

CHAPTER V

DEVELOPMENT OF CASE MANAGEMENT SYSTEM FOR AL TAYBAH COURT (CMSAC)

5.0 INTRODUCTION

In the previous chapter4, the user requirements to manage the activities of the online courts such as: (1) administrators activities, (2) lawyers activities, (3) staff activities, and (4) judge activities, were analyzed using questionnaire. The suggestions from the findings show the following main points:

1. All activities need to be processed and managed online in order to save the users time and efforts.
2. The lawyers need to add and investigate the cases online.
3. The staffs need to receive the cases that added by lawyers online and manage the cases systematically.
4. The judges need to manage their cases online after staff processes.
5. The administrators responsible about the technical supporting of the online system such as add/edit accounts.
6. The security issues such as account passwords and data encryption need to be provided efficiently.

In this chapter, the implication of the system will be explained, the functional and non-functional requirements will be analyzed, and the system design will be discussed.

5.1 IMPLICATION OF CASE MANAGEMENT SYSTEM FOR AL-TAYBAH COURT (CMSAC)

The traditional implementation i.e. paper based implementations of courts activities require efforts and time to be managed and processed. Moreover, the expenses of the traditional approaches i.e. paper based approach are high. Besides, the traditional based approaches face many privacy and security challenges such as the papers damaging or losing. Therefore, it is necessary to develop electronic systems to avoid the current challenges of court management systems. However, the many courts actors i.e. lawyers are working outside the courts. Thus, the online management systems considered as efficient solution to all courts actors; judge, staff, administrators, and lawyers.

CMSAC has many advantages over the traditional management systems of courts activities (Richard, 2012). These advantages are as the follows:

- 1- To save the processing time: The court actors i.e. lawyers will process and manage their activities online without the need to visit the court real site.

Scenario: suppose lawyer *X* wants to submit case for court then he needs about 1-2 hours to complete the case registration. Thus, he will leave his/her office for many times daily which delays his/her work continually. CMSAC will provide online registration for the daily cases online. Thus, the lawyer will save 2-4 working hours per day.

- 2- To save the expenses: the expenses requirements such as papers, forms, and stamps will be reduced based online management system.

Scenario: suppose court *X* has 20000 cases, each case need 10 papers to be represented then the court need 200000 papers to represent all cases. CMSAC will provide electronic representation of all cases which reduce the needed papers to 0.

- 3- To maximize the management performance: all activities will be managed automatically through CMSAC. Thus, the management mistakes will be avoided.

Scenario: suppose there are many active cases, and these cases managed traditionally by the employees. The employees may make many mistakes during managing of the cases activities such as writing wrong names or saving case papers in other documents types. CMSAC will manage the cases activities efficiently for best retrieving and inquiring.

- 4- To provide security issues: CMSAC will define the authentication and authority of each actor to access the data systematically and save the papers electronically which protect the data from damaging or losing. Therefore, the data privacy and security challenges will be minimized.

Scenario: *Scenario: suppose a fire occurs in a court that used paper-based system then the cases data will be damaged which requires recollect all the damaged data. On the other hand, case stolen in paper-based system may happen. CMSAC will provide many security functions such as passwords and account authority to save the data from damage or lose.*

- 5- To save the working efforts: the employees working efforts such as paper managing, processing and archiving will be reduced.

Scenario: *suppose the court needs 15 employees to process, manage, and archive the cases based paper system. CMSAC will reduce the employees' number to 5.*

5.2 CASE MANAGEMENT SYSTEM FOR AL-TAYBAH COURT (CMSAC) ANALYSIS

This section will explain the analysis of functional and nonfunctional requirements, and Unified Modeling Language (UML) analysis of CMSAC.

5.2.1 Functional Requirements

The functional requirements are the mandatory requirements that need to be developed in CMSAC. The following are the functional requirements of CMSAC:

1. The CMSAC design needs to be useful and easy to use in order to ensure the users acceptance of CMSAC using.
2. Providing accounts for court actors (administrator, judge, staff, and lawyers): the administrator account could be accessed using fixed username and password, and the password can be changed from the administrators themselves. The usernames and passwords of other actors could be created from administrator accounts and they can change their passwords by themselves after access their accounts.
3. The lawyer could have the permission to complete many tasks; (1) register new case, (2) track the registered own cases, and (3) request the judge reports of cases.
4. The staff could complete many tasks; (1) request register cases by lawyers, (2) add session of cases, (3) assign the proposed judge to cases, (4) and search about the cases,
5. The judge could complete many tasks; (1) confirm the cases sessions (2) updated the cases sessions, (3) search about the owned cases, and (4) provide the final reports of judged cases.

5.2.2 Security Requirements

The security requirements are important and necessary requirements that need to be included in the development phase in CMSAC in order to ensure the privacy and

data security such as confidentiality and integrity. Figure 7 illustrate the security requirements in the proposed system as the following:

1. Each user has permission different from others, meaning that there are four levels for the court actors such as (1) administrator, (2) lawyer, (3) court staff, and (4) judge in order to maintain the system privacy.
2. All actors can access their accounts using standard password (eight digits contain upper and lower letters, numerical, special character, and 8 letters at minimum).
3. The password and files case could be stored in databases using encryption format using MD5 method. The MD5 message-digest algorithm takes as input a message of arbitrary length and produces as output a 128-bit "fingerprint" or "message digest of the input. The MD5 algorithm is intended for digital signature applications, where a large file must be "compressed" in a secure manner before being encrypted with a private (secret) key under a public-key cryptosystem such as RSA (Stallings, 1995).
4. The accounts will logout automatically using session timeout. Thus, the data privacy will be provided due to logout automatically after 15 minutes without any active using of the system.
5. The CMSAC need to have forgotten password processes to allow the users to retrieve their passwords using their emails. Therefore, the account privacy of users will be effective.

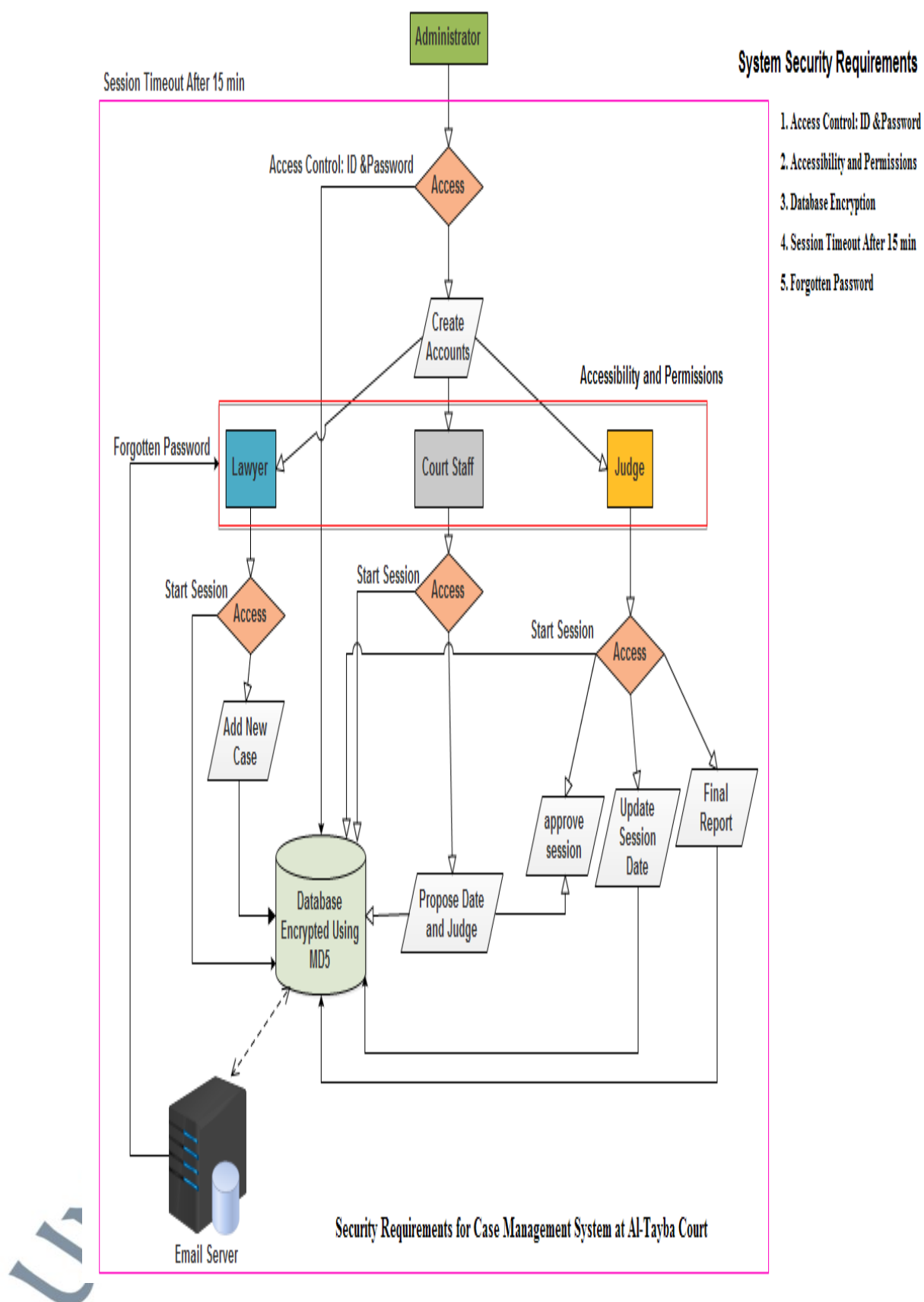


Figure 7: Security Requirements

5.2.3 Non Functional Requirements

The non-functional requirements are supportive requirements to improve the system performance. The following are the nonfunctional requirements of CMSAC:

1. The lawyers, staff, and judges are able to edit their personal information such as passwords, addresses, phone numbers, and emails.
2. The judges and staff can display statistical reports of the pending and judge cases.
3. The users can print the cases reports.
4. The administrators can manage the users' accounts such as delete accounts.
5. The administrators can add/edit another data such as news on the homepage.
6. The CMSAC may have additional pages such as about us and contact us.
7. Design two version of CMSAC (Arabic and English versions).

5.2.4 Unified Modelling Language (UML) Analysis

5.2.4.1 Use Case Analysis

There are 4 main actors in the system; (1) administrator, (2) lawyers, (3) court staff, and (4) Judge. Every user or actor should be active and understand his/her roles in the system.

Figure 8 illustrates the use case diagram of administrator. The administrators are responsible about creating accounts for other users (lawyer, staff and judge). The administrators will login their accounts through correct ID and password that assigned by the system workers. There are many attributes could be assigned to create any new account. The attributes are as the following:

1. User ID and user password in order to allow the users to access their accounts.
2. User name, email and phone to provide efficient real contacts of users. The lawyer address also could be assigned. However the staff and judge address is the court itself. Therefore, it is not necessary to provide their addresses.

Moreover, the administrator can edit and delete the accounts information of the users to provide effective administration processes. The administrator can access the information of any user using the user ID before edit/delete the accounts information.

The editing and deleting processes of specific account will be activated automatically once the administrator adds this account. Thus, the accounts deleting and editing are generalized from accounts adding.

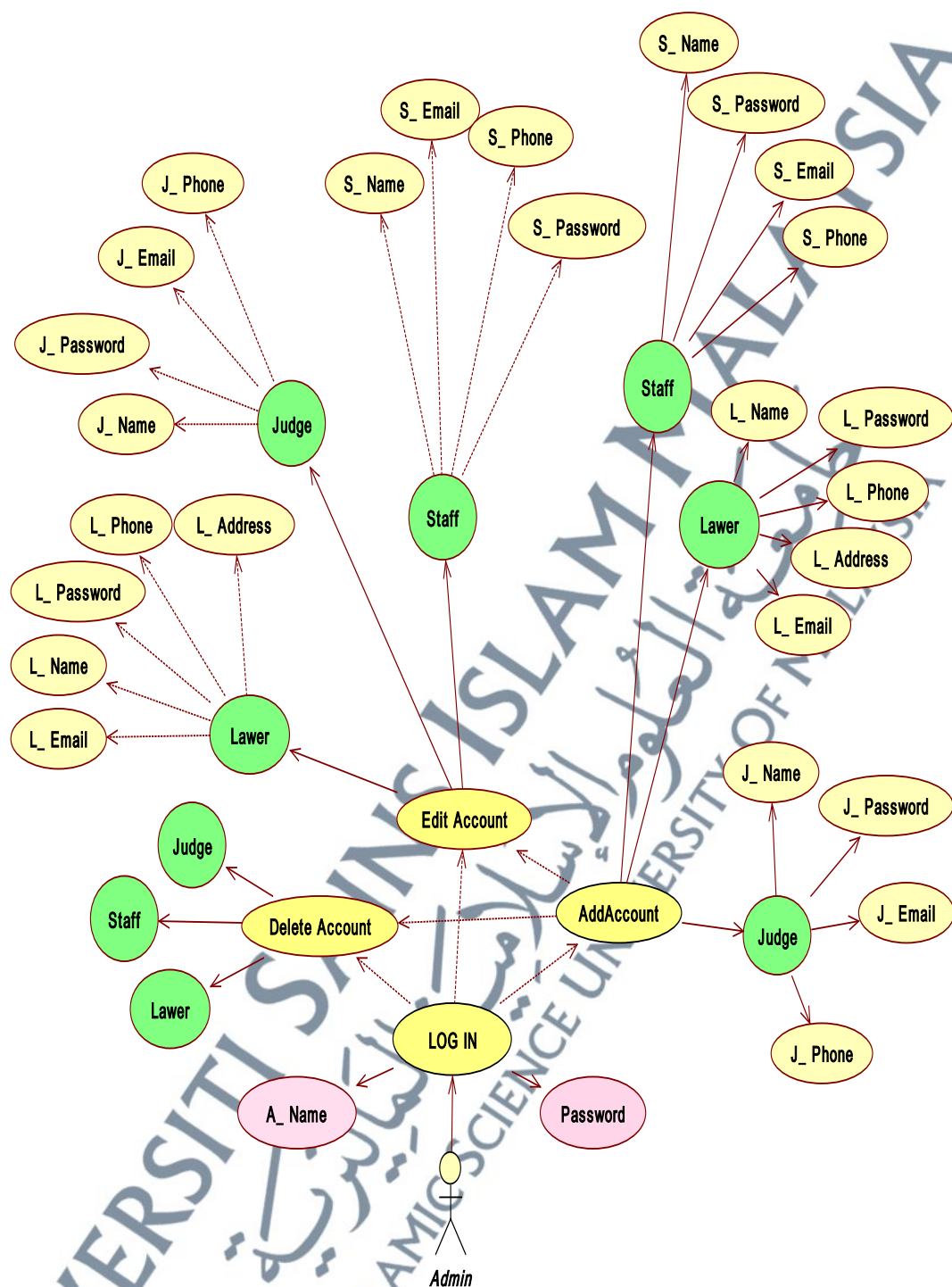


Figure 8: Administrator Use Case Diagram

Figure 9 illustrates the use case diagram of lawyer. The lawyer can login their accounts through providing the ID and password that created by the administrator. The lawyer has many responsibilities which are as the following:

1. Add new case: the lawyer can add new case with many attributes; (1) case ID which represent the tracking ID of case in the system, (2) case type (civil, criminal or financial), (3) case description to clarify the case details, (4) the date of case addition, and (5) the power of attorney to prove that the lawyer responsible about this case.
2. Find cases that previously added: the lawyer can search of the previous cases that added from his/her account using case ID before view or print this case.
3. Request judge reports of his/her cases: the lawyer can request the reports of the judged cases that added from his/her account. There are many forms could be attached by lawyer to request the judge report such as judicial warning, financial guarantee and judicial guarantee.
4. Edit his/her personal information: the lawyer can edit his general personal information such as update the data of password, email, address and phone. However, the lawyer not allowed updating fixed data such as lawyer name or ID.



Figure 9: Lawyer Use Case Diagram

Figure 10 presents the use case diagram of court staff and judge. The staff and judge can access their accounts using correct ID and password. There are many roles of both staff and judge which are as the following:

1. Request new cases from lawyer: the staff request any added case from lawyer and prepare it to be in processes.
2. Assign proposed session: The staffs propose session's dates and judge name for the new cases.

3. Find cases that previously added: both of staff and judge can search of the previous cases that added by lawyers using case ID before view or print this case.
4. View statistical reports of cases: there are three types of cases; criminals, civil, and financial. Both of staff and judge can view statistical reports of all judged or pending cases.
5. Edit personal information: staff and judge can edit their general personal information such as update the data of passwords, emails, phones and addresses.
6. Show the cases: the judge will receive the cases with the proposed sessions that assigned by staff. The judge can update the case session based on his tasks calendar.
7. Prepare final report of judged cases: the judge can prepare the final reports of the judged case before send it to the lawyer.

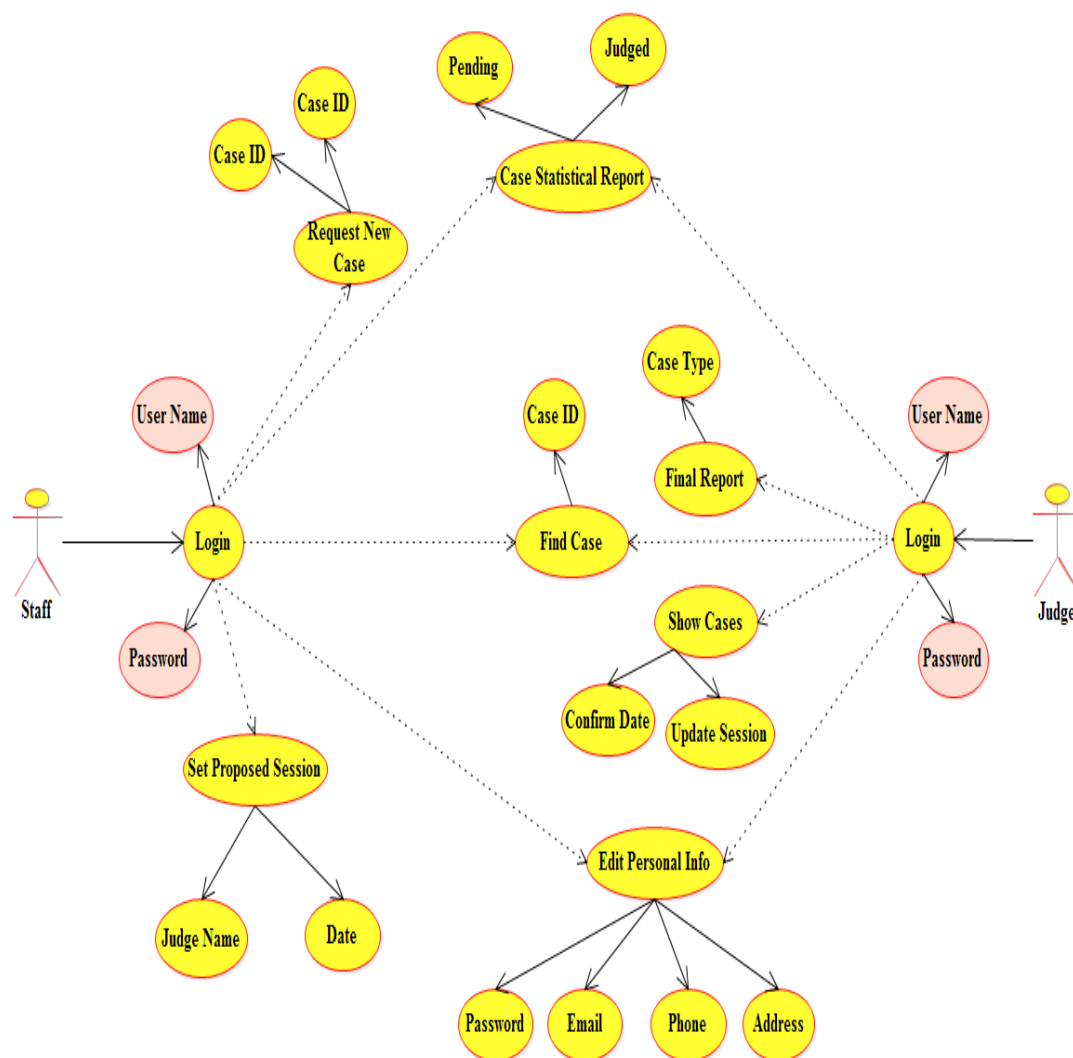


Figure 10: Staff & Judge Use Case Diagram

5.2.4.2 Data Flow Analysis

Figure 11 illustrates the data flow between systems users and database. First of all, the data of all users will be stored in databases by administrators. Secondly, the lawyer will store the case data in database. Thirdly, the staff will retrieve the case data from the database and add the proposed session of the case before store it again in the database. Fourthly, the judge will retrieve the case data that added by lawyer and staff and confirm the store the real session of the case in the database. Consequently, the

case judge session is confirmed. After taking a decision of the case, the judge will store the final reports of cases in the database before retrieve it from the lawyers.

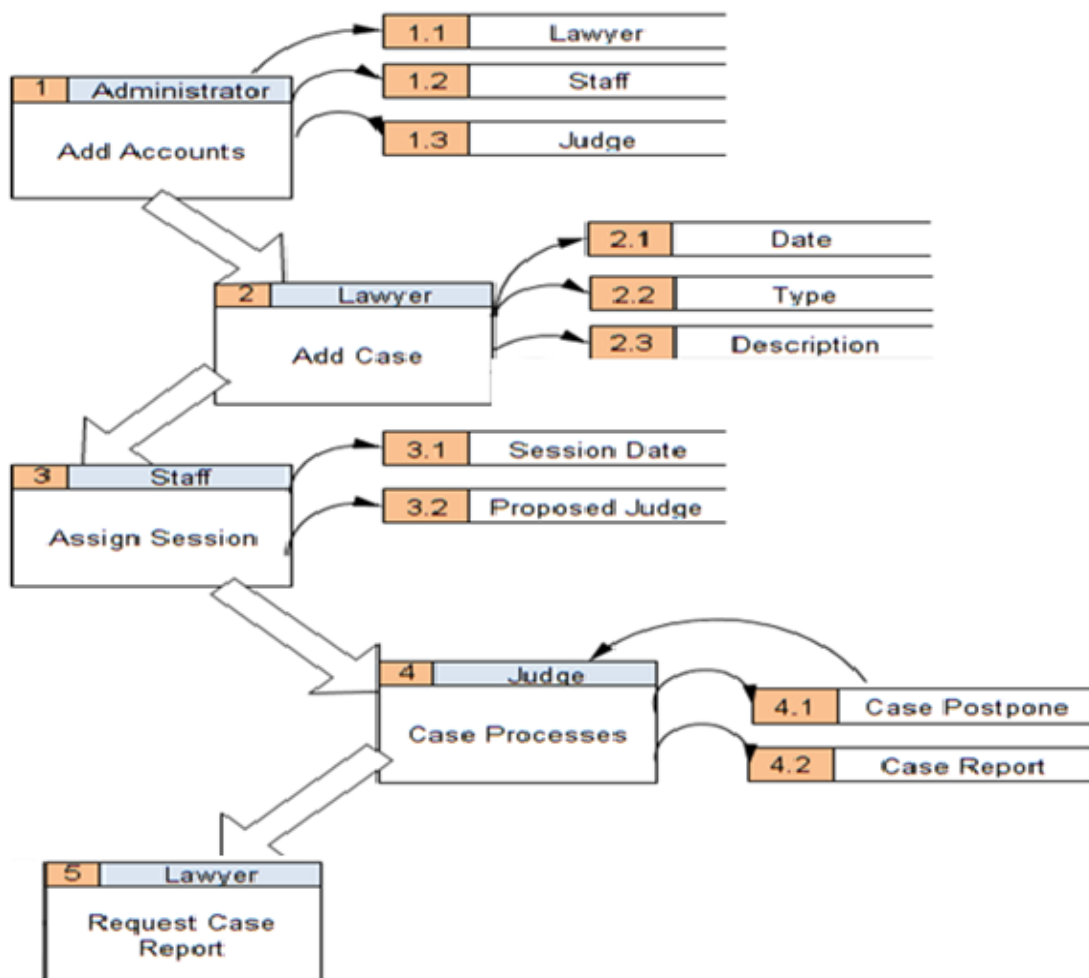


Figure 11: System Dataflow

5.3 CASE MANAGEMENT SYSTEM FOR AL-TAYBAH COURT (CMSAC) DESIGN

This section will discuss the main design of CMSAC; (1) main page, (2) administrator page, (3) lawyer page, (4) staff page, (5) and judge page.

Figure 12 presents the main page of CMSAC which contains about us, contact us, news, and law trails pages in order to provide effective supportive data of CMSAC. Through this page the users can access their accounts using correct username and passwords.



Figure 12: CMSCA Main Page

Figure 13 shows the main page of administrators, the administrators can complete many tasks through their accounts, these tasks are:

- 1- Add new accounts for lawyers, staff and judges.
- 2- Show statistical data about the cases and users.
- 3- Manage the home page data such as news, about us, and contact us data.
- 4- Manage the users' accounts such as editing information and deleting accounts.

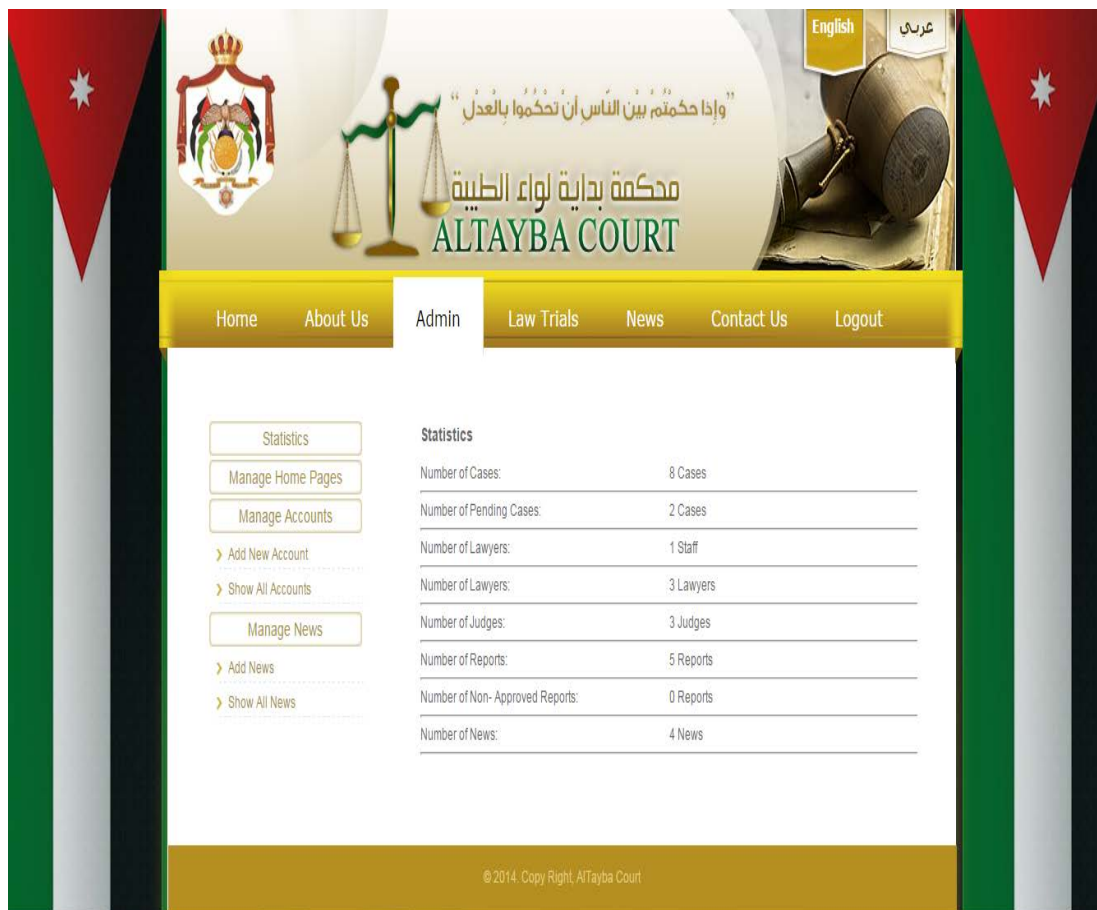


Figure 13: Main Page of Administrators

Figure 14 shows the main page of lawyers. Through their accounts the lawyers can complete the following activities:

1. Register new case
2. Enquire about the cases that owned by current account.
3. Edit the personal information such as passwords, phone numbers, and addresses.
4. Show all owned cases.
5. Request the final judged reports of owned cases.

Figure 14: Main Page of Lawyers

Figure 15 illustrates the main page of court staff. The staff can complete many activities through their accounts which are:

1. Assign sessions to requested cases.
2. Edit the personal information such as passwords and emails.
3. Show the pending and judged cases.
4. Find specific case using query form.

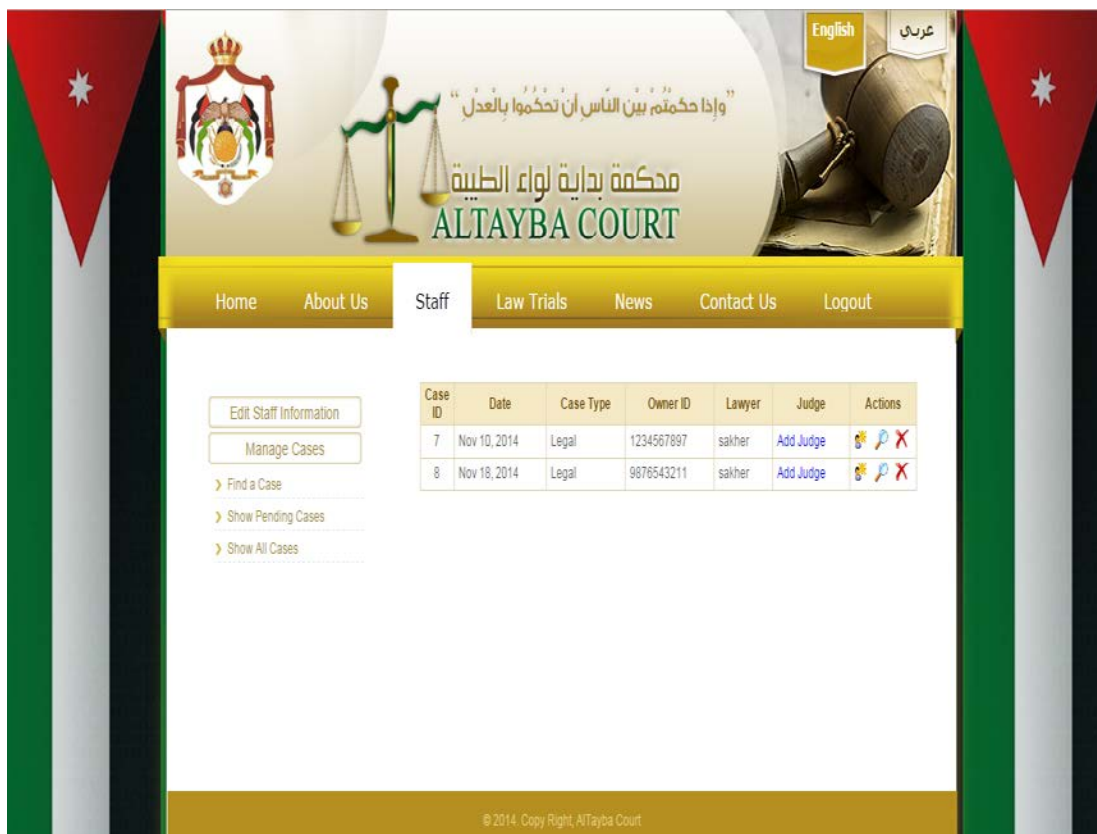


Figure 15: Main Page of Court Staff

Figure 16 presents the main page of judge account. The judges can complete many tasks using their accounts which are:

1. Confirm/ edit the cases sessions.
2. Edit their personal information such as emails and passwords.
3. Enquire about owned cases.
4. Show their pending and judged cases.
5. Provide final reports of judged cases.

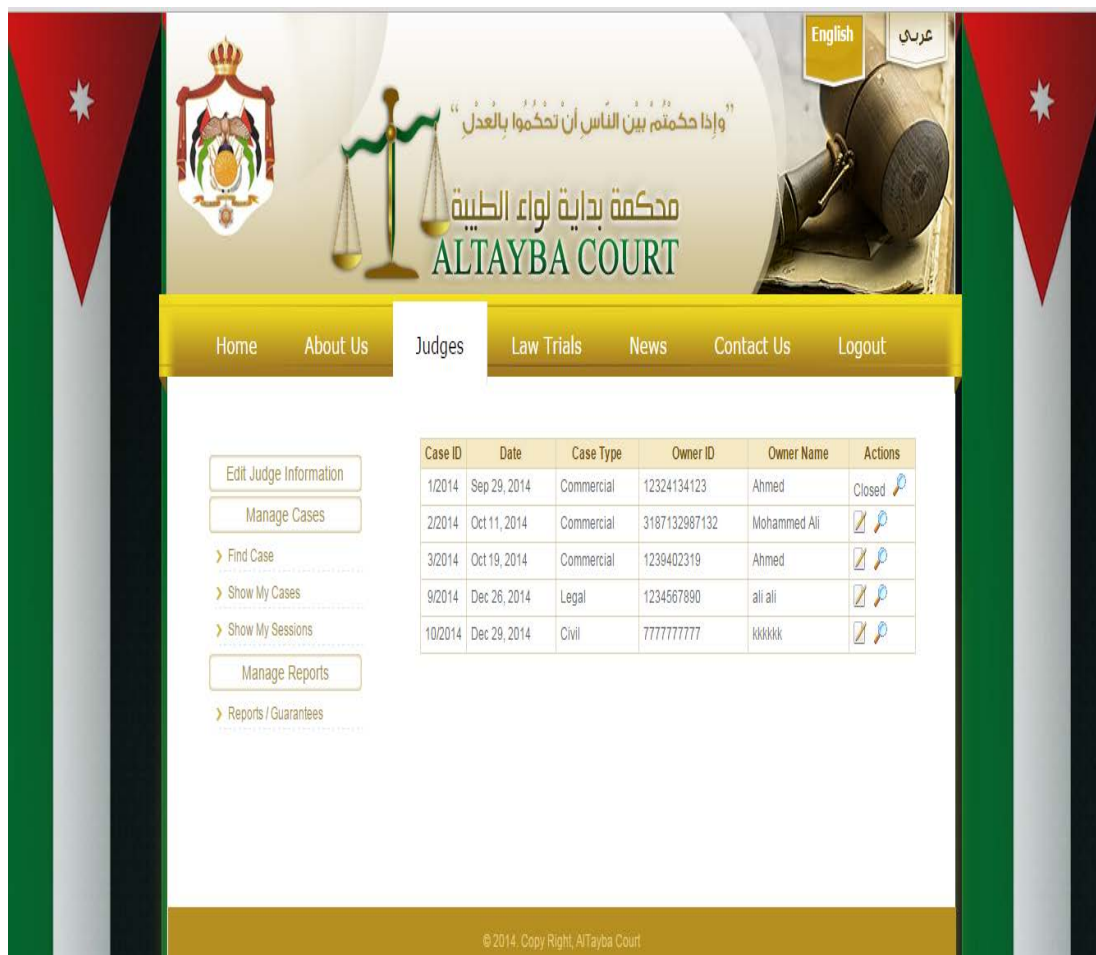


Figure 16: Main Page Judge Account

5.4 PROGRAMMING LANGUAGE OF CASE MANAGEMENT SYSTEMCMSAC

CMSAC was developed using PHP programming language. PHP is a server scripting language, and a powerful tool for making dynamic and interactive Web pages. PHP is a widely-used, free, and efficient alternative to competitors such as Microsoft's ASP (PHP 5 Introduction, 7 October 2014). The PHP programming language is used to develop CMSAC for many reasons as follows:

1. PHP runs on various platforms (Windows, Linux, Unix, Mac OS X, etc.)
2. PHP is compatible with almost all servers used today (Apache, IIS, etc.)

3. PHP supports a wide range of databases
4. PHP is free. Can download it from the official PHP resource.
5. PHP is easy to learn and runs efficiently on the server side

5.5 CHAPTER SUMMARY

This chapter discusses the developing stages of case management system for Al-Tayba court (CMSAC); the implementations of CMSAC functional and nonfunctional requirements, UML analysis, CMSAC design and programming language that used to develop CMSAC. The system considered as efficient solutions to avoid many challenges of the traditional management systems such as time and effort requirements, expenses, and security issues.