

Presentation & Requirements

Database and Web Applications Laboratory

João Correia Lopes

INESC TEC – Faculdade de Engenharia, Universidade do Porto

5 February 2018

Goals

By the end of this class, the student should be able to:

- Describe the content, evaluation and bibliography of the course
- Use tools for collaborative development of documentation
- Gather the specification of the actors and user stories of a system
- Gather the specification of supplementary requirements of a system

Tips

- The slides display a brief summary of the theory that does not replace **reading the bibliography** listed in the class sheet
- “Students are responsible for anything that transpires during a class—therefore **if you’re not in a class**, you should get notes from someone else (not the instructor)”—David Mayer
- The best thing to do is to **read carefully** and **understand** the documentation published in the course web site (or else **ask** in the class)
- We will be using **Moodle** as the primary means of communication

Part I

Presentation of the Course

Contents

1 Presentation

2 Documentation

3 Project

⇒ <http://web.fe.up.pt/~jlopes/doku.php/teach/lbaw/>

Fact sheet

- Skills and learning outcomes
- Program
- Bibliography
- Evaluation
- Final grade

$$\text{Final grade} = 80\% \text{ } NP + 20\% \text{ } NI$$

$$NP = 20\% \text{ } ER + 20\% \text{ } EBD + 20\% \text{ } EAP + 40\% \text{ } PA + \Delta_{ind}$$

$$\Delta_{ind} \in [-10\%, 10\%]$$

⇒ <http://web.fe.up.pt/~jlopes/doku.php/teach/lbaw/sheet>

Plan of the Course

- Lectures
- Practical classes
- Assessment dates

⇒ <http://web.fe.up.pt/~jlopes/doku.php/teach/lbaw/plan>

Practical work By-laws

- Practical work
- Documentation
- Technologies
- Assessment

⇒ <http://web.fe.up.pt/~jlopes/doku.php/teach/lbaw/bylaws>

Writing documentation

- See the published requirements
- Follow the template given
- Generate a PDF and upload to the Moodle of the group

⇒ [Template for A1](#)

Web Architecture

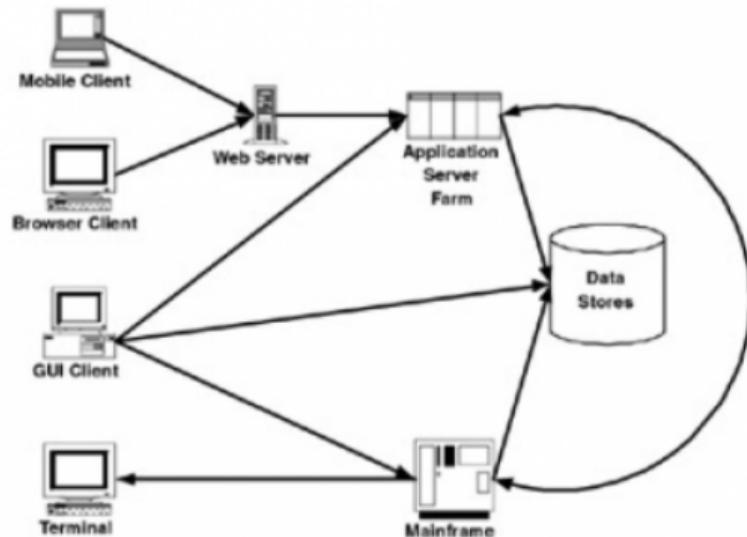


Figure 14.17: Potential deployment architecture for modern applications.

Scott Ambler. The Object Primer. Cambridge University Press, 3rd Edition, 2004 (chap. 14)

⇒ [stack-overflow-the-architecture-2016-edition](#)

⇒ [February 2015 upgrade entire 256 image album](#)

Software development

- Planning
- Analysis
- Design
- Development
- Testing
- Deployment
- Maintenance and Operation

Design of a database

- Conceptual Design
- Logical Design
- Physical Design

List of Artefacts

20 ER: Requirements specification and User interfaces

2 A1: Project presentation

6 A2: Actors and User stories

12 A3: User Interfaces Prototype

20 EBD: Database specification

10 A4: Conceptual Data Model

4 A5: Relational Schema, validation and schema refinement

6 A6: Integrity constraints, indexes, triggers and user functions, database populated with data

20 EAP: Architecture specification and Prototype

9 A7: High-level architecture. Privileges. Web resources specification

8 A8: Vertical prototype

3 A9: Main accesses to the database and transactions

40 PA: Product and presentation

35 A10: Product

5 A11: Presentation and discussion

List of Artefacts

20 **ER**: Requirements specification and User interfaces

2 A1: Project presentation

6 A2: Actors and User stories

12 A3: User Interfaces Prototype

20 **EBD**: Database specification

10 A4: Conceptual Data Model

4 A5: Relational Schema, validation and schema refinement

6 A6: Integrity constraints, indexes, triggers and user functions, database populated with data

20 **EAP**: Architecture specification and Prototype

9 A7: High-level architecture. Privileges. Web resources specification

8 A8: Vertical prototype

3 A9: Main accesses to the database and transactions

40 **PA**: Product and presentation

35 A10: Product

5 A11: Presentation and discussion

List of Artefacts

20 **ER**: Requirements specification and User interfaces

2 A1: Project presentation

6 A2: Actors and User stories

12 A3: User Interfaces Prototype

20 **EBD**: Database specification

10 A4: Conceptual Data Model

4 A5: Relational Schema, validation and schema refinement

6 A6: Integrity constraints, indexes, triggers and user functions, database populated with data

20 **EAP**: Architecture specification and Prototype

9 A7: High-level architecture. Privileges. Web resources specification

8 A8: Vertical prototype

3 A9: Main accesses to the database and transactions

40 **PA**: Product and presentation

35 A10: Product

5 A11: Presentation and discussion

List of Artefacts

20 **ER**: Requirements specification and User interfaces

2 A1: Project presentation

6 A2: Actors and User stories

12 A3: User Interfaces Prototype

20 **EBD**: Database specification

10 A4: Conceptual Data Model

4 A5: Relational Schema, validation and schema refinement

6 A6: Integrity constraints, indexes, triggers and user functions, database populated with data

20 **EAP**: Architecture specification and Prototype

9 A7: High-level architecture. Privileges. Web resources specification

8 A8: Vertical prototype

3 A9: Main accesses to the database and transactions

40 **PA**: Product and presentation

35 A10: Product

5 A11: Presentation and discussion

What we learned

- The content, evaluation and bibliography of the course
- The content and form of the project documentation

Part II

Requirements Specification

Contents

- 1 Project presentation (A1)
- 2 Requirements Analysis
 - Actors & User Stories (A2)
 - Supplementary requirements

⇒ http://web.fe.up.pt/~jlopes/doku.php/teach/lbaw/artefacts_er

Project presentation (A1)

A1

This artefact introduces the context and motivation and briefly describes the Web information system to be developed.
It includes the goals of the project and lists the features that should be supported, together with the identified access groups.

⇒ <https://web.fe.up.pt/~jlopes/doku.php/teach/lbaw/medialib/a1>

Usage Modelling

!

You need to understand how people will work with your system.

- An important part of software development is to explore the requirements for your system.
- Usage modelling explores how people work with a system, vital information that you require if you are going to successfully build something that meets their actual needs.
- You cannot successfully build a system if you do not know what it should do, and a critical aspect of this is exploring how people will actually use the system.

Scott Ambler. The Object Primer. Cambridge University Press, 3rd Edition, 2004 (chap. 5)

Usage Modelling

!

You need to understand how people will work with your system.

- An important part of software development is to explore the requirements for your system.
- Usage modelling explores how people work with a system, vital information that you require if you are going to successfully build something that meets their actual needs.
- You cannot successfully build a system if you do not know what it should do, and a critical aspect of this is exploring how people will actually use the system.

Scott Ambler. The Object Primer. Cambridge University Press, 3rd Edition, 2004 (chap. 5)

Actors and User stories (A2)

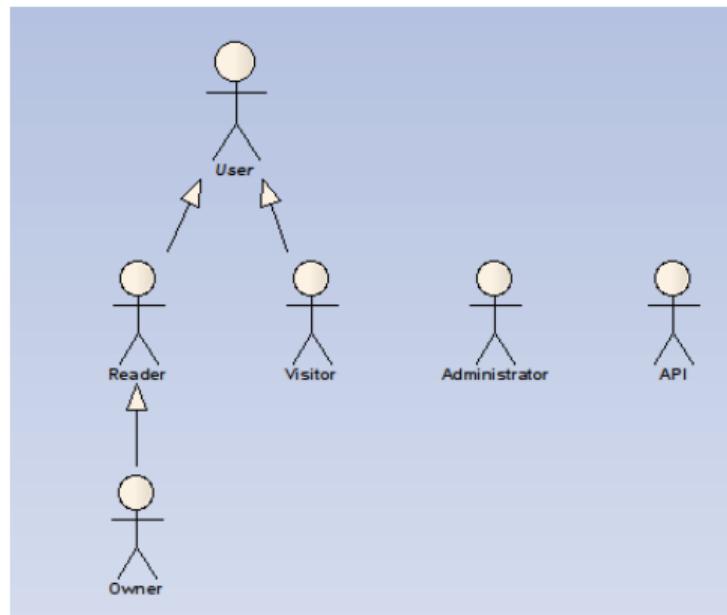
A2

This artefact contains the specification of the actors and their user stories, serving as agile documentation of project requirements.

⇒ http://web.fe.up.pt/~jlopes/doku.php/teach/lbaw/artefacts_er

Actors

- An actor is any entity that interacts with the system being specified
- Persons, and other organizations external to the system
- Actors are always external to the system being modelled



Description of Actors

Id.	Description	Examples
User	Utilizador genérico que pode apenas consultar a informação pública, nomeadamente os itens da coleção.	n/a
Visitante	Utilizador não-autenticado que pode registar-se ou fazer a autenticação (login) no sistema.	n/a
Leitor	Utilizador autenticado que pode consultar informação, inserir obras e itens, gerir a sua lista de interesses, solicitar o empréstimo de itens e comentar as obras da coleção	jlopes
Dono	Utilizador autenticado que pertence ao mesmo local do criador de um item e pode alterar a informação existente ou emprestar e registar a devolução de itens	jlopes
Admin	Utilizador autenticado que é responsável pela gestão dos utilizadores e por algumas funções de supervisão específicas e de moderação	admin
API	APIs externas que podem ser usadas para recolher informação para a introdução de itens da coleção.	imdb, amazon

⇒ <https://web.fe.up.pt/~jlopes/doku.php/teach/lbaw/medialib/a2>

User Stories

- US are a high-level definition of a requirement
- US are a brief description of a potential interaction with the system by one of its users
- US focuses only on interaction requirements and not on the technical aspects of the design of the system
- US have a priority (high or essential, medium or conditional, and low or optional) indicating the need to be included in the design implementation stages and project
- A team of expert analysts also includes an estimate of the effort required for its implementation

Scott Ambler. The Object Primer. Cambridge University Press, 3rd Edition, 2004 (chap. 5)

User Story template

template

“As a [user], I want [function], so that [value]”

Steve Dennis, How to write meaningful User Stories, subcite.com Articles & Tutorials, 2010

List of User Stories

Id.	Name	Priority	Description
US01	Login	high	Como Visitante quero autenticar-me no sistema para ter acesso a informação restrita
US02	Signin	high	Como Visitante quero registar-me no sistema para me poder autenticar no sistema
US03	Search	high	Como User quero consultar toda a informação pública
US11	Add item	high	Como Leitor quero adicionar um item para passar a ser conhecido
US12	Wish-list add	high	Como Leitor quero adicionar um item à minha Wish-list para completar a lista
US14	Borrow item	high	Como Leitor quero pedir emprestado um item para o poder recolher
US15	Comment	high	Como Leitor quero registar um comentário para ficar associado a uma obra
US16	Like	high	Como Leitor quero registar um “Gosto” para classificar uma obra
US18	Import	medium	Como Leitor quero importar a informação de um item a partir de APIs conhecidas para usar na sua inserção

⇒ <https://web.fe.up.pt/~jlopes/doku.php/teach/lbaw/medialib/a2>

Supplementary requirements

!

In addition to functional requirements there are other restrictions to the project: business rules, technical requirements

- A business rule defines or constrains one aspect of the business, with the intention of asserting business structure or influencing business behaviour
- Technical requirements are concerned with the technical aspects that the system must meet, such as performance-related issues, reliability issues and availability issues
- A restriction on the design limits the degree of freedom in the search for a solution

Scott Ambler. The Object Primer. Cambridge University Press, 3rd Edition, 2004 (chap. 7)

Business rules

Id.	Name	Description
BR01	Ownership	Só um utilizador do mesmo local (Site) que o criador do item (Owner) o pode emprestar ou registar a sua devolução
BR02	Return Date	A data de devolução tem de ser superior a uma data de empréstimo que ainda não tenha devolução registada

⇒ https://web.fe.up.pt/~jlopes/doku.php/teach/lbaw/medialib/a2#business_rules

Technical Requirements

Id.	Name	Description
TR01	Availability	O sistema deve estar disponível 99 por cento do tempo em cada período de 24 horas
TR02	Accessibility	O sistema deve garantir que todos possam ter acesso às páginas, independentemente de terem alguma deficiência ou não, ou do navegador Web que utilizem
TR03	Usability	O sistema deve ser simples e fácil de usar
TR04	Performance	O sistema deve ter tempos de resposta menores do que 2s para garantir a atenção do utilizador
TR05	Web application	O sistema deve ser implementado como aplicação Web com páginas dinâmicas (HTML5, JavaScript, CSS3 e PHP)
TR06	Portability	O sistema do lado do servidor deve funcionar em várias plataformas (Linux, Mac OS, etc)
TR07	Database	Deve ser usado o sistema de gestão de bases de dados PostgreSQL 9.5
TR11	Ethics	O sistema deve respeitar os princípios éticos no desenvolvimento de software (por exemplo as password devem ser encriptadas para garantir que só o dono a conhece)

⇒ <https://web.fe.up.pt/~jlopes/doku.php/teach/lbaw/medialib/a4>

What we learned

- Project presentation (A1)
- Actors and user stories of a system (A2)