

CLASSIFIED ADVERTISEMENTS PLATFORM FOR ACADEMIC ENVIRONMENT

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Nowadays web based applications represent an important role in business success, fast global advertisement of products, easy management and internal organization and fast information access are values that have shown decisive for a correct and supported organizations development. This essay describes a project work carried out in the academic environment, with open source tools, in order to develop a classified advertisement platform using web technologies, namely JSP, XML and JavaBeans. The application aims at supplying a set of functionalities related to students and products management, businesses management and the presentation of products between the students themselves. Thus this article presents the methodology followed since the modeling of the application process and the development of a data model that corresponds to the identified needs during the modeling phase of the processes, until the system implementation.

Keywords JSP; JavaBeans; XML

1. Introduction

Today e-commerce web sites represent an important role in business success, increasing sales, fast global advertisement of products which are values that can be decisive in global markets. The work of this paper was guided by the design and implementation of an information system for students' advertisements with resource to open source technologies. The main objective of this work was not the development of a professional e-commerce web site, but the development of a contacts trade database for a community of students, where without costs they can publish any kind of product they want to sell or offer. On the other side, there are the academic objectives, where the main aim was related to students' assessment, namely their capacity to analyze a problem and conceive a real application.

In order to model the information system under development, an object-oriented approach was followed, namely the UML - Unified Modeling Language [1].

This paper is structured as follows. The following section describes an overview of the main requirements for the system developed and our prototype is presented in section three. Finally, we will summarize our results and make a brief reference to some topics for future work.

2. Overview of System Requirements

2.1 Main System Requirements

The system to develop should deliver the required functionality and performance to the user and should be maintainable, dependable and usable. In WEB environment, it is crucial to provide fast, reliable and on-time responses. These are the most important high-level and general requirements to be fulfilled by the system to be implemented.

System requirements are usually divided into two classes – functional requirements and non-functional requirements. The first describes what the system should do and are perceptible to the user, while the second describes constraints on how the functional requirements are implemented, and are not necessarily perceptible by the user [2].

2.1 Functional Requirements

Event Notification. Nowadays this is a very important feature, because it allows users notification in case anyone shows interest in user product. By this time the event notification is made by email.

2.2 Non-Functional Requirements

Performance. It is crucial to provide fast, reliable and on-time responses when dealing with users inquiries in order to provide better navigation and raise the system interest.

Flexibility. The system must be flexible in order to allow the user to insert, remove, edit or move elements.

Usability. A friendly interface, flexible, with strong graphical capabilities and succinct and clear messages can raise the system efficiency.

Reliable. Reliable applications depend of its capacity to handle all the kind of errors the may eventually occur and inform the users how to proceed to solve the problems. This will give the user more confidence.

Data Persistence. Assuring data persistence is an essential requirement for the system. Sessions are another essential requirement, once they allow the stateless data of the HTTP protocol to be overcome.

Security. Security mechanisms like authentication provide confidence to the users when dealing with the system.

2.3 Use Case Diagrams

One of the first steps considered in the modeling was to describe the system as a number of use cases that are performed by a set of actors.

A Use Case diagram presents a set of use cases, actors and their relations. Their common applications are usually divided into two - system context modeling and system requirements modeling. The former gives emphasis to the identification of the boundary system, their actors and the meaning of their functions, while the second consist of the identification of what the system should do, no matter what?

3. Logical Architecture

Figure 1 shows the proposed architecture to achieve the previous goals. This is a client/server architecture that allows the application separation into three layers: the interface layer, the business logic layer and the database layer.

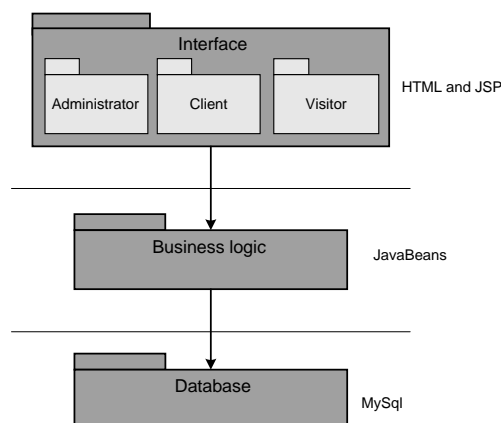


Fig. 1 *Logic architecture.*

3.1 Interface layer

This is the highest level layer of the application and intends to present to the user (visitor, customer or administrator) the information contained in the system database (products advertisements like: papers, books, didactic materials etc).

This layer allows the distinction between different types of user's interfaces. As a result the visualized information is different in agreement with the type of use that is intended. In this case, the customer has a different interface compared to the visitor interface, as well as different from the administrator interface.

3.2 Business logic

This system is implemented on the Linux operating system using the Apache HTTP server. It uses Java Server Pages (JSP) to generate dynamic HTML pages according to the database information.

This is an intermediate layer and intends to represent a class of objects that will be used to create a link between the high level layer and the interface layer or either, between the interface and the database. The JavaBeans model is used in this layer. In this layer all the business logic related to the system is defined as well all the data processing. This is a components model, platform independent, and portable due the used technologies.

3.3 Database

It contains information about the system's users (registered clients and administrators), description of offers to each one of the advertisement, and access history, as well as the roles to control access authorizations.

It is currently implemented using MySQL Database Management System (DBMS).

4. Physical architecture

Client – represent the end user, uses a web browser that allows the advertisements visualization, storage and acquisition. It was developed using the following technologies:

- **HTML**, for creation of static pages.
- **JavaScript**, for form validation.
- **JSP**, to generate HTML dynamic pages and allow the use of JavaBeans in business logical layer.
- **Cascading Style Sheets (CSS)**, to keep a consistent style in all application interface and to allow the administrator easier interface maintenance.
- **Extensible Markup Language (XML)** and technologies associates (Extensible Stylesheet Language (XSL) and XML Schema Definition (XSD), for information exchange and results presentation in browser.

Server - where the necessary modules for application functioning are stored. It represents the responsible application for answering the user's requests. It uses JSP to generate HTML code that is visualized by the users and JavaBeans to deal with the customers orders and to accede to the database. The Tomcat Apache will serve as web server.

SGBD – responsible for storing all the necessary information for normal system functionally. It contains all information relative to the customers, products and purchases.

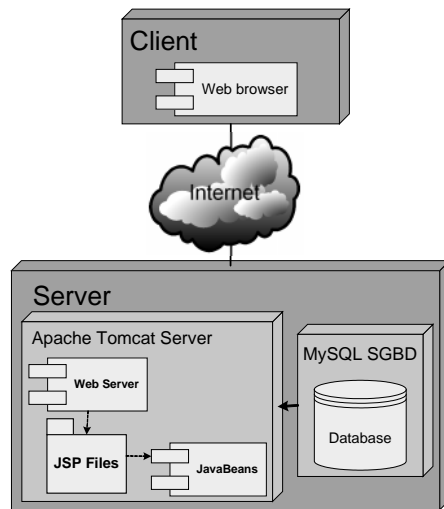


Fig. 2 Physical architecture.

5. Conclusions

The results of the described work are encouraging. The tests that have been made show a good acceptance by the students' community. On the other hand with this type of projects it is possible to assess the students in a similar real work environment, namely, analyze a problem, the use of systems analysis methodologies in computer science engineering and research of solutions and definition of models.

References

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