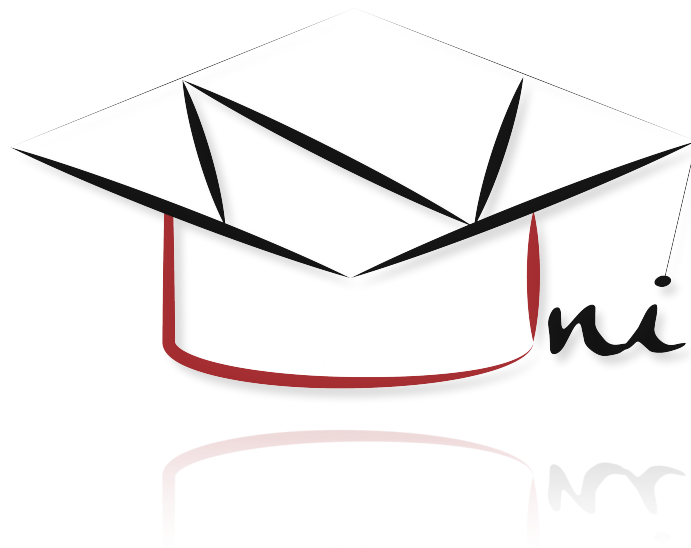# VnUni

Object Oriented Analysis and Design

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Course project

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Requirement
Give the analysis and design documentation of the software.

Overview
VnUni is a website for high school students to get information about Vietnamese universities' admission. This report is the documentation for our website including three main parts: software's requirement, analysis and design.

Acknowledgment
We would like to express our special thanks to Dr. Truong Ninh Thuan who gave us the enthusiastic instruction and support.

We would like to thank Team OOAD K56CA for their "YouTube Video Player" report that we used as reference and sample document.

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1.   Requirements

1.1. Problem statement

There are millions of high school students constantly taking university entrance examination every year in Vietnam. Due to the great number of enquiries about universities' and colleges' information on majors, quality teaching, admission marks, etc from students and their parents, many kinds of handbooks and websites are being published with diverse and up-to-date data to meet this demand.

However, these sources are sometimes not reliable; the interface is not friendly and unscientific – which make users confused and worried. To tackle this issue, we want a useful website called VnUni for students to help them approach easily the necessary information about universities and colleges by a brand-new way, which would hopefully become a trustful connection between students and schools in near future.

This website provides an information search engine based on different filters: location, majors, recently admission marks, etc. Moreover, users could have an objective and comprehensive view with "Comparison and Ranking" function that compares and rates schools according to various criteria.

Each university or college is supplied with a separate account to log in the system so that they could modify their data very conveniently.

This website must have an administrator that manages all operations of the system: add/remove a school, add/remove a user, modify database. Anonymous users must not have the privilege to register a new school account. It is only provided by administrator.

Users could connect to VnUni via client devices such as laptops, PC, tablets or smartphones.

1.2. Glossary

Brief Description

The glossary contains the working definitions for all classes in the VnUni System.

Term

University

An education organization in Vietnam.

University Admission

An activity of universities to admit students.

Entrance exam

An exam of Vietnam universities for graduated high-school students who want to get higher education.

Faculty

A group of university departments concerned with a major division of knowledge.

Admission Mark

A level of mark for students to take to the university.

Admission Staff

An user of the university who has the permission to edit the information page of this university.

Filter Catalog

The fields catalog of filter system, helping user to filter out suitable universities quickly.

User

A person who view the website in their browser.

Admin

A person who develop, maintain the system and update database.

1.3. Supplementary Specification

Objectives

The purpose of this document is to define requirements of the VnUni System. This Supplementary Specification lists the requirements that are not readily

captured in the use cases of the use-case model. The Supplementary Specifications and the use-case model together capture a complete set of requirements on the system.

Scope

This Supplementary Specification applies to the VnUni System which will be developed by the VnUni Team – Computer Science Department – University of Technology and Engineering, Vietnam National University.

The VnUni System will enable users to search and view the admission information of universities and colleges in Vietnam. This system also allows admission staffs to provide or modify the data of their schools.

This specification defines the non-functional requirements of the system; such as reliability, usability, performance, and supportability as well as functional requirements that are common across a number of use cases. (The functional requirements are defined in the Use Case Specifications.

References

Applicable references are:
• IBM Rational Software Documentation (Version 2004).
• Document of K55CA OOAD project - Restaurant Management System.
• Document of K56CA OOAD project - YouTube Video Player.

Functionality
• Multiple users must be able to perform their works concurrently.
• All functionality shall be available remotely through an internet connection. This may require applications or controllers running on the remote computers.

Usability

This section lists all of those requirements that relate to, or affect, the usability of the system.

Browser Compliance

The user-interface should run smoothly on all browsers, for instant: Chrome, Firefox, and Internet Explorer, etc.

Design for Ease-of-Use
The user interface of the VnUni System shall be designed for ease-of-use and shall be appropriate for a computer-literate user community with no additional training on the System. The user interface has to be nice and clear.

Reliability

The VnUni System shall be available 24 hours a day, 7 days a week. There shall be no more than 4% down time.

Performance

The performance characteristics of the system are outlined in this section.

Simultaneous Users
The system shall support up to 10000 simultaneous users against the central database at any given time, and up to 5000 simultaneous users against the local servers at any one time.

Database Access Response Time
The system shall provide access to the VnUni database with no more than a 5 second latency.

Supportability

None.

Security

The system must prevent anonymous users to modify the database. Almost changes of the system databases can only be done by managers. Require confirm account before submit the changes.

Design Constraints

This system will provide only for any browsers supporting JavaScript.
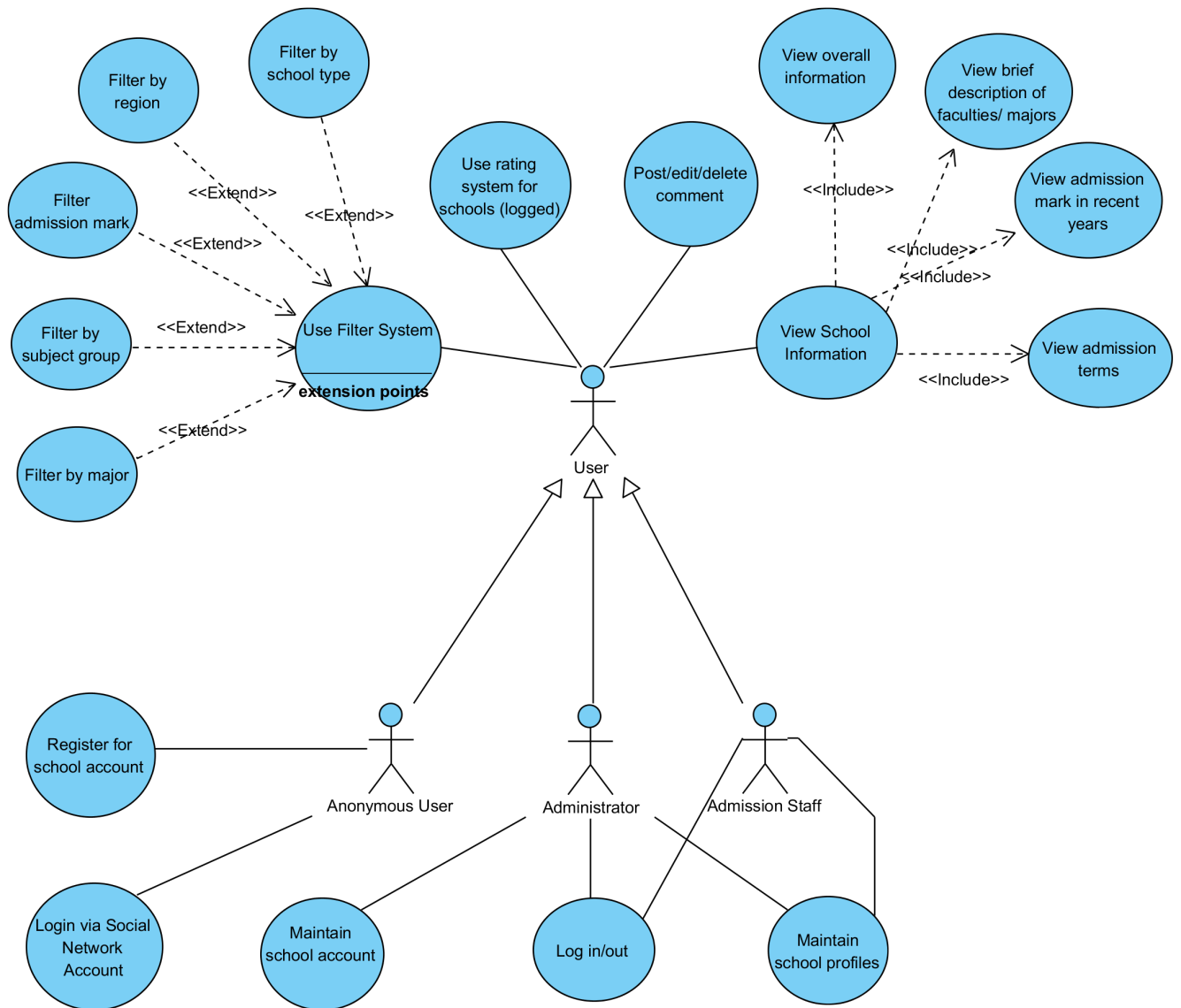
1.4. Use-case model

Figure 1 - Use-case Model

1.4.1. Use-case Specification - <Login>

Brief Description

This use case describes how a user logs into the VnUni System.

Flow of Events

Basic Flow

• The system validates the actor's password and logs him/her into the system.

• The system displays the Main Form and the use case ends.

Invalid Name/Password

If in the basic flow the system cannot find the name or the password is invalid, an error message is displayed. The actor can type in a new name or password or choose to cancel the operation, at which point the use case ends.

Associations

Actor

The actor starting this use case is:

• Administrator

• Admission Staff

Associations to Other Use Cases

None.

Associations from Other Use Cases

None.

Special Requirements

None.

1.4.2. Use-case Specification - <Maintain School Profile>

Brief Description

This use case allows the Administrators and Admission staffs to maintain school information including "add and modify school information" in VnUni database system.

Flow of Events

Basic Flow - Add data to a blank university record
* The administrator/admission staff selects "Add new information".
* The system displays a blank university information form.
* The administrator/admission enters the following information for the university: full name, date of established, short introduction, etc.
* The system validates data to insure the proper data. If data is valid, the system updates new information to the blank university record in the database system.

Modify information of a university
* The administrator/admission staff selects "Modify information".
* The system displays an editable form with old information.
* The administrator/admission staff types in the field he/she wishes to modify.
* When changes are complete, the administrator/admission staff selects "Save".
* The database system updates the university information.

Associations

Actor
The actor starting this use case is:
* Administrator
* Admission Staff

Associations to Other Use Cases
None.

Associations from Other Use Cases

None.

Pre-Conditions

Before this use case begins the administrator or admission staff has logged onto the system.

Special Requirements

None.

1.4.3. Use-case Specification - <Use Filter System>

Brief Description

This use case describes how a user use the filter system to search universities.

Flow of Events

Basic Flow

- The system displays a list of options in filter system.
- The user selects (or not) filter options and search.
- The system retrieves a list of all universities that were satisfied the filter options and displays in three lists which were represented in proportion to three regions of Vietnam.
- For each university on lists, the system will displays some information of each university such as admission marks and number of admitted students per year when user moves the mouse on.

No Universities Found

If in the basic flow, the system cannot find the university which satisfied user's options in the filter, at which point the use case ends.

Associations

Actor

The actor starting this use case is:

- User

Associations to Other Use Cases

None.

Associations from Other Use Cases

None.

Special Requirements

None.

1.4.4. Use-case Specification - <View School Information>

1.4.5. Use-case Specification - <Register for School Account>

1.4.6. Use-case Specification - <Maintain School Account>

Brief Description

This use case allows the Administrators to add or remove accounts for schools.

Flow of events

Basic Flow – Add account for a school.

- The administrator receivers the request of making a school account from an admission staff of the school.
- The administrator check the request and consider to make a new school account.
- The administrator selects "Add a new school account".
- The system displays a blank form for making new school account. The administrator enters the following information for the new account: school id, school name, account username, account password, etc.
- The administrator send the new account information to the person who sent the request. The information include: account nickname, account password, etc.
- The admission staff receive the account information and using it to work with VnUni system with specific privileges.

Remove an admission staff account

- The administrator receivers the request of removing a school account from an admission staff of the school.
- School already has an account
- The administrator receivers the request of making a school account from an admission staff of the school.
- The administrator check the request and create an account for valid staff.

Associations

Actors

The actor starting this use case is:

- Administrators.

Actors also involved in this use case:

- Admission staffs.

Associations to Other Use Cases
None.

Associations from Other Use Cases
None.

Pre-Conditions
Before this use case begins the administrator has logged onto the system.

Special Requirements
None.

1.4.7. Use-case Specification - <Use Rating System>

1.4.8. Use-case Specification - <Post/Edit/Delete Comment>

2.   Analysis

3.   Design

Appendix A - Figures