

Off-Campus Housing Service

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I. INTRODUCTION

A. Background of the Study

Based on the data in Table 1, an average of 9000 students coming from different regions in the Philippines were enrolled in the university during second semester AY 2013-2014 with OSAM profiles. Students, especially those from far-away places, need a housing facility within the vicinity of the campus. However, the university residence halls can only accommodate 2,446 students, based on the data in Table 2, and most of the dormitories handled by the university can only accommodate freshmen students. They will end up looking for decent dormitories and apartments outside the campus. This will be hard for them since they are not yet familiar with the area. The upperclassmen, on the other hand, are also having a hard time finding a new place to stay because of their busy schedule. Due to this reasons, a facility that will allow students to search for an off-campus housing will be of help. Since Internet is already available inside and outside the campus, a web application for this type of service will provide an efficient way of finding an off-campus housing for students. They can choose a dormitory or an apartment based on their liking with the help of other students that would give reviews about the particular place. They can check the photos of the dormitories and apartments that are uploaded by the users. This can also be used by the property owners to advertise their dormitory or apartment.

B. Statement of the Problem

One of Chancellor Rex Victor O. Cruz's Five (5) Point Thematic Action Agenda is to develop a system for assisting students find decent and affordable accommodation [1]. This includes ensuring the quality and safety of the students in and off campus. At this time, however, only UHO, which provides in-campus housing service, can directly reach the students and owners of off-campus housing services just advertise through flyers and posters. Finding an appropriate place to stay in is a necessity for freshmen students who are not given a slot in any university residence halls. Going to Los Baños before the start of the semester just to find a place to stay near the university will be costly especially to those who live in faraway places. This has been a problem for upperclassmen students as well, since most of them are busy with their academics and other extra curricular activities and they do not have an ample time to search for a possible place to stay.

Presented to the Faculty of the Institute of Computer Science, University of the Philippines Los Baños in partial fulfillment of the requirements for the Degree of Bachelor of Science in Computer Science

TABLE I
NUMBER OF STUDENTS ENROLLED IN UNIVERSITY OF THE PHILIPPINES
PER REGION [2]

Region	Number of Students
ARMM	3
CAR	46
NCR	1439
I	73
II	157
III	812
IV-A	4767
IV-B	264
IX	76
V	283
VI	20
VII	17
VIII	292
X	38
XI	23
XII	20
XIII	71
Unspecified	578
TOTAL	8979

If the university can provide a web-application for Off Campus Housing for the students, it would be easier for them to locate possible places for accommodation.

C. Significance of the Study

Internet has been used by people nowadays in searching for different things, even a place to stay in. There are already websites that cater search engine for dormitories and apartments, however the locations are mainly in cities. And it is hard searching online about dormitories and apartments around Los Baños.

By just using the Internet, students can search for dormitories and/or apartments and read reviews written by their schoolmates.

D. Objectives

The general objective is to develop web application that can be used by students to look for dormitories and apartments online.

- To use OSAM System API for logging in to the web application.
- To use Google Maps API for tagging and locating dormitories and apartments
- To have a repository of information about dormitories and apartments around Los Baños.
- To implement a search engine for off-campus dormitories and apartments around Los Baños.

TABLE II
UNIVERSITY OF PHILIPPINES- LOS BAÑOS RESIDENCE HALLS
INFORMATION

Dormitory	Type	Student Accommodating	Maximum Students
Men's Residence Hall	Female	Freshmen	646 [3]
Women's Residence Hall	Female	Freshmen and Upper-classmen	444 [4]
New Dormitory	Co-Ed	Freshmen	300 [5]
Veterinary Medicine Residence Hall	Co-Ed	Freshmen and Upper-classmen	280 [6]
New Forestry Residence Hall	Co-Ed	Freshmen and Upper-classmen	156 [7]
Makiling Residence Hall	Male	Freshmen and Upper-classmen	112 [8]
Forestry Residence Hall	Female	Freshmen and Upper-classmen	144 [9]
Acci Dorm-Upper	Female	Freshmen	56 [10]
Acci Dorm-Lower	Male	Freshmen and Upper-classmen	54 [11]
ATI-NTC Residence Hall	Co-Ed	Freshmen	130 [12]
International House	Co-Ed	International Graduate Students	124 [13]
Total			2446

E. Scope and Limitations

The Off-Campus Housing system will only focus on housing facilities around the Los Baños. Students can access this system if they have an OSAM account.

II. REVIEW OF RELATED LITERATURE

A. Web Search Engine

Web Search Engine is a system developed for searching information on the internet. There are two major functions of search engines-crawling and building and index and providing results by calculating relevancy and serving results [14]. Many universities nowadays provides off-campus rental housing search engine to help their students find a place to stay. These search engines mostly use crowdsourcing.

B. Features of other existing Off-Campus Housing Websites

- 1) online searchable database / search listing
- 2) roommate finder
- 3) google maps integration
- 4) accounts for students, parents, and property managers
- 5) email the property managers directly
- 6) downloadable lease contract
- 7) photo gallery
- 8) message boards

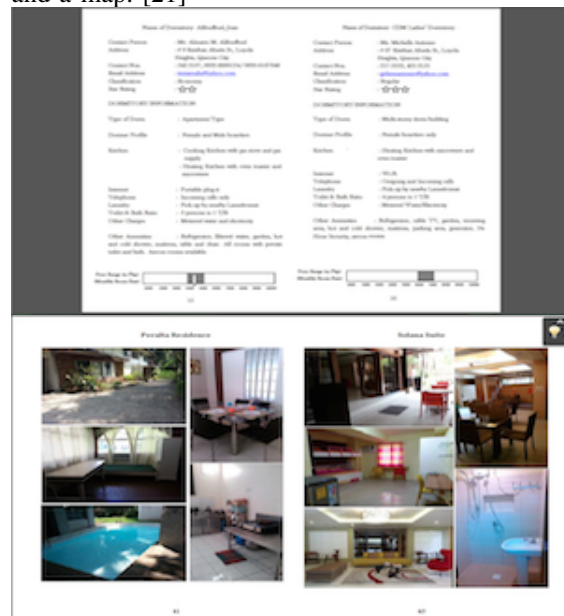
C. Variables used for searching:

- 1) classification (dormitory, house, apartment, studio type, room for rent, mobile home, etc)
- 2) rent fee
- 3) expected move-in date
- 4) maximum head count
- 5) amenities (furnished, semi-furnished, has swimming pool, has rooftop, etc)
- 6) pets allowed
- 7) handicap accessibility
- 8) activities allowed (smoking, drinking, group meetings, etc)
- 9) lease length
- 10) kilometers away from the university
- 11) number of beds provided
- 12) number of comfort rooms

D. University in the Philippines that have an Off-Campus Housing Service

Ateneo De Manila University

-The Ateneo De Manila University provides a pdf file that includes a directory of Accredited Off-Campus Housing around Katipunan. Name of the dormitory, contact person, address, contact numbers, email address, classification, star rating, dormitory information, price range, and other amenities are included in the file. It also shows photos of the dormitories and a map. [21]



E. Crowdsourcing

Crowdsourcing is the process of obtaining information by getting contribution from a large group of people online. Famous example of crowdsourcing is Wikipedia. One of the benefits of crowdsourcing is the ability of collecting large number of information at inexpensive cost. Additionally, it tends to get better quality of information since several people like to give their best ideas [22]. Four types of Crowdsourcing:

- 1) Crowd Creation
 - Best known form of crowdsourcing. Creating a new writing, photography, music, film, or a software and make it available online.
- 2) Crowd Wisdom
 - This attempts to use other people's knowledge in solving problems and predicting strategies in corporate world. Example of Crowd Wisdom are idea jams and prediction markets such as Iowa Elections Market, Hollywood Stock Exchange, and SIM Exchange. [23]
- 3) Crowd Voting
 - Used to get the people's judgment to organize and filter articles, music, movies, picture, and many more [24].
- 4) Crowd Funding
 - It is the practice of funding a project or venture by raising many small amounts of money [25].

III. METHODOLOGY

A. Development Tools

The system will be developed under Ubuntu Operating System. To be able to implement the system, it will be necessary to install and use the following:

- 1) Interface: Foundation will be used for the system's interface. Foundation is the most advanced front-end framework in the world [26]. It contains HTML and CSS-based design templates for typography, forms, buttons, navigation and other interface components, as well as optional JavaScript extensions.
- 2) Framework: CodeIgniter 2.2.0 will be used for the implementation. It uses model-view-controller pattern in organization of files in programming.
- 3) Programming Language: PHP5 is a scripting language that is suited for web developing.
- 4) Database: MySQL 5.1.41 will be used as database for this application. It is an open-source database management system.

B. System Requirements Definition

This involved communicating with OSA to determine the system's requirements and functionalities.

Functional Requirements

-The system is to be used by three (3) types of users; these are the administrator, student, and the property manager. Each type of user is given different access privileges for the system:

- 1) The administrator is capable of performing the following system functions:
 - Approve, delete, and view properties added by the students and property managers.
 - Search dormitories and apartments by :
 - curfew
 - users of the comfort rooms (shared / exclusive)
 - bathing type (shower / pail)
 - toilet facility (pail system, flush toilet, pit toilet)
 - deposit/advanced rent required
 - rent payment (bank, cash, post-dated checks)

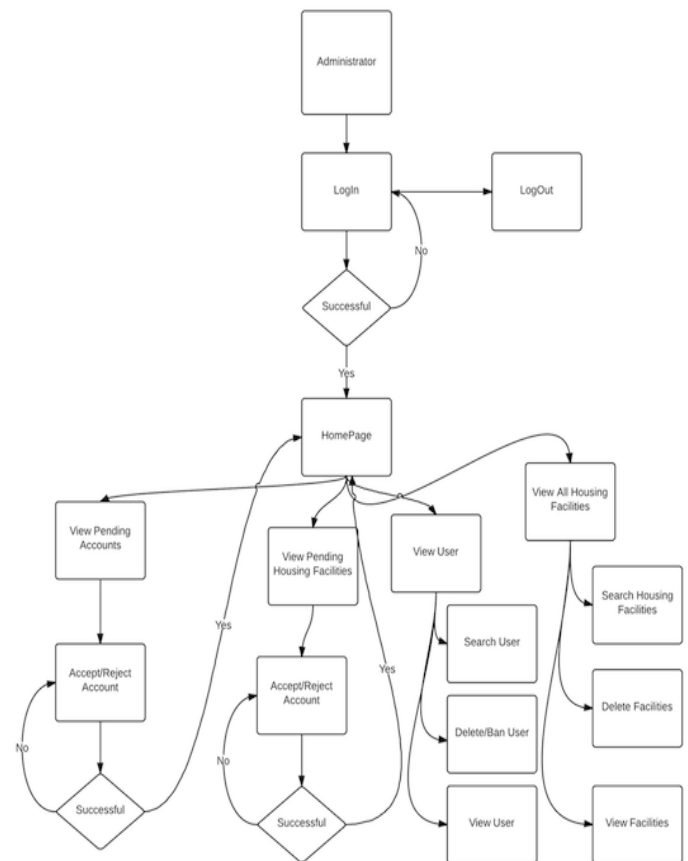


Fig. 1. Administrator Workflow Diagram

- sex (male only / female only / coed)
- distance of nearest sari-sari store in meters
- security features (has 24/7 guard, has night guard, has CCTV, landlord/landlady lives nearby, relies on good luck)
- electric/water billing (paid to landlord/landlady, paid to meralco/laguna water)
- internet availability (free wifi, paid wifi, bring your own, not allowed)
- transportation to university and approximate transportation time

- Approve, delete, and view property managers.
- Add, edit and delete announcements.

2) A student is allowed to do the following functions:

- Add dormitories and apartments.
- Edit details about dormitory/apartment he/she added.
- Add and edit a review about the dormitories and apartments.
- Rate a dormitory and apartment
- Send a message to the property manager.
- Delete a dormitory and apartment he/she added.
- Report a dormitory and apartment.
- Search dormitories and apartments by :
 - curfew

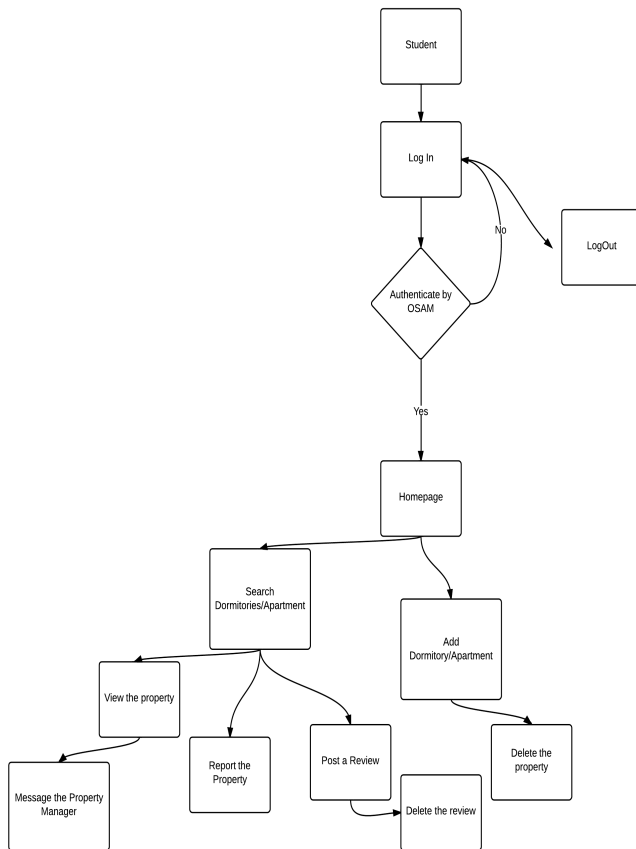


Fig. 2. Student Workflow Diagram

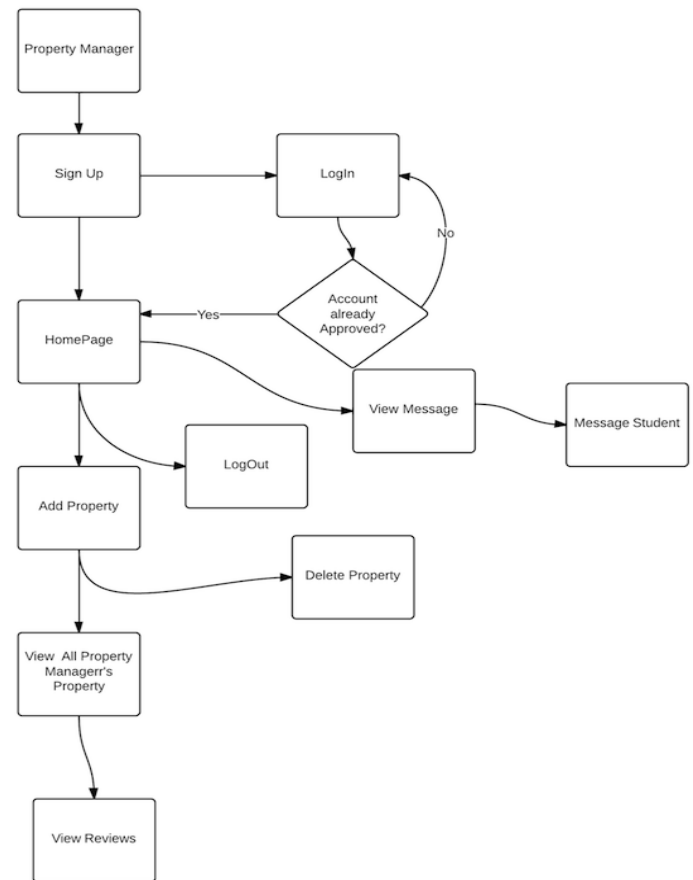


Fig. 3. Property Manager Workflow Diagram

- users of the comfort rooms (shared / exclusive)
- bathing type (shower / pail)
- toilet facility (pail system, flush toilet, pit toilet)
- deposit/advanced rent required
- rent payment (bank, cash, post-dated checks)
- sex (male only / female only / coed)
- distance of nearest sari-sari store in meters
- security features (has 24/7 guard, has night guard, has CCTV, landlord/landlady lives nearby, relies on good luck)
- electric/water billing (paid to landlord/landlady, paid to meralco/laguna water)
- internet availability (free wifi, paid wifi, bring your own, not allowed)
- transportation to university and approximate transportation time
- View a dormitory and apartment.
- A property manager is allowed to do the following functions:
 - Add dormitories and apartments.
 - Edit details about dormitory/apartment he/she added.
 - Delete a dormitory and apartment he/she added.
 - Search dormitories and apartments by :
 - curfew

- users of the comfort rooms (shared / exclusive)
- bathing type (shower / pail)
- toilet facility (pail system, flush toilet, pit toilet)
- deposit/advanced rent required
- rent payment (bank, cash, post-dated checks)
- sex (male only / female only / coed)
- distance of nearest sari-sari store in meters
- security features (has 24/7 guard, has night guard, has CCTV, landlord/landlady lives nearby, relies on good luck)
- electric/water billing (paid to landlord/landlady, paid to meralco/laguna water)
- internet availability (free wifi, paid wifi, bring your own, not allowed)
- transportation to university and approximate transportation time
- View a dormitory and apartment.

C. System Design

This phase involved the creation of Unified Modeling Language Diagram for the database system. Shown in Figure 4 is the Unified Modeling Language Class Diagram of the system.

The entity Administrator approves the existence of the entity Property Manager and Property. An Administrator is needed to create Announcements. When a Property Manager is approved

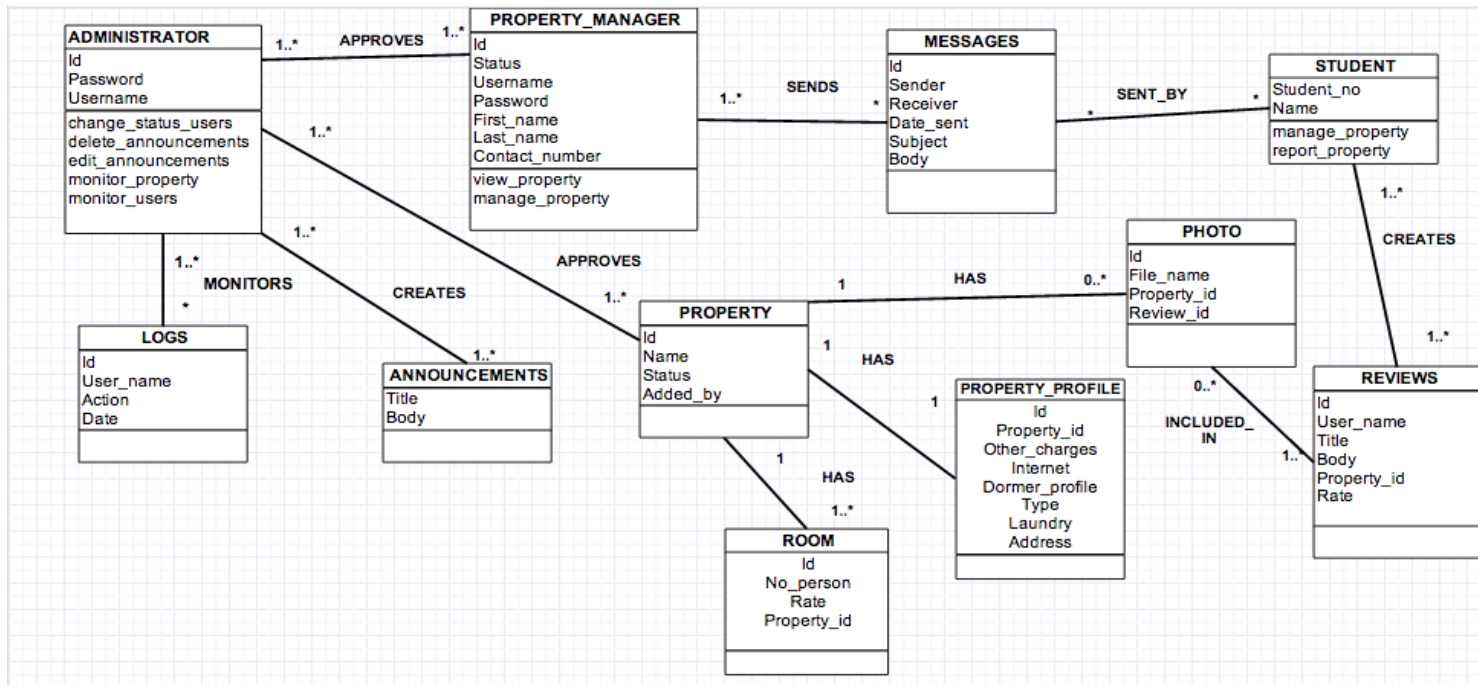


Fig. 4. Unified Modeling Language Class Diagram

by the Administrator, this entity can be able to add a Property and communicate with the students by sending messages.

The entity Property has a Property Profile which includes all the details concerning the property. The Property also has rooms and photos. A property can have Reviews created by the Students. A student can include a photo in the review. A student can also add property.

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