Requirement Engineering in Web Applications

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Overview

- Category of Web Applications
- Characteristics of RE in Web Applications
- Methodologies
  - W2000
  - UWE
  - NDT
  - WebRE
- Evaluation
- Conclusion
Web Engineering

- A systematic, disciplined, and quantifiable approaches to the cost effective development and evolution of high-quality applications in the web.

- Category
  - Informational
  - Interactive
  - Transactional
  - Workflow
  - Collaborative work environments
  - Online communities, marketplaces
  - Web portals
Characteristics of Web Applications

- Heterogeneous Audience
- Heterogeneous Stakeholders
- Heterogeneous Computing Environment
  - Multi-platform
  - Multi-browser
  - Multimedia Support
- Broader Context
  - Need support from hypermedia, marketing, graphic design, cognitive science, HCI, diverse cultural, etc.
- Navigational Issues
- Adaptability
Requirements for Web Applications

- Functional Requirements
  - Conceptual Requirements
  - Interface Requirements
  - Navigational Requirements
  - Personalization Requirements
  - Transactional Requirements

- Non-Functional Requirements
  - Portability
  - Reuse Requirements
Web Requirement Elicitation

- Interviewing
- JAD
- Use cases
- Checklist
Web Requirement Specification

- Natural Language
- Glossaries
- Templates
- Scenarios
- Case Modelling
- Formal Description
- Prototypes
Web Requirement Analysis

- Review or Walk-through
- Traceability Matrix
- Prototyping for Validation
Methodologies

- W2000
- UML-based Web Engineering (UWE)
- Navigational Development Techniques (NDT)
- Web Requirement Engineering (WebRE)
Methodologies

- W2000
  - Requirements involved
    - Navigational Requirement
    - Adaptive Requirement
    - Transactional Requirement
  - Requirement Elicitation
    - N/A
  - Requirement Specification
    - Use Cases Modelling
  - Requirement Analysis
    - N/A
Methodologies

- UWE
  - Requirements Involved
    - Data Requirements
    - User interface Requirements
    - Navigational Requirements
    - Adaptive Requirements
    - Non-Functional Requirements
  - Requirement Elicitation
    - Interviewing
  - Checklist
  - Requirement Specification
    - Glossaries
    - Scenarios
    - Use Cases Analysis
  - Requirement Analysis
    - Review/Walk-through
    - Prototyping
Methodologies

- NDT
  - Requirement Involved
    - Data Requirements
    - User interface Requirements
    - Navigational Requirements
    - Adaptive Requirements
    - Transactional Requirements
    - Non-Functional Requirements
  - Requirement Elicitation
    - Interviewing
    - JAD
    - Brainstorming
  - Requirement Specification
    - Glossaries
    - Templates
    - Use Cases Analysis
  - Requirement Analysis
    - Review/Walk-through
    - Traceability Matrix
Methodologies

- **WebRE:**
  - Based on NDT
  - NDT requires extensive interviews, but intuitive for implementation
  - Software-assist requirement analysis tools
Methodologies

- WebRE:
  - Behaviour Package
  - Structure
Evaluation

- UWE and NDT are tool-enabled method
- NDT is less intuitive than UWE and W2000 in the first step, because UWE and W2000 uses graphical model for requirement documentation
- However, graphical model is hard to implement
- Solution for WebRE: Use UWE for the first step, and then transforming UWE into NDT formatted document
- Disadvantage of model-driven Approaches is flexibility: technologies change so fast today
Conclusion

- RE in web development is critical and should be treated carefully

- Many methodologies are addressed focusing on web requirements

- Many approaches can be combined in the future to improve the performance of requirement engineering in web development
References


THANK YOU FOR ATTENTION