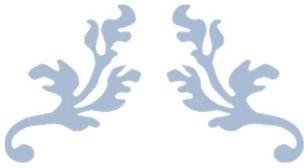


REQUIREMENT ANALYSIS & DESIGN DOCUMENT

GROUP PROJECT I (SCS2102/IS2002)

GROUP 1

Contents

Acknowledgment

In preparing the Requirement Analysis & Design Document, we had to take the help and guidance of some respected persons, who deserve our greatest gratitude. We would like to show our gratitude to our supervisor Dr. D. N. Ranasinghe for giving us a good guideline for this project. We would also like to extend our gratitude to our two mentors, Mr. R. N. Rajapaksha and Mr. S. A. Karunarathna. We would also like to expand our deepest gratitude to all those who have directly and indirectly guided us in writing this assignment.

1 Introduction

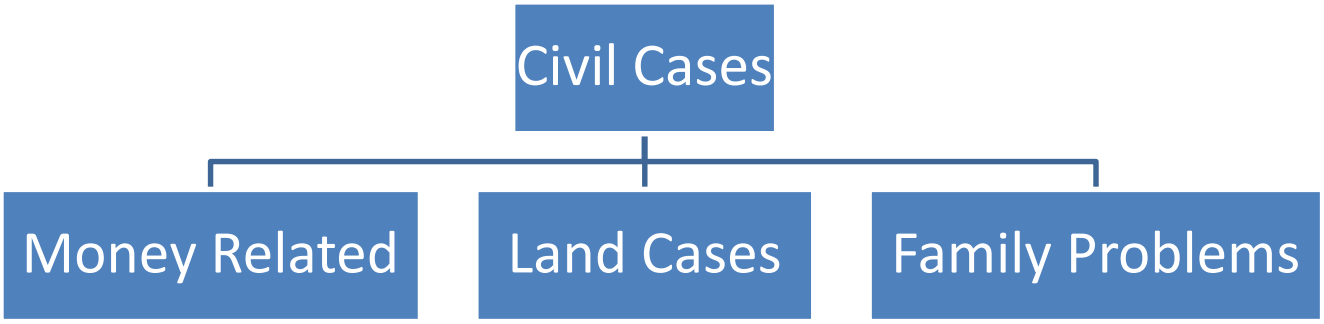
1.1 Domain Description

Project Title: Court Case Handling System

Alternative Title: CCHS

Client: Registrar of Colombo District Courts

Colombo District Courts handles civil cases. The types of cases that come under civil cases can be divided into 3 broad categories.



- Money recovery and hire purchase cases are categorized under money related cases, divorce cases come under family problems and cases regarding the ownership of lands come under land cases.
- Out of all cases types, a large number of money related cases are examined. They are the most important type of cases, having a complicated procedure. Our client requested for a system which will assist the court staff with money related cases.
- Nowadays Colombo District Court faces a problem with a lot of money related cases pending to be heard. The delay in the court process has an effect on the country's economics. With the increasing number of cases each year, court staff finds it difficult to handle cases. Therefore, we decided to develop CCHS, to handle money related cases of Colombo District Courts.

- We studied the best practices from Australia, Singapore, Italy and United Kingdom in applying software development to their court systems.

Australia: Australian judiciary has established an e-court which consists of Electronic Courtrooms and Electronic Filing. The Electronic Courtrooms provide electronic process and dial-in access for all parties. In addition, they call audio evidence in digital format. E-Filing helps during administrative purposes.

Singapore: Case management service converts paper documents into an electronic form. This service allows lawyers to file all documents electronically via the web-based front-end system. The courts also have the service to support the law firms or litigants-in-person who do not own computers.

Italy: The XML and the structure of judicial documents project provides the current standard for structuring and exchanging of documents between a drafting system and an information retrieval system.
The electronic transmission of judicial documents project is concerned with the requests of information, exchange of messages and documents between the court and the parties in the transmission of digitally signed e-mail. The tasks also include collecting the court fee through credit cards.

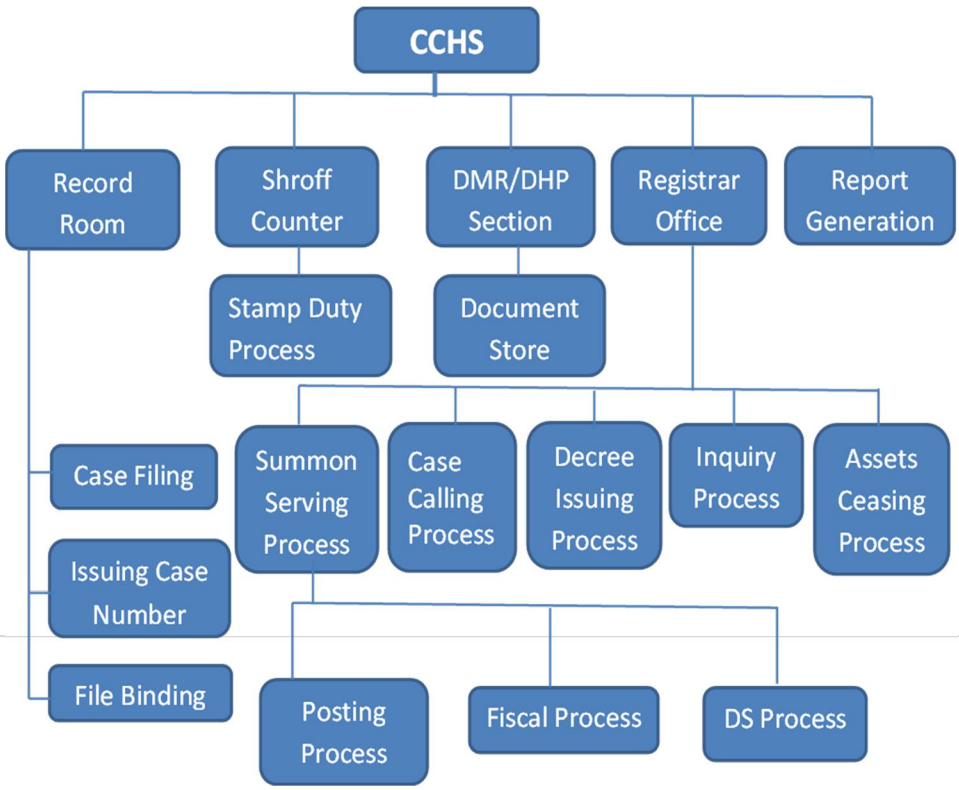
United Kingdom: The day to day administrative tasks in the courts can be managed using IT court services. Document file management and data tracking are conducted effectively under the judicial case management system.

After observing the best practice cases around the world, we could get a clear idea about what the final product of CCHS should be like.

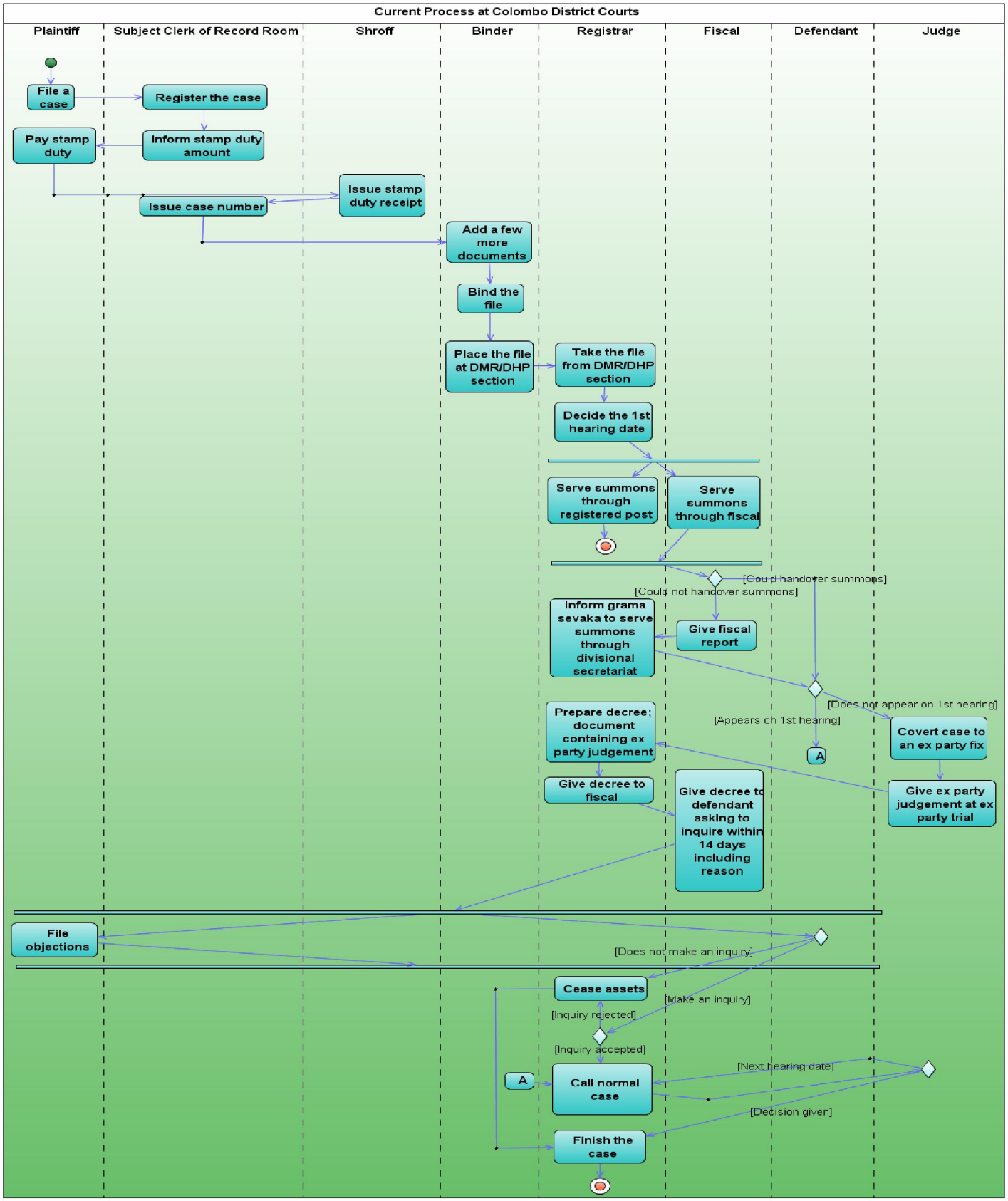
1.2 Current System & its Limitations

Overall manual process

- Organization of the current system (manual) at the Colombo District Court is as follows.



- In the following activity diagram with swim lanes, there are 8 roles involved: Plaintiff, subject clerk of record room, Shroff, binder, registrar, fiscal, defendant, and judge.



Reports

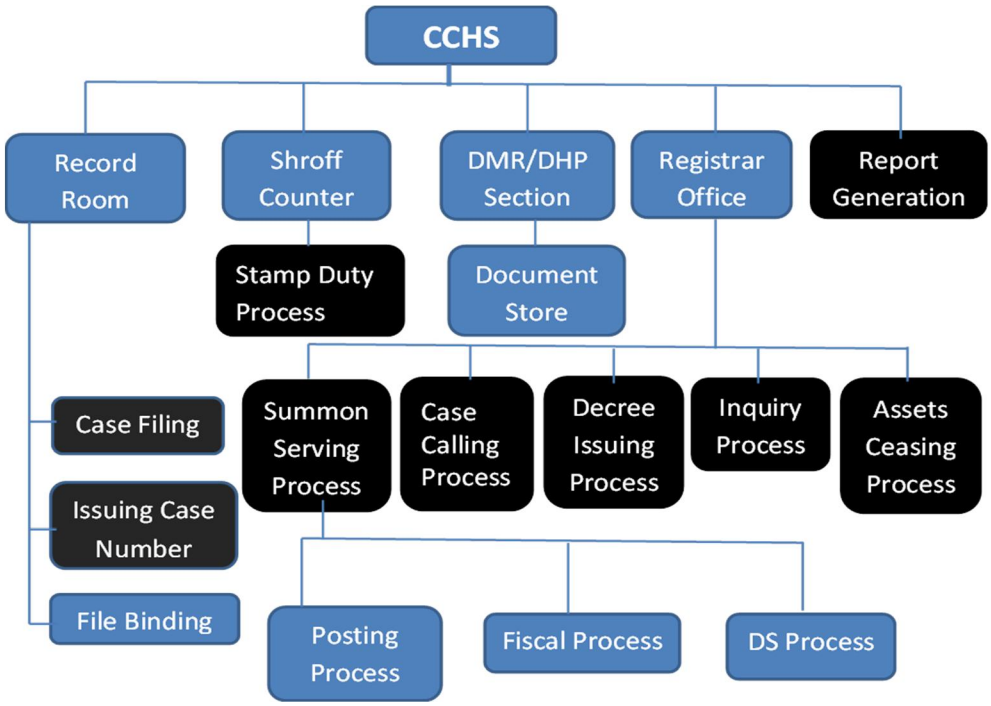
- Interpreter prepares 2 types of reports on behalf of the judge.
  (I) Statistical Report –
    - Contains a summary of number of cases, number of cases where decision was given, number of new cases.
    - This is prepared monthly, quarterly and annually.

  (II) Decision report –
    - Contains copies of all decisions made by each judge.
- Registrar checks every report and sends it to the Judicial Services Commission.

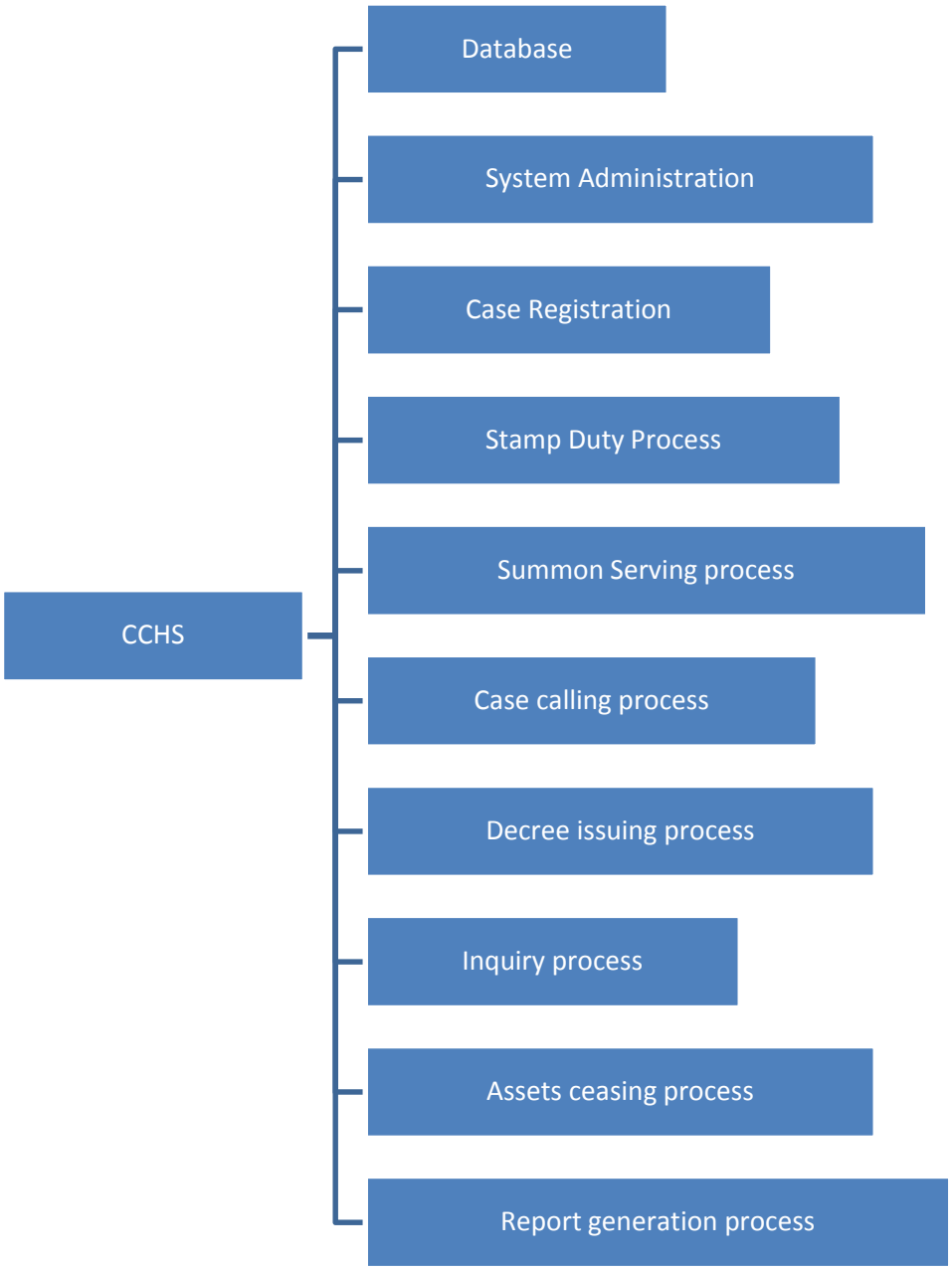
Limitations

Currently, the process takes place manually and during our visit to the Colombo District Court we could see a large number of case files. With the increasing number of court cases the staff finds it difficult to find case files quickly when they are needed. The staff also mentioned us about their experiences regarding case file loss at unexpected situations. Court staff complained that report preparation is a time consuming and difficult task.

1.3 Scope



- Processes in black rectangles will be automated by CCHS.
- When the current system (which is a manual system) is automated, file binding and storing of documents will be eliminated.
- In the summon serving process, 2 copies of the summon will be taken as printouts and one will be handed over to the fiscal and other one will be posted. Therefore, sub processes under summon serving process will not be automated.
- The following diagram depicts the organization of the proposed system.



1.4 Goals / Objectives

- ***Goal of CCHS is*** – Automation of court proceeding to help litigants, lawyers and office staff, rather than making soft copies of case files and fully automation. Finally, and most importantly, CCHS will improve the efficiency of case management process in terms of correctness and accuracy of data as well as time.

- ***Objectives of CCHS are*** –
    - Automation of court proceedings.
    - Provide service to all stake holders in minimum time.
    - Provide ability to quickly search for and retrieve administrative information.
    - Provide services in a cost effective manner.
    - Maintain soft copy of documents (backup purpose); this objective will be reached only if time permits.

1.5 Assumptions, Constraints & Limitations

Assumptions:

- Court staff will continue to use the existing manual system along with CCHS after its implementation. We assume that court staff will provide details required by CCHS throughout the entire process along with the existing manual system.
- We assume that our client will establish the required LAN (Local Area Network) before implementing the CCHS.
- We assume that the court staff could be trained completely before implementing the system. We wish to motivate them to get the required computer training quickly. Interfaces of CCHS will be developed in a user friendly manner. So court staff will quickly get adapted to CCHS. We hope that it will not be a difficult task due to the high level of enthusiasm among the staff to get used to a computerized system.

Constraints & Limitations:

- Main user of CCHS is the registrar. Due to the inability to recruit a new employee as a system administrator we wish to train the registrar to perform system administration tasks. But since the registrar is a non-technical employee, training of registrar as a system administrator imposes a constraint. As a solution we wish to train the registrar at the first place and if she is not capable we will discuss regarding the recruitment of a system administrator.
- Establishing the security of data is a limitation in CCHS. As a solution we wish to limit database access to authorized persons by imposing privilege levels. In the future we hope to use data encryption and utilize a digital signature system.
- Since the court staff has never used a computerized system the limitation of them getting used to the new system exists. In order to increase their motivation other than training them we wish to motivate them through the registrar.

2 Feasibility study

2.1 Purpose

In Software Engineering, a Feasibility Study Report aims to objectively and rationally identify the strengths and weaknesses of any proposed system, for an existing business or a new venture. Generally, there are several Candidate Solutions presented as solutions for such systems, but all of those systems can't be implemented, we have to pick the best solution that is well suited for the business in a technical way. This Technical way of picking the best solution is what is done in a Feasibility Study alongside other tasks of Costs and Benefits analysis of the selected system.

The way in which the best solution is picked in the Feasibility Study is, first all of the proposed Candidate Solutions are listed, and then they are being compared with one another against some special criteria. These criteria are,

Operational feasibility: This criterion is to measure of how well a solution meets the identified system requirements to solve the problems and take advantage of the opportunities envisioned for the system.

Cultural feasibility: A measure of how the end-users/people feel about the proposed system and how it will be accepted in given organizational climate.

Technical feasibility: This gives measure of the practicality of a technical solution and the availability of technical resources and expertise to implement and maintain the system.

Schedule feasibility: This is to verify whether the system will be useful by the time it's completed and the deadlines reasonable or required are checked too.

Economic feasibility: What positive economic benefits the system will provide the client is verified under this criterion.

Legal feasibility: This criterion will measure how well solutions will be implemented within contractual obligations and existing legal and etc. Then a weight is given to each system, similar to a score, for their comparison results against these criteria. Then the system with the highest overall weight is selected.

A Cost-benefit analysis for the selected solution will be done afterward. In that analysis, how much the system costs and what benefits the system provide will be identified. Basically the main criteria the judge Feasibility cost required and benefits earned.

We are planning to automate some major processes of the county court. This feasibility study was done to select the best solution in order to make sure that the project (Court Case Handling System) is practical and feasible in the above every mentioned aspect.

2.2 Project Overview

Our goal is to automate the major processes of the court system so that the life of the court staff would be much easier. Followings are the reasons why we are going to automate those processes.

- Currently, the process takes place manually
- Large number of files with large number of documents
- Increasing number of court cases
- Difficult data retrieval
- Data loss at unexpected situations
- Time consuming and costly
- Report generation

2.3 Proposed Candidate Solutions

Candidate 1

Stand-alone System:
This is a stand-alone system consists computer hardware and related details of the court cases which are stored in a single computer. All the requested functional requirements could be covered but only by using that computer, however, in real world, all the system users cannot share the same computer so some user requirements are impossible to be covered.

Candidate 2

Local Area Network:
This is a Local Area Network (LAN) and offers a wider scope than the standalone system. This will connect all the hardware components at the working place, which means, all the terminal computers will be connected to a server computer.

Candidate 3

Web Based System:
This will be a web based information system which is running on a server at Colombo District Courts. This will connect all the ultimate system users and the relevant hardware components by forming a network across World Wide Web. The system will be implemented using PHP and SQL. Any authorized user can access the system at any given time from anywhere since the physical location of the user won't be a matter when it comes to the World Wide Web.

Candidate 4

The Existing Manual System:
This is the currently existing manual system in which the court staff has to manually write the case details in case files and to do all the tasks regarding those case files manually.

2.4 Feasibility Analysis Matrix

	Weight	Candidate 1	Candidate 2	Candidate 3	Candidate 4
Operational feasibility	25%	Highly secured. Do not support some major user requirements including deciding the first hearing date, calculating stamp duty and issuing the receipt. Score - 60	Moderately secured. Supports all user requirements including case registration, summon serving, issuing decree, stamp duty calculations and issuing of the receipts, updates of the case details and handling fiscal reports Score - 100	Not much secured. Supports all user requirements including case registration, summon serving, issuing decree, stamp duty calculations and issuing of the receipts, updates of the case details and handling fiscal reports Score - 90	Moderately secured. Some major functions like report generation are not achievable. Score - 70
Cultural feasibility	15%	Since this standalone system is used by a system administrator (most probably the subject clerk of record room) who deals with all the functionalities of the system, it is hard to train a single person to handle all those activities. Score - 50	Although the users are not familiar with technology, there will be no big issue in adapting to the system because the staff is so much enthusiastic about the system and is willing to get adapted so that their lives would be much easier. And one person will deal with only little functionality, not all the functionalities. However a mandatory training is required. Score - 75	Although the users are not familiar with technology, there will be no big issue in adapting to the system because the staff is so much enthusiastic about the system and is willing to get adapted so that their lives would be much easier. And one person will deal with only little functionality, not all the functionalities. However a mandatory training is required. Score - 75	It is not easy to write down everything by hand and it makes the court staff slows down. It's very time and effort consuming when dealing with the system requirements manually. Staff directly rejects this. Score – 20

Technical feasibility	**20%**	**Microsoft Visual C# Computer with P IV or higher processor. The development team members' knowledge in Microsoft Visual C# is not good enough. Score - 60**	**Java SE, MySQL Server Computer with P IV or higher processor and LAN connection cables. All members of development team have good knowledge in MySQL and a moderate knowledge in Java SE. Score - 80**	**Java SE, MySQL Server Computer with P IV or higher processor and LAN connection cables. All members of development team have good knowledge in MySQL and a moderate knowledge in Java SE. Since this connects with the WWW, the protection of data cannot be much ensured. Score - 75**	**System already exists. Score – 100**

Economic feasibility	**15%**	**Microsoft Visual C# purchase cost 150,000Rs. Computer with intel core i5 or higher processor Score - 20**	**No software purchasing costs, Since all the software that uses develop the system are open source. Computer with intel core i5 or higher processor LAN connectors will add extra costs. No coding cost. No training cost. Score - 70**	**No software purchasing costs, since all the software that use develop the system are open source. Computer with intel core i5 or higher processor. No coding cost. No training cost. Score - 80**	**Maintain cost – Less than 5,000Rs per year. Score – 90**
Legal feasibility	**20%**	**There is a risk of data privacy and confidentiality due to existence of a Database. Other than that there are no legal issues. Score - 90**	**There is a risk of data privacy and confidentiality due to existence of a Database. Other than that there are no legal issues. Score - 90**	**The system is always connected to the internet, So it increases the threat to privacy and confidentiality compared to candidate 1 Score-70**	**The confidential information could be leaked out more easily in certain circumstances due to the acts of court staff members. Score – 60**
Schedule feasibility	**5%**	**The system is expected to be developed by the end of November 2016. This has higher schedule feasibility due to simplicity and conventional nature of the system Score - 90**	**The system is expected to be developed by the end of December 2016. The deadlines are quite reasonable and challenging to achieve. Score - 80**	**The system is expected to be developed by the end of December 2016. The deadlines are quite reasonable and challenging to achieve. Score - 80**	**System already exists. Score – 100**
Weighted score	**100%**	**63.75%**	**82.25%**	**78.75%**	**71%**

2.5 Selecting the best solution

As above seen, we have compared the four Candidate Solutions with one another against feasibility Criteria of, operational feasibility, cultural feasibility, technical feasibility, schedule feasibility, economic feasibility and legal feasibility. Even if there are many more Feasibility Criteria, as this system is not a very large project; we decided these few criteria will pick us the best solution out of the four.

The four solutions have earned overall weights as,

Candidate 1: 63.75%
Candidate 2: 82.25%
Candidate 3: 78.75%
Candidate 4: 71%

So, Candidate 2; Local Area Network system which will be implemented using JAVA SE and MySQL, with an overall highest weight of 82.25% is been selected as the best solution out of the lot. The rest of the steps in this Feasibility Study are done in regard of this selected candidate, Candidate 2.

Operational Feasibility

Proposed CCHS will be addressing all the requested requirements of the client. The system is ready to provide reports which were not requested by the client but will be useful for the court staff. By automating the current manual procedure, the court cases will be handled more easily with extra security and care. And also the time and effort would be lesser than before with the implementation of the system so that the proposed system will be extremely beneficial for the court staff. These reasons prove that the CCHS is operationally feasible.

Cultural Feasibility

In court, since currently most of the processes are done manually, the whole department is a mess full of files and other documentation and a lot of time and effort is needed to complete a particular task inside the department. A case file has a large number of documents and the required storage space for the case files is large. Since the number of cases is increasing day by day, the number of files is increasing and the storage space required as well. Court staff finds it very difficult to handle the large number of case files manually.

Although the staff doesn't currently deal with computers and technology but follows a manual procedure, after our team's explanation about the CCHS and its advantages, they are willing to adjust themselves to use an automated system.

Working with automated system will not be an issue as long as the staff receives a proper training with demonstrations.

Technical Feasibility

Today, technology is broad and can be easily obtained. Consequently, technical feasibility looks at what is practical and reasonable.

We are going to develop a court case handling system. Java SE will be used for the development purposes of the system. The database management system which we are going to use is MySQL and the report generation tool will be JasperReports.

All of these technologies are proven mature enough to be used in our system development and they have a large customer base for obtaining advice concerning problems and improvements.

Above mentioned technologies are free and open source.

Furthermore, these technologies are free and easy to learn and use. The system developers and programmers have sufficient skills needed to handle these technologies and there are many resources available to take advices and help in order to resolve problems encountered regarding these technologies, so that the learning procedure of these technologies will not impact the schedule of the project at all.

Schedule Feasibility

The schedule feasibility shows the realistic estimated time frame to complete the project successfully. This schedule feasibility includes the schedule of each step throughout the total project time. A schedule will not be feasible if we don't allocate sufficient time for each step we are going to follow. Without considering operational, technical and economical feasibilities we cannot calculate the schedule feasibility accurately. Therefore, firstly we had to study all the above mentioned feasibilities thoroughly and then we came to a conclusion about realistic time frame for our project.

Since the project has a total time period of one year and has some mandatory deadlines, we analyzed the feasibility of our project schedule based on following aspects.

1. **How long will it take to get the technical expertise?**

Before the design and development stages of the system, we planned to gain basic technical knowledge we will need. Rest of the technical knowledge will be gained as the project goes on.

2. **Did we take in to account, the national holidays and weekends?**
   Yes. We are planning to work on holidays and weekends and those are included in the project schedule as well.

3. **What are the real constraints on project deadlines (mandatory /desirable)?**
   From the client's perspective, we do not have mandatory deadlines. Client is really supportive towards our project, since this is a learning project and the court will be having a lot of advantages from the ultimate system. But UCSC has placed a mandatory deadline on the project so we have planned the project life time within that given time period.

4. **Can the solution be designed and implemented within an acceptable time period?**
   Yes. The requested requirements of the client can be implemented within the given time period, according to the project schedule.

Economic Feasibility

Implementation of this system will not be focused on financial profits. And we will be using free and open source software so there will be no costs regarding technologies. No contract programmers will be hired and the coding will be done by the students so there won't be any costs from the coding aspect. Because of these reasons, the costs which will be incurred at the development stage will be less, more likely none.

However, during the implementation stage, the centralised server, host computers and the LAN connection cables will add additional cost. We will be funded if the system satisfies the client's requirements. For the testing purposes, we wish to use our own computers and laptops.

Legal Feasibility

Our client is the registrar of the Colombo District Court so the client's requirements are already legal. We use free and open source software for the development so there's no issue regarding the copyright of the software and technologies. The client's information is private and

confidential since that information is regarding the court cases. So that information will be stored in a highly secured database so that the malicious users and third parties cannot access them. Furthermore, our team will protect the confidentiality of client's information and no third parties will be hired for the development purposes so the information won't get leaked.

- Thus the feasibility study performed on CCHS proved that development of CCHS is feasible

2.6 Risks

Privacy and confidentiality of the court case information will always be at risk since the malicious users can access the database in inappropriate manners. We cannot avoid that risk, but to reduce it we are going to keep the system's security level up as much as possible.

03 Requirements

3.1 Stakeholders

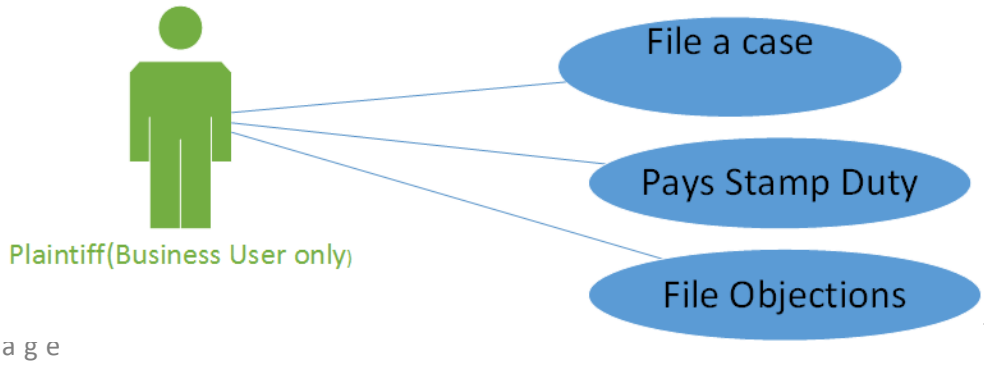
In order to design a practical software system, we explored several use case scenarios. The actors can be categorized into 2 groups: court staff and outsiders. CCHS will only have court staff as its users. Nevertheless, outsiders will have interactions with court staff.

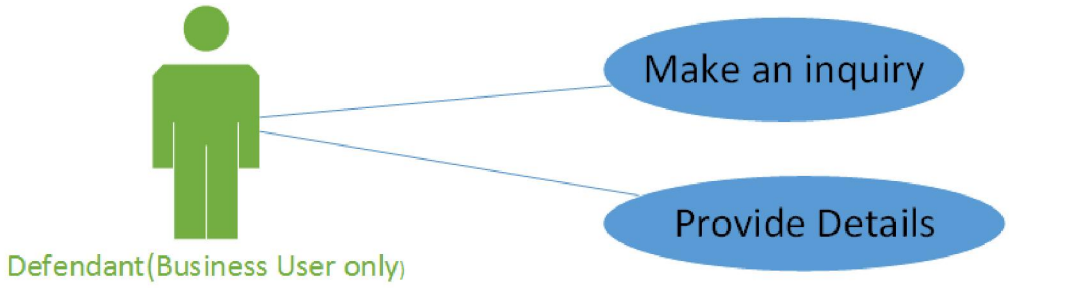
Court staff consists of subject clerk of record room, Shroff, clerks, registrar, interpreter, judge.

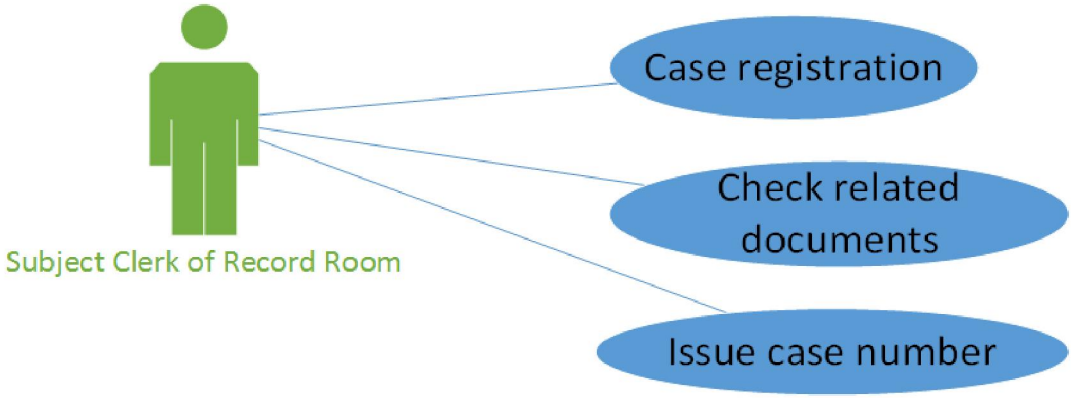
Outsiders are plaintiffs, defendants, lawyers, fiscal. Outsiders will be business users only.

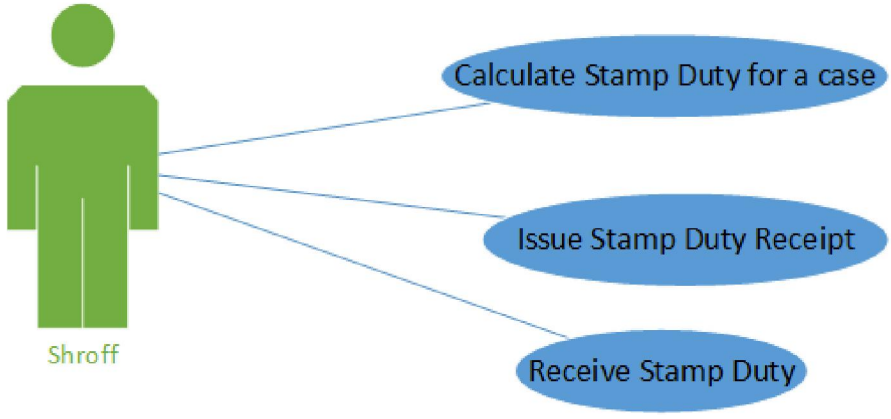
Since court staff consists of non-technical people, CCHS should have a system administrator.

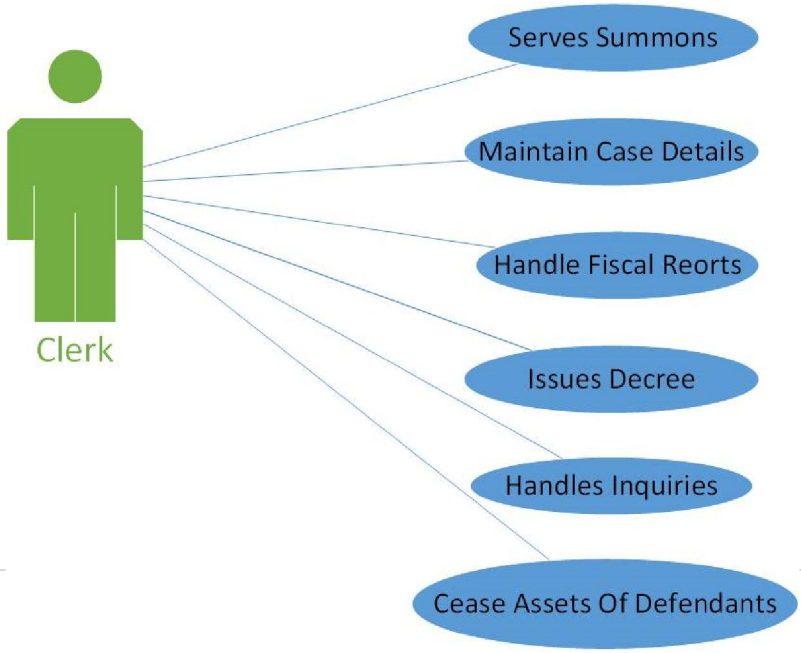
3.2 System use cases and use case diagram

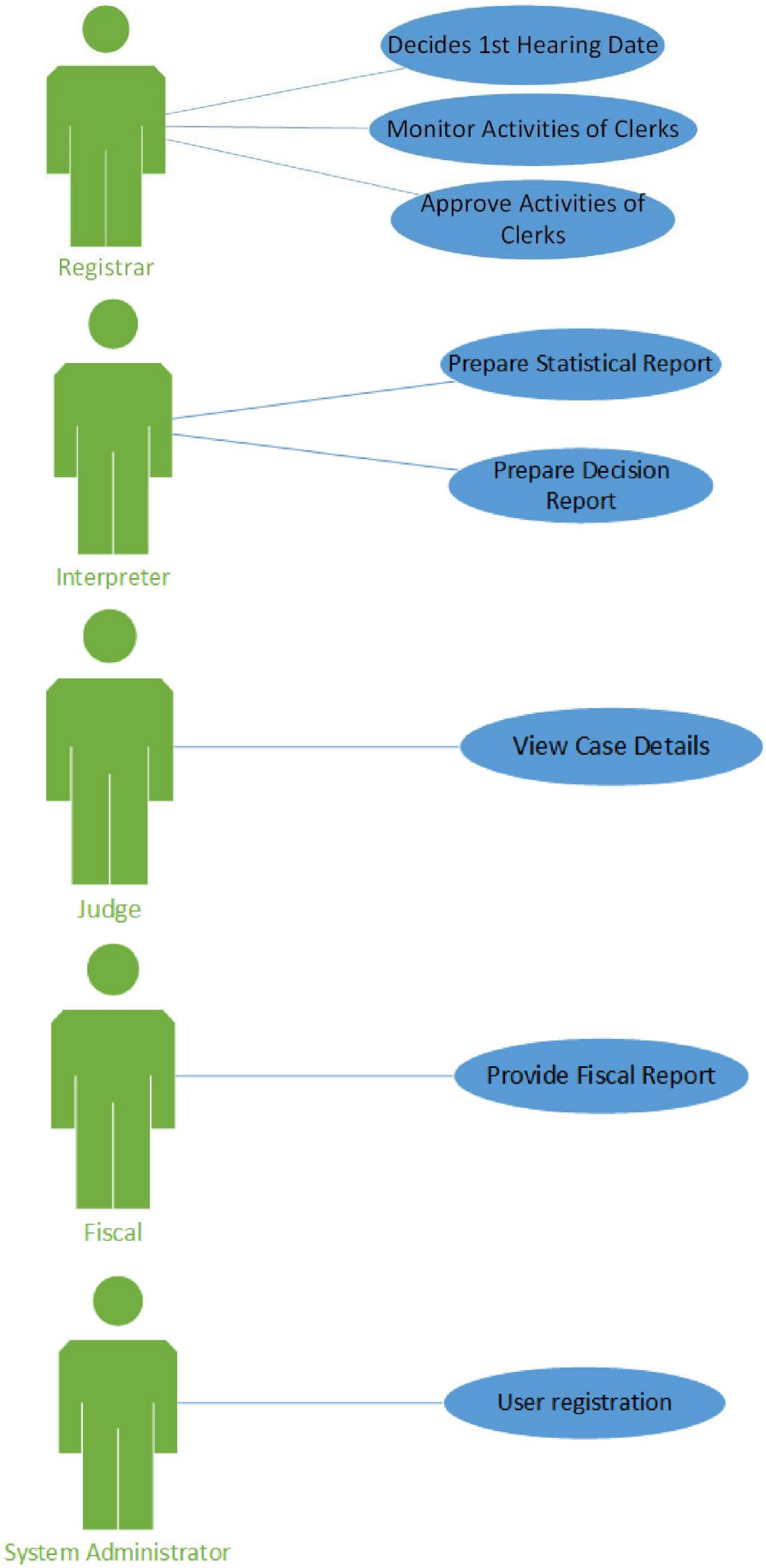



Make an inquiry
Provide Details
Defendant(Business User only)

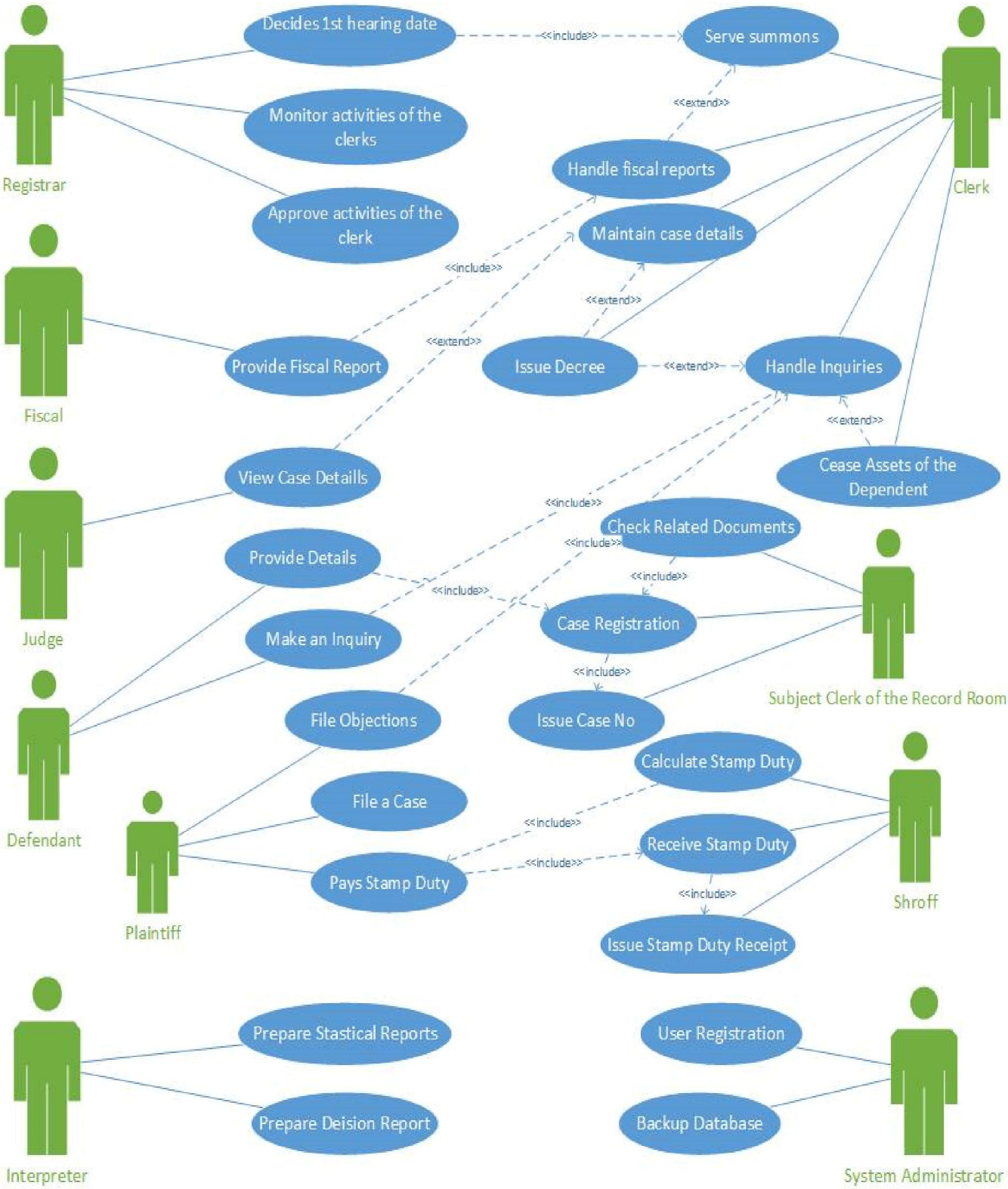

Case registration
Check related documents
Issue case number
Subject Clerk of Record Room


Calculate Stamp Duty for a case
Issue Stamp Duty Receipt
Receive Stamp Duty
Shroff


Serves Summons
Maintain Case Details
Handle Fiscal Reorts
Issues Decree
Handles Inquiries
Cease Assets Of Defendants
Clerk


Decides 1st Hearing Date
Monitor Activities of Clerks
Approve Activities of Clerks
Registrar
Prepare Statistical Report
Prepare Decision Report
Interpreter
View Case Details
Judge
Provide Fiscal Report
Fiscal
User registration
System Administrator

Use Case Diagram



3.3 Functional and Non Functional Requirements

Functional Requirements

1. Case Registration
2. Issuing Case Number
3. Calculate Stamp Duty for a case.
4. Issue Stamp Duty Receipt
5. Serve Summons (Print Outs)
6. Handle Fiscal Reports Details
7. Handle Ex party judgments
8. Decree preparation
9. Handle Inquiries
10. Update case details e.g. Next hearing date, Decision
11. Handle Ceasing of assets
12. Registrar finishes the case
13. Prepare Reports
14. Record defendant details per a case
15. Retrieve case details
16. User Registration
17. Take backup of database

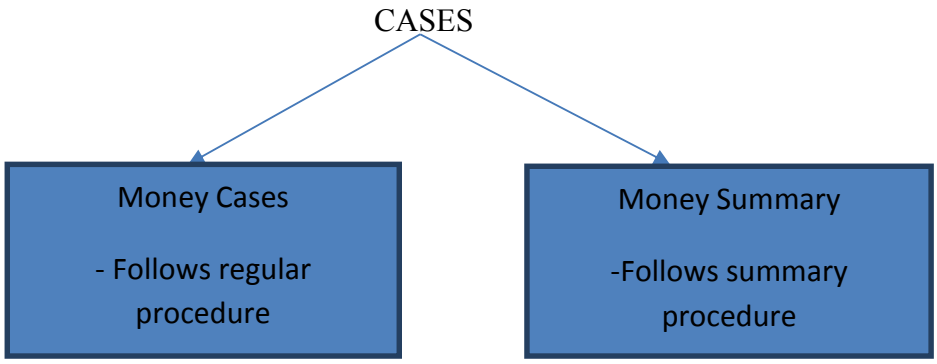
Explanation of Functional Requirements

(1) & (2) Case Registration and Issuing Case Number: -

Description: -When a plaintiff wishes to file a new case, the subject clerk at the record room will register the case, upon validity of case.

Inputs: - Type, Value (Cases of value less than or equal 1 million), Nature, Procedure, Plaintiff's details, Defendant's Details, Lawyer's Details, and Attachments (E.g.: Proxy, Motion, Caption, Agreements)

Outputs: - Case number will be generated.



Determination of case number

DHP -01111 -16

(1) (2) (3)

Explanation: -

(1) Type

(2) Case number for this year e.g.:- 1111th case for 2016

(3) Year 2016

(3) Calculate stamp duty for a case.

Description: - Based on the value of the case, stamp duty value will be calculated.

Inputs: - Case value (from the database)

Outputs: - Stamp duty value.

(4) Issue stamp duty receipt.

Description: - When the plaintiff pays stamp duty, Shroff will issue a stamp duty receipt.

Inputs: - Receipt number (Generated from system).

Case number.

Amount of stamp duty (Generated from system).

Date (System date).

Outputs: - Stamp duty receipt.

(5) Summon serving process.

Description: - Registrar will decide on the 1st hearing date and the system will generate summons to be issued to the defendant. Based on the number of defendants of the case, twice the amount of summons will be printed.

E.g.: - n defendants -> No. of copies for the fiscal = n

No. of copies to be posted = n

Total no. of copies = 2n

Inputs: - Case number

1st hearing date (decided by registrar).

Outputs: - Fiscal reports equal to twice the no. of defendants are printed.

(6) Handle fiscal report details.

Description: - After the fiscal informs whether summons could be served or not, it should be recorded. If fiscal delivers a fiscal report including the reason of inability to handle summons, it should be recorded. At such a situation, summons equal to the no. of defendants should again be printed. Gramasevaka will be asked to serve summons through the Divisional Secretariat.

Inputs: - Case no, whether fiscal could serve summons or not, if fiscal could not serve summons, reason for that.

Outputs: - Summons equal to no. of defendants, are printed.

(7) Handle ex party judgments.

Description: - At the date of 1st hearing of the case, it should be recorded whether the defendant is present or absent. If the defendant was not present, the case will be converted into an ex party fix (only facts provided by plaintiff party is considered). Record the ex-party judgment given at the ex-party trial.

Inputs: - Case no., whether defendant is present or absent. If defendant is absent, ex party judgment, name of the judge who gave ex party judgment.

Outputs: - Added to the decree preparation list.

(8) Decree preparation.

Description: - When an ex party judgment is given for any case; it should be informed to the defendant via a document called the decree. Decrees equal to the no. of defendants should be printed.

Inputs: - Case number, ex party judgment (generated by database).

Outputs: - Decrees equal to the no. of defendants should be printed.

(9) Handle inquiries.

Description: - A defendant could make an inquiry within 14 days from reception of the decree. There, he should include the reason for inability to be present at courts. If an inquiry is received within the valid time period, its reason should be recorded. After considering the reason of inquiry, registrar could either accept it or reject it. Registrar's decision should be recorded. If an inquiry was not made within the 14-day period, that too should be recorded.

Inputs: - Case number, if an inquiry was made: - no. of days left (generated by system), reason (enter by user) whether registrar accepted the inquiry or rejected it.

Outputs: - If an inquiry was made and it was accepted, convert case to a normal case.

If an inquiry was not made or if the inquiry was made and it was not accepted, convert case to cease assets stage.

(10) Update case details

Description: - At the first hearing of case, if the defendant was present, it becomes a normal case. At any normal case, there are two types of results given. One is the final judgment is given; otherwise next hearing date is decided. Those data should be recorded.

Inputs: - Case no., case result, name of judge.

If case result is, final judgment is given, indicate final judgment.

If case result is, next hearing date is decided, next hearing date and comments by judge.

Outputs: - If case result is, final judgment is given, add it to the list of cases to be finished by registrar.

If case result is, next hearing date is decided, add the case to the list of cases to be called on that date.

(11) Handle ceasing of assets

Description: - If a defendant did not make the inquiry within 14 days or the inquiry made by the defendant was rejected, his assets will be ceased. A writ notice will be issued to cease assets of the defendant unless he is a government officer.If the defendant is a government officer, a notice will be issued to incur a sum of money equal to his salary minus 500 rupees every month until the value of case is recovered.

Inputs: - Case no. , Whether defendant is a government officer or not

Outputs: - Writ notice to cease assets of a defendant who is not a government officer.Notice to incur salary minus 500 rupees every month until value of case is recovered, if the defendant is a government officer.

(12) Registrar finishes the case

Description: - When the final judgment of a case is given or the defendant's assets are ordered to be ceased, the case should be added to the list of cases pending to be finishes. After verifying that the case has actually been finished, the registrar will confirm that the case is over.

Inputs: - Case no., whether the case has been completely finished.

Outputs: - Case will be added to the list of finished cases.

(13) Prepare reports

Description: - Interpreter will prepare two types of reports on behalf of the judge.One is the statistical report, which contains a summary of the number of cases, number of cases where decision was given, number of new cases. This is prepared monthly, quarterly and annualy. Other is the decision report, which contains copies of all decisions made by each judge.

Inputs: - Time period

Outputs: - Reports

(14) Record Defendant Details per a case

Description: - When the defendant wishes to appear at a hearing, his details should be recorded.

Inputs: - Case number, defendant details, details about defendant's lawyers

Outputs: - -

(15)Retrieve case details

Description: - At any time, the registrar should be able to view details of the case(specially, the status). A judge should be able to view case details of the cases that will be heard by him in future.

Inputs: - Case number

Outputs: - Case details

(16)User Registration

Description: - System administrator should be able to register a new user.

Inputs: - Details of user such as NIC,name, address,DOB, position

Outputs: - New user will be given priviledges based on his position(role)

(17.Take backup of database

Description: - At a certain interval, the system administrator should be able to take a backup of the current database.

Inputs: - System date

Outputs: - Backup of database

Non Functional requirements

Security: - CCHS handles data related to money related cases. Its database may contain confidential and critical information related to law suits. Evidence and other important data provided by both parties will be stored in the database. So it is very important that this information cannot be retrieved by a third party.

User Friendliness: - CCHS will be used by court staff. The goal of CCHS is to make life easy of court staff, in handling court case proceedings. Court staff consists of non-technical people. So it is very important that CCHS contains simplified interfaces and all the functionalities could be fulfilled in the shortest way possible.

Usability: - The system should be usable by court staff with minimal training.

Performance: - The system must be quick to respond to an action by a user.

Accuracy: - The CCHS must contain accurate data and produce accurate outputs after processing data.

Free and open-source software: - The system should operate on a server running a free & open source operating system. Furthermore, all other required software must also be free & open source.

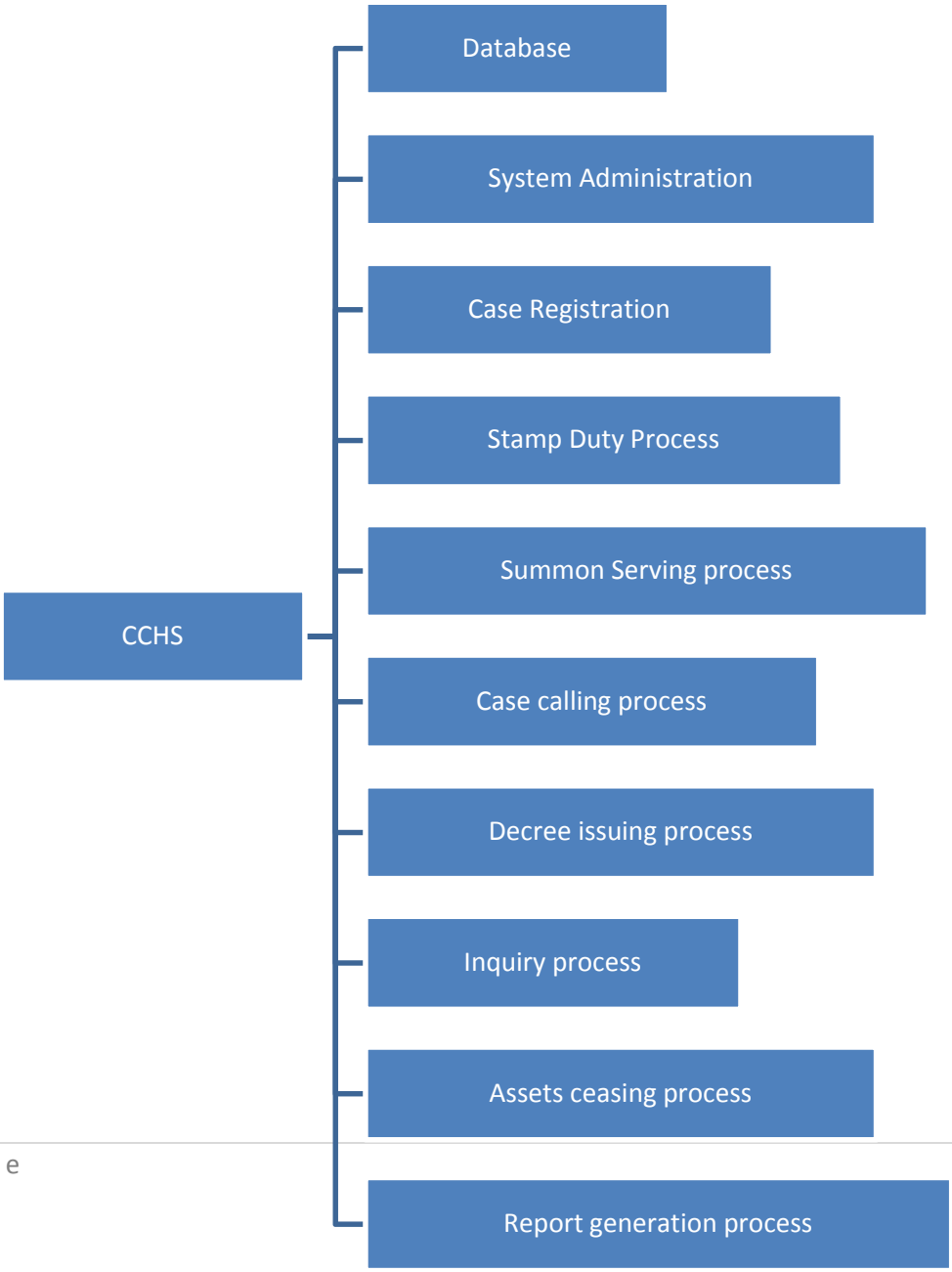
Disaster Recovery: - The system should be able to take a copy of its database (backup) and store it in a different place. Most often this backup copy is stored at a location in another building.

4 Proposed System's Architecture

4.1 Software Structure

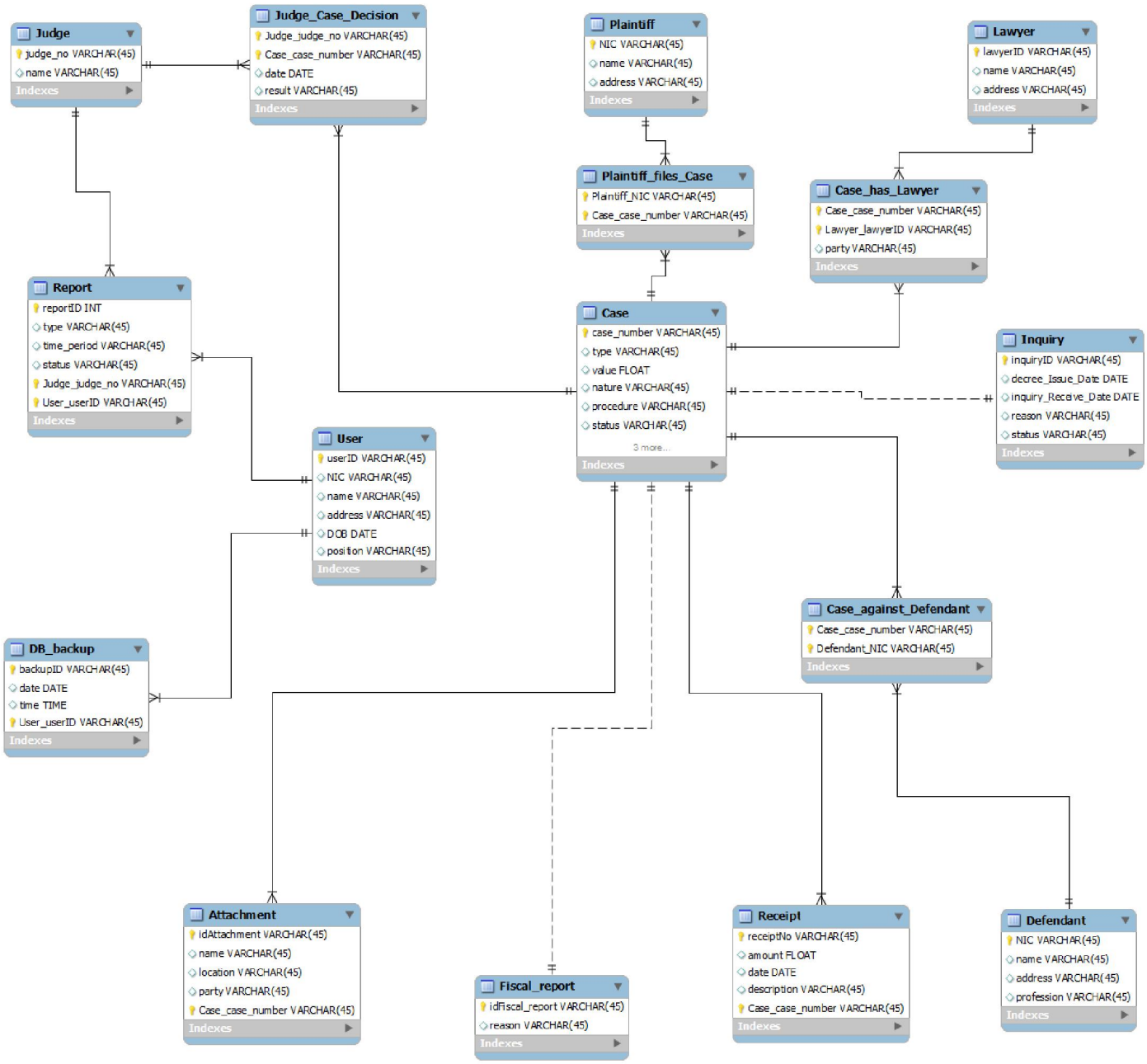
The software structure of CCHS was developed to automate court proceedings to help litigants, lawyers and office staff. The software structure consists of 10 major modules, which are database, system administration, case registration, stamp duty process, summon serving process, case calling process, decree issuing process, inquiry process, assets ceasing process, report generation process.

The structure is shown in below figure and descriptions of the modules can be presented as follows.

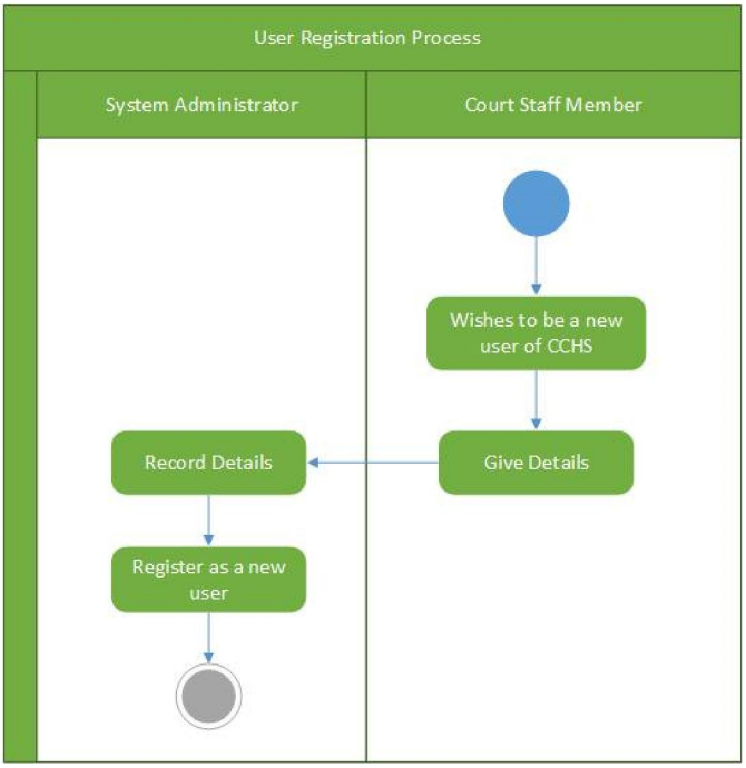


4.2 Components & their Responsibilities

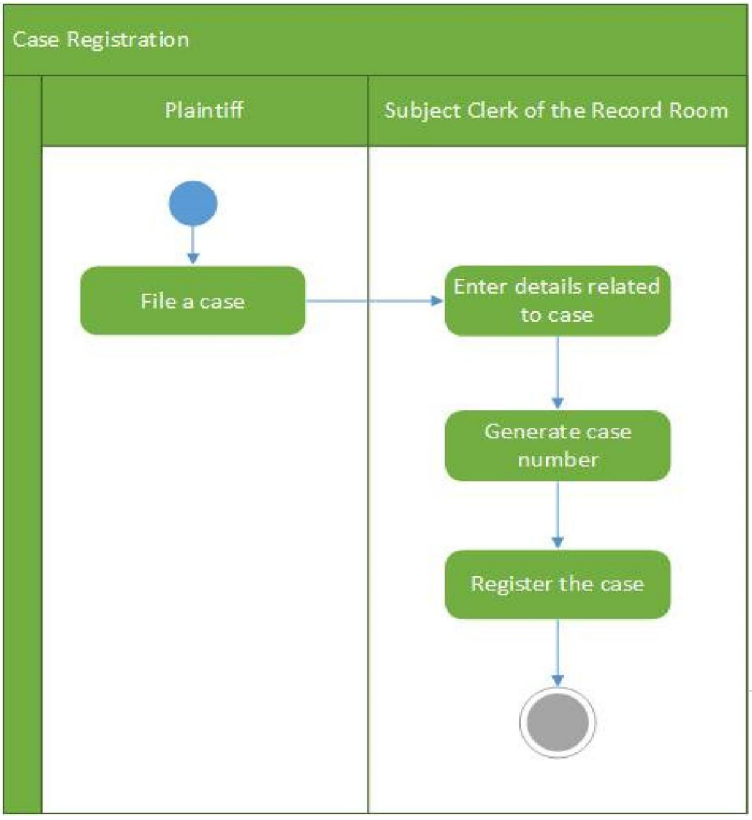
Database: Database is an important module of CCHS.All data related to a case is stored in the database.Following is the ER diagram of the database of CCHS.



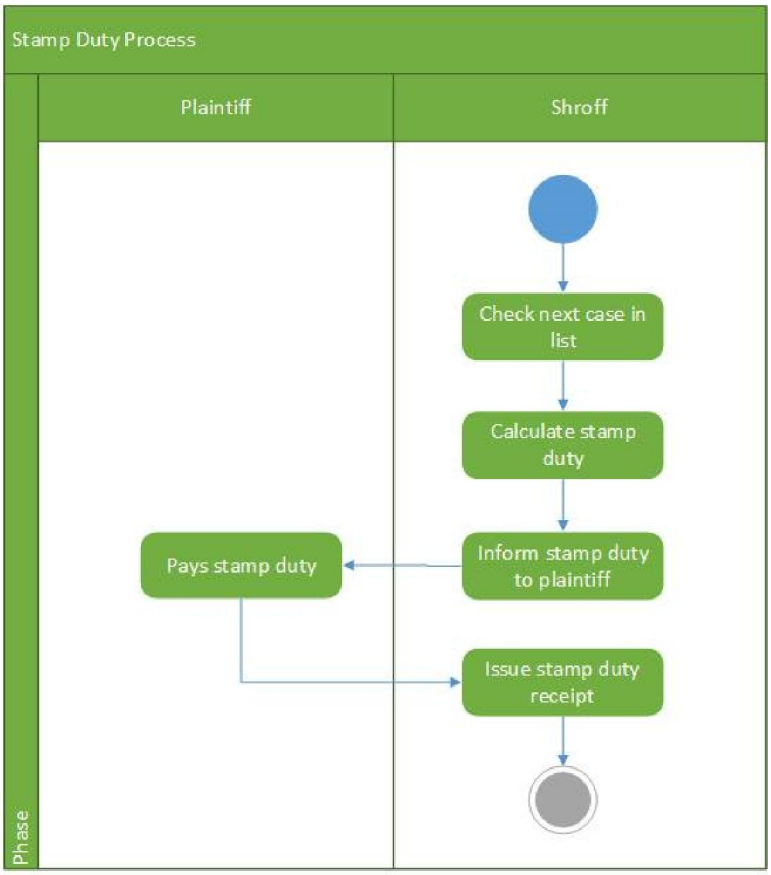
System Administration: - All tasks performed by System Administrator will be included in this module. User registration, taking backup of database will be included in this module.



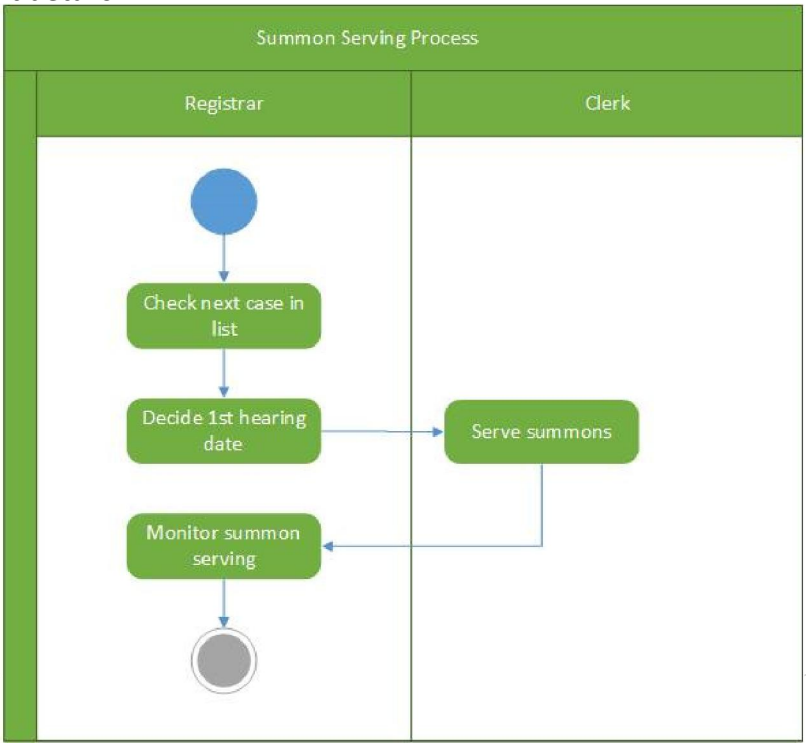
Case Registration: - Case Registration module will include registration of a case, issuing case number, as well as recording details of defendant/s.



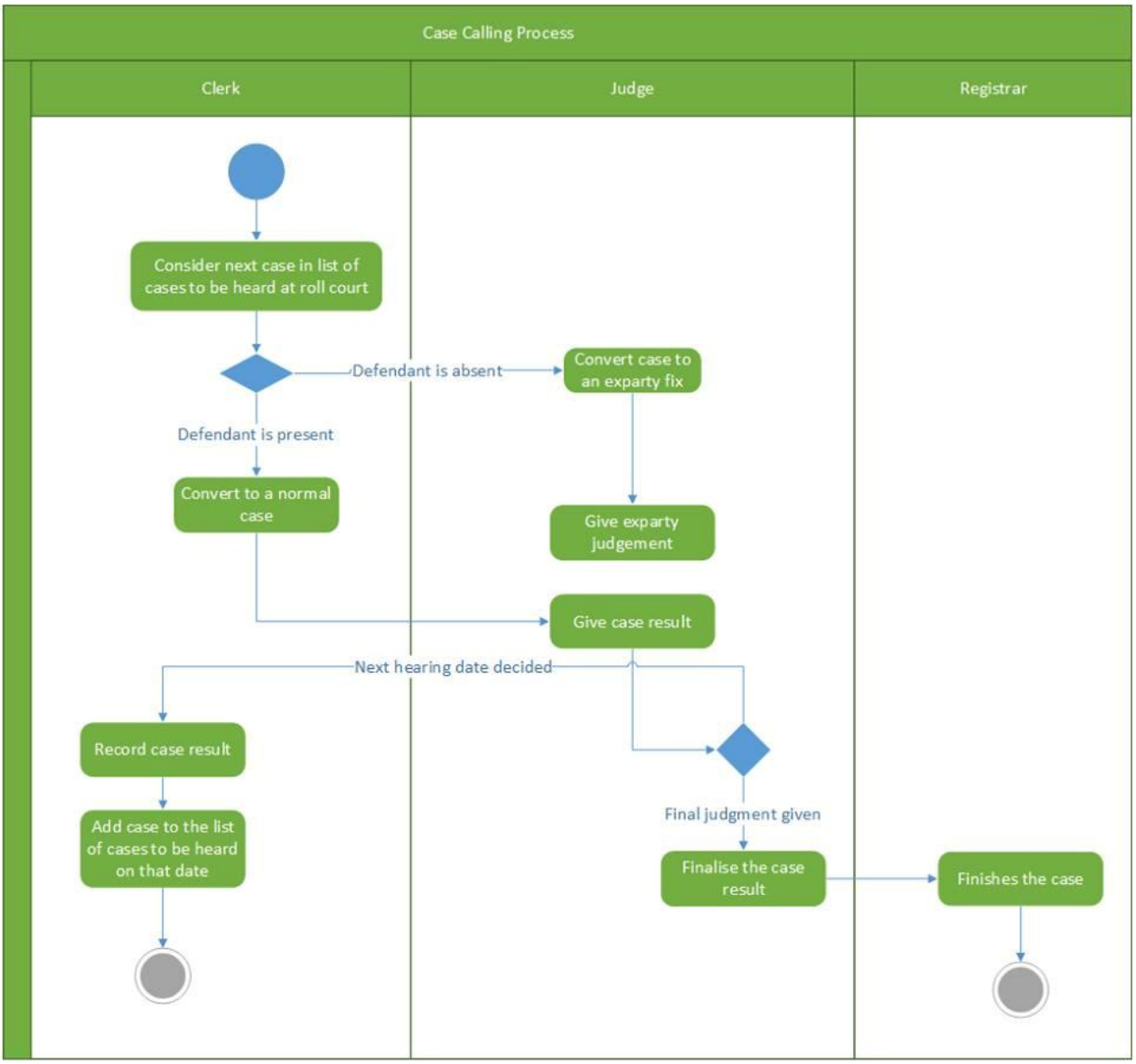
Stamp Duty Process: - Stamp Duty Process module will include calculating stamp duty for a case and issuing stamp duty receipt.



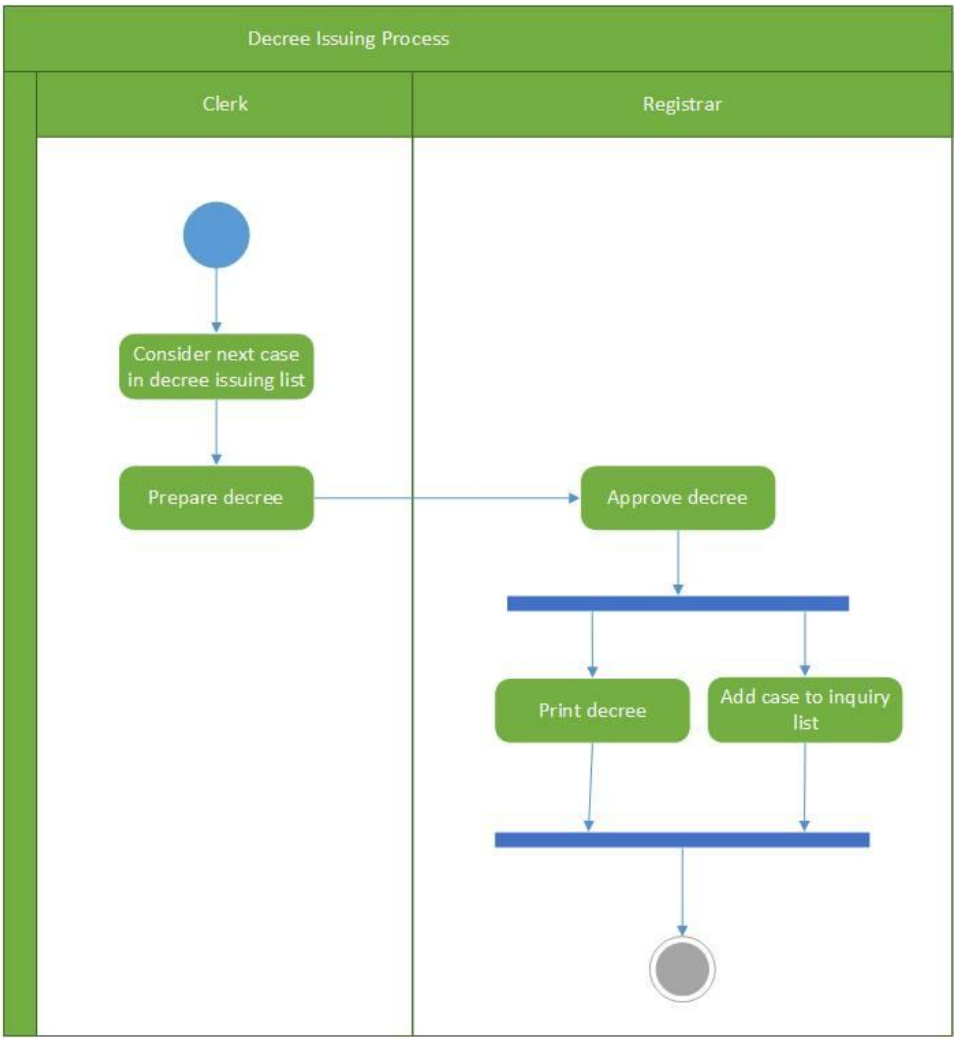
Summon Serving Process: - Summon Serving Process module will include serving summons, handling fiscal report details.



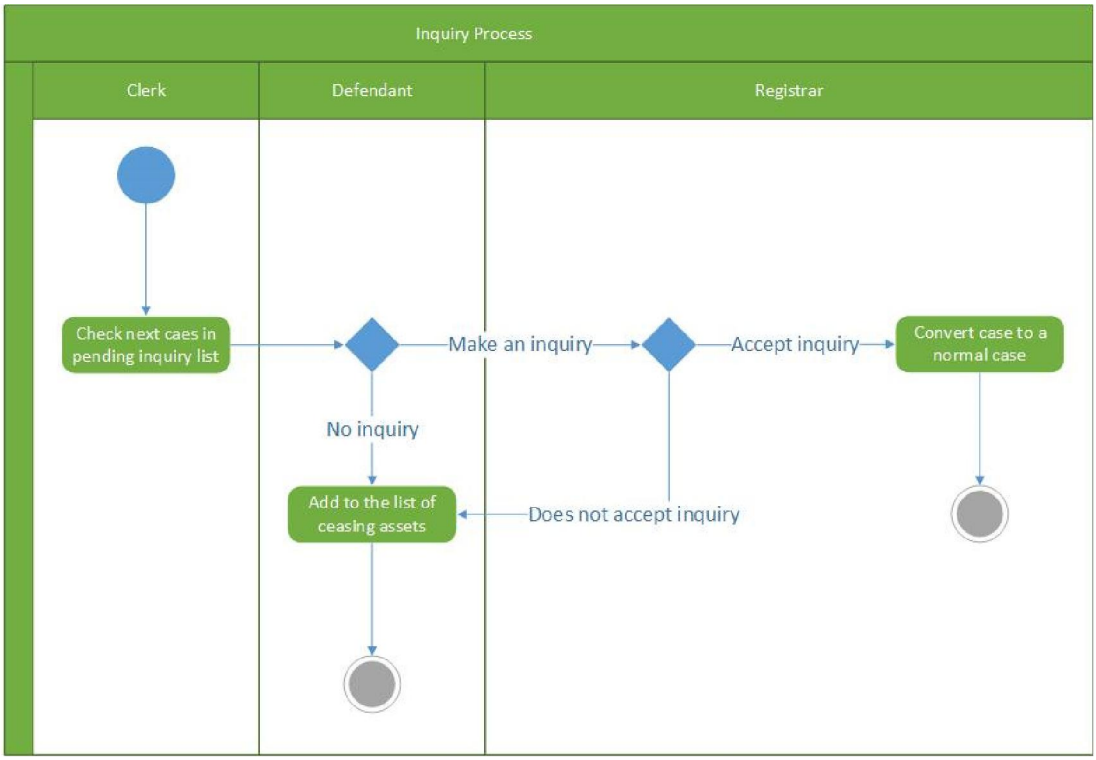
Case Calling Process: - Case calling process module will include updating case details such as next hearing date or decision, as well as handling ex party judgments. Registrar finishing the case too will be a part of the module. Retrieving case details too will be a part of this module.



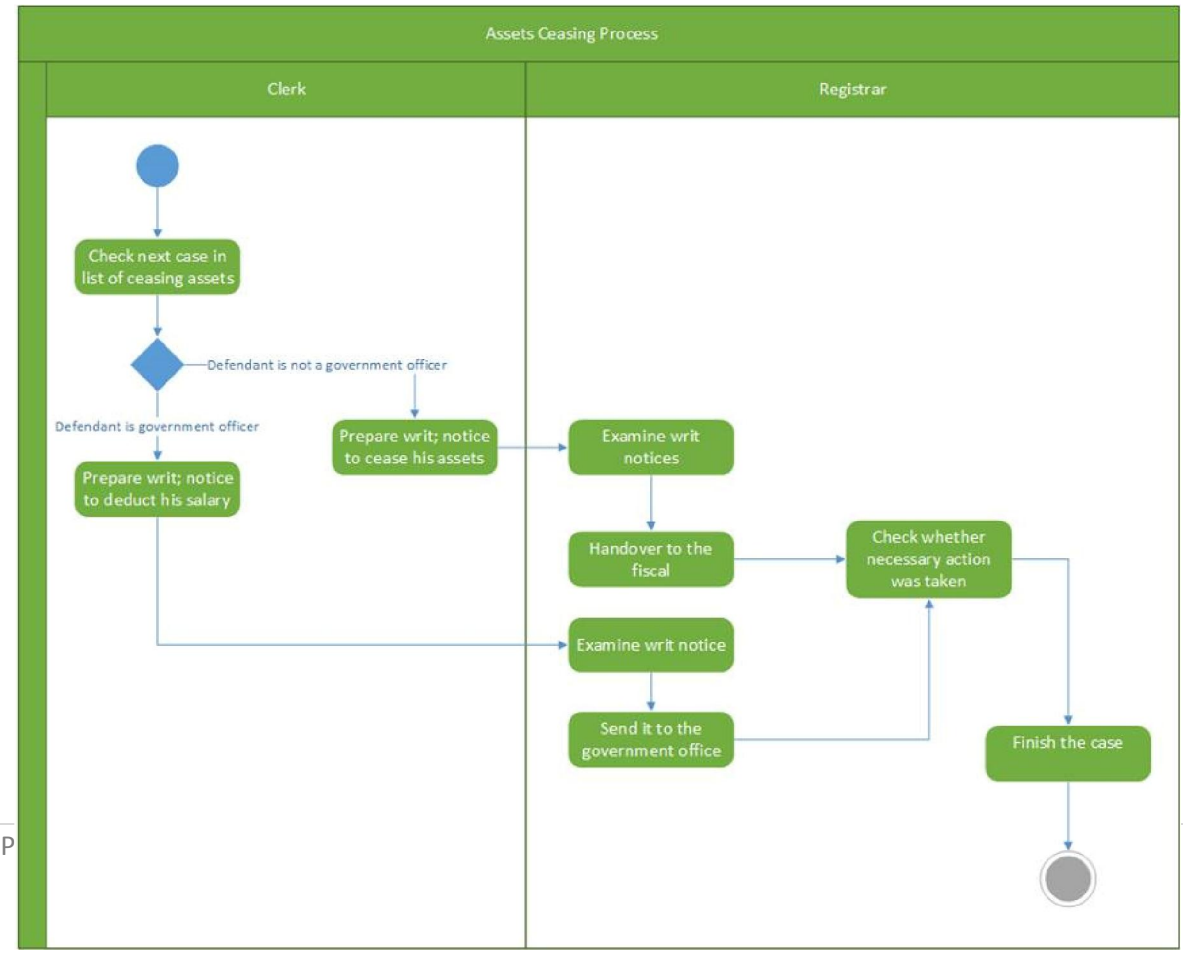
Decree Issuing Process: - Decree Issuing Process module will include decree preparation.



Inquiry Process: - Inquiry Process module will include handling of inquiries.

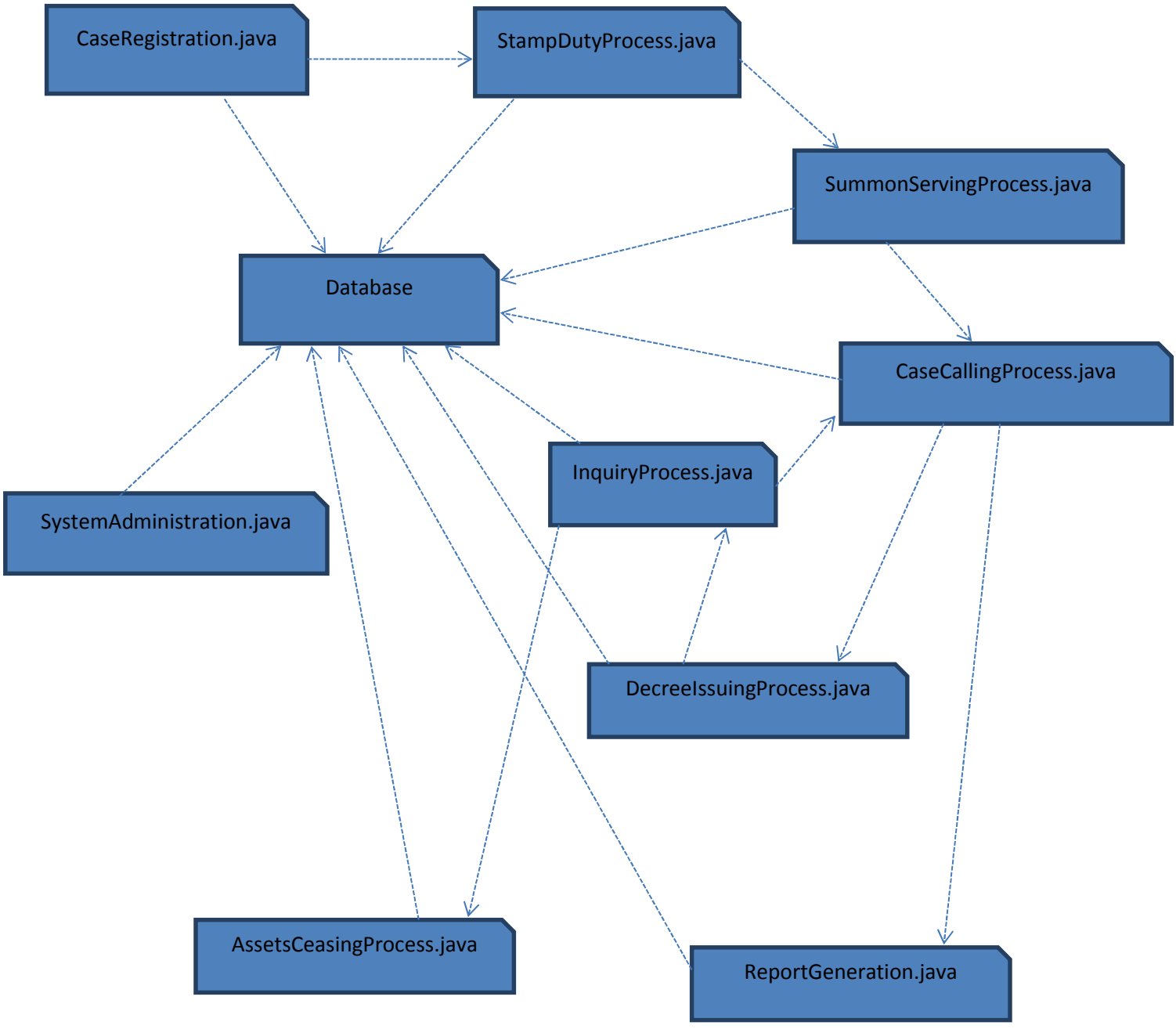


Assets Ceasing Process: - Assets Ceasing Process will include handling of ceasing of assets.

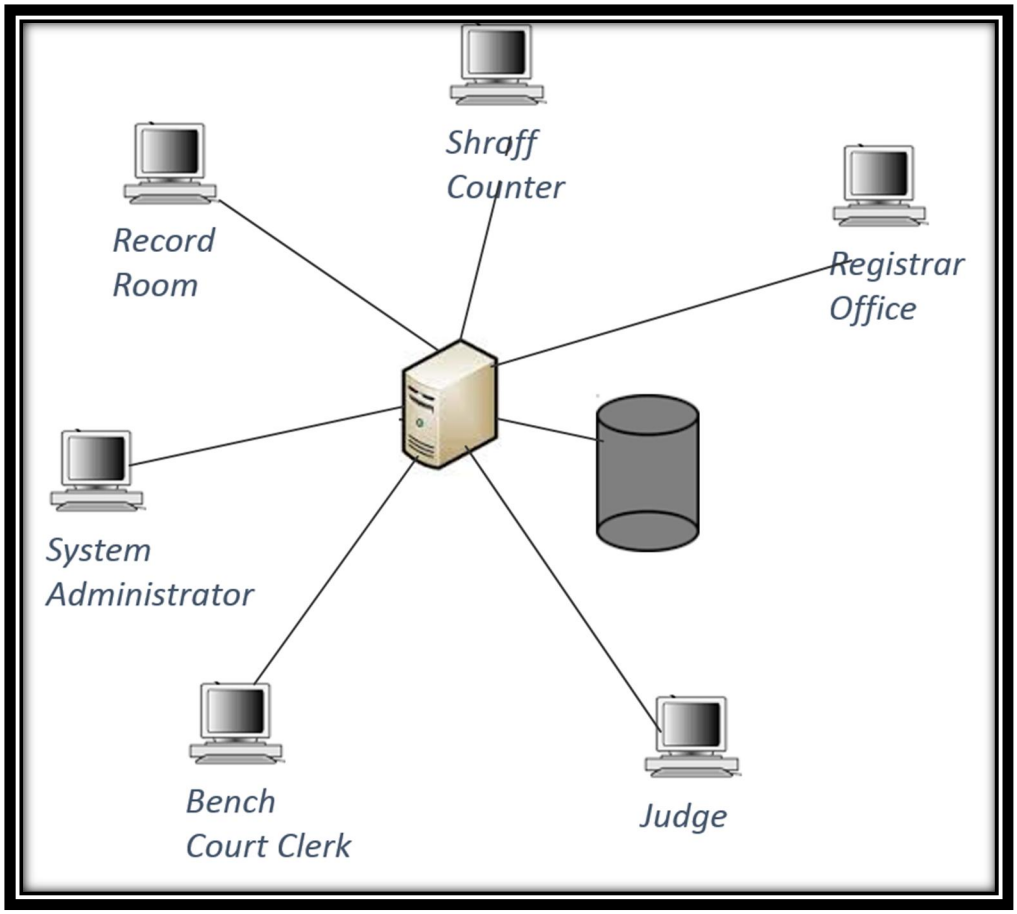


Report Generation Process: - Preparation of reports will be done by the Report Generation Process module.

4.3 Component Interactions



4.4 System Architecture



This section presents the design on system architecture. Since this system is intended to serve only the court staff, we wish to establish a LAN (Local Area Network) which may connect several host computers to a centralized server. There will be one computer at the record room, one at the Shroff counter, several at the registrar office, one for each judge, one for each bench court clerk and one for the system administrator. All these computers will be connected to a centralized server, so our database would be a centralized database.

Technologies

We wish to use JavaSE for development of CCHS because it provides high-level classes that are used for networking, security, database access and graphical user interface (GUI) development.

MySQL would be the Database Management System while the Report Generating Tool would be JasperReports.

Implementation

Current system is a very old system. So it has a set of well-defined requirements and those requirements do not change drastically over time.

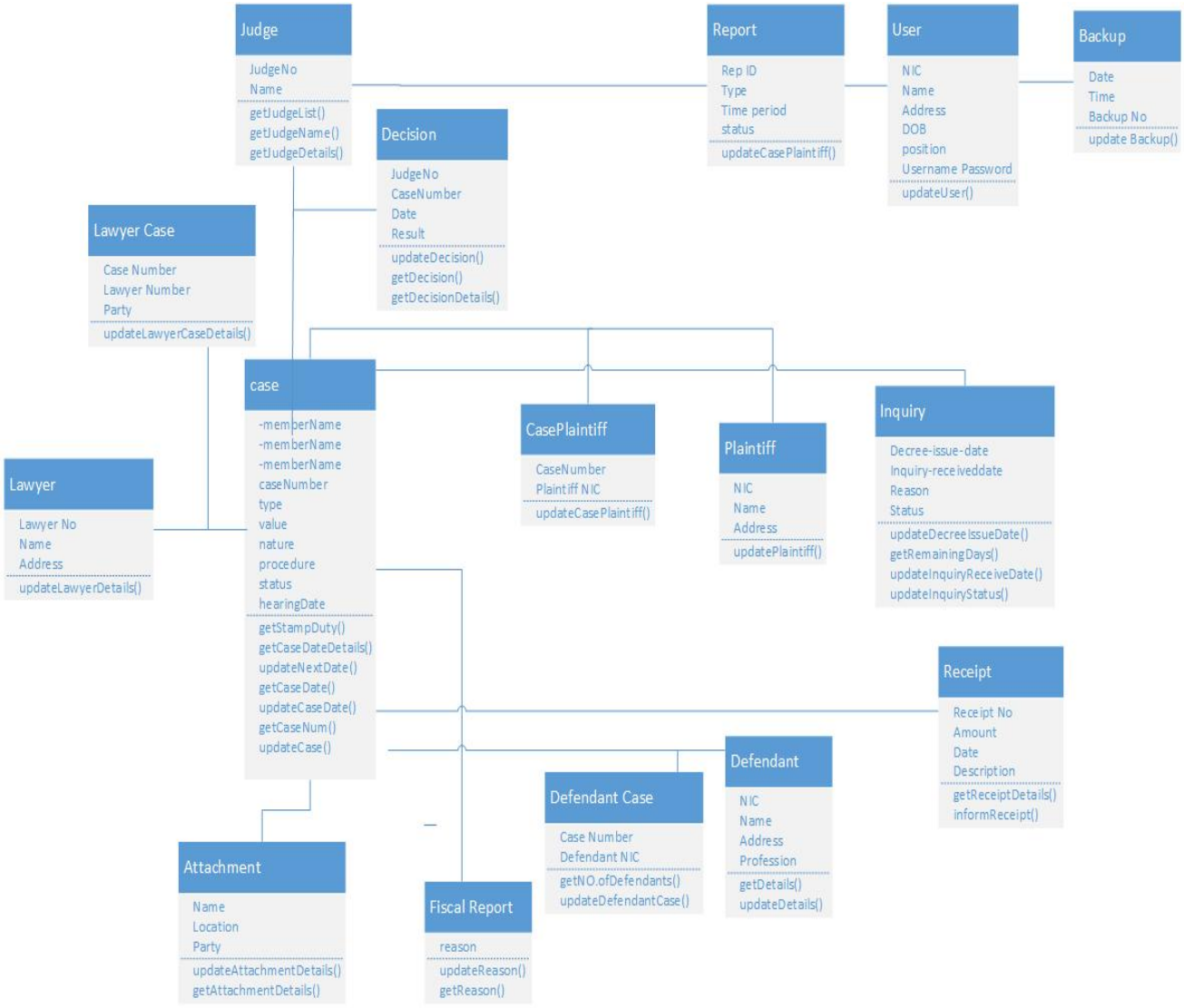
But the current system is manual so, it is difficult to gather all the requirements at the beginning of the project. Therefore, waterfall model cannot be used.

So we wish to follow incremental development which is a component wise development which gives priority to most important requirements first.

Development of CCHS will be done in a way such that, we develop one component show that to our client, get his feedback do the relevant changes and so on.

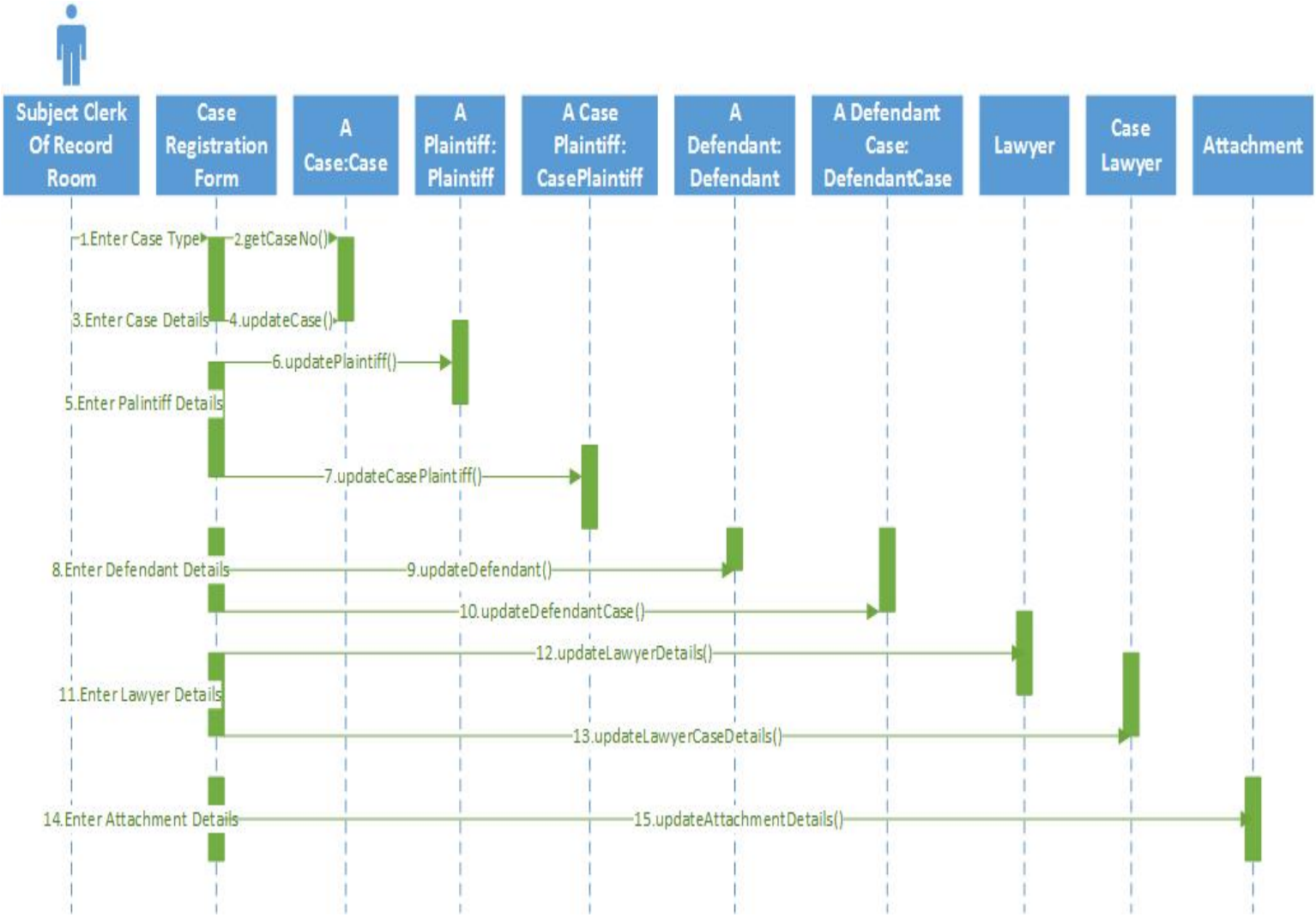
5 System's Design

5.1 Class Diagram

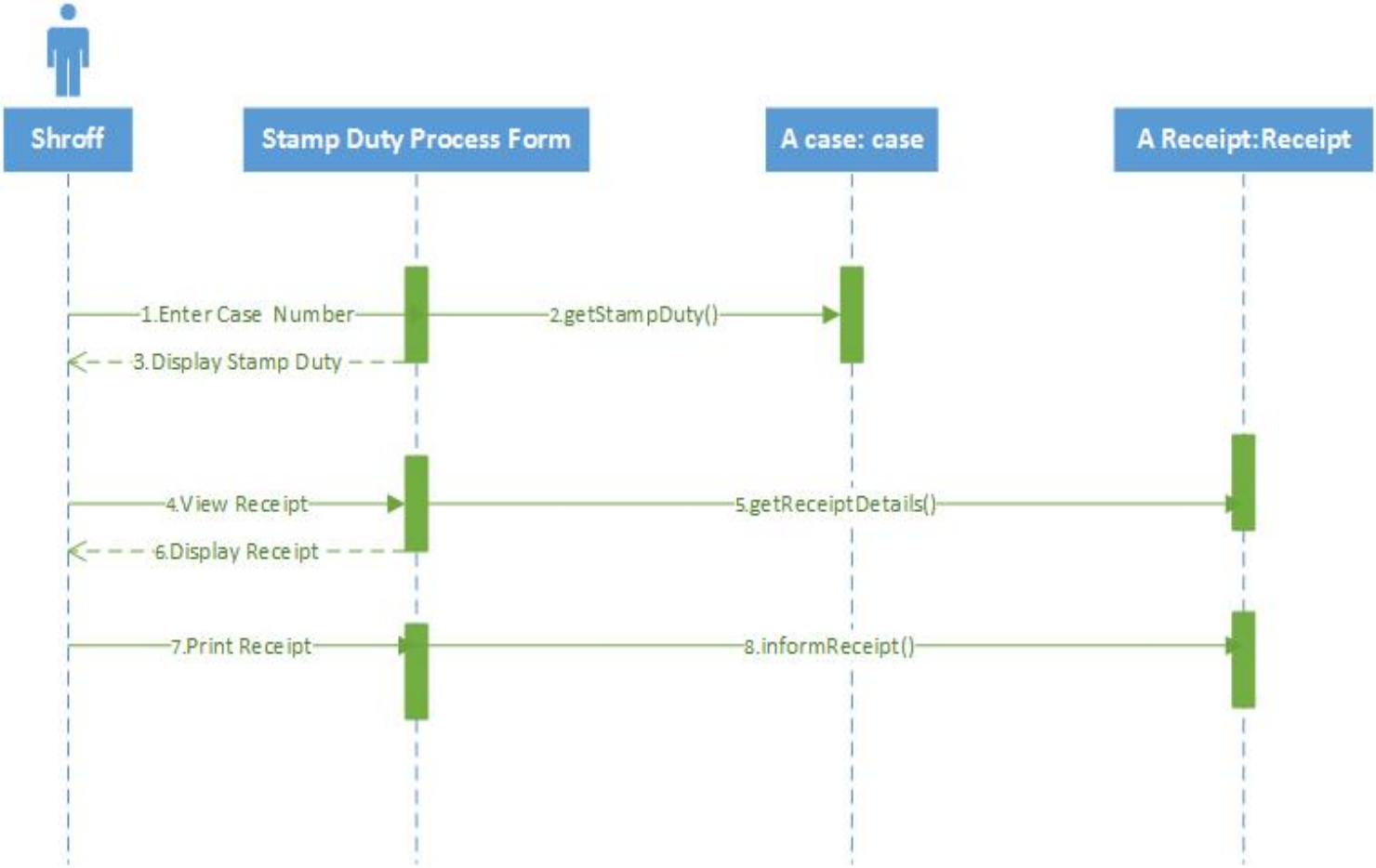


5.2 Sequence Diagrams

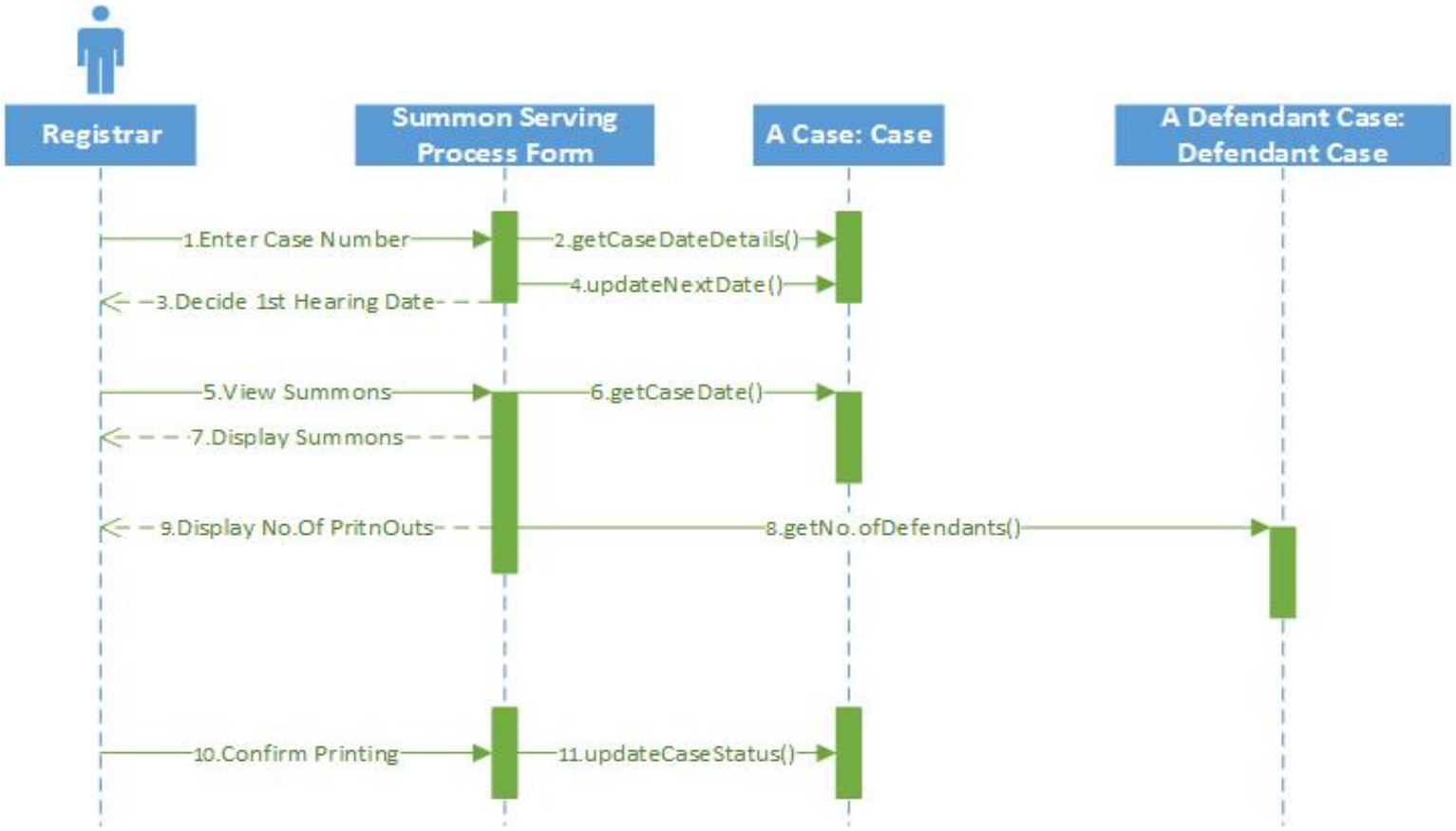
❖ Case Registration



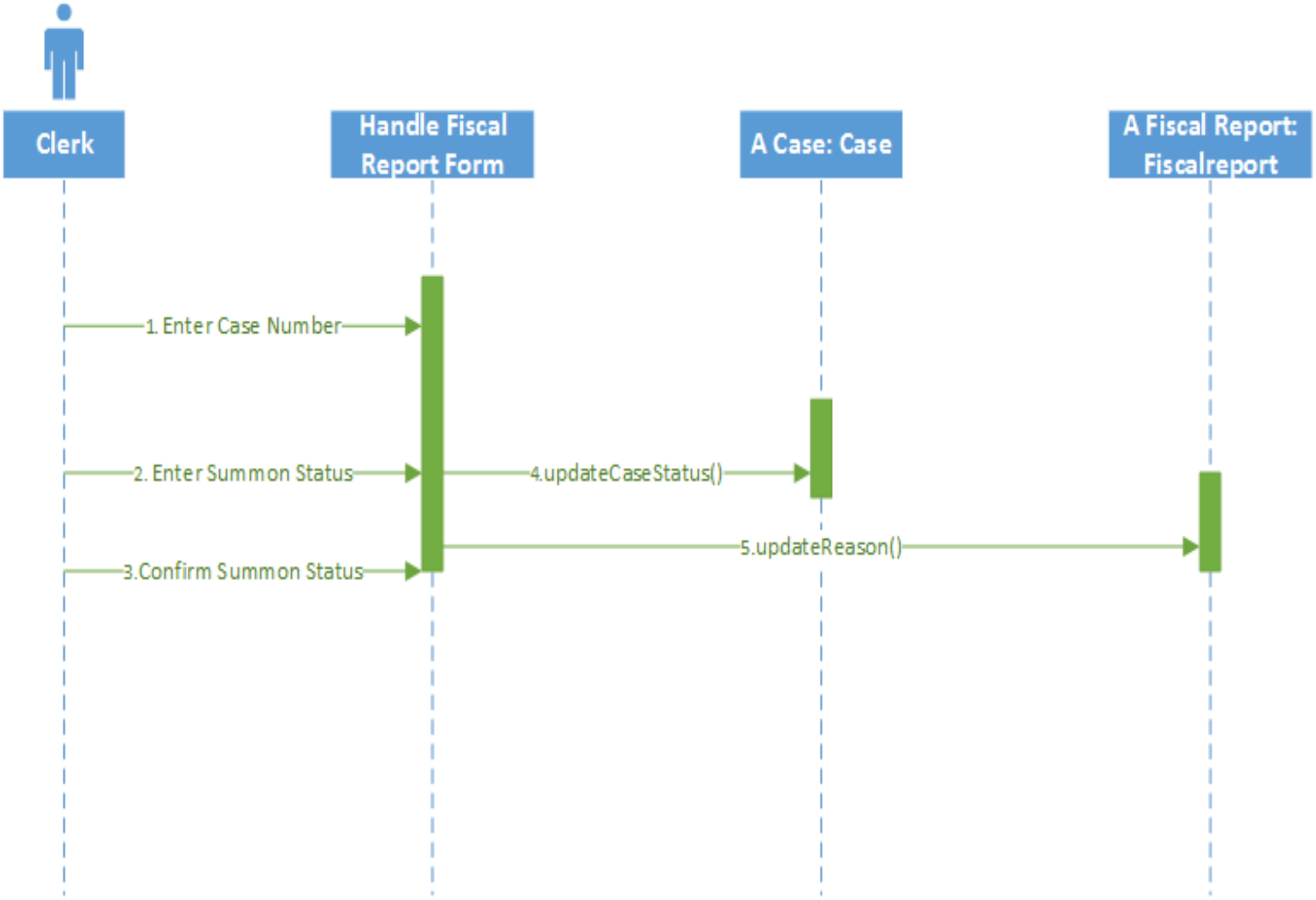
❖ Calculating Stamp Duty for a Case



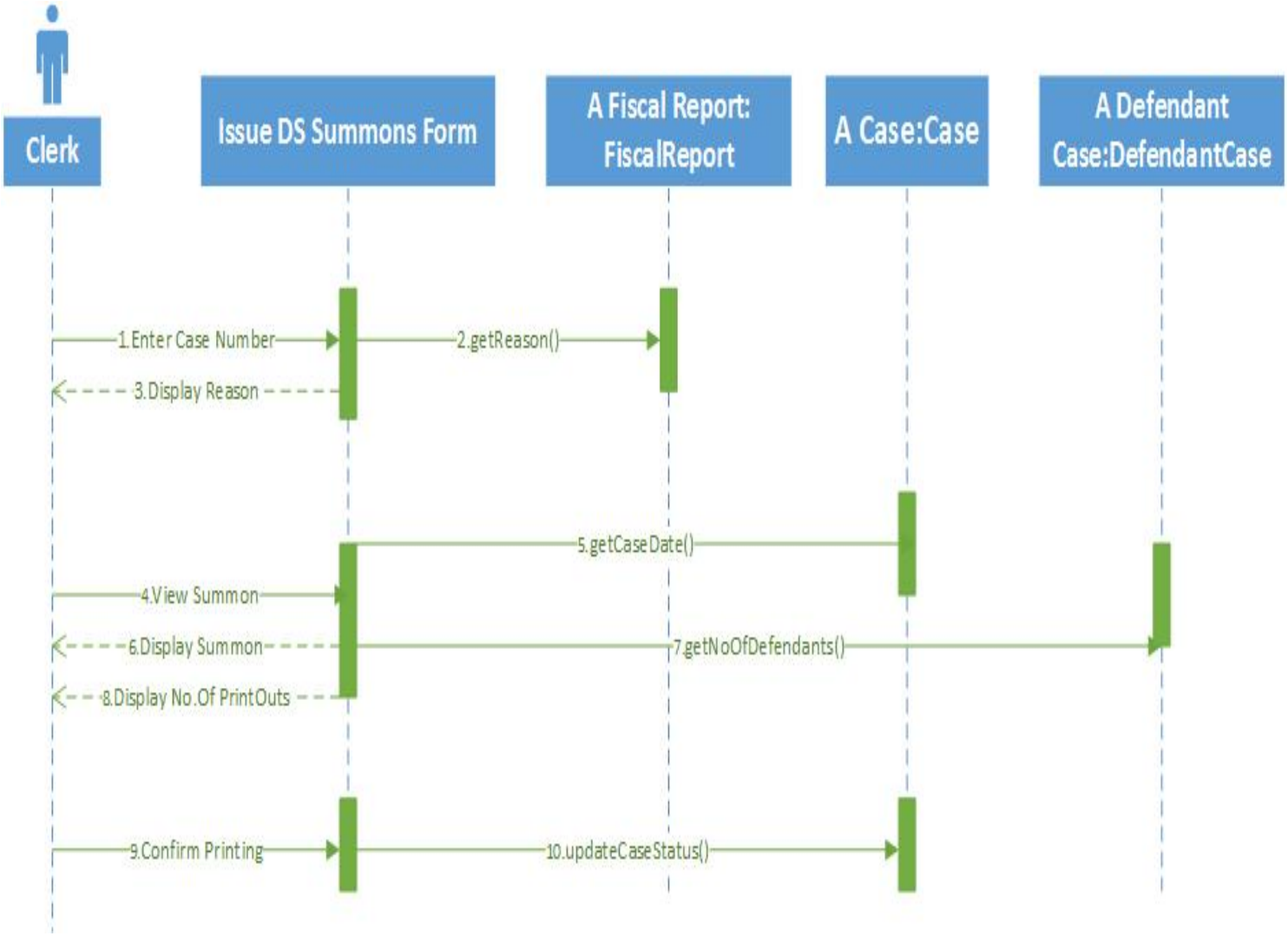
❖ Summon Serving Process



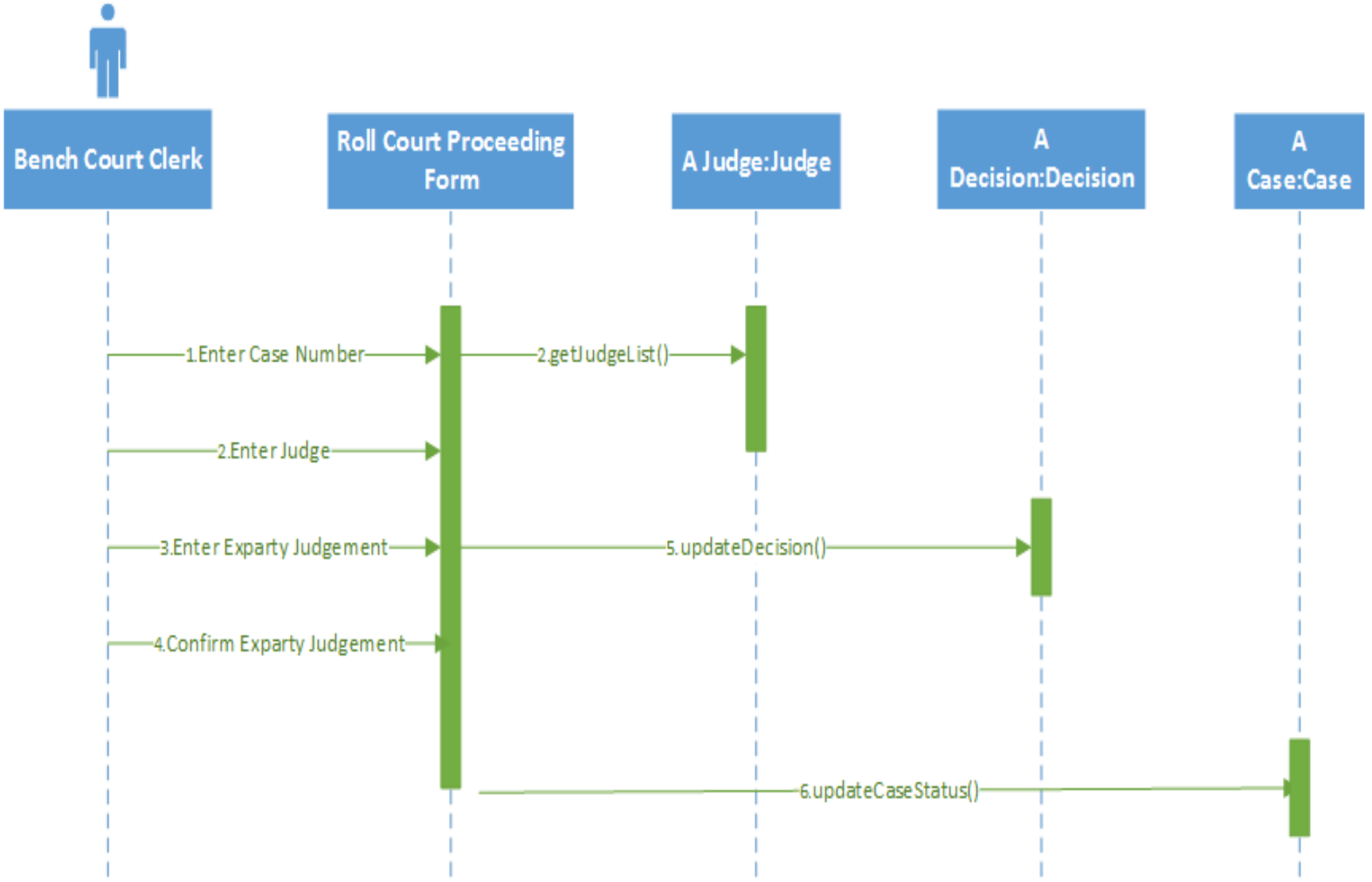
❖ Handling Fiscal Report



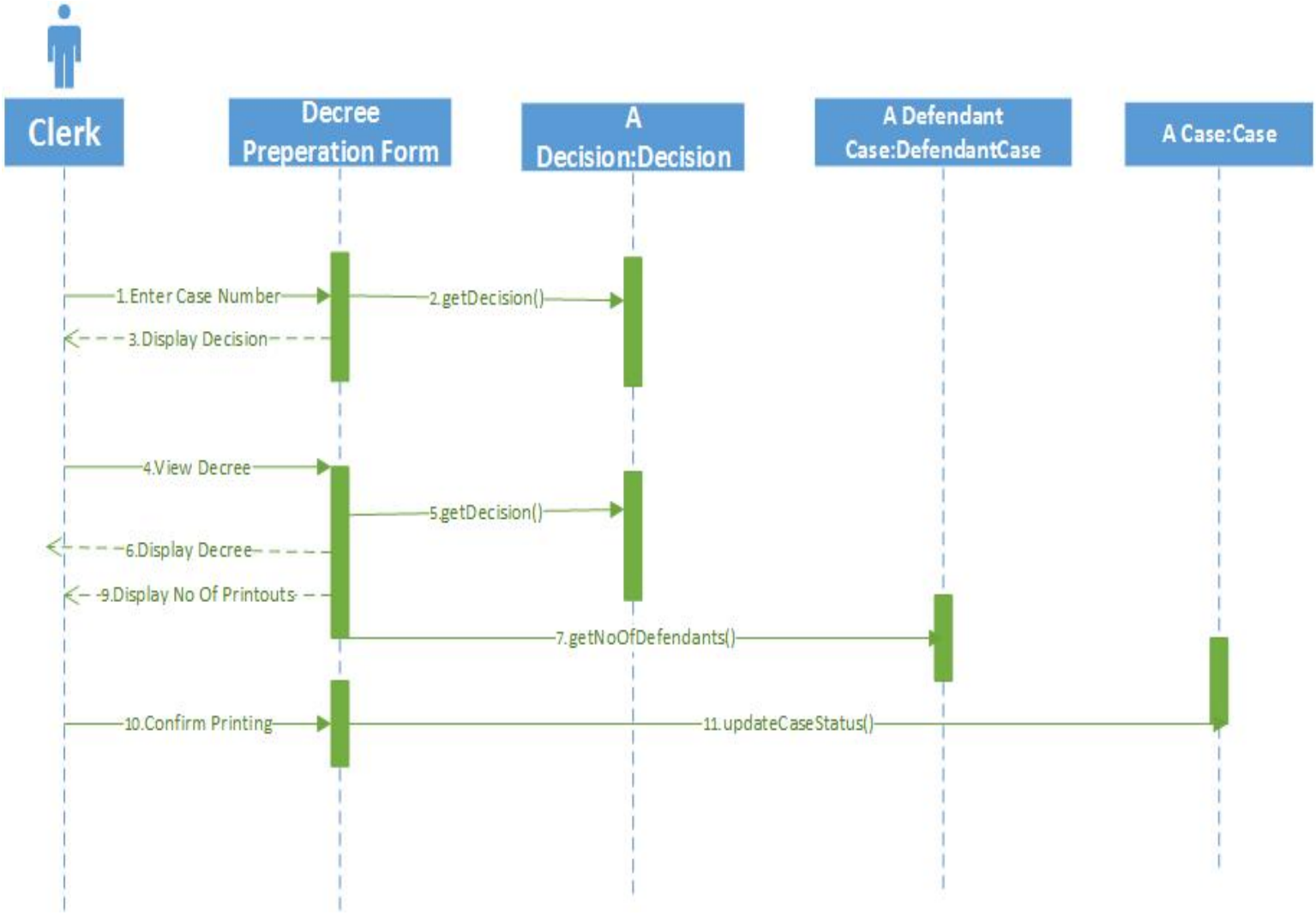
❖ Issuing DS Summons



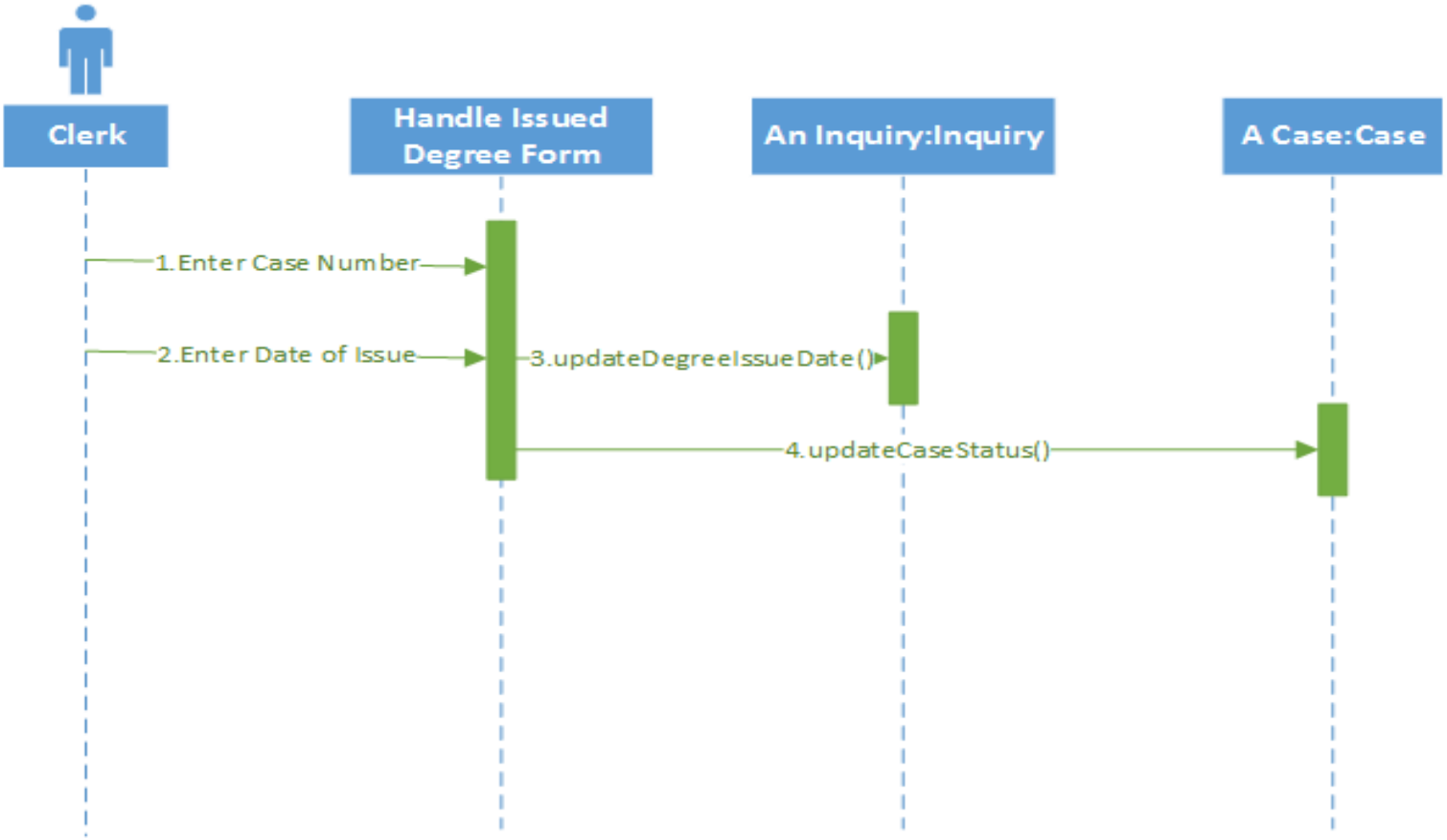
❖ Roll Court Proceeding – Recording Ex-Party Judgment



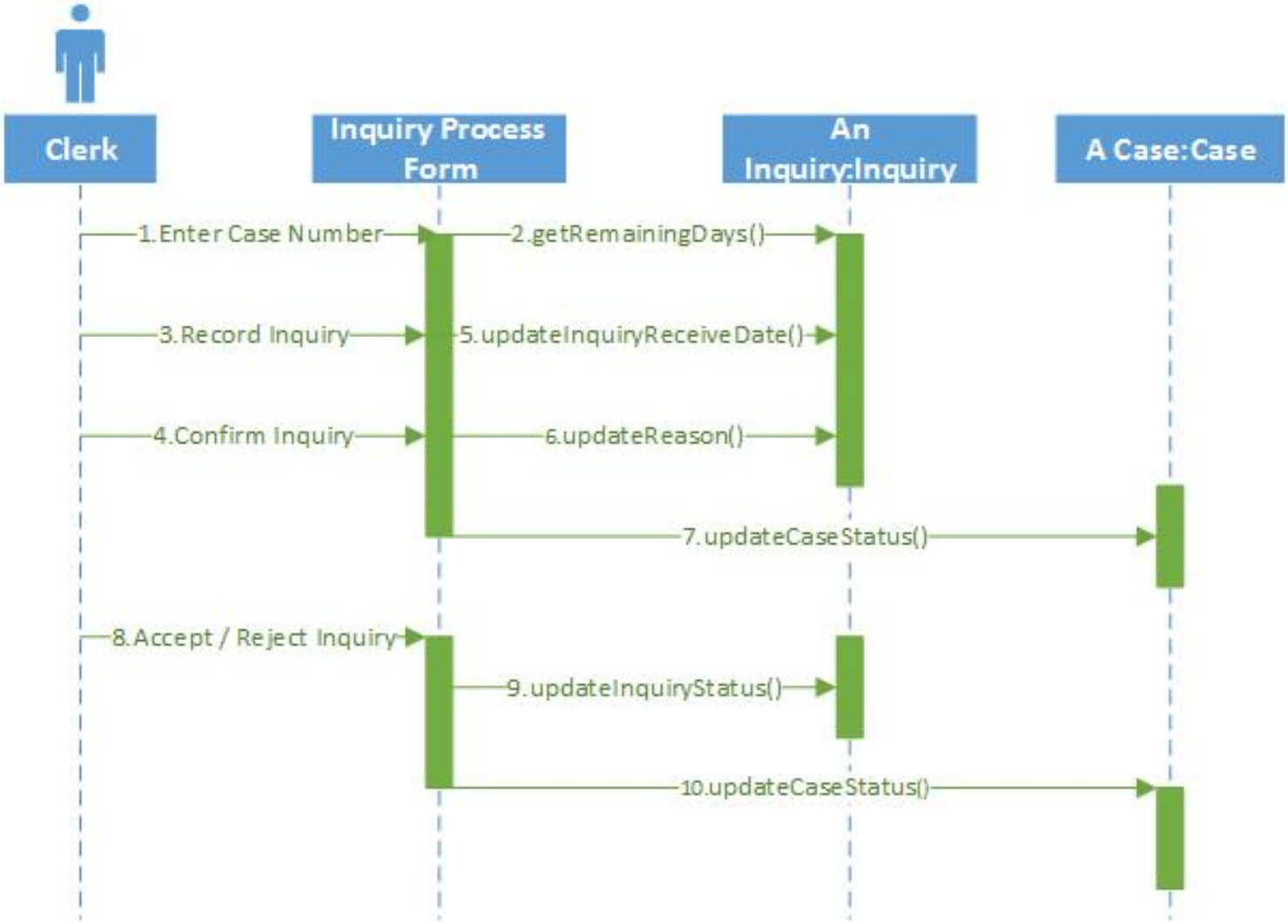
❖ Decree Preparation



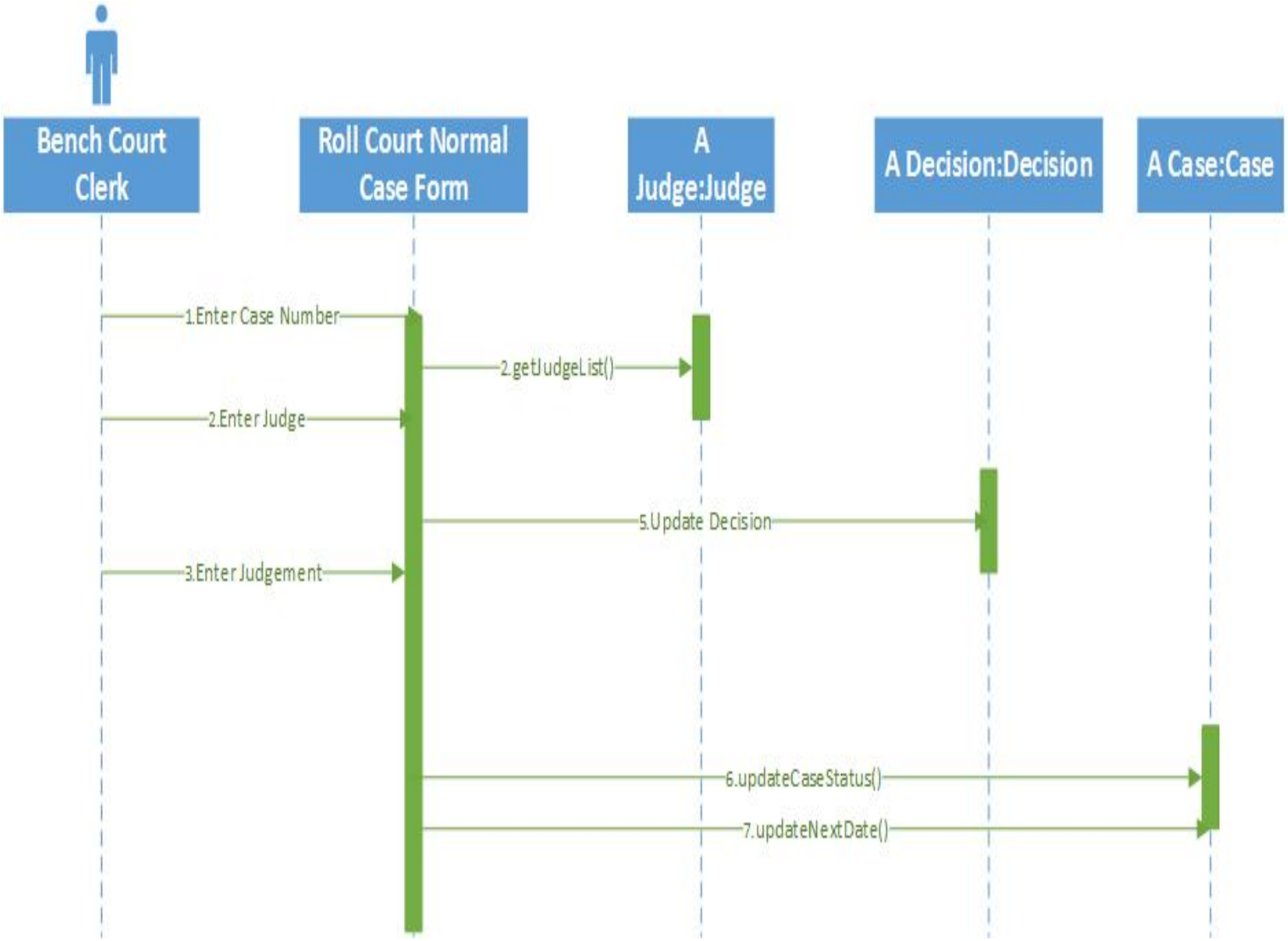
❖ Handling Issued Decree



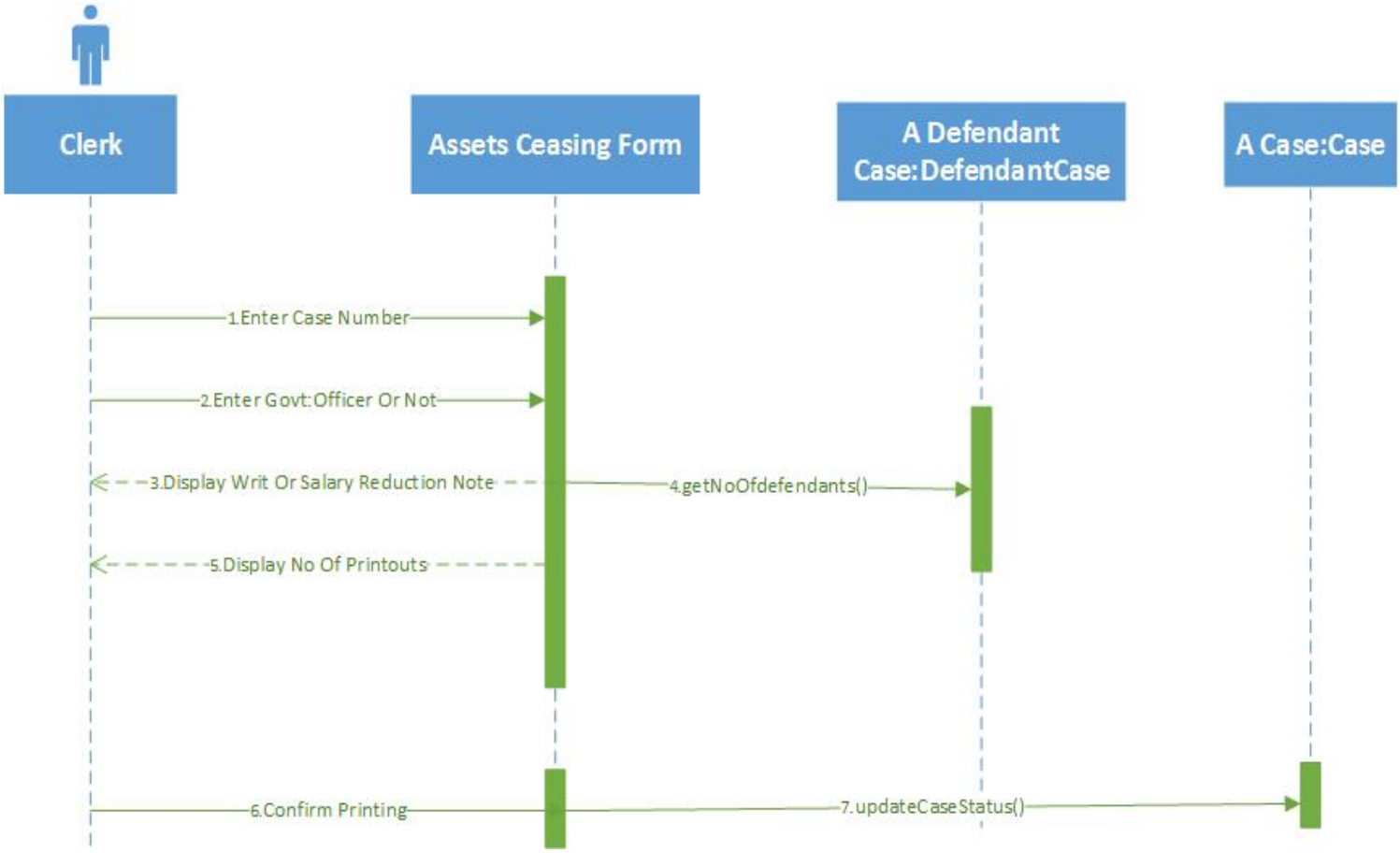
❖ Inquiry Process



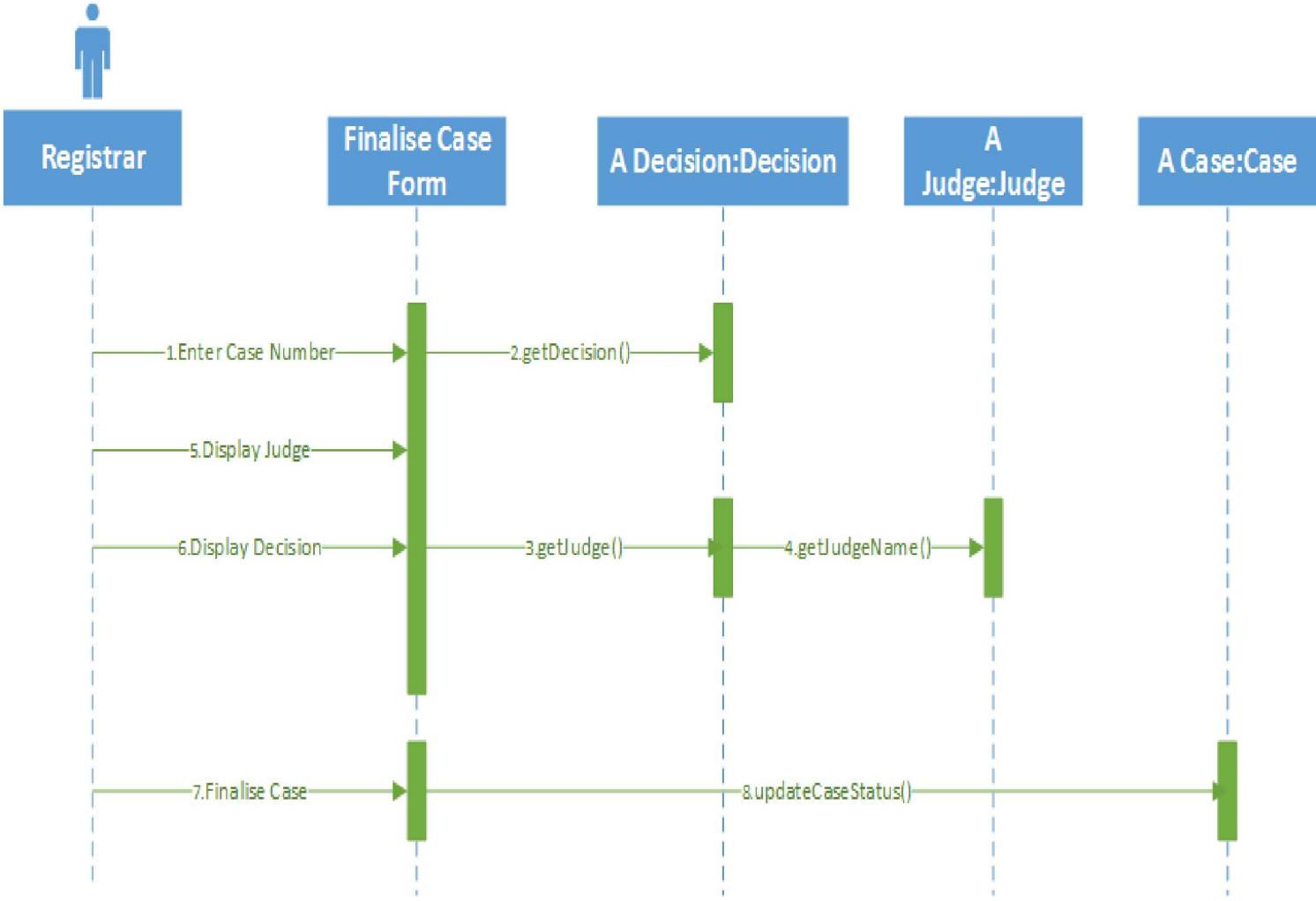
❖ Roll Court Normal Case- Bench Proceedings



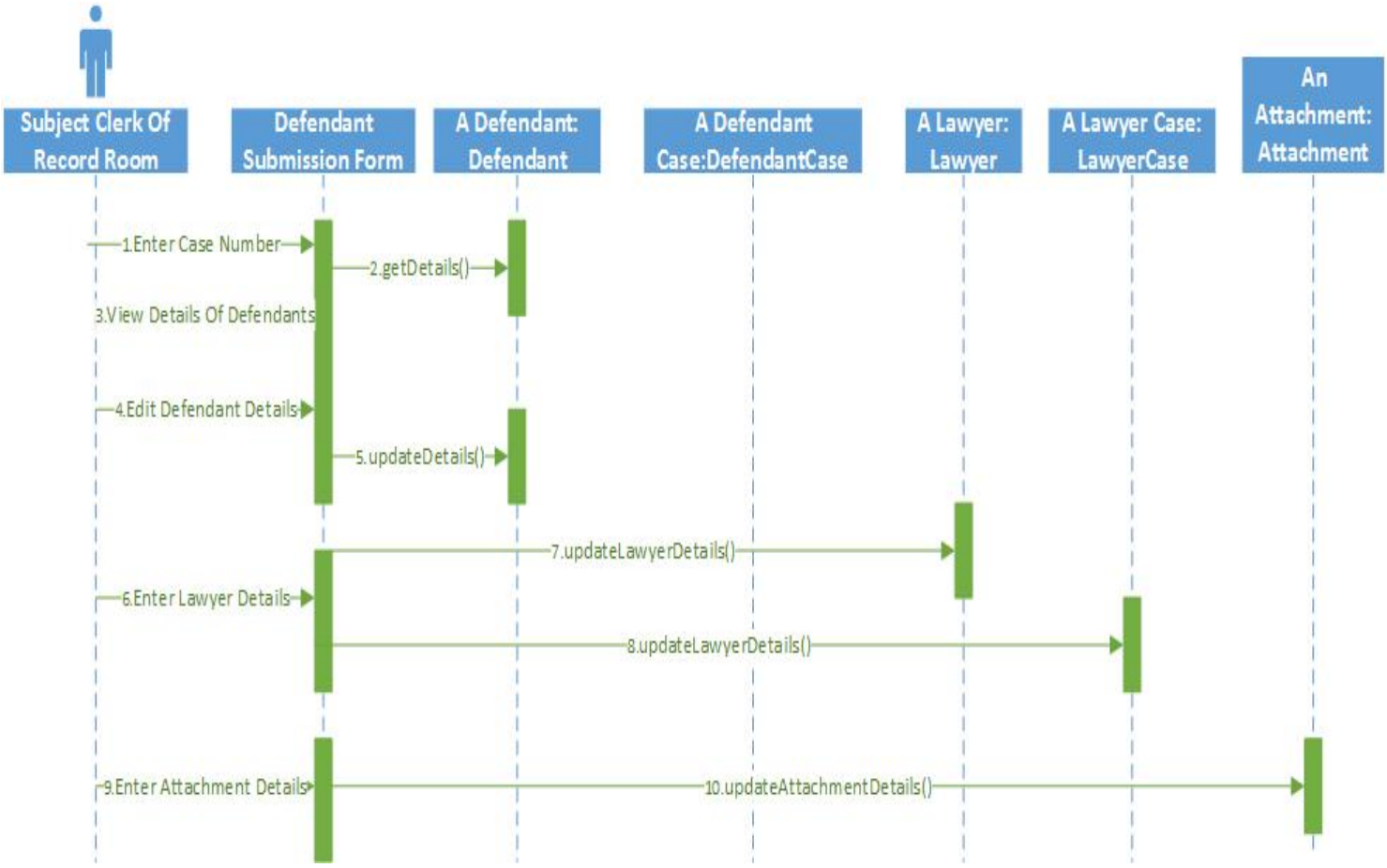
❖ Assets Ceasing



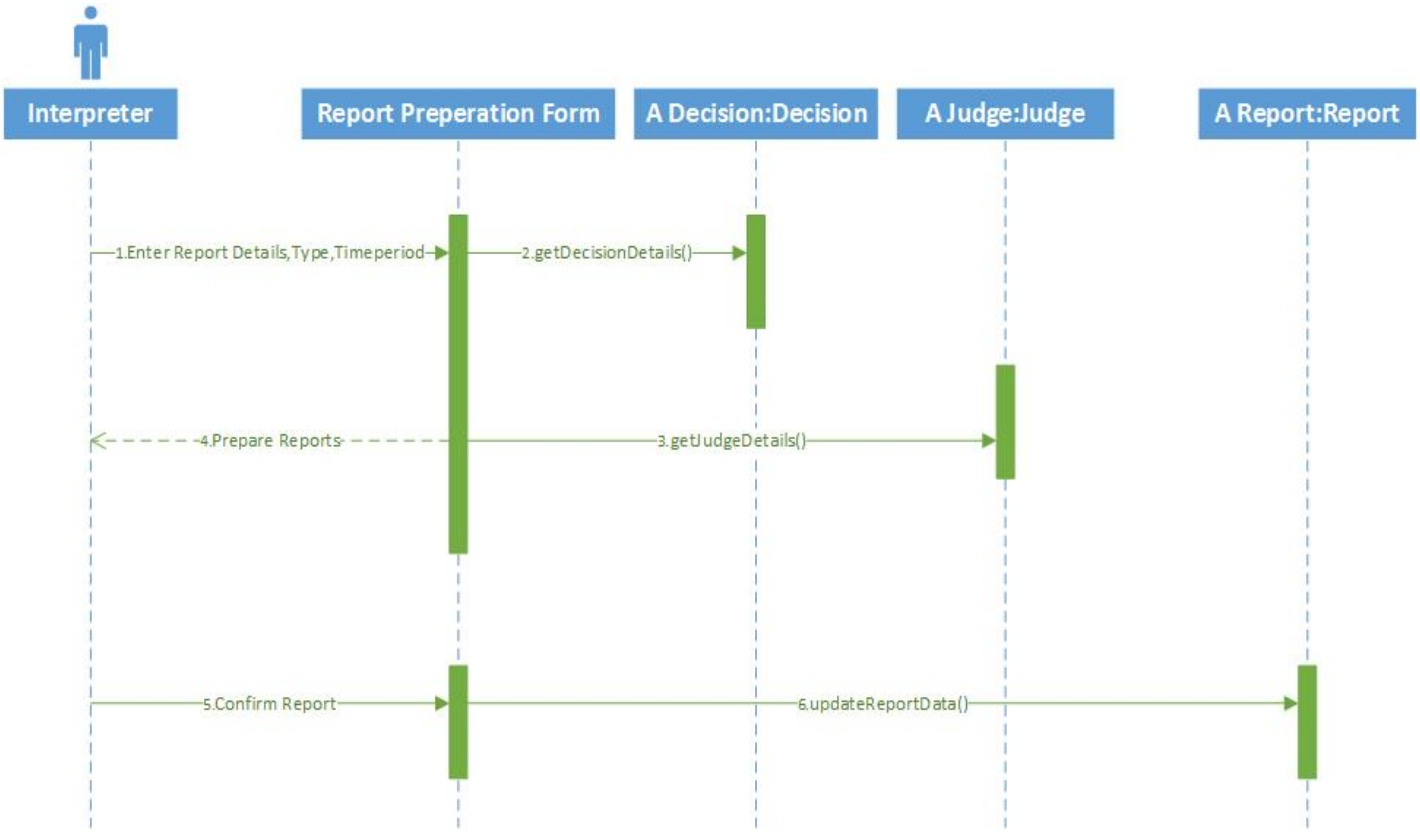
❖ Finalizing Case



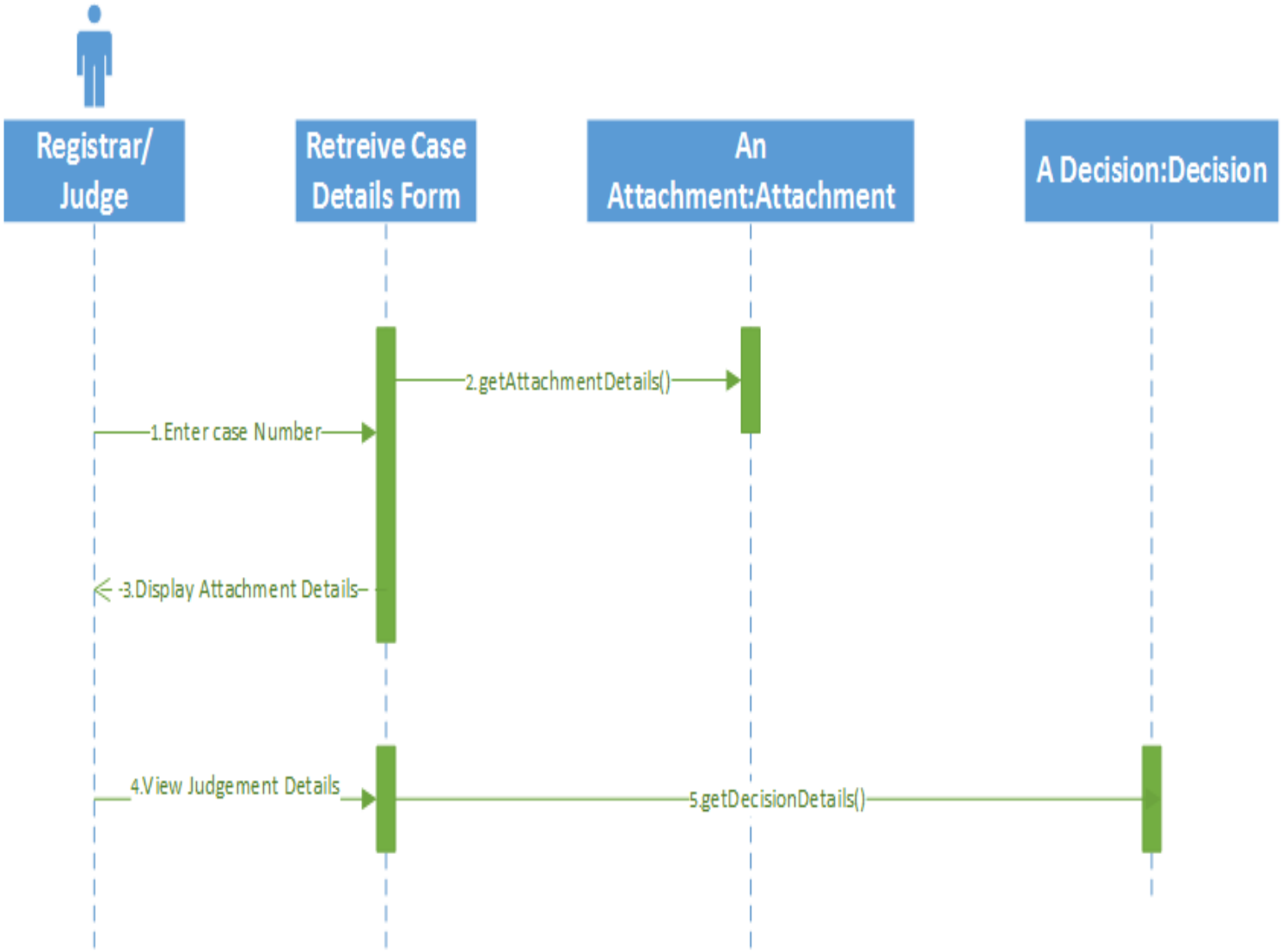
❖ Defendant Submission



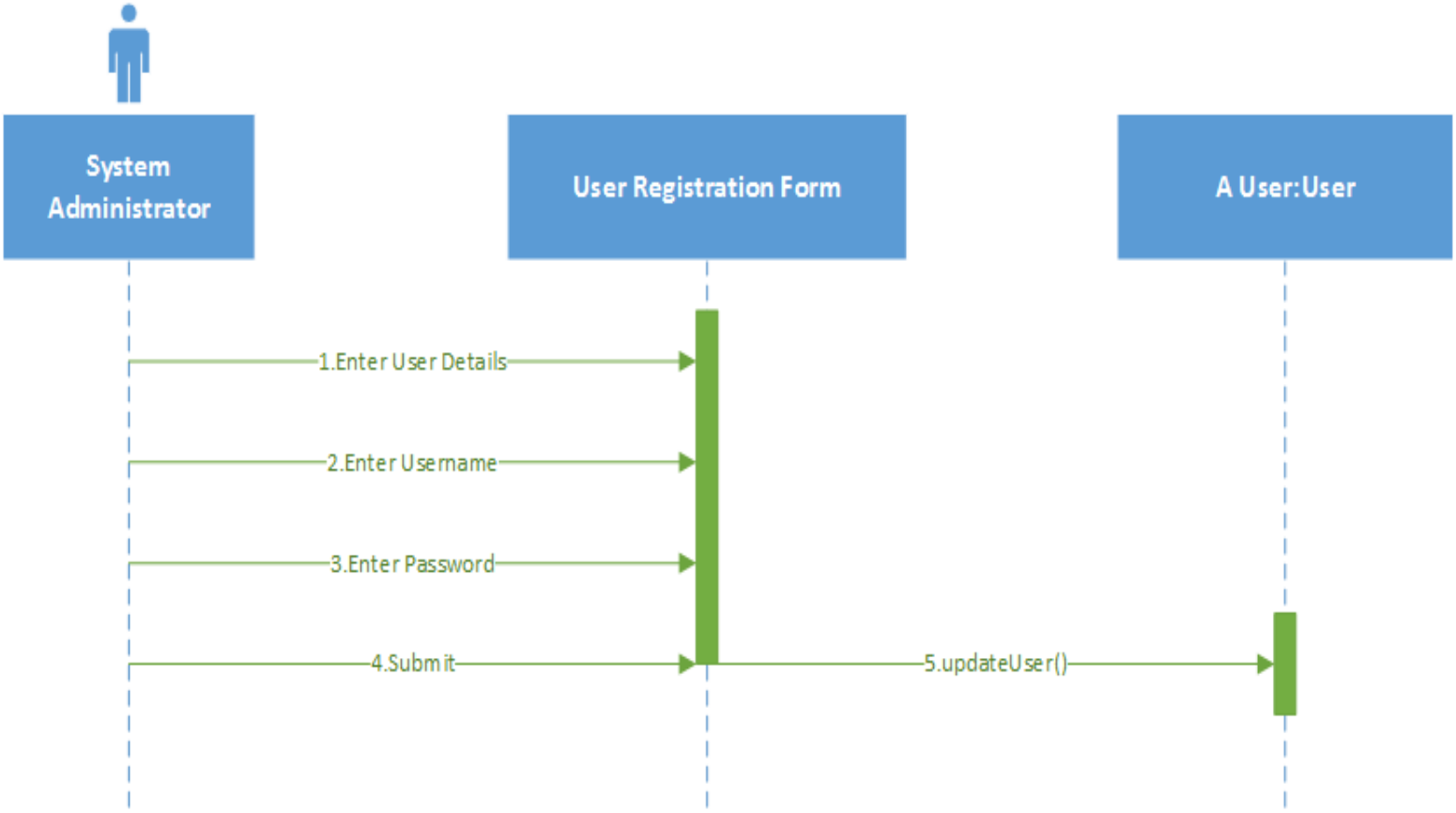
❖ Preparation of Reports



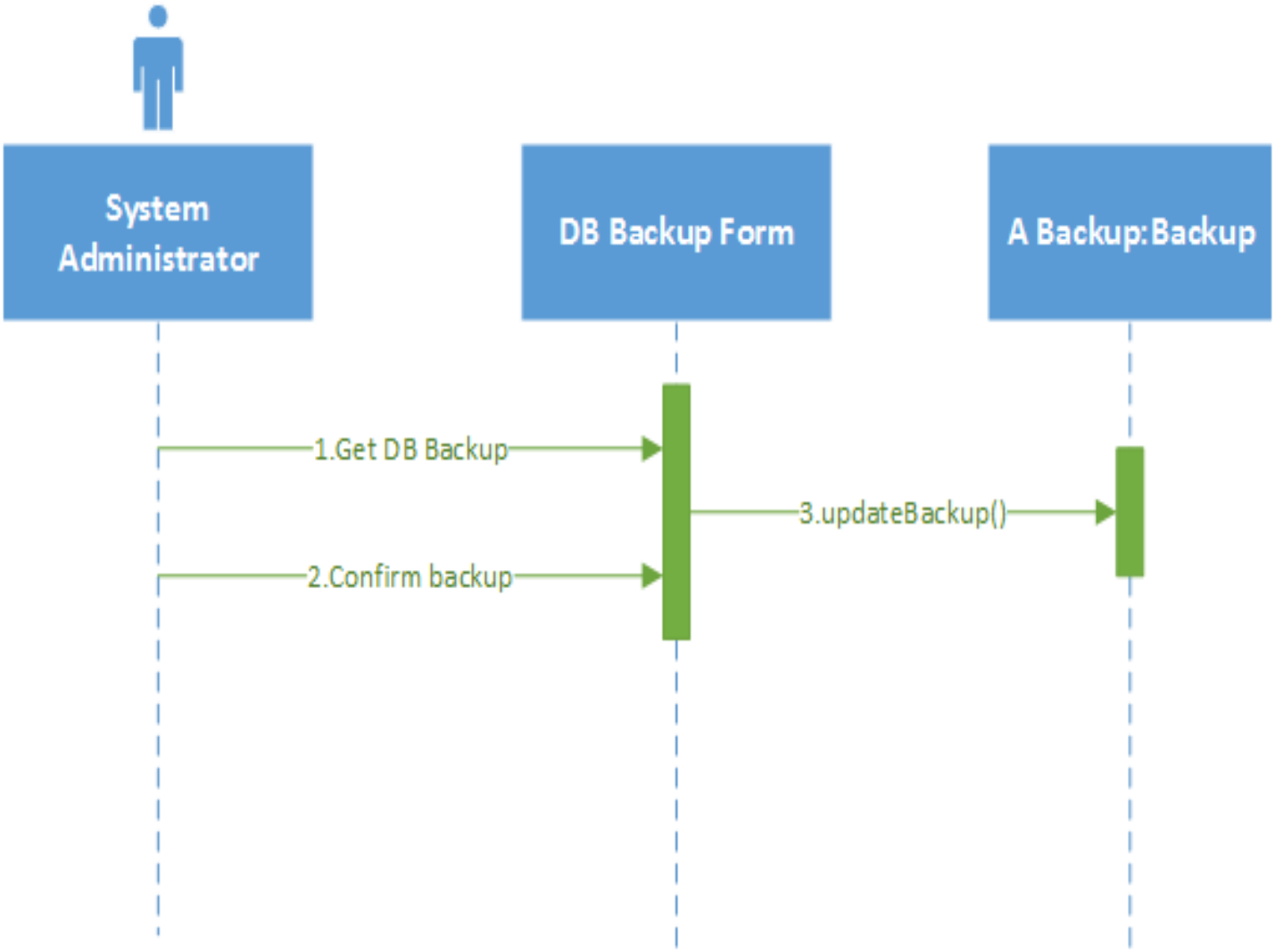
❖ Retrieval of Case Details



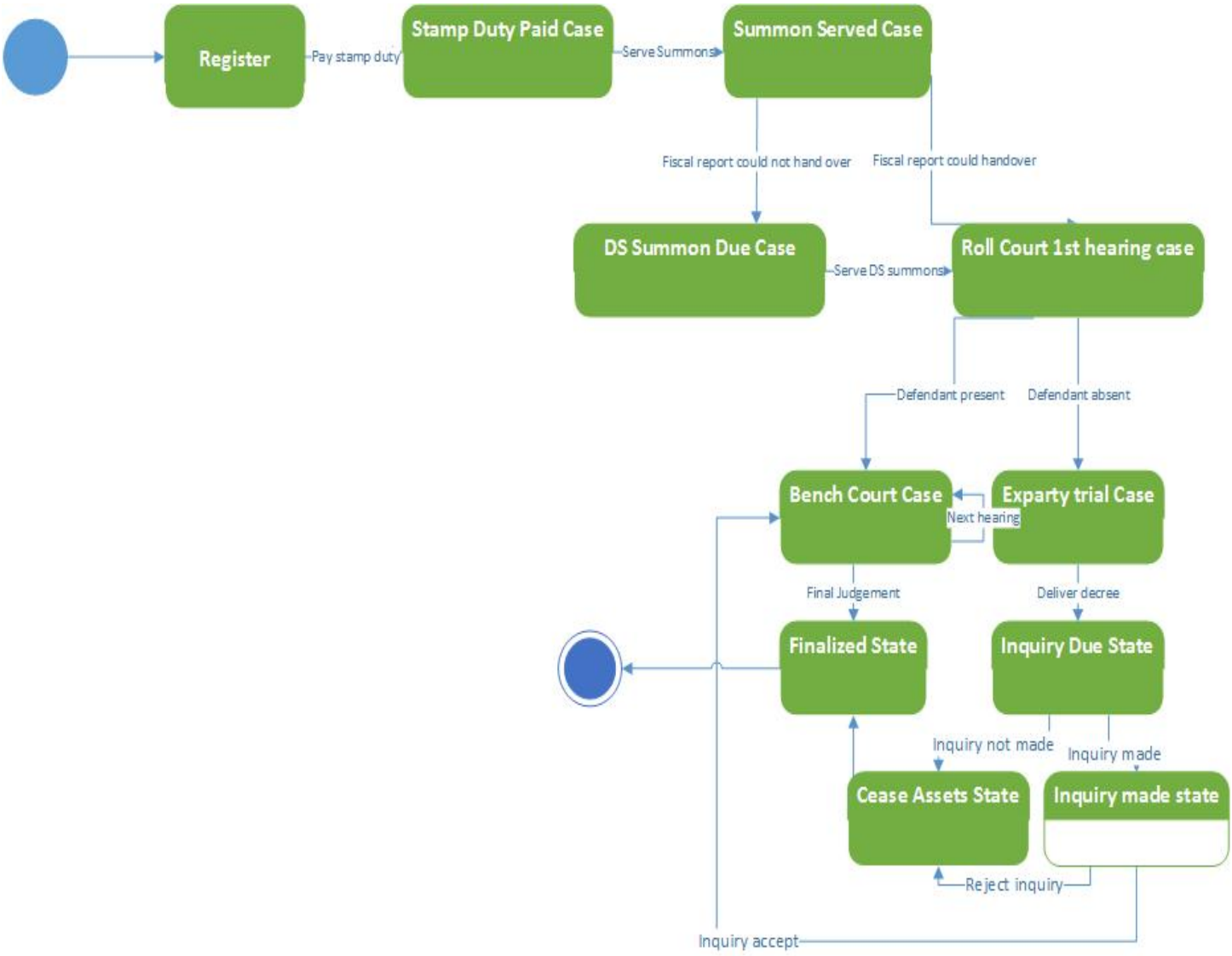
❖ User Registration



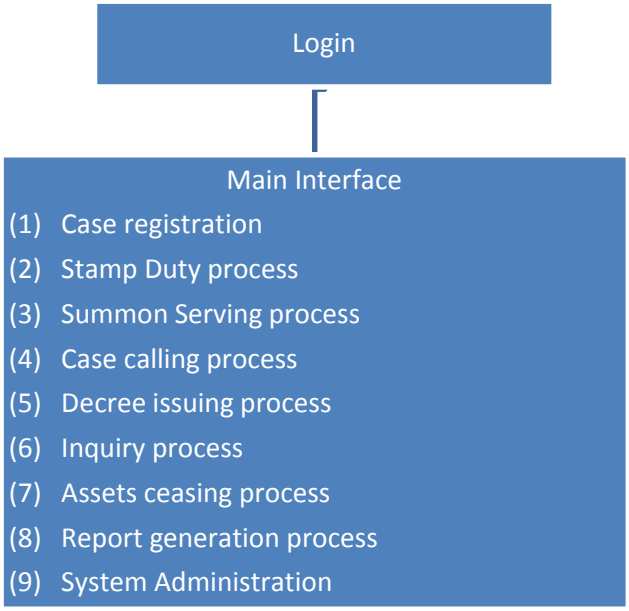
❖ Database Back-up



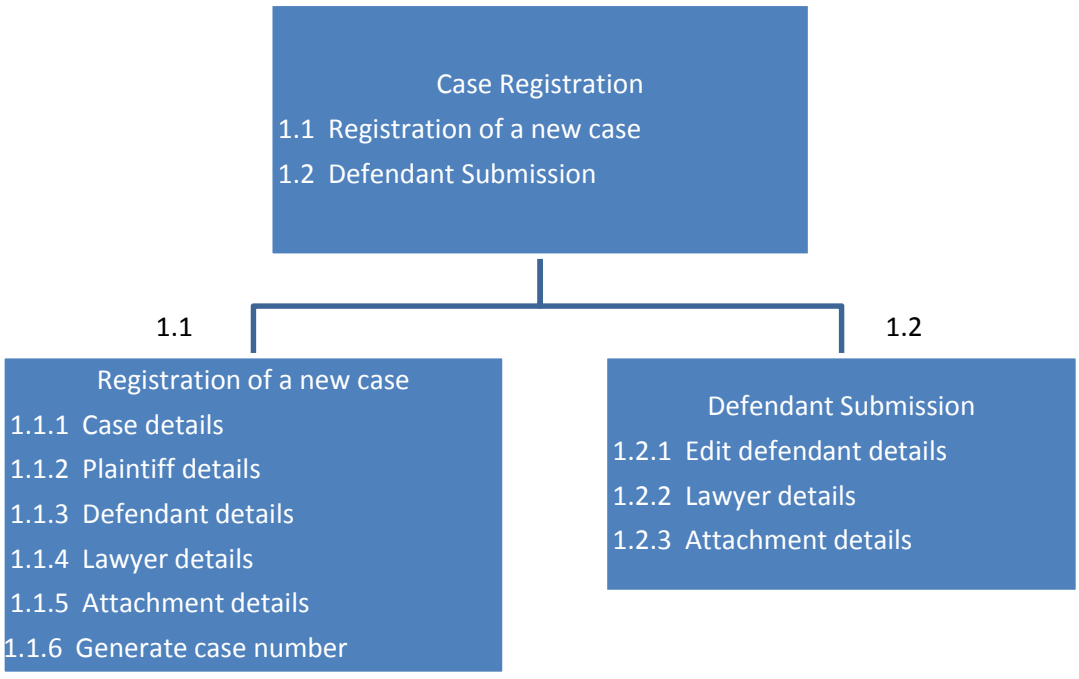
5.3 State Transition Diagram



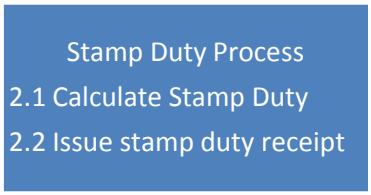
6 User Interface Flow Diagram



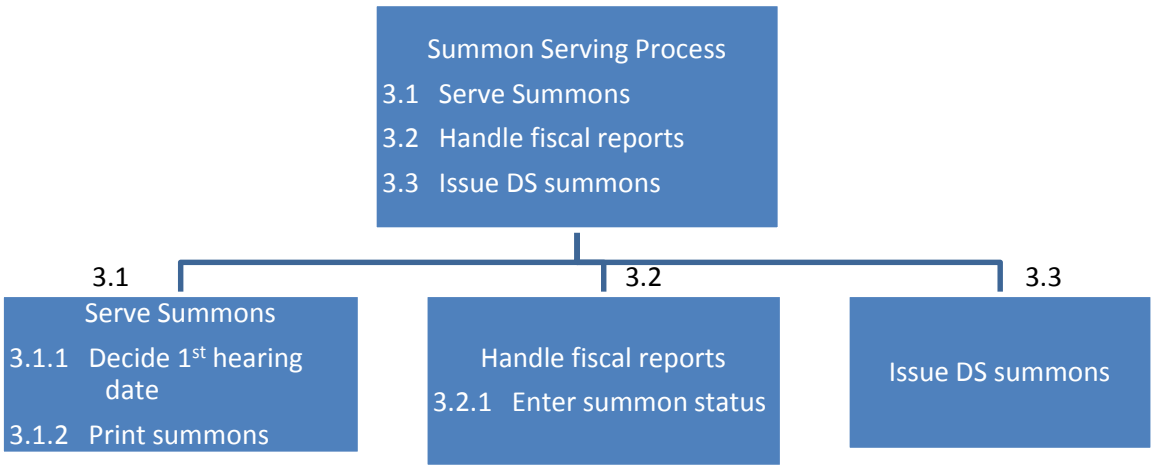
1) Case Registration



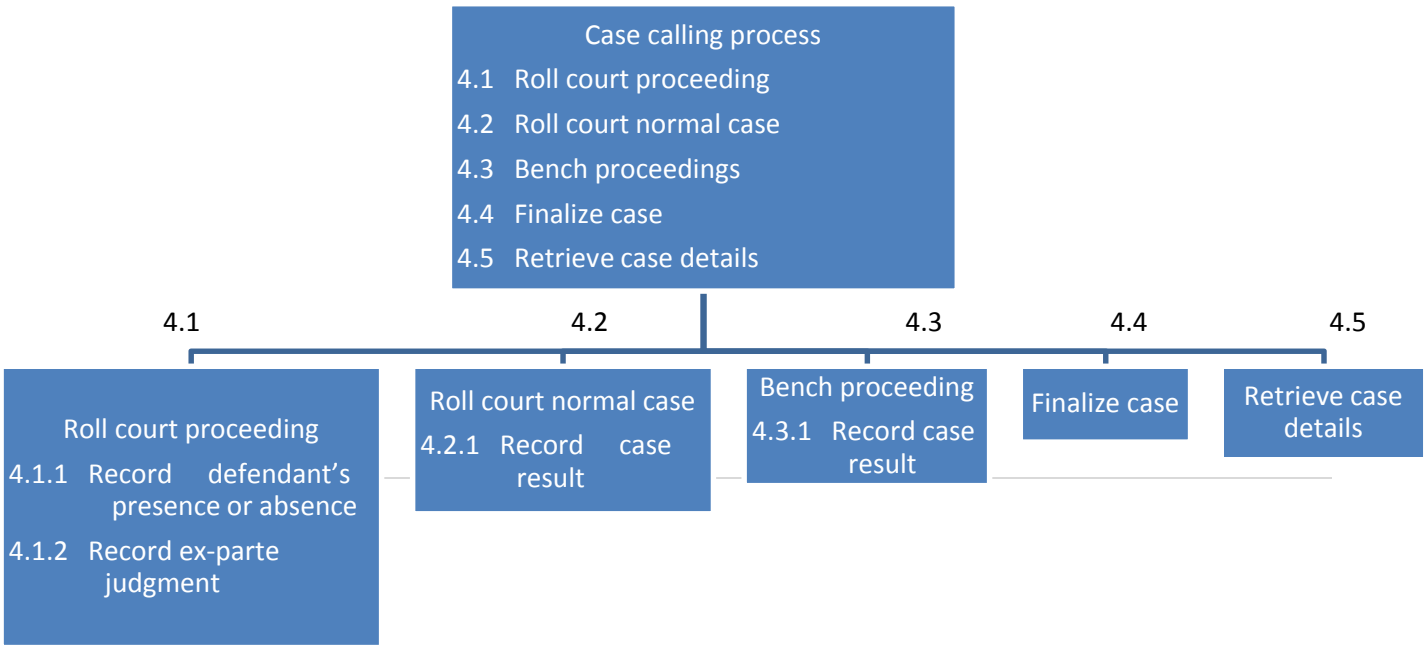
2) Stamp Duty Process



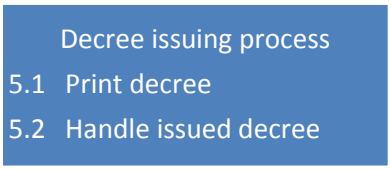
3) Summon Serving Process



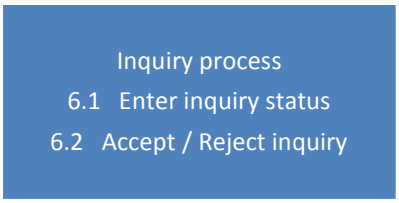
4) Case calling Process



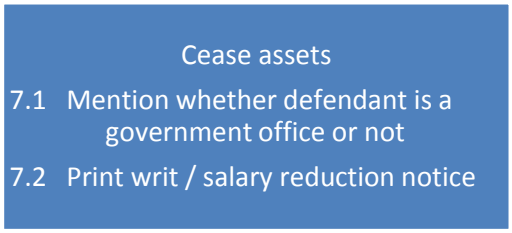
5) Decree issuing process



6) Inquiry process



7) Cease assets



8) Report generation

9) System Administration

System Administration
9.1 User registration
9.2 Database backup