and presentation models) used by this system;
ii)recommendations on how to evaluate adaptive systems and the models;
iii) any evaluations of similar adaptive systems, models and authoring tools which have been published between 2000 and today;
iv) any studies describing user-centred evaluation approaches which have been published between 2000 and today
v) Finally, suppose this user only speaks French and cannot read English content

EFEx TECHNICAL DESIGN



AIM AND FUNCTIONS

- The EFEx framework provides users with:
  i) A centralised repository which stores current UCE studies of adaptive systems, models and authoring adaptive technologies,
  ii) Users also get personalised recommendations, on how to combine and apply evaluation methods(techniques), metrics and criteria while evaluating adaptive systems, metadata models for adaptive systems and authoring technologies. These recommendations enable users to reduce the time spent and the cost incurred while evaluating these systems, models and technologies.
  iii) Personalised information to suit the user's requirement based on their interests and preferences
  iv) Researchers can collaborate while globally distributed and learn faster(i.e. information presented to user's is translated into 49 different languages).

CONCLUSION

In order to produce effective results, evaluation should occur throughout the entire design cycle and provide feedback for design modification. EFEx framework will offer hints regarding the identification of failures and misconceptions of the adaptive mechanism.

FUTURE WORK

The next stage will be:
- To conduct two evaluation of the EFEx framework (i.e. to test usability and the other evaluation to test performance)
- To deploy the framework online.

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