Previous WIS architecture knowledge

Acme AirNav Solutions, Inc

Group Number: C1.066
Repository: `https://github.com/mquirosq/DP2-C1.066`

Members:
María Quirós Quiroga, marquiqui@alum.us.es
Guillermo Rodríguez Narbona, guirodnar@alum.us.es
Ignacio Mora Pérez, ignmorper1@alum.us.es
Daniel Herrera Urbano, danherurb@alum.us.es
Alejandro Parody Quirós, aleparqui@alum.us.es

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Executive Summary

The main objective of this report is to present the knowledge about Web Information Systems that we have previously acquired before this subject, thus providing a clear insight on the concepts and content we are already familiar with.

Revision History

Revision	Date	Description
1.0	2025-02-17	Initial draft
1.1	2025-02-18	First revision
1.2	2025-02-20	Second revision

1. Introduction

The architecture of Web Information Systems is not new to us. As all team members are students of the Software Engineering curriculum at the University of Seville, we have acquired the same knowledge about WIS in previous subjects. That is why, in the next sections, we are talking generally as a group, since talking about each team member individually is unnecessary.

Although the previous knowledge (acquired from other subjects) required for these subjects was important for their learning process, it will be omitted, since the main focus is on WIS architecture. The sections are ordered chronologically and consist of the description of the subject and its evaluation methodology, its main contents and the developed projects, along with the WIS architecture knowledge that we acquired from them.

2. Architecture and Integration of Information Systems

This was our initial approach to the architecture of WIS, which we studied in the second semester of our second college year. Theory tests and two projects were used for evaluation.

The main contents of the subject were software design decisions and patterns, architectural patterns (including the MVC pattern, which we would use in other subjects for developing a WIS), application integration, application programming interfaces, RESTful services and integration testing.

For the first practical project, we had to deliver a document in which we analyzed, among other attributes, the architectural pattern of a complex GitHub project, documenting it using various software documentation tools.

For the second project, we developed a RESTful API that aggregated video data from YouTube and Vimeo. This required building three microservices: VimeoMiner and YouTubeMiner, which fetched data from their respective APIs, and VideoMiner, which provided a unified API for accessing the collected data. We implemented the system using Spring Boot and tools like Postman, Swagger, and IntelliJ, with JUnit for testing.

This project was group-oriented and did not require much organization between members, that is, no team methodology was followed at all.

Through this subject we gained experience with software design, architectural patterns, RESTful services, API integration, and software documentation.

3. Introduction to Software Engineering and Information Systems II

Alongside AISS, this was our very first introduction to WIS, and we took it in the second semester of our second college year. The evaluation consisted of theory exams, laboratory tests, and a practical project.

The main contents of the subject were software architecture (mainly focused on web applications), agile methods, git basics, front-end and back-end frameworks, RESTful services, user interface and user experience.

As a practical project, we developed a food delivery application following the Model-View-Controller (MVC) pattern, using Node.js for the back-end and React for the front-end. A base project was provided, and we had to develop features for each Sprint until obtaining a more detailed application.

This project was also group-oriented and required organization between members. It ultimately helped us develop valuable skills in web application development and agile methodologies.

The subject provided us with valuable knowledge about RESTful services, web applications, team practices and JavaScript.

4. Design and Testing I

This subject, taken in the first semester of our third college year, has been the most recent in which we have learned about WIS. Quizzes, theory tests, laboratory tests, and a project were used for evaluation.

The main contents were software design (presentation layers, back-end, data models), testing, design patterns, and a set of good practices for traceability, reliability, and security.

As a practical project we developed a browser game using React for the front-end and the Spring Boot framework for the back-end. The entire development process had to be documented, including requirement elicitation and data modeling.

Like the others, this was also a group-oriented project. A significant amount of organization was required, as we applied the Scrum development framework. In addition, the complexity of the project required careful planning, coordination, and commitment between team members.

As previously stated, the subject provided us with knowledge about software design and testing, along with a set of skills for WIS development. From all the subjects described in the document, we believe that this is the one that has contributed the most to our

WIS knowledge.

5. Conclusions

As software engineering students, we recognize that web information systems (WIS) are a core aspect of modern software development. However, before studying the described topics, we had no practical experience working with such systems.

Throughout our coursework, we explored various aspects of WIS, although we started with a theory-based learning. This theoretical foundation taught us concepts like application integration, architectural patterns, application programming interfaces, RESTful services, back-end, front-end, testing, frameworks and a lot more. This made the practical projects much easier, as we had to apply the concepts we had previously learned in theory lessons. Nonetheless, we are convinced that, without those projects, our understanding of WIS would have been much more limited. Without a doubt, listening to WIS concepts does not contribute to our knowledge as much as actively working on a project does.

Overall, the knowledge gained from these subjects has been key in our understanding of WIS architecture, and we believe it has provided us with the necessary tools and experience to tackle the project proposed in this subject.

6. Bibliography

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