Technical Report - **Product specification**

ReadEase Management

Course:	IES - Introdução à Engenharia de Software
Date:	Aveiro, <date of submission>
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Project abstract:	Library Management System

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1 Introduction

In an increasingly digital world, there arises the need for an efficient tool that simplifies the experience in libraries.

ReadEaseManagement was created with this purpose, within the context of the final project for the Introduction to Software Engineering course.

This document describes the exploration undertaken during the execution of this project, showcasing Personas, Use Cases, Architecture, etc.

Each member of our team has a defined role to efficiently divide the workload.

- Pedro Rei – *Team Manager*
- Tiago Cruz – *Product Owner*
- Miguel Soares - *Architecture*
- Vasco Faria - *DevOps*

2 Product concept

Vision statement

The ReadEaseManagement emerges as an innovative solution, aiming not only to optimize library management but to transform the experience for all involved. By streamlining the reservation of resources such as rooms and books, we provide users with a more agile and personalized interaction.

For librarians, the system goes beyond, providing valuable insights through detailed statistics. Now, library administration extends beyond physical organization, encompassing a deep understanding of user behavior and the overall state of the library.

We believe that ReadEaseManagement is not just a functional tool but a fundamental piece to boost efficiency, enhance user experience, and modernize library management for the challenges of the 21st century.

Personas and Scenarios

1st Persona

Jorge Silva is a 54-year-old librarian, who lives in Estarreja with his wife and two children, aged 20 and 16 respectively.
Jorge is a very happy person and always likes to play with everyone. However, he is very dedicated to his work and enjoys seeing work done, despite people thinking otherwise.

Within the library, he is responsible for different areas, such as contacting users at the end of the reservation period so that they can return books, booking rooms, etc.

Due to the large number of people at the library and the reservation of books and ebooks, Jorge is not always able to manage the library in a good way.

2nd Persona

Ana Margarida is a student at the University of Aveiro, who is far from her family who lives in her homeland, in Beja. Due to the distance, Ana only travels to Beja 1 weekend per month.

She is a very introverted person with some distant friends. This distance makes you feel isolated and sad, but that doesn't stop you from wanting to learn and do more.

As for her academic life, Ana Margarida has always been an excellent student, committed to her purpose and an assiduous reader. She goes to the university library regularly to study and also to borrow books.

Product requirements (User stories)

Jorge

User Story 1: As a librarian, I want to be able to add new books to the system, including information such as title, author, ISBN and category, to keep the library catalog up to date.

User Story 2: As a librarian, I want to manage book loans and returns, including the ability to record the date of loan and return, as well as generate receipts for users. Additionally, I want to receive notifications when book return deadlines are about to expire. , so I can contact users and avoid delays. I also want to be able to view statistics about library usage, such as the number of books borrowed, the most popular books and user borrowing history, to improve library management.

User Story 3: As a librarian, I plan to manage the availability and reservations of reading rooms in the library, including approving or denying reservation requests.

Ana Margarida

User Story 4: As a frequent library person, I want to be able to create a wish list of books I plan to read in the future and receive notifications when those books are available at the library.

User Story 5: Additionally, I want to receive personalized recommendations based on my reading history and previous reviews to discover new books of interest.

User Story 6: As a frequent library user, I want to be able to share my reviews and book recommendations with other users, creating a community of readers on the platform.

3 Architecture notebook

Key requirements and constrains

<Identify issues that will drive the choices for the architecture such as: Will the system be driven by complex deployment concerns, adapting to legacy systems, or performance issues? Does it need to be robust for long-term maintenance?

Identify critical issues that must be addressed by the architecture, such as: Are there hardware dependencies that should be isolated from the rest of the system? Does the system need to function efficiently under unusual conditions? Are there integrations with external systems? Is the system to be offered in different user-interfacing platforms (web, mobile devices, big screens,…)?

E.g.: (the references cited in [XX] would be hypothetical links to previous specification documents/deliverables)

There are some key requirements and system constraints that have a significant bearing on the architecture. They are:

- The existing legacy Course Catalog System at Wylie College must be accessed to retrieve all course information for the current semester. The C-Registration System must support the data formats and DBMS of the legacy Course Catalog System [E2].
- The existing legacy Billing System at Wylie College must be interfaced with to support billing of students. This interface is defined in the Course Billing Interface Specification [E1].
- All student, professor, and Registrar functionality must be available from both local campus PCs and remote PCs with internet dial up connections.
- The C-Registration System must ensure complete protection of data from unauthorized access. All remote accesses are subject to user identification and password control.
- The C-Registration System will be implemented as a client-server system. The client portion resides on PCs and the server portion must operate on the Wylie College UNIX Server. [E2]
- All performance and loading requirements, as stipulated in the Vision Document [E2] and the Supplementary Specification [15], must be taken into consideration as the architecture is being developed.>

Architetural view

→ Discuss architecture planned for the software solution.

→ include a diagram

Module interactions

→ explain how the identified modules will interact. Use sequence diagrams to clarify the interactions along time, when needed

→ dicuss more advanced app design issues: integration with Internet-based

external services, data synchronization strategy, distributed workflows, push notifications mechanism, distribution of updates to distributed devices, etc.>

4 Information perspetive

<which concepts will be managed in this domain? How are they related?>

<use a logical model (UML classes) to explain the concepts of the domain and their attributes>

5 References and resources

<document the key components (e.g.: libraries, web services) or key references (e.g.: blog post) used that were really helpful and certainly would help other students pursuing a similar work>