Acknowledgment

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Abstract

The current management system of dormitories are paper base and work as manual which face lots of problems include form checking, searching forms, waste of time, maintenance of documents, transition of documents, losing forms, misusing, etc.

To solve these problems we propose the Dormitory Management System (DMS).

Dormitory management system (DMS) is a system which students can access the system via internet and web to fill the dormitory registration form to apply for dormitory membership.

The students fill up the registration form then the information go to faculty and then to ministry via university header ship.

Then the admin can select him and arrange his dormitory card.

Now the manager of faculty is able to print the card and submit it to student, then the student goes to dormitory with his card, the dormitory manager check the system for him and then allow him to enter in dormitory.

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Current systems in Afghanistan

1. Current system

1.1. Background

The universities in Afghanistan give educational services for regular students like extension programs for the people who live in this country. The universities are also a research center for different of field of studies.

In these universities there are different management activities that are performed. Among those management activities Dormitory Management is one of the major management activities which ate performed to arrange and allocate dorms for students. In this process there is a potential problem associated with the Dormitory Management. So the team initiated this project to identify and analyze those problems and to put possible solutions.

1.2. Strength

- It gives sustainable dormitory services for students
- It provides approximately proportional number of proctors for buildings
- It provides better control of dormitory materials

1.3. Weakness

- Manually arranging and rearranging of students in buildings is a problem.
- All the necessary records of the above management activities are kept manually on papers and stored in file cabinets.
- Due to manual processing, different kinds of errors occur which lead us to unnecessary reworks.

1.4. Problems

1.4.1. data inconsistency problem

In Afghanistan every dormitory system works manually right now that is facing to many problems. There is not central control and no one is able to avoid data duplication. All the data stored in the files which increases the duplication probability.

1.4.2. Form checking problem

When the students fill the forms they are going to be checked in many offices and its possible make mistakes and needs many employees to check them.

1.4.3. Maintenance of documents problem

The student's forms and documents are saved in different rooms and need human resource to be maintained

1.4.4. Transition for documents problem

Sometimes they are compel to transfer the documents from a building to anywhere else if the documents be mixed then it would be a big problem to rearrange them back.

1.4.5. Losing and misusing problems

When the students fill the forms it takes about three months to get the results, if any of the forms be lost then the student is compel to fill another form and wait for about three months more

1.4.6. Search problem

There are lots of papers in manually system that contains the students and employees information. So if any one lost any paper, searching for that paper is difficult. They are compel to search all cabins until find the paper if the paper wasn't there, they have wasted their time.

1.4.7. Wastage of time problem

The manual system wastes lots of paper which is one reason of pollution. Buying papers and many staffs working on papers needs more money. Working with papers in manual system wastes lots of time like writing, checking, managing and searching.

Proposed system

2. Proposed system

2.1. motivation

We are living in 21st century that technology has improved very well. The NASA's spacecraft "Juno" arrived to Jupiter after five years [1]. A robot has been made in japan by the name of "pepper" that can feel and may teach programming [2].

There are many universities in the world with computerized dormitory management system which have online registration system like Tehran Azad University [3]. Because of this we decided to make a computerized management system for governmental universities of Afghanistan.

2.2. Objectives

- To make an easy way for students to do their dormitory registration. They may access the page 24 hours a day and 7 days a week from wherever they are.
- To remove the paper based system and bring computerized system instead of that.
- Avoid wasting of time, money and human resources.
- Make Afghanistan a developed country.
- Make database to store all members' information.

2.3. introduction

2.3.1. background

This project is initiated to develop system as a final year project for completing a study of Bachelor Degree in Computer Science department of Software Engineering. The team is organized to develop web based Dormitory Management System which will enable the project team to get B.Sc. Degree in Computer Science.

2.3.1.1. Team composition

Job position	Name
Research	Abdul ahad
Collecting information	Abdul ahad & Mohammad asif
Analyze	Abdul ahad & Mohammad asif
Design	Abdul ahad & Mohammad asif
Implementation	Abdul ahad
Test	Abdul ahad & Mohammad asif

Table 1: Team composition

2.4. Advantages

- It makes the system works faster and safer.
- The students may do registration easily from everywhere and whenever they want.
- It helps us not to spend lots of paper because the papers makes more pollution and spends lots of money.
- By using this system there is no need to have many employees and give them money as their salaries.
- Preventing from data duplication.
- Maintenance of data in a small size and higher safety.
- The users can access the information simply and take the reports.

- All the data is sorted in a specific order.

- More functionality control in transition of sorted data.

- The data is shared between all users.

- Efficient use of hardware.

2.5. Challenges

- We do not have always access to electricity and this system does not work without it.

- Trainer providing needs money because the users' knowledge is not enough and they don't know how to use it.

- The system developing is complex and needs more time.

- Purchasing the hardware and setting the system needs money and is expensive.

- The database damage effects on all parts of the system.

- The cost of system changing from paper base to computer base is too high.

2.6. Work done

2.6.1. information gathering

First we meet some students and asked them that what they want from the system do to work and be better for them. And we meet some end users that what they want and asked them how the current system works to get these information we used some research methods.

2.6.2. Research methods

The research methods that we used in this project:

2.6.2.1. Document review

This method helped us to know that what we are going to do. By using this method we got lots of information about current system like how if does work and how it does take and many thing else.

The documents that we reviewed during our investigation are listed below:

- Card of dormitory members

- Dormitory registration form

- Other students search result

2.6.2.2. Interview

This method also helped us to find the facts about dormitory management system. It helped us to know about the working of current system and what the end users want.

The peoples that we interviewed during our research:

Amir Mohasselan's assistant

He told us first they give each student tow dormitory registration forms to fill them up, then send one for faculty and keep the another one, after receiving the lists from faculties check them all and then send them to ministry via university headship then they receive the list of dormitory members with their cards and send them to their faculties.

Faculty's employee who is responsible for dormitories

He told us that they receive the dormitory registration forms that the students filled them up. Check them all and select the students for dormitory. Then send the list back for Omur Mohasilan. After a few weeks they receive the students' dormitory cards and deliver them to students.

Students

They told us that first they fill the dormitory registration form and wait for a long time. Then they receive their cards and refer to dormitory.

2.6.3. Methodology

We have used the water fall process model for development of our project. This is because we were compel to finish the theses documentation during first semester and the implementation must be done during last semester. To complete the documentation we were compel to collect and analyze the requirements.

2.6.3.1. Software process

A software process is a set of related activities that leads to the production of a software product. These activities may involve the development of software from scratch in a standard programming language like Java or C. However, business applications are not necessarily developed in this way. New business software is now often developed by extending and modifying existing systems or by configuring and integrating off-the-shelf software or system components. [4]

2.6.3.2. Software process model

A software process model is a simplified representation of a software process. Each process model represents a process from a particular perspective, and thus provides only partial information about that process. For example, a process activity model shows the activities and their sequence but may not show the roles of the people involved in these activities. In this section, I introduce a number of very general process models (sometimes called 'process paradigms') and present these from an architectural perspective. That is, we see the framework of the process but not the details of specific activities. These generic models are not definitive descriptions of software processes. Rather, they are abstractions of the process that can be used to explain different approaches to software development. You can think of them as process frameworks that may be extended and adapted to create more specific software engineering processes [5].

2.6.3.3. Waterfall model

Waterfall takes the fundamental process activities of specification, development, validation and evolution and represents them as separate process phases [6].

2.6.4. Requirement analysis

The requirements for a system are the descriptions of what the system should do—the services that it provides and the constraints on its operation. These requirements reflect the needs of customers for a system that serves a certain purpose such as controlling a device, placing an order, or finding information. The process of finding out, analyzing, documenting and checking these services and constraints is called requirements engineering (RE) [7].

2.6.4.1.　Functional requirements

- This system gets the students information from themselves via registration form.
- Allow users to check the information about students.
- Allow users to confirm or reject the application of students'.
- This system has divided the users in labels set them specific privileges.

2.6.4.2.　Nonfunctional requirements

- It has a good and user-friendly interface.
- Working with this system is easy.
- This system increase the speed of works.
- Every user has a username and password to access the system including admin.

2.7. System design

Before going to the detail of the high level design we prefer to say some- thing about the system design.

System design is the process of defining the components, modules, interfaces, and data for a system to satisfy specified requirements. System development is the process of creating or modifying systems, along with the processes, practices, models, and methodologies used to develop them. Core activities in system design and development include developing system-level technical requirements and top-level system designs and assessing the design's ability to meet the system requirements. System- level technical requirements describe the users' needs, and provide information for the finished system to meet legal restrictions, adhere to regulations, and interoperate or integrate effectively with other systems.

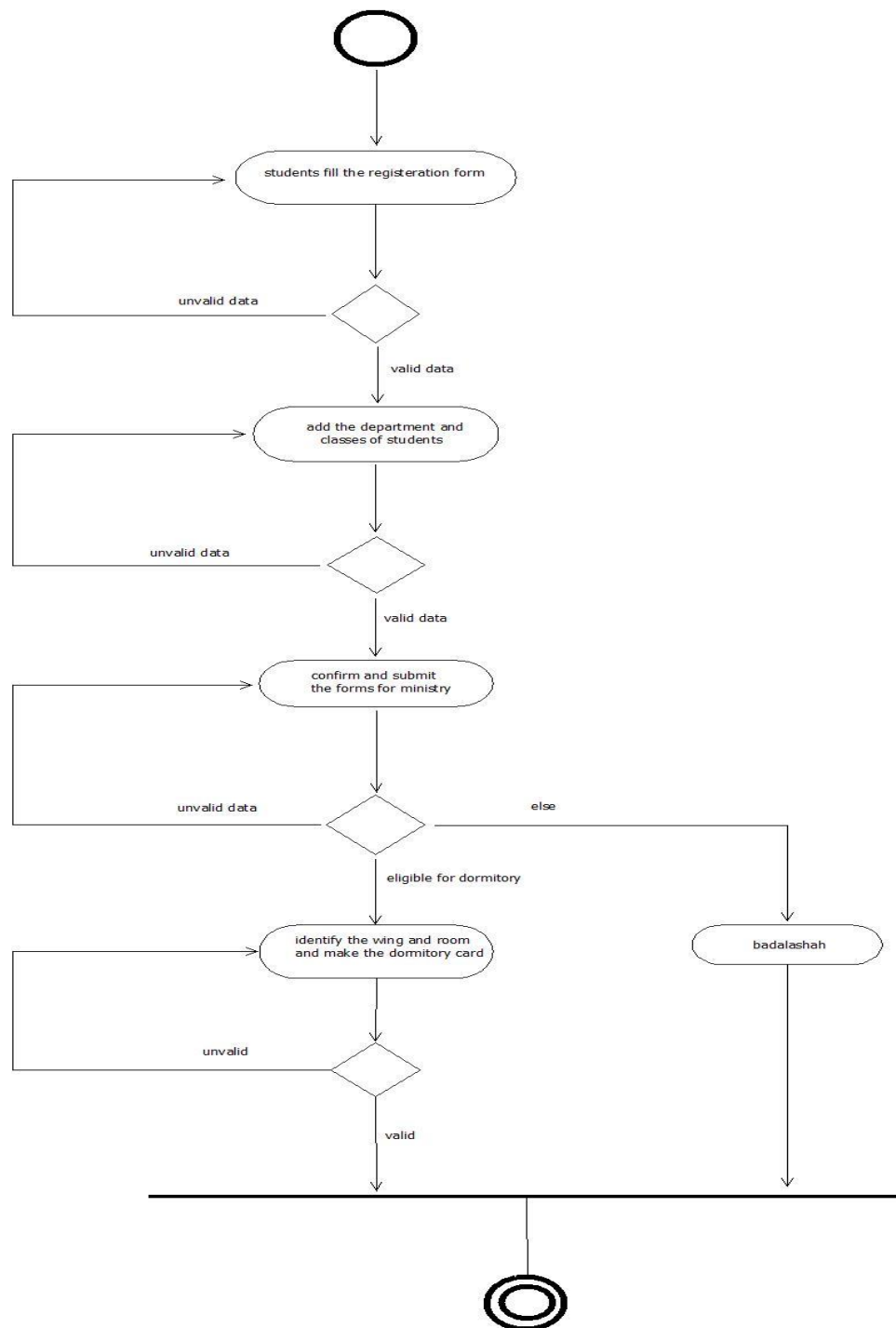## 2.8. Diagrams

2.8.1. Activity diagram

Figure 1 : Activity diagram
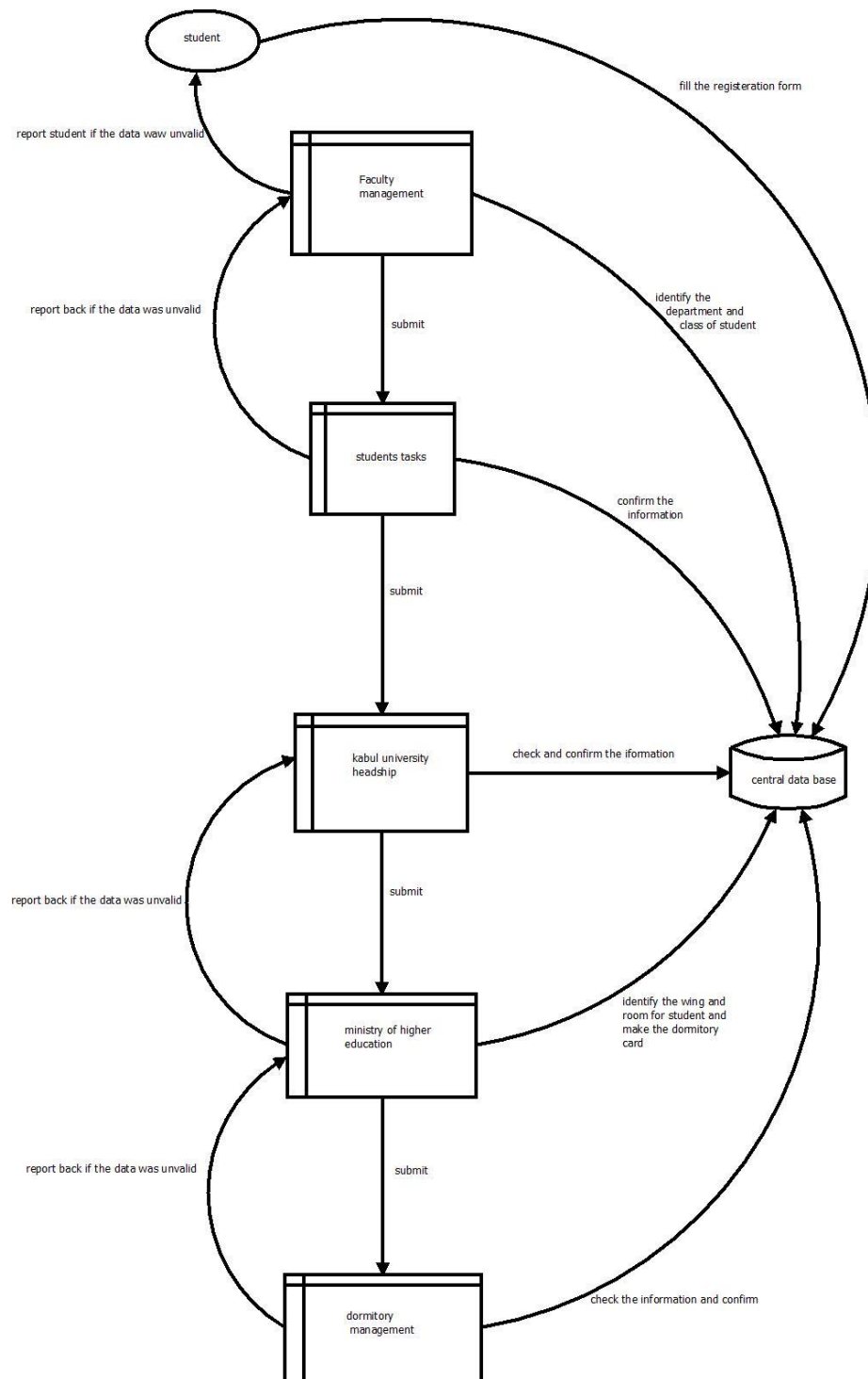
2.8.2. Data flow diagram

Figure 2 : Data flow diagram
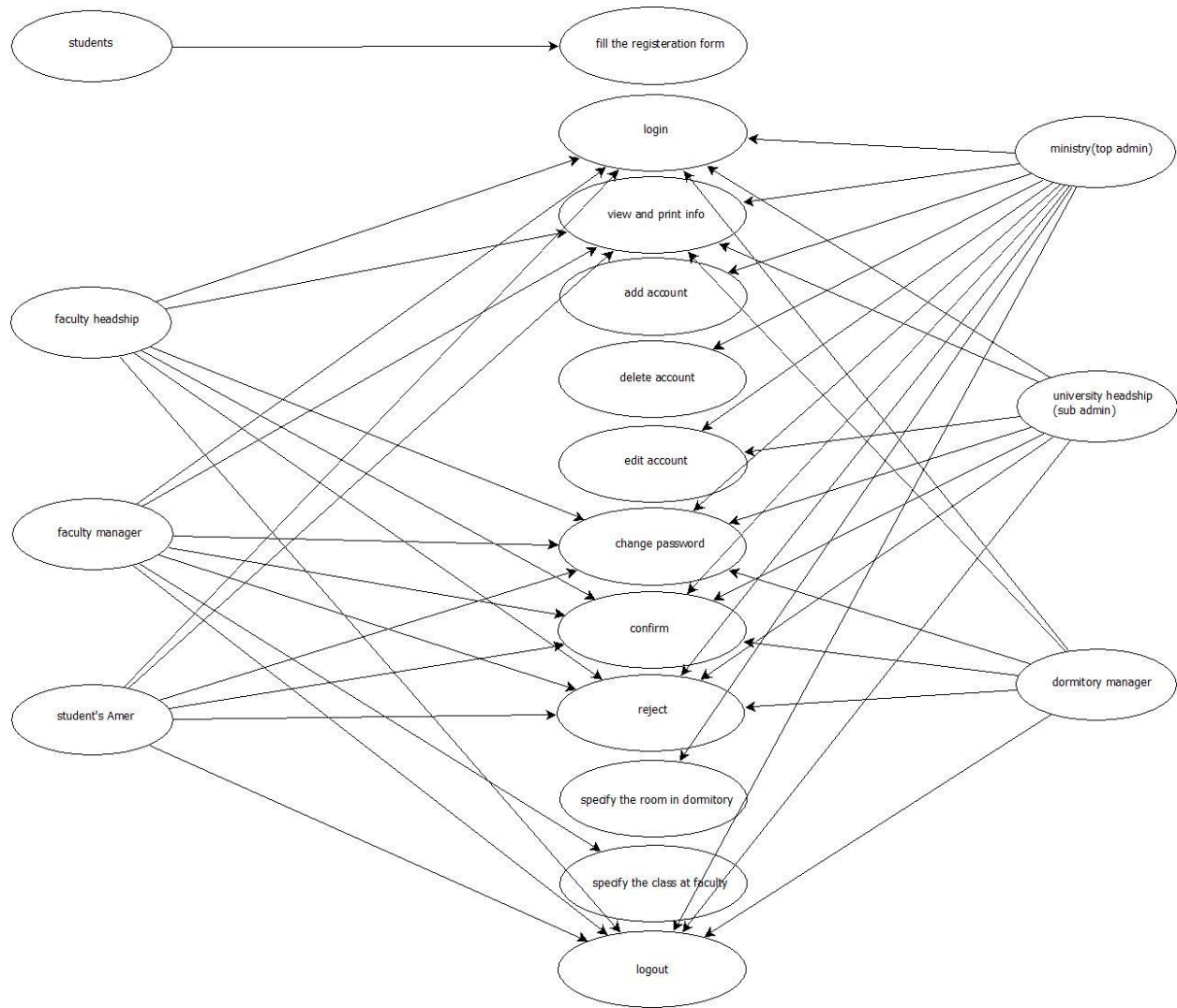
2.8.3. Use case diagram

Figure 3 : Use case diagram

Implementation

3. Implementation

3.1. Front end implementation

3.1.1. Welcome page

When the visitors insert the address of this site this is the welcome page that they see first, then they may click register button to register or if they had account they may click on sign in button to sign in the system.
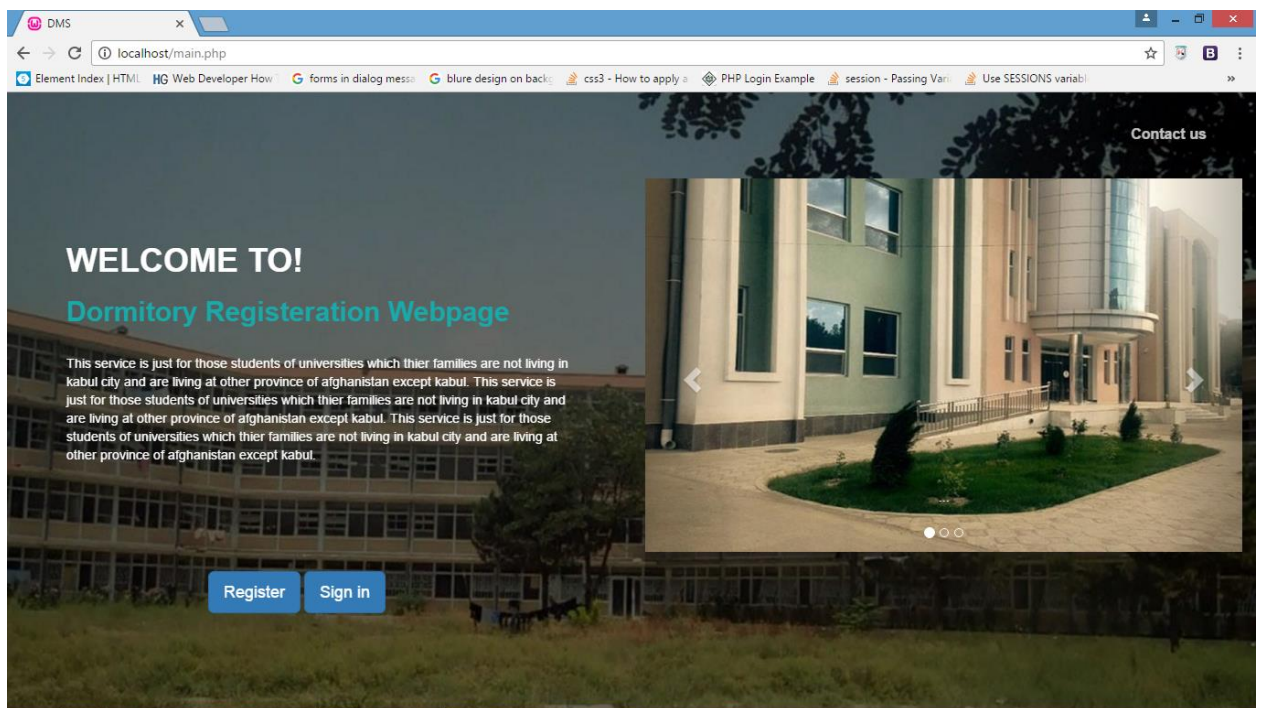

Figure 4 : System welcome page

3.1.2. Login

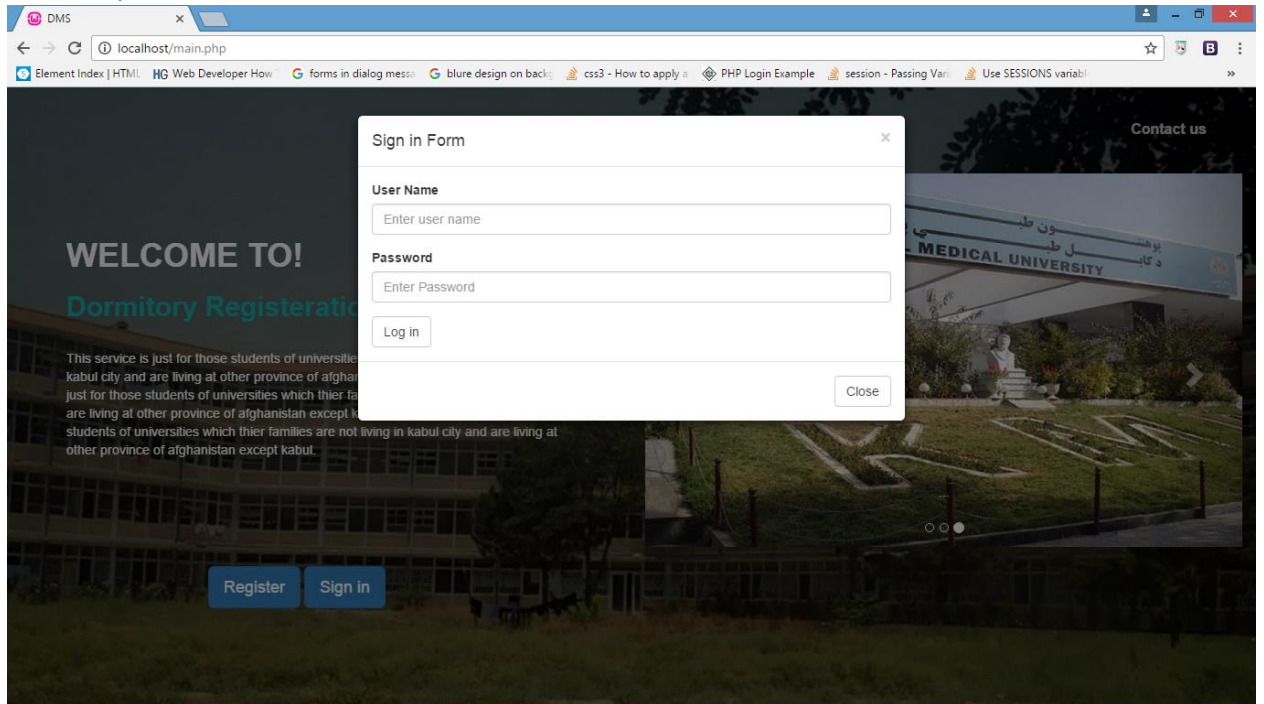The users who has account to the system they may insert to the system using their name and password.

Figure 5 : Login form

3.1.3.Admin dashboard

When the administrator logged in the system this is the page which he/she can see and my do his/her duties.
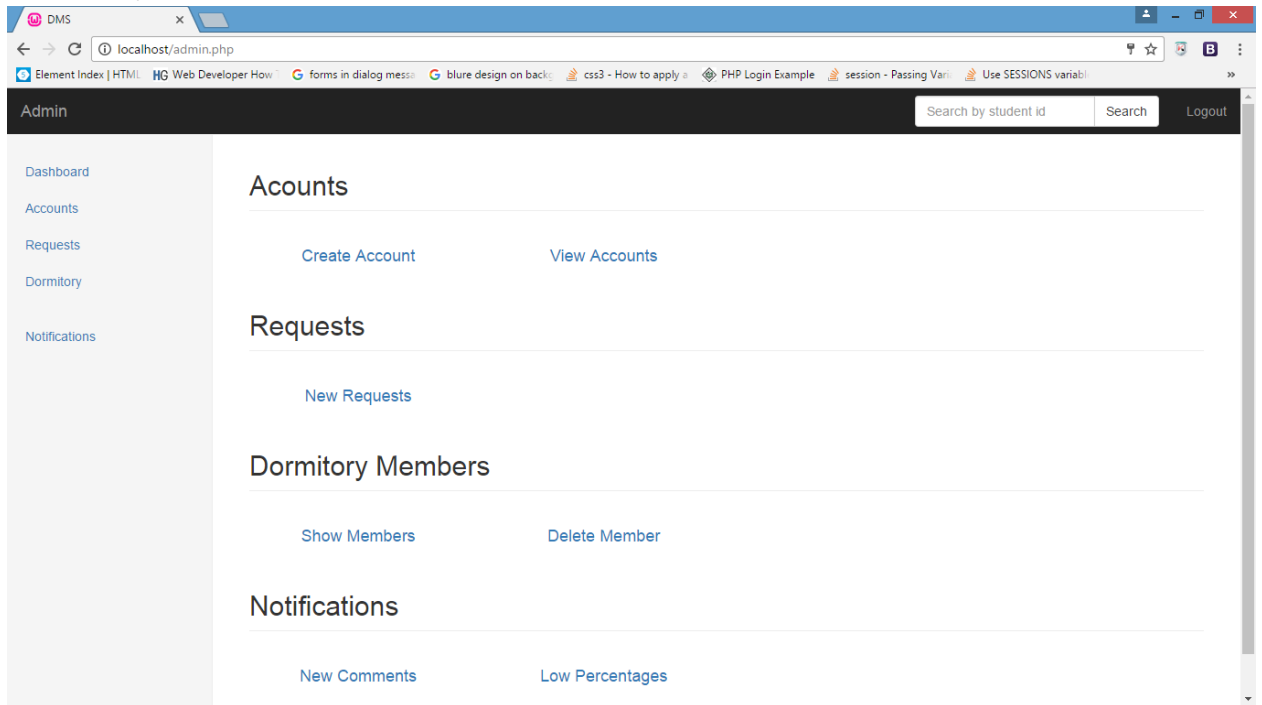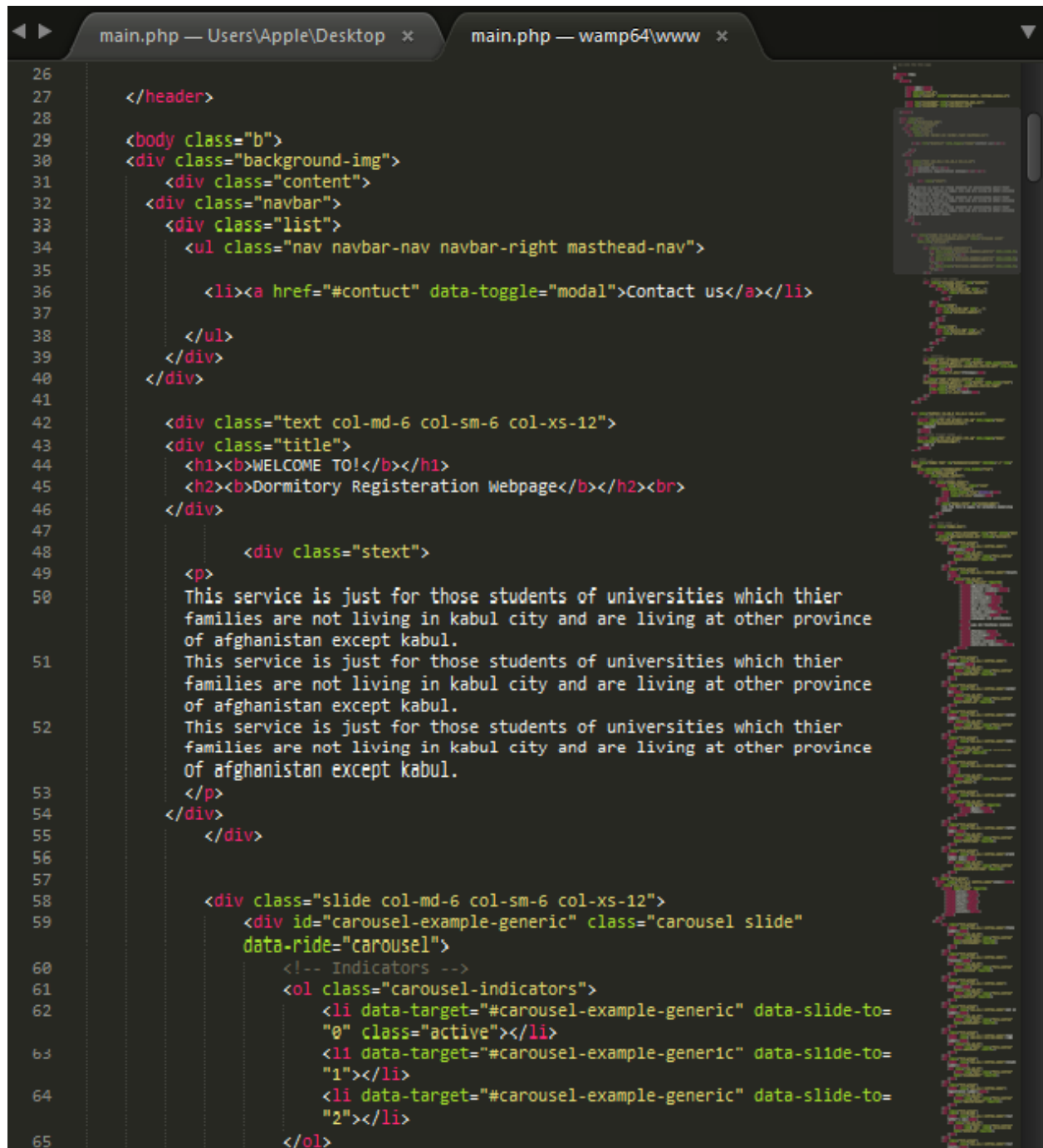

Figure 6 : Admin dashboard

3.2. Back end implementation

This project contains thousands lines of codes which are written in many files that I cannot bring them all here for instance:

```
26
27        </header>
28
29        <body class="b">
30        <div class="background-img">
31            <div class="content">
32          <div class="navbar">
33            <div class="list">
34              <ul class="nav navbar-nav navbar-right masthead-nav">
35
36                  <li><a href="#contuct" data-toggle="modal">Contact us</a></li>
37
38              </ul>
39            </div>
40          </div>
41
42            <div class="text col-md-6 col-sm-6 col-xs-12">
43            <div class="title">
44              <h1><b>WELCOME TO!</b></h1>
45              <h2><b>Dormitory Registeration Webpage</b></h2><br>
46            </div>
47
48                  <div class="stext">
49              <p>
50            This service is just for those students of universities which thier
                 families are not living in kabul city and are living at other province
                 of afghanistan except kabul.
51            This service is just for those students of universities which thier
                 families are not living in kabul city and are living at other province
                 of afghanistan except kabul.
52            This service is just for those students of universities which thier
                 families are not living in kabul city and are living at other province
                 of afghanistan except kabul.
53              </p>
54            </div>
55              </div>
56
57
58              <div class="slide col-md-6 col-sm-6 col-xs-12">
59                  <div id="carousel-example-generic" class="carousel slide"
                  data-ride="carousel">
60                      <!-- Indicators -->
61                      <ol class="carousel-indicators">
62                          <li data-target="#carousel-example-generic" data-slide-to=
                          "0" class="active"></li>
63                          <li data-target="#carousel-example-generic" data-slide-to=
                          "1"></li>
64                          <li data-target="#carousel-example-generic" data-slide-to=
                          "2"></li>
65                      </ol>
```

```
378                     aria-labelledby="myModalLabel" aria-hidden="true">
379                     <div class="modal-dialog">
380                         <div class="modal-content">
381                             <!-- Modal Header -->
382                             <div class="modal-header">
383                                 <button type="button" class="close"
384                                     data-dismiss="modal">
385                                     <span aria-hidden="true">&times;</span>
386                                     <span class="sr-only">Close</span>
387                                 </button>
388                                 <h4 class="modal-title" id="myModalLabel">
389                                     Sign in Form
390                                 </h4>
391                             </div>
392
393                             <!-- Modal Body -->
394                             <div class="modal-body">
395
396                                 <form role="form" method="post" action="
397                                 confirmlogins.php">
397                                     <div class="form-group">
398                                         <label for="exampleInputEmail1">User Name</
398                                         label>
399                                         <input name="username" type="text" class="
399                                         form-control"
400                                             id="exampleInputEmail1" placeholder="
400                                             Enter user name" />
401                                     </div>
402                                     <div class="form-group">
403                                         <label for="exampleInputPassword1">Password</
403                                         label>
404                                         <input name="password" type="password" class="
404                                         form-control"
405                                             id="exampleInputPassword1" placeholder="
405                                             Enter Password"/>
406                                     </div>
407
408                                     <button type="submit" class="btn btn-default" name
408                                     ="submit">Log in</button>
409                                 </form>
410
411
412                             </div>
413
414                             <!-- Modal Footer -->
415                             <div class="modal-footer">
416                                 <button type="button" class="btn btn-default"
417                                     data-dismiss="modal">
418                                     Close
419                                 </button>
420                                 </div>
```

Figure 7 : Part of backend code

And many more.

Future work

4. Future work

    4.1 Users communication

        We are going to improve this system as the users be able to have their own profile and be able to communicate with each other via the system from their profile pages.

    4.2 Badal-e-asha

        One of the most serious problem that the students are face to is badal-e-asha system which is close to dormitory management system.

        We are going to combine these two paper based system and make a single computerized system to perform the same functions.

    4.3 Backup and recovery

        DMS is a centralized system which all data and information are stored in database system. If the system or the database system damaged we would lose many thing. To prevent this problem we are going to add the backup and recovery ability for the system.

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[6] D. Galin, "Integrating quality activities in the project life cycle," in *Software Quality Assurance*, pearson, 2004, p. 123.

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