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# ZIG-C REQUIREMENTS SPECIFICATION

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Software Engineering  
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## 1. Project description

This project is being created for a software engineering course.

We decided, due to the nature of the GIZ project of the project to make a dual platform, both desktop and mobile application. Because the project is divided in regions, the mobile application will be used by the regional coordinators and the desktop application mainly by the central office.

The work will begin on the desktop version of the application. It will be developed as an application that deals with all the operations of the company, including project submissions, financial statements and on-the-spot control. These files can be accessed only by the project evaluation office and the person who submits them.

The mobile version of the application will deal only with on-the-spot control. On-the-spot control includes GPS data to be registered, photo submissions, the completion of a form and additional remarks made by the field commissioner that will register the data. An additional feature that we may add is an internal chat that will connect people of the same project.

### 2.1 Product Context

The software that we want to develop will be only for one company and it is adaptable to similar projects with similar activities. The software will be self-contained, as it does not need to interact with other platforms, but just between themselves.

### 2.2 User Characteristics

Costumer profiles:

- Regional coordinators – will use both the desktop and mobile version of the application. In the desktop version, these employees need to complete forms, keep track of their financial expenses and upload files. Meanwhile in the mobile version they need to store the location, upload photos and to complete other forms.
- Financial office – will use the desktop version of the application. These employees need to complete spreadsheets, based on the expenses of the regional offices and the central office. These spreadsheets will be shared with all the offices.
- Administrator – will give access to new employees or modify the privileges of the existing ones.

- Organization supervisor – will be responsible for the evaluation of the files submitted by the regional coordinator.

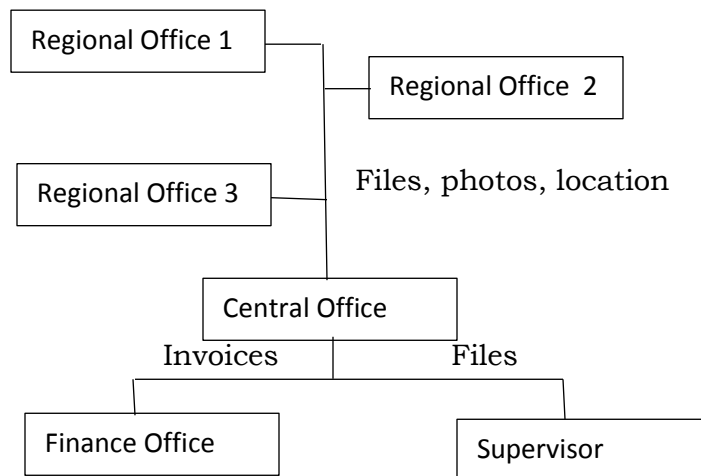
### 2.3 Assumptions

The mobile app that we'll develop will be on android platform, so iOS and windows phone users can't access it. On many rural areas there may not be phone reception so we'll have to come up with a good solution to save GPS data and photos and make it available to upload them when finding the proper reception.

### 2.4 Constraints

Both version will be developed from scratch, so employees will not have to use any old version or systems. Transaction will not be included in the software, but the financial office will be able to supervise any expenses by checking the invoices that will be uploaded by the regional coordinators. Access will be divided in levels, according to the functionality of each employee and the administrator will be able to manage all the other users. Regarding security, the access of each user will be restrained by an encrypted password and to secure database connection from possible injections. Graphic interface will be simple and user friendly, so there is no need for large processing capacity.

### 2.5 Dependencies



### 3. Requirements

#### 3.1 Functional Requirements

- BR\_F01- Business requirements\_Functional#nr

Nr.	Requirements	Comment	Priority	Date	Reviewed / Approved
BR_F01	The system should connect regional offices with coordinators.	Top functional requirement from the clients. (same database)	2	04/04/2017	Noel Boçi/ Livja Papuçiu
BR_F02	All users have their profiles protected by passwords.	Security will be provided by encrypted passwords.	2	04/04/2017	Noel Boçi/ Livja Papuçiu
BR_F03	The system should handle a large number of data since many files will be uploaded.	Large server space should be provided.	2	04/04/2017	Eixhan Gruja / Livja Papuciu
BR_F04	Human Resources (administrator) should be able to add new users according to their positions.	Changes may occur in the companys employees, they might hire/fire people.	2	04/04/2017	Megi Bezhani / Livja Papuciu
BR_F05	The system should give partial access to employees according to their position.	Employees <u>do not</u> need to see each others files.	2	08/04/2017	Megi Bezhani / Livja Papuciu
BR_F06	Regional coordinators can save location, in order to send it when they get phone reception.	This will be helpful, as these employees work in rural areas, where there's no phone reception.	3	08/04/2017	Urim Ahmetaj / Livja Papuciu
BR_F07	The files must be sent to a state supervisor who will approve or reject them.	It is a legal procedure part of these operations.	1	08/04/2017	Noel Boçi/ Livja Papuçiu
BR_F08	The financial office will have all costs registered and will also have invoices to prove these expenses.	This is necessary to make a transparent balance sheet.	1	08/04/2017	Eixhan Gruja / Livja Papuciu

BR_F09	There will be helpful labels to aid users.	Onhover labels will be added to help users identify icons.	3	08/04/2017	Urim Ahmetaj / Eixhan Gruja
BR_F10	The coordinators should be able to store files as drafts.	This is a work process that allows coordinators to save but still be able to make changes.	2	08/04/2017	Livja Papuciu / Noel Boci
BR_F11	The financial office will have all data of inventory.	They need this data to make the semi-annual audit.	1	21/04/2017	Noel Boci/ Megi Bezhani
BR_F12	The mobile app needs to fill forms.	These forms will be saved on desktop as drafts.	2	21/04/2017	Eixhan Gruja/ Urim Ahmetaj
BR_F13	If the files are submitted, they can't be edited anymore.	Once submitted files are sent to the supervisor for approval.	2	21/04/2017	Urim Ahmetaj / Megi Bezhani
BR_F14	There will be a graph to show nr of applications accepted.	This grapg will show some statistical data.	2	25/04/2017	Noel Boci/ Livja Papuciu

## Priority Definitions

- Priority 1 – The requirement is a “must have” as outlined by policy/law
- Priority 2 – The requirement is needed for improved processing, and the fulfillment of the requirement will create immediate benefits
- Priority 3 – The requirement is a “nice to have”, which may include new functionality

## 3.2 Non-functional Requirements

- Product Requirement

### User Interface

There will be a menu in all the pages of the application, beside the respective buttons in the scenes, so that it is easier for users to navigate.

Error messages will appear as a user inputs the wrong type of data or wrong password. They will make it easier for users to operate in this software and will also help developers keep track of errors and eliminate them.

The screen format we have thought of is organized in three horizontal tabs, for the desktop version and three vertical tabs for the “on the spot control”. When one of them is selected it opens a separate functionality. There will be easy steps to follow to each sector.

## 3.3 Usability

Accessibility - only users that are approved by administrator can access the system. Each user level, can access only files and profiles it needs to, there are restrictions on the transparency level.

Learnability - The user documentation should be complete, and the system will be easy to learn. Most functions will have icons and when moused over the name will appear.

## 3.4 Performance

The software should be available to be used by all users simultaneously. All the data should be stored in the database in less than a second after they're submitted by the users. The type of information that will be stored will be the basic data about the user that will submit them, date of the submission, images of the area and different files attached with the project (example excel work files used for transactions).

### 3.4.1 Capacity

Every user has its own autonomy even though they work in the same database they don't load at the same time. The transactions will usually be lightweight transactions. The maximum number of users simultaneously is all of them, which is approximately 100.

### 3.4.2 Availability

The software will be used on average 8-10 hours per day, but it will be available 24 hours per day. The mobile application will probably have a bit of trouble working in every zone because the internet provided by communication companies doesn't fully

cover Albania. In order for our application not to be impacted by this problem the mobile version will have an option to save the GPS data gathered and then send them to the database. Impact of downtime will not be very crucial because all the data can be saved on the mobile or pc separately.

### 3.4.3 Latency

There will be no limit on the maximum acceptable time.

## 3.5 Manageability/Maintainability

### 3.5.1 Monitoring

In order to detect errors, we will use error detection schemes such as hash function (or checksum algorithm). A hash function adds a fixed-length tag to a message, which enables receivers to verify the delivered message by recomposing the tag and comparing it with the one provided. Repetition codes scheme can be used also.

### 3.5.2 Maintenance

The design of the software in the desktop version will be simple in order for it to be as fast as possible and useful even in computers with low graphical interface. When it comes to the mobile application it must be a smartphone and have an incorporated GPS.

### 3.5.3 Operations

The administrator will be responsible for back-ups at least one time per month since he has privilege to get and see all the data.

## 3.6 Security

### 3.6.1 Protection

Each individual firstly must sign up at our application by giving some personal information about themselves and later could use the program by logging.

The application will have a login page where each user must write his/her email address and their password which will be protected by MD5 algorithm.

We are going to secure the database connection with specific credentials.

### 3.6.2 Authorization and Authentication

Authorization is going to be given to users based on a System-level authorization.

We will follow a System maintenance authority which is designed for users to maintain databases within a database manager instance that contains sensitive data. Not every user is not allowed to have access in specific files, so a hierarchy of users is created in the moment of Authentication when everyone is asked to give some personal information and also the type of the job they have.

## 3.7 Portability

- The mobile version of the application will run on any Android device.
- The mobile version will be developed entirely with 'Android studio' and will not contain any code of the desktop version.
- The mobile application will be developed for Android versions 4.4 and up (Android API 19).
- Cellular data is recommended, but the mobile application will store the data to be sent until a network connection is established.
- The mobile version will not be available on Windows phones and iOS.

- Organizational Requirements

## 3.8 System Interface/Integration

Our software will store its data on a database. The database will be accessible by the mobile version, to store the data from on the spot controls and by the desktop version to process form, add financial statements and store other necessary data in the database.

### 3.8.1 Network and Hardware Interfaces

Both the mobile and desktop version will use ASYNC task to communicate with the server-side. This will provide a continuous stream of information and let the user perform other operations while the data is transferred.

### 3.8.2 Systems Interfaces



The main system will be the desktop version of the application. The mobile version will be a sub-system, available only to the regional coordinators, that will help in data collection for the main system.

The sub-system to main system interface

The sub-system will store GPS data and photos from on the spot control. Based on the region the on the spot control is made an ID will be provided for the data collected. The data will be stored to a file and attached to a specific form, according to the regional coordinator needs. The file will then be sent to the main system, where the user can make further remarks about his observation for the on the spot control.

### 3.9 Data Management

Information that is going to be placed into the database includes:

- Text
- Photo
- GPS data such as latitude and longitude
- Spreadsheets used by the department of the finance

- External Requirements

### 3.10 Standards Compliance

The financial office will trace all the expenses of all the regional offices and the central office, then creating a joint financial statement. The statements will be issued quarterly and an audit semi-annually, so a trace file will be created to store the before values for each account.

- Domain Requirements

If files are not approved by the supervisor, they will be deleted, as the application was not successful.

If they are approved the funds requested will be granted and file will be marked as approved.

Expenses will be divided into each regional office in separate balance sheets.

## 4.1 User Stories

Users- 1. Regional Coordinator

2. Supervisor

3. Finance office

4. System administrator

Benefits- 1. Write/edit/save/delete files

2. Approve/delete files

3. See invoices/add expenses

4. Add/delete users

Regional coordinators need to...

1. write files, in order to have the summary of what they have noticed in the field.
2. delete files, if applicants decide to withdraw, or they do not meet the requirements.
3. Save submissions as drafts, in order to add further information later in time.
4. Submit final version of file to the supervisor.
5. edit files, in case they are already saved as drafts and they need further processing in order to be submitted.
6. Add their expenses to the system, in order for them to be sent to the finance office.
7. Add invoices to the system, so that they will be sent and reviewed from the finance office.
8. See all submissions, in order to have a full view of all the files.
9. Download submissions, in order to show it to applicants and have it signed.
10. Use on the spot control, in order to make on the field assessment easier and more accessible.
11. Save data on the mobile, when internet connection is not available, in order to give them ease in usage even in rural areas.
12. Save files as drafts from the mobile application including, file, photos, location, in order to have the file ready for submission in the office.

The central office is divided into the finance office and the supervisor office.

Finance office workers need to...

1. Add expenses they might have, in order to have an accurate balance sheet.
2. See invoices sent by the regional coordinator, in order to have proof of their expenses.
3. See inventory, in order to have a clear view of all inventory for both central and regional offices.
4. Update inventory, in order to be able to add to inventory for both central and regional offices.
5. Make semi-annual audit, in order to make balance sheets.

The supervisor needs to...

1. See all submissions made by the regional coordinators, in order to approve them.
2. Resend submissions to the regional coordinators, in order for these files to be re-evaluated.
3. Delete submissions, when they are not approved.

The administrator needs to...

1. See a list of all users, in order to manage them.
2. Add a user, if a new employee is hired.
3. Be able to edit users, in case they change their roles within the company.
4. Delete users, in case an employee is made redundant.

### 4.1.1 Scenarios

- Regional office

Regional coordinator logs in to the desktop software

Regional coordinator gathers files from the applicant

Opens file submission tab

Creates 'New application' and names the application

Fills form

File incomplete

Regional coordinator saves the file as draft

1.

Regional coordinator gathers files from the applicant

Opens file submission tab

Creates 'New application' and names the application

Fills form

File is complete

Regional coordinator submits the final version of the file

2.

Regional office gathers files from the applicant

Opens file submission tab

Opens a previous application from 'Save as draft'

Fills forms/adds additional data

File is complete

Regional coordinator submits the final version of the file

3.

Regional office gathers files from the applicant

Opens file submission tab

Opens a previous application from 'Save as draft'

Fills forms/adds additional data

File incomplete

Regional coordinator saves the file as draft

4.

The applicant has not provided the documents and will not continue his application

Regional coordinator opens a previous application from 'Save as draft'

Regional coordinator deletes the application

5.

Regional coordinator opens the finance tab

Adds additional data of expenses

Uploads invoices

Saves changes

6.

Regional coordinator opens the all submission tab

Downloads a previous application

Regional coordinator logs in to the mobile software

7.

Regional coordinator gathers data from on the spot control

No internet connection available

Regional coordinator saves the data in the device to add files when internet connection available

8.

Regional coordinator gathers data from on the spot control

Internet connection available

Regional coordinator choses files to submit on the spot data

Regional coordinator adds file to the application

The submission is saved as draft

- Central office

Supervisor logs in to the desktop software

9.

Supervisor opens a file submitted by the regional office

Checks the submission

Approves file

10.

Supervisor opens a file submitted by the regional office

Checks the submission

Submission need additional files/information

Sends the file to regional coordinator to be fully completed

11.

Supervisor opens a file submitted by the regional office

Checks the submission

Submission is not approved

The application is deleted

- Finance logs in to the desktop software

12.

Finance opens the regional offices invoices and expenses tab

Adds expenses to the balance sheet

13.

Finance office keeps track of the central office expenses

Adds expenses to the balance sheet

14.

Finance office prepares for the semi-annually audit for regional offices

Finance office opens the inventory tab

Finance office updates the inventory tab for each regional office

15.

Finance office prepares for the semi-annually audit for the central office

Finance office opens the inventory tab

Finance office updates the inventory tab for the central office

- Administrator logs in through the desktop version

17.

Administrator sees all users registered.

Administrator adds new user in the system.

18.

Administrator sees all users.

Administrator selects the user he wants to change.

Administrator edits current user.

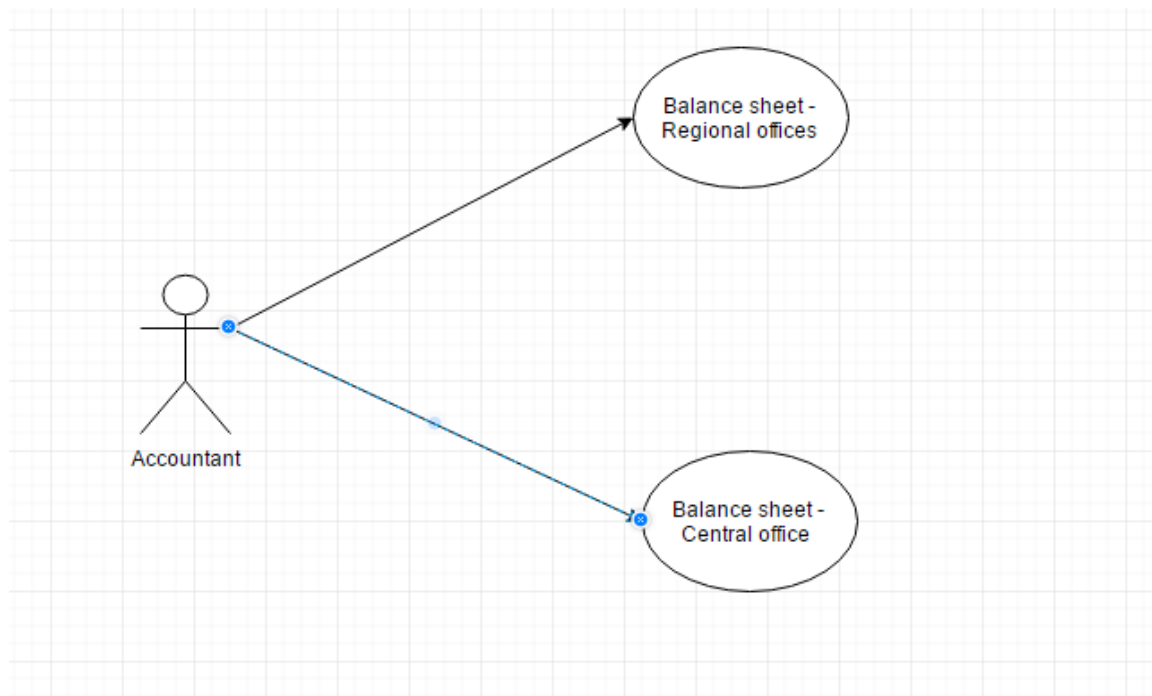
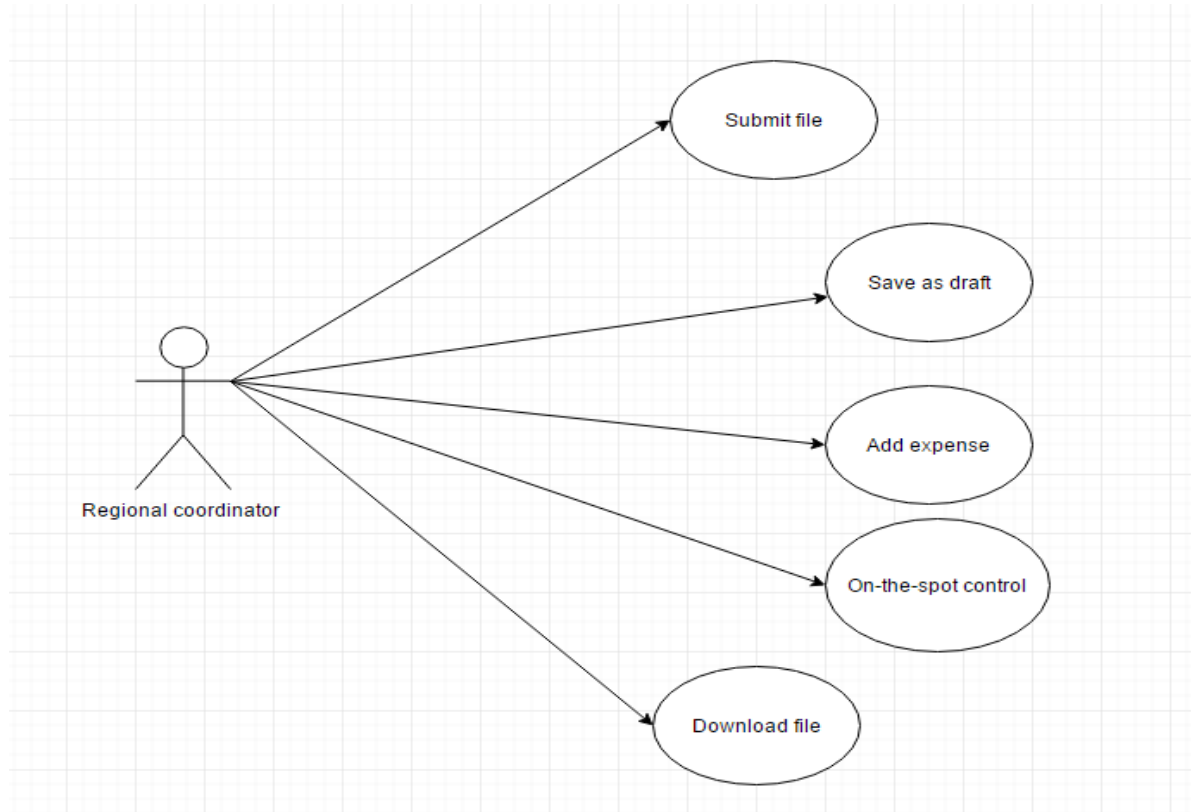
19.

Administrator sees all users.

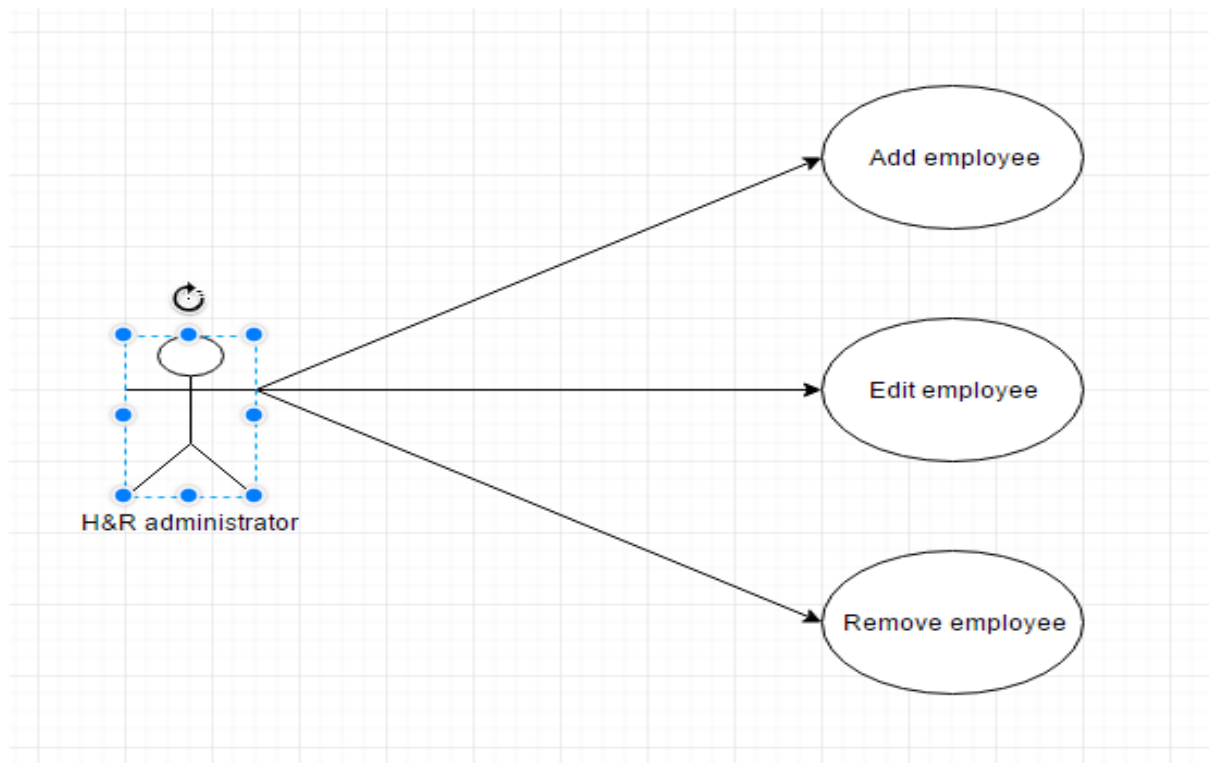
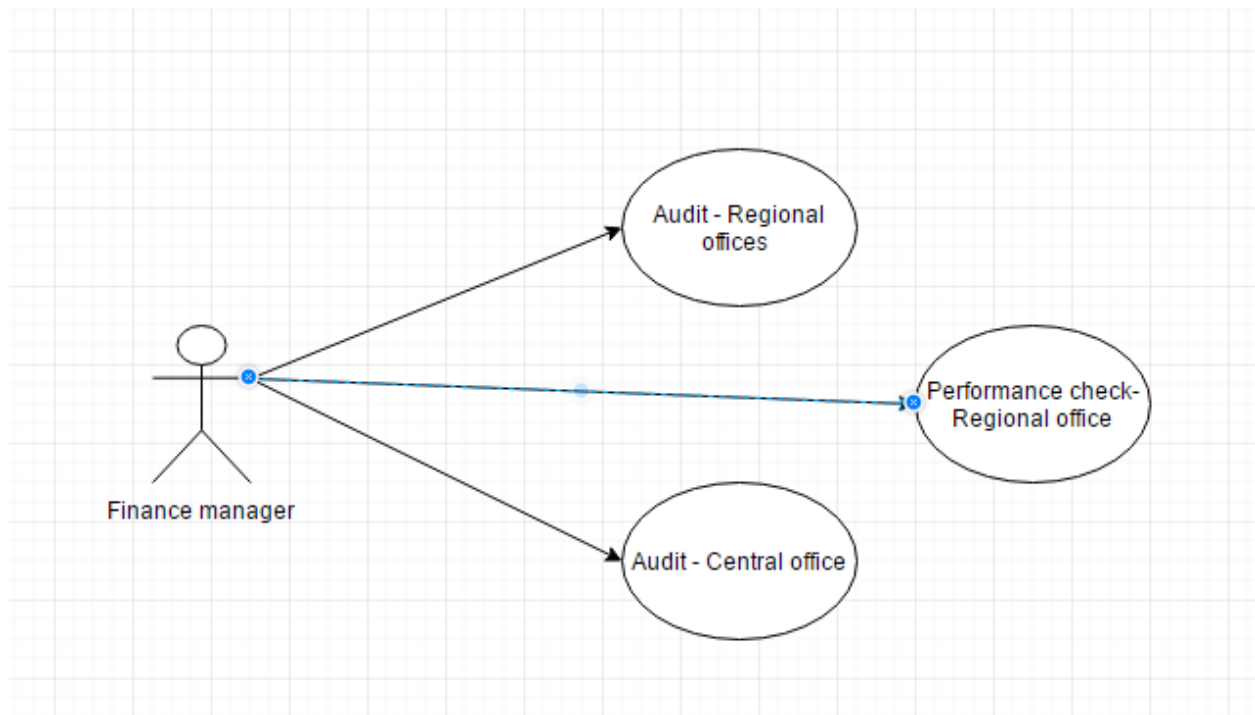
Administrator selects the user he wants to delete.

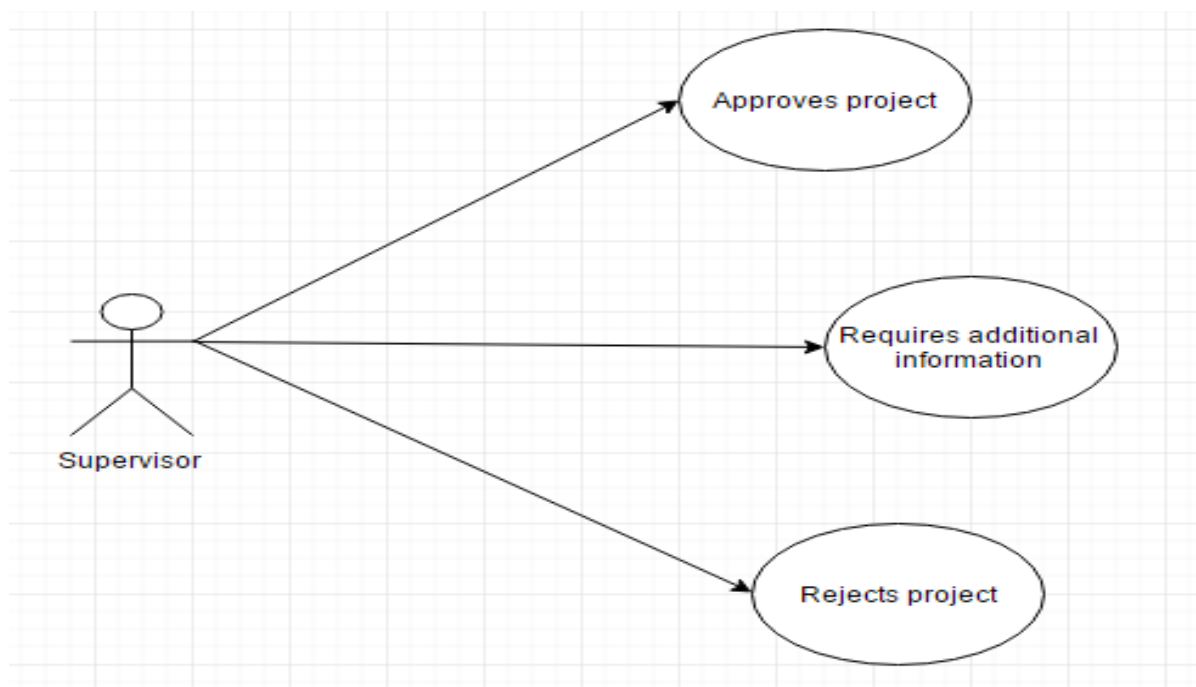
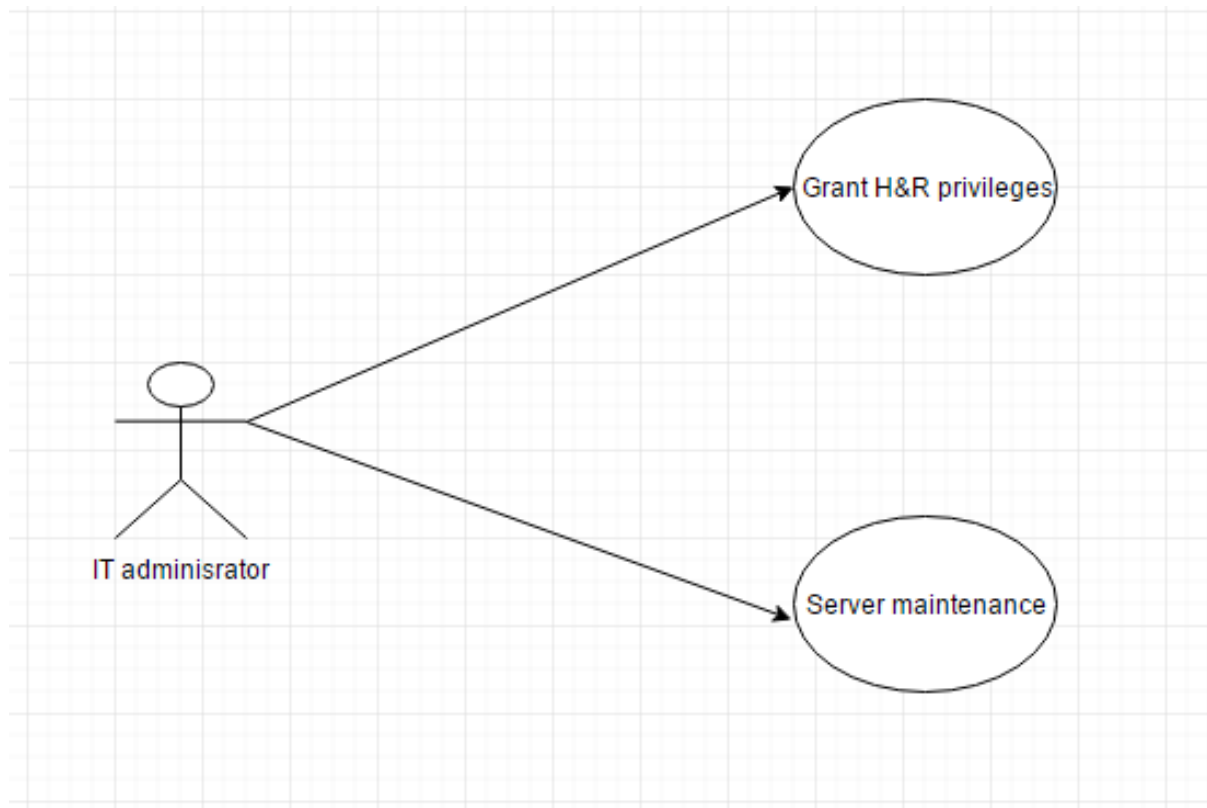
Administrator deletes user.

## 4.2 Use cases diagrams

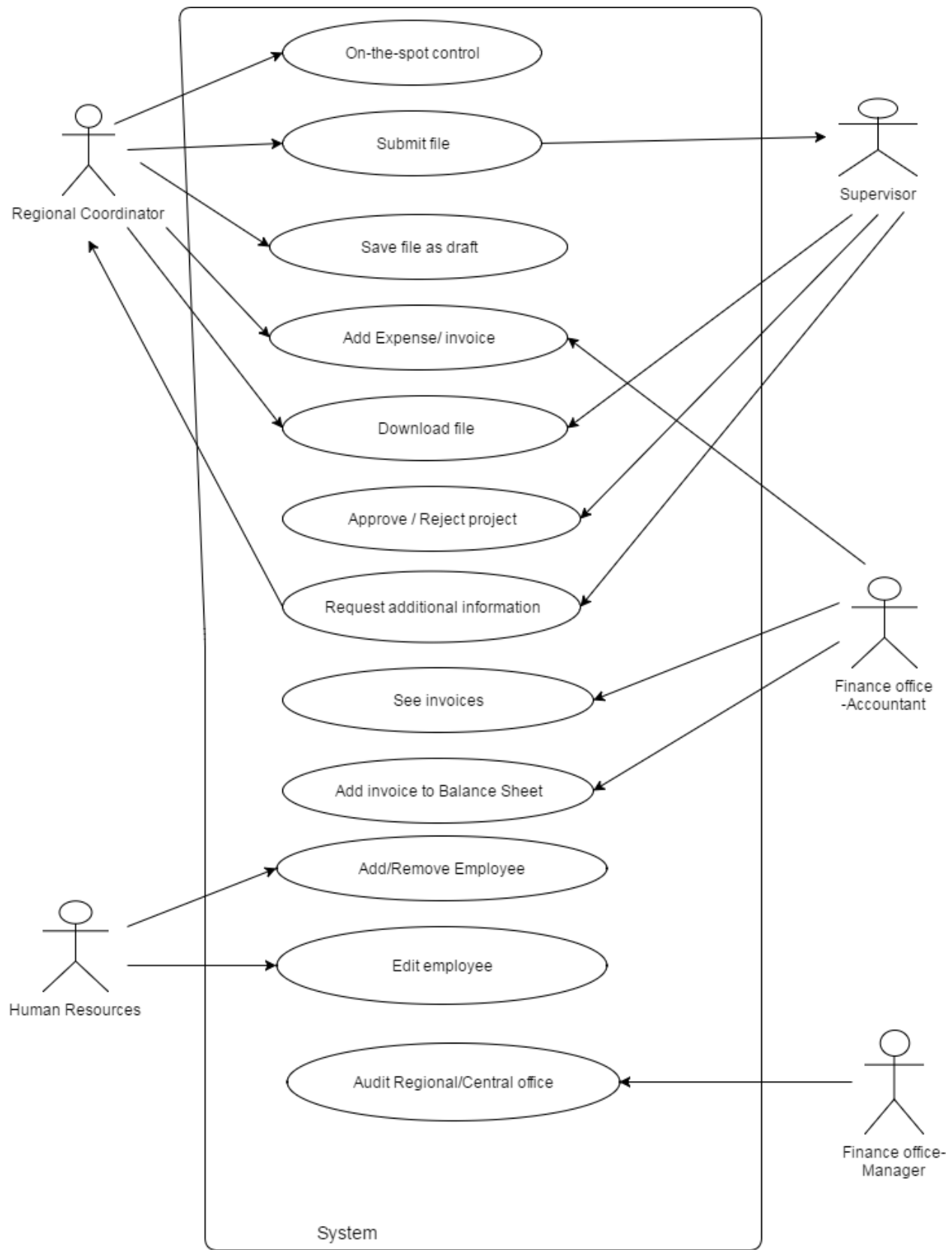








## Zig-C Requirements Specifications



### 4.2.1 Use Cases

Use case number	UC-01
Use case name	Log-in
Overview	Provides the employee to enter the systems by entering his/her credentials
Actor(s)	Employees, Zig-C desktop/mobile system
Pre-condition(s)	You must already have a username and password provided. Internet connection is required.
Scenario flow	Main (success) flow: <ol style="list-style-type: none"> <li>1. A log-in screen appears, requesting the username and password of the employee</li> <li>2. The credentials are correct</li> <li>3. Employee logged-in</li> </ol>
	Alternate Flow -1: <ol style="list-style-type: none"> <li>1. The credentials are incorrect</li> <li>2. The software displays a message ('Wrong username or password')</li> <li>3. The system displays the log-in form</li> </ol>
	Alternate Flow -2: For the mobile application, no internet connection may be available. The process will be shown in UC-02
Post condition(s)	Employee is logged-in to its respective working space in the software

## Zig-C Requirements Specifications

Use case number	UC-02
Use case name	Mobile application log-in (no internet connection)
Overview	Ensuring the functionality of the mobile application when no internet connection is available
Actor(s)	Regional coordinator, Zig-C mobile system
Pre-condition(s)	Regional coordinator must have a valid username and password
Scenario flow	Main flow: <ol style="list-style-type: none"><li>1. Zig-C mobile system displays the log-in form and a 'Offline version' button</li><li>2. Regional coordinator continues to use the mobile application offline</li><li>3. Zig-C mobile application enters in offline version</li><li>4. Zig-C can store GPS data and photos in the device memory</li></ol>
Post condition(s)	The data from on-the-spot is stored in the mobile application.

Use case number	UC-03
Use case name	File submission
Overview	The regional coordinator prepares to create a new application from an interested party. After gathering the necessary files, based on the investment that will be done, the user will store the data in the Zig-C database.

## Zig-C Requirements Specifications

Actor(s)	Regional coordinator, Zig-C desktop system
Pre-condition(s)	Regional coordinator logged in the desktop application. Internet connection available.
Scenario flow	<p>Main flow:</p> <ol style="list-style-type: none"> <li>1. Regional coordinator opens file submission tab</li> <li>2. Creates new application</li> <li>3. Fills form with necessary data</li> </ol>
	<p>Success:</p> <ol style="list-style-type: none"> <li>4. File is complete</li> <li>5. Regional coordinator submits the final version of the file</li> </ol>
	<p>Alternative:</p> <ol style="list-style-type: none"> <li>4. File is incomplete</li> <li>5. Regional coordinator saves the application as draft</li> </ol>
Post condition(s)	<p>If the final version is submitted, the file will be available to the supervisor for approval.</p> <p>If the file is saved as draft, additional files and information will be added by the regional coordinator (shown in UC-04).</p>

Use case number	UC-04
Use case name	File addition
Overview	The regional coordinator will add additional files and information from a previous 'saved as draft' submission.
Actor(s)	Regional coordinator, Zig-C desktop system
Pre-condition(s)	Regional coordinator logged in the desktop system. internet connection available. File already submitted but saved as draft.

## Zig-C Requirements Specifications

Scenario flow	<p>Main flow:</p> <ol style="list-style-type: none"> <li>1. Regional coordinator opens the respective folder from the 'saved as draft'</li> <li>2. Regional coordinator adds additional files and information</li> </ol> <p>Success:</p> <ol style="list-style-type: none"> <li>3. File is complete</li> <li>4. Regional coordinator submits the final version of the file</li> </ol>
	<p>Alternative:</p> <ol style="list-style-type: none"> <li>3. File is incomplete</li> <li>4. Regional coordinator saves the file as draft</li> </ol>
Post condition(s)	<p>If the final version is submitted, the file will be available for the supervisor for approval.</p> <p>If the file is saved as draft, the same process will be repeated (UC-04).</p>

Use case number	UC-05
Use case name	Deleting a file submission
Overview	The interested party is no longer pursuing the application and the regional coordinator needs to delete a file submission from a file which was previously saved as draft.
Actor(s)	Regional coordinator, Zig-C desktop system
Pre-condition(s)	Regional coordinator logged in the system. internet connection available. Files already submitted and saved as draft.
Scenario flow	<p>Main (success) flow:</p> <ol style="list-style-type: none"> <li>1. Regional coordinator opens the file from saved as draft.</li> <li>2. Regional coordinator press deletes the application</li> <li>3. A window alerts 'Are you sure you want to delete the application'</li> <li>4. Regional coordinator deletes the file permanently</li> </ol>
	<p>Alternative flow:</p> <ol style="list-style-type: none"> <li>3. A window alerts 'Are you sure you want to delete the application'</li> <li>4. Regional coordinator cancels the deletion</li> </ol>

## Zig-C Requirements Specifications

Post condition(s)	The file will be removed from Zig-C database.

Use case number	UC-06
Use case name	Add an expense
Overview	The regional coordinator needs to keep track of the regional office expenses. He needs to upload an invoice of the expense, along with additional information to the nature of the expense.
Actor(s)	Regional coordinator, Zig-C desktop system
Pre-condition(s)	Regional coordinator logged in the system. internet connection available.
Scenario flow	<p>Main (success) flow:</p> <ol style="list-style-type: none"> <li>1. Regional coordinator opens the 'Finance' tab</li> <li>2. Submits the invoice and the information from the form</li> <li>3. Zig-C system displays 'Expense added successfully' message</li> </ol>
	<p>Alternative flow-1:</p> <ol style="list-style-type: none"> <li>1. Regional coordinator leaves a blank input</li> <li>2. Zig-C system displays 'Please fill all the fields' message</li> </ol>
	<p>Alternative flow-2:</p> <ol style="list-style-type: none"> <li>1. Regional coordinator enters wrong type of data (invalid input or data type)</li> <li>2. Zig-C system displays 'Check the information' message</li> </ol>



## Zig-C Requirements Specifications

Post condition(s)	The expense information for the respective regional office is sent to the financial sector in the central office.
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Use case number	UC-07
Use case name	Download a file
Overview	The regional coordinator can access all the finalized document and may download them from the 'All submissions' tab.
Actor(s)	Regional coordinator, Zig-C desktop system
Pre-condition(s)	Regional coordinator logged in the system. internet connection available. Some file finalized and submitted.
Scenario flow	Main (success) flow: <ol style="list-style-type: none"> <li>1. Regional coordinator opens 'All submissions' tab</li> <li>2. Finds the necessary file to download</li> <li>3. Clicks on the file to download</li> </ol>
Post condition(s)	The file will be downloaded in the regional coordinator computer.

Use case number	UC-08
Use case name	On-the-spot control

## Zig-C Requirements Specifications

Overview	Regional coordinator is gathering data from on-the-spot control through its mobile device. The data stored will include GPS data and photos.
Actor(s)	Regional coordinator, Zig-C mobile system
Pre-condition(s)	N/A*
Scenario flow	<p>Main (success) flow:</p> <ol style="list-style-type: none"> <li>1. Regional coordinator opens and logs in the mobile application.</li> <li>2. Chooses the respective folder to add additional data from on-the-spot control.</li> <li>3. Gathers the GPS data and does all the necessary photos.</li> <li>4. Submits the data</li> </ol>
	<p>Alternative flow-1:</p> <ol style="list-style-type: none"> <li>1. Regional coordinator opens and logs in the mobile application.</li> <li>2. Internet connection becomes unavailable</li> <li>3. Gathers the GPS data and does all the necessary photos.</li> <li>4. Data is stored in the device and will be submitted when internet connection becomes available.</li> </ol>
	<p>Alternative flow-2:</p> <ol style="list-style-type: none"> <li>1. Regional coordinator opens the mobile 'offline' mobile application.</li> <li>2. Gathers GPS data and does all the necessary photos.</li> <li>3. Data is stored in the device and will be submitted when internet connection becomes available.</li> </ol>
Post condition(s)	On-the-spot control data will be saved in Zig-C database (success), or in the mobile device (alternative flows).

\*The mobile application is pre-programmed to deal with the lack of pre-conditions.

Use case number	UC-09
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## Zig-C Requirements Specifications

Use case name	Approving submissions
Overview	The supervisor need to approve or reject the file submitted by the regional coordinators.
Actor(s)	Supervisor, Zig-C desktop system
Pre-condition(s)	Supervisor logged in to the system. internet connection available
Scenario flow	<p>Main (success) flow:</p> <ol style="list-style-type: none"> <li>1. Supervisor opens one of the available regional file submissions</li> <li>2. Opens a submission</li> <li>3. Reviews the submissions</li> <li>4. Approves the submissions</li> </ol>
	<p>Alternative flow-1:</p> <ol style="list-style-type: none"> <li>1. Supervisor opens a submission</li> <li>2. Reviews the submission</li> <li>3. Extra information is needed</li> <li>4. Sends the file back to the regional coordinator to be fully completed</li> </ol>
	<p>Alternative flow-2:</p> <ol style="list-style-type: none"> <li>1. Supervisor opens a submission</li> <li>2. Reviews the submission</li> <li>3. Submission is rejected</li> </ol>
Post condition(s)	<p>The submission will either be approved and the applicant will benefit from the grant scheme or rejected and deleted permanently from Zig-C database.</p> <p>In some rare cases, due to the nature of the investment of the applicant extra document will be required.</p>

Use case number	UC-10
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## Zig-C Requirements Specifications

Use case name	Financial statements of regional offices
Overview	The finance office needs to update the balance sheet for each regional office by adding keeping track of the expenses of the regional offices
Actor(s)	Accountant, Zig-C desktop system
Pre-condition(s)	Accountant logged in to the system. internet connection available. Expenses uploaded by the regional coordinators.
Scenario flow	Main (success) flow: <ol style="list-style-type: none"> <li>1. Accountant opens one of the regional offices invoice and expenses tab</li> <li>2. Adds the expense to the Zig-C balance sheet.</li> </ol>
Post condition(s)	The balance sheet is updated with the latest financial information.

Use case number	UC-11
Use case name	Financial statement of the central office
Overview	The finance office needs to keep track and update the balance sheet for the expenses done by the central office.
Actor(s)	Accountant, Zig-C desktop system

## Zig-C Requirements Specifications

Pre-condition(s)	Accountant logged in to the system. internet connection available.
Scenario flow	Main (success) flow: <ol style="list-style-type: none"> <li>1. Accountant opens the central office expenses tab</li> <li>2. Based on the invoices of the expenses of the central office, adds the expense to the Zig-C balance sheet.</li> </ol>
Post condition(s)	The balance sheet is updated with the latest financial information.

Use case number	UC-12
Use case name	Audit function-regional office
Overview	The finance office is responsible for a semi-annually audit on the inventory of the regional office.
Actor(s)	Financial manager, Zig-C desktop system
Pre-condition(s)	Financial manager logged in to the system. internet connection available. Inventory control already done for all the regional offices.
Scenario flow	Main (success) flow: <ol style="list-style-type: none"> <li>1. Financial manager opens the 'Inventory' tab.</li> <li>2. Based on the control of the inventory for the central office, inventory for each regional office is updated.</li> </ol>
Post condition(s)	Inventory updated with the latest information.

## Zig-C Requirements Specifications

Use case number	UC-13
Use case name	Audit function-central office
Overview	The finance office is responsible for a semi-annually audit on the inventory of the central office.
Actor(s)	Financial manager, Zig-C desktop system
Pre-condition(s)	Financial manager logged in to the system. internet connection available. Inventory control already done for the central office.
Scenario flow	Main (success) flow: 1. Financial manager opens the 'Inventory' tab. 2. Based on the control of the inventory for the central office, inventory for the central office is updated.
Post condition(s)	Inventory updated with the latest information.

Use case number	UC-14
Use case name	Add employee
Overview	The administrator is responsible to add a new employee with the additional privileges. The new employee credentials include id, level, region, username, password.
Actor(s)	H&R administrator, Zig-C desktop system

## Zig-C Requirements Specifications

Pre-condition(s)	Administrator logged in the desktop system. internet connection available.
Scenario flow	<p>Main (success) flow:</p> <ol style="list-style-type: none"> <li>1. Administrator opens 'Add employee' tab</li> <li>2. Admin competes the necessary credentials for the new employee</li> <li>3. The employee is successfully added</li> <li>4. Zig-C prompts a 'Successful registration' message</li> </ol>
	<p>Alternative flow-1:</p> <ol style="list-style-type: none"> <li>1. Administrator leaves a blank field in the add employee form</li> <li>2. Zig-C prompts a 'All the fields are necessary ' message.</li> </ol>
	<p>Alternative flow-2:</p> <ol style="list-style-type: none"> <li>1. Administrator enters an invalid type of input</li> <li>2. Zig-C prompts a 'Please enter valid input' message.</li> </ol>
Post condition(s)	The new employee will be added.

Use case number	UC-15
Use case name	Edit employee
Overview	The administrator is responsible to edit the information for an employee due to a promotion or change in privileges.
Actor(s)	H&R administrator, Zig-C desktop system
Pre-condition(s)	Administrator logged in the desktop system. internet connection available.

## Zig-C Requirements Specifications

Scenario flow	<p>Main (success) flow:</p> <ol style="list-style-type: none"> <li>1. Administrator opens 'Edit employee' tab</li> <li>2. Admin updates the credentials for the employee</li> <li>3. The employee is successfully edited.</li> <li>4. Zig-C prompts a 'Successful edit information' message</li> </ol>
	<p>Alternative flow-1:</p> <ol style="list-style-type: none"> <li>1. Administrator leaves a blank field in the edit employee form</li> <li>2. Zig-C prompts a 'All the fields are necessary' message.</li> </ol>
	<p>Alternative flow-2:</p> <ol style="list-style-type: none"> <li>1. Administrator enters an invalid type of input</li> <li>2. Zig-C prompts a 'Please enter valid input' message.</li> </ol>
Post condition(s)	The employee credentials will be updated.

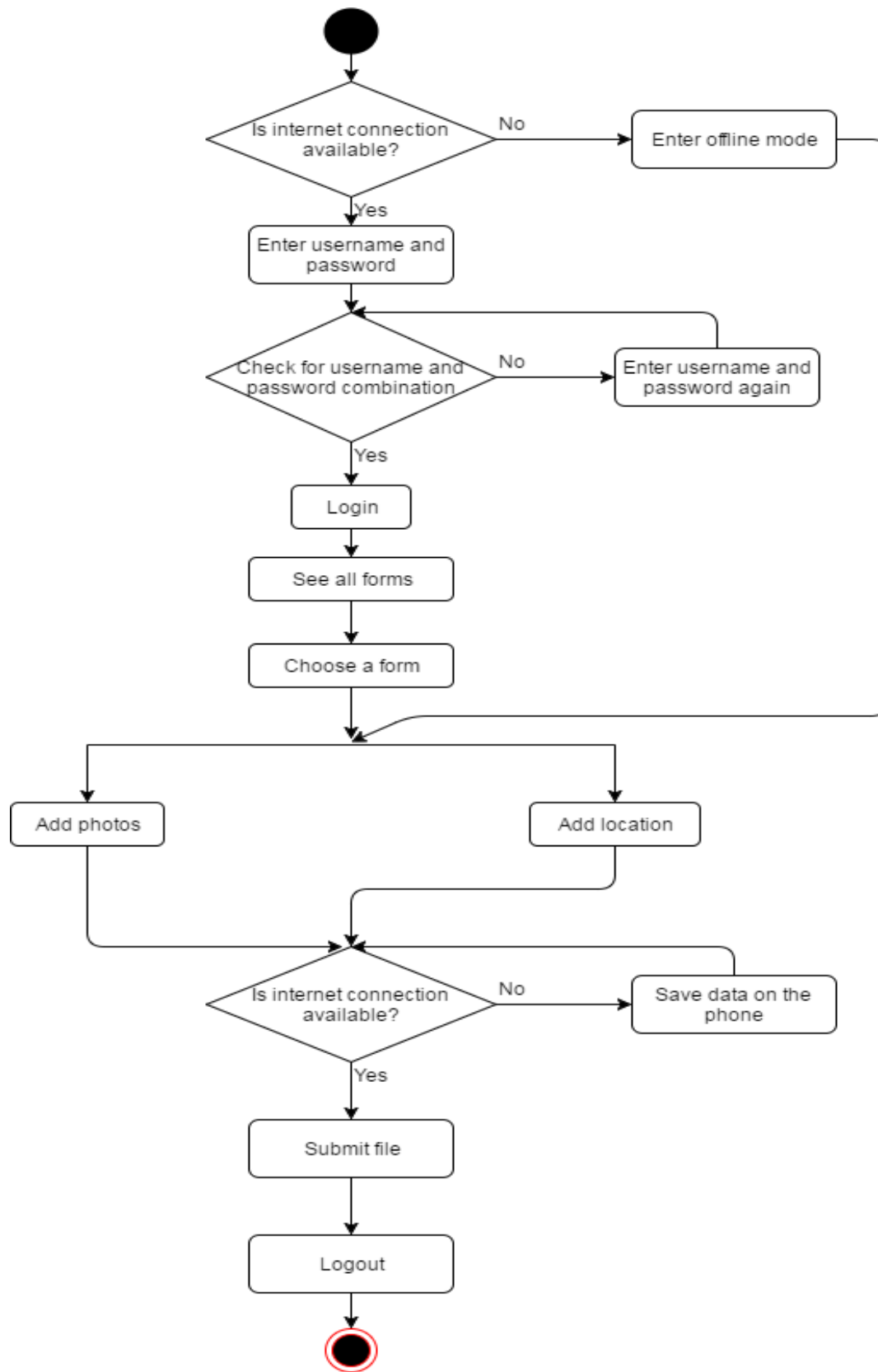
Use case number	UC-17
Use case name	Delete employee
Overview	The H&R administrator is responsible to delete an employee.
Actor(s)	H&R administrator, Zig-C desktop system
Pre-condition(s)	Administrator logged in the desktop system. internet connection available.
Scenario flow	<p>Main (success) flow:</p> <ol style="list-style-type: none"> <li>1. Administrator opens 'Remove employee' tab</li> <li>2. Admin chooses the employee to delete.</li> <li>3. Zig-C prompts a 'Are you sure to remove this employee' message</li> <li>4. Administrator deletes the employee from the system</li> </ol>



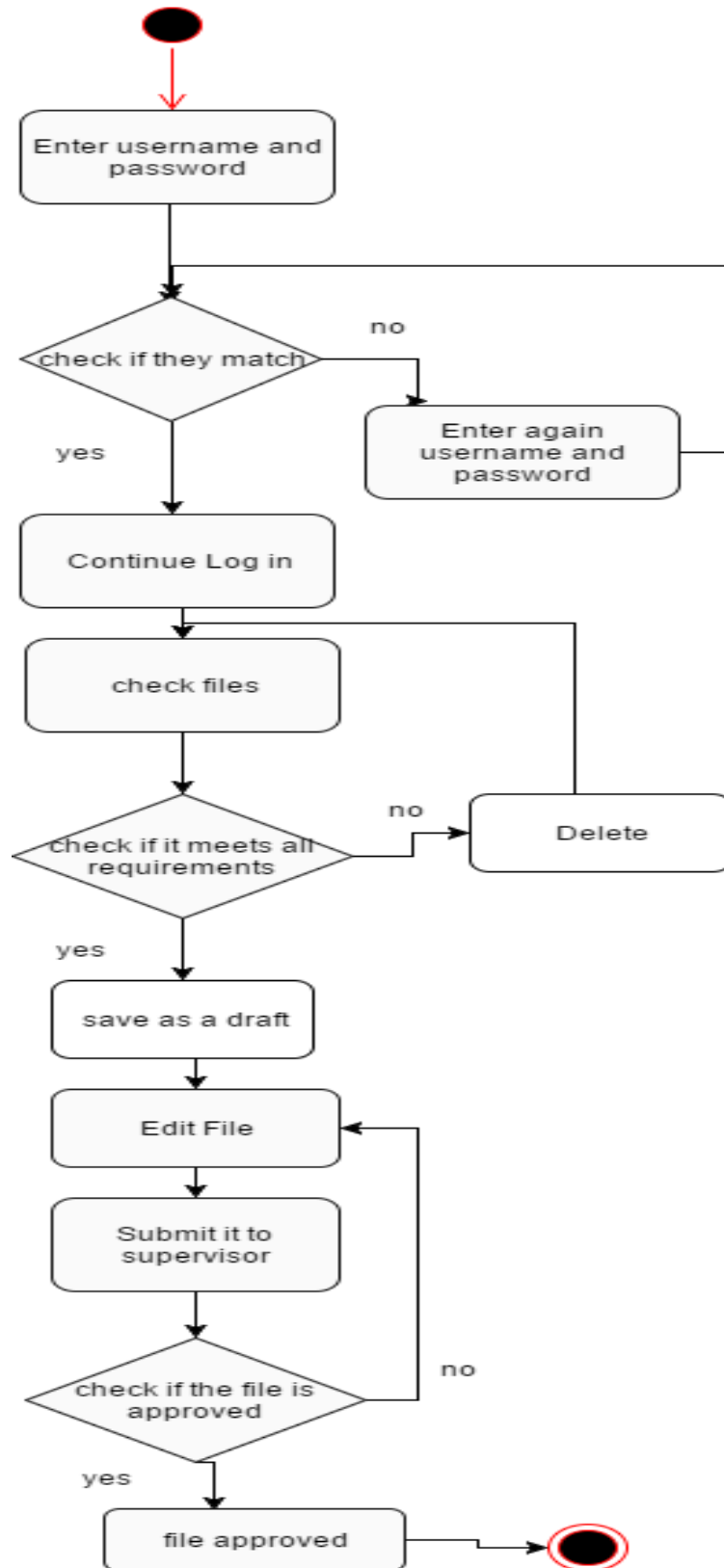
## Zig-C Requirements Specifications

	Alternative flow: 1. Administrator chose the wrong employee to remove from the system. 2. Clicks 'Cancel' when the message is prompted
Post condition(s)	The employee will be deleted and removed from the database.

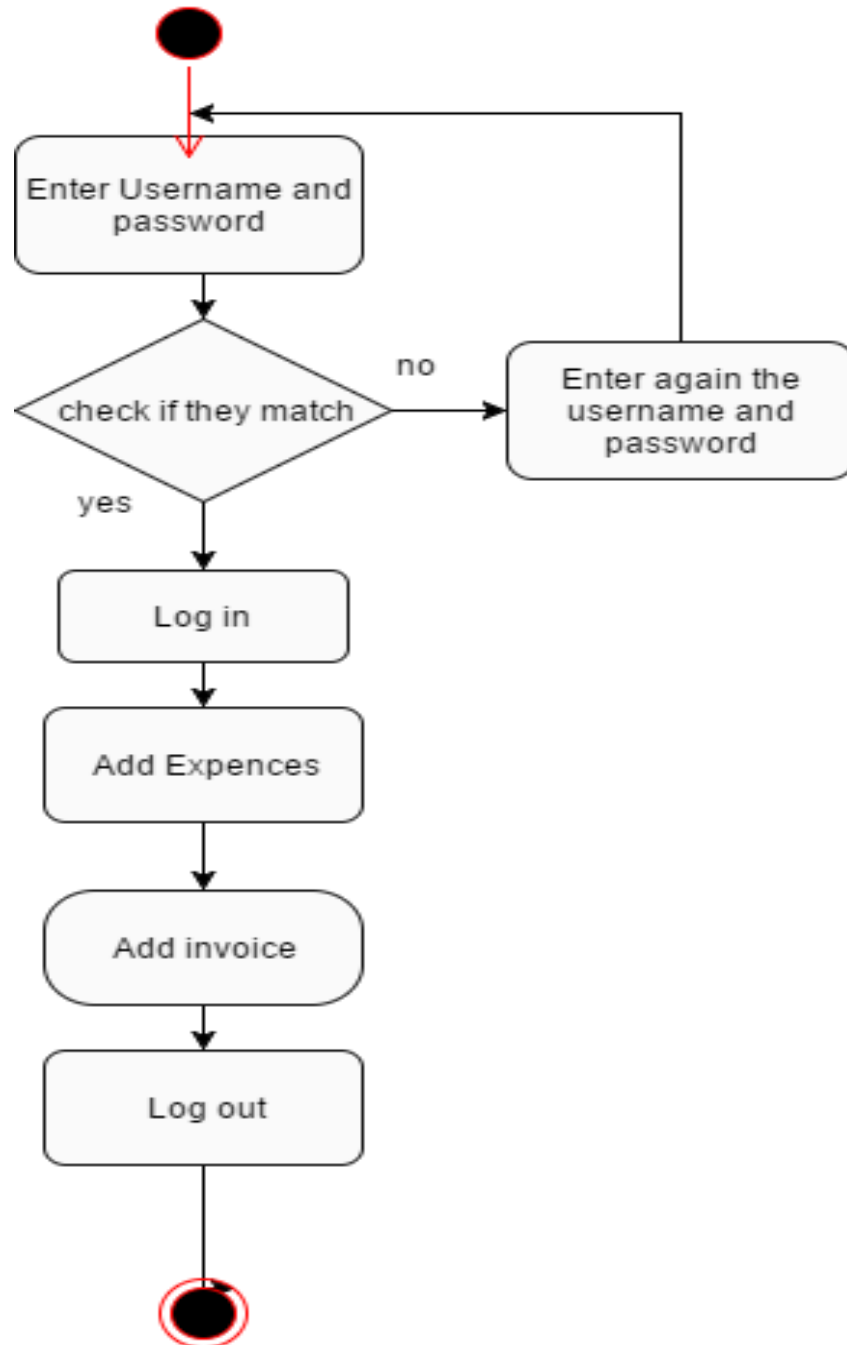
Use case number	UC-18
Use case name	IT maintenance
Overview	The IT administrator is responsible for the database management.
Actor(s)	IT administrator, Zig-C database system
Pre-condition(s)	IT administrator logged in the server where the database is stored.
Scenario flow	Main flow: 1. IT administrator adds and grants H&R office addition, editing and deletion privileges.
	Alternative flow: 1. IT administrator edits database manually, due to human or system errors
Post condition(s)	Maintenance of the database and main function of the server and database.



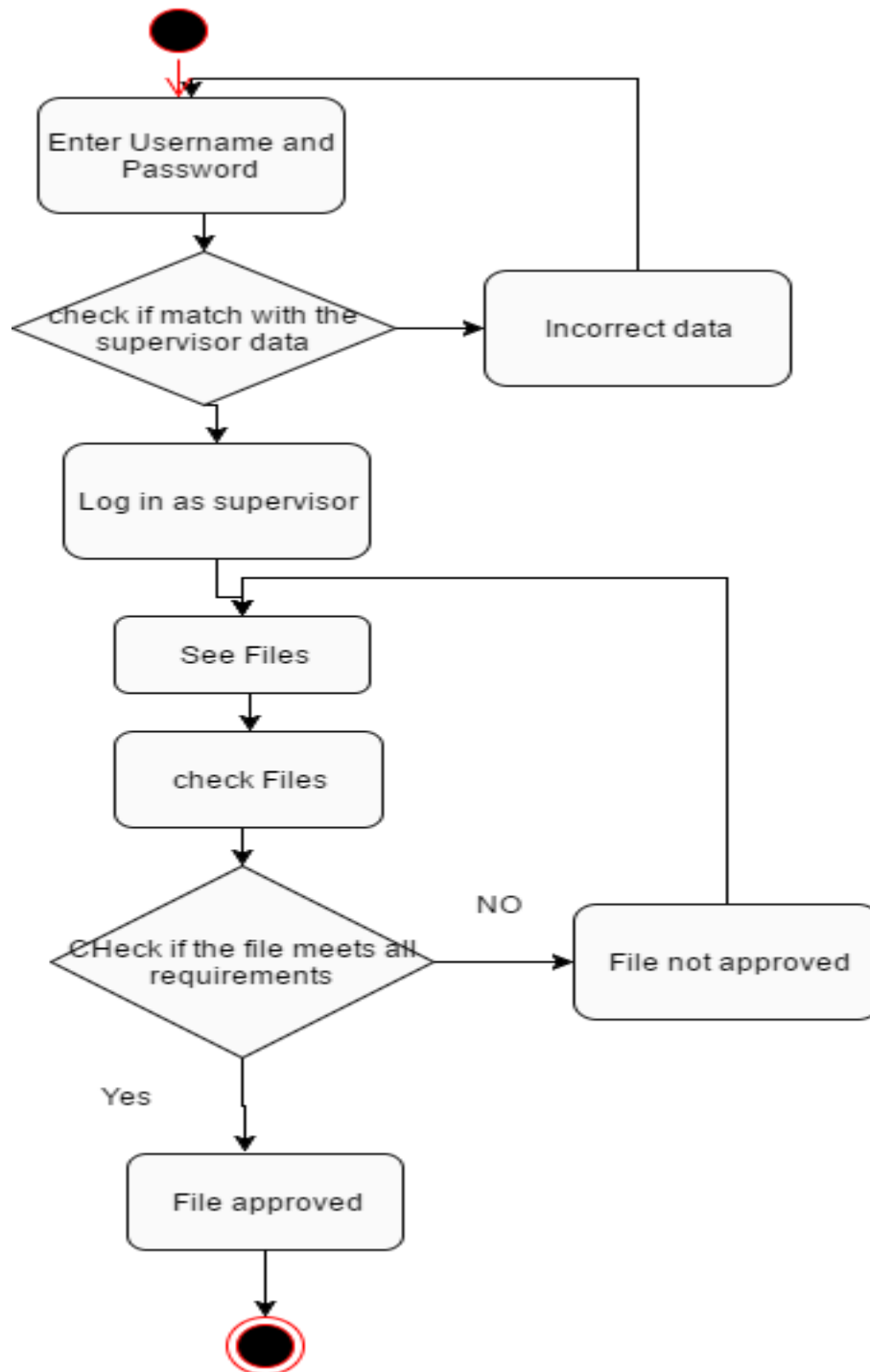
Activity Diagram - 1 Mobile Version



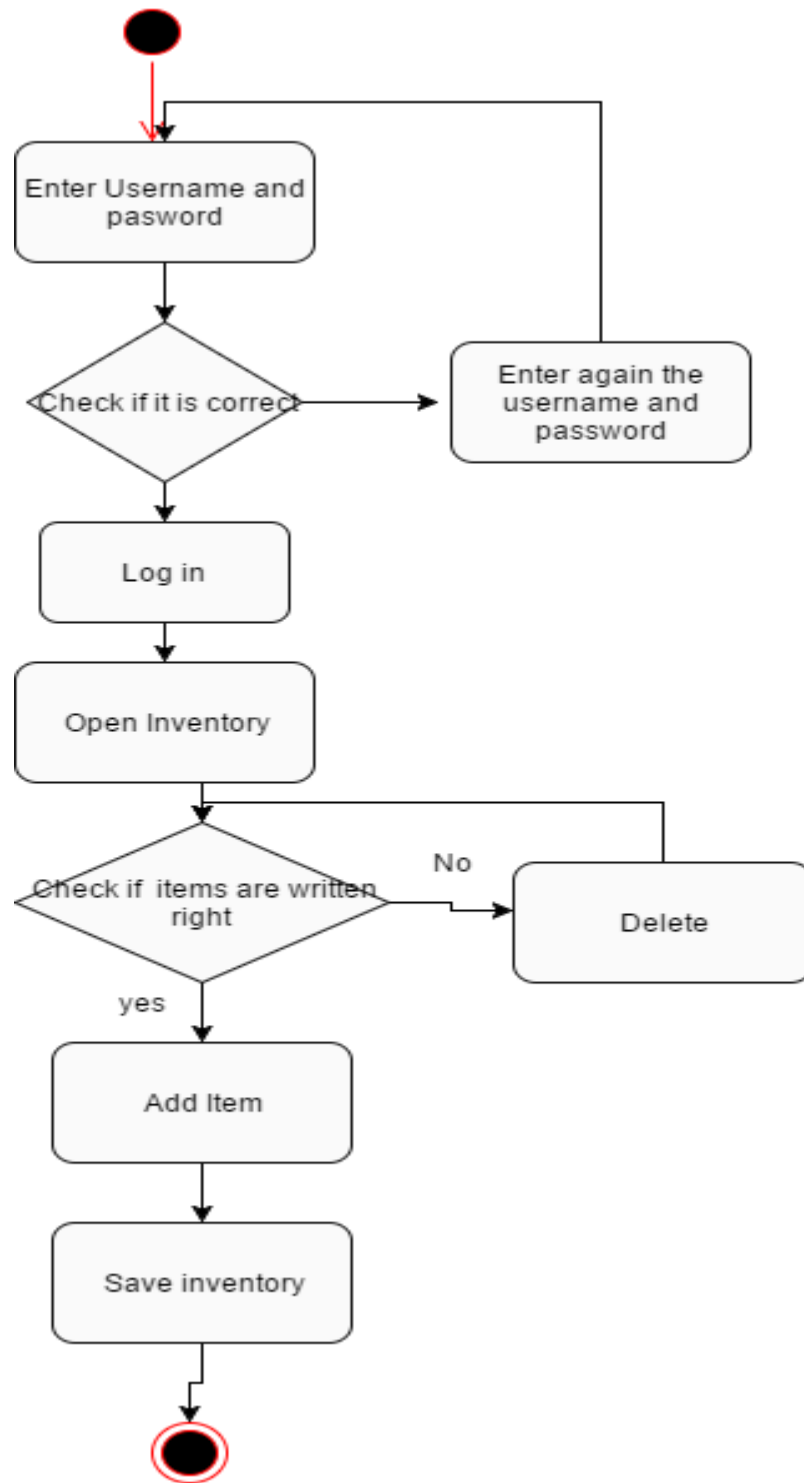
Activity Diagram 2 – Desktop version



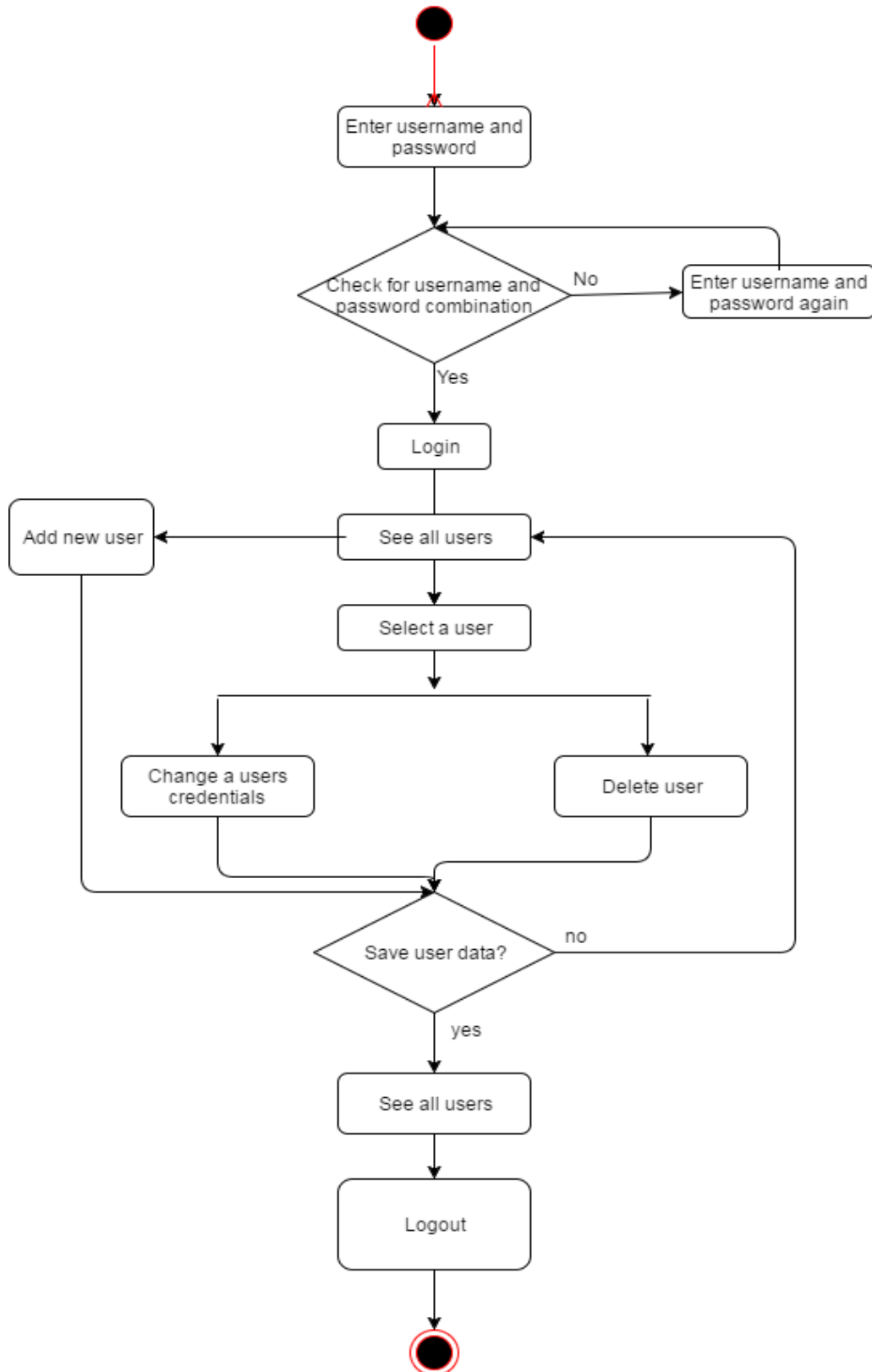
Activity Diagram 3 – Desktop version



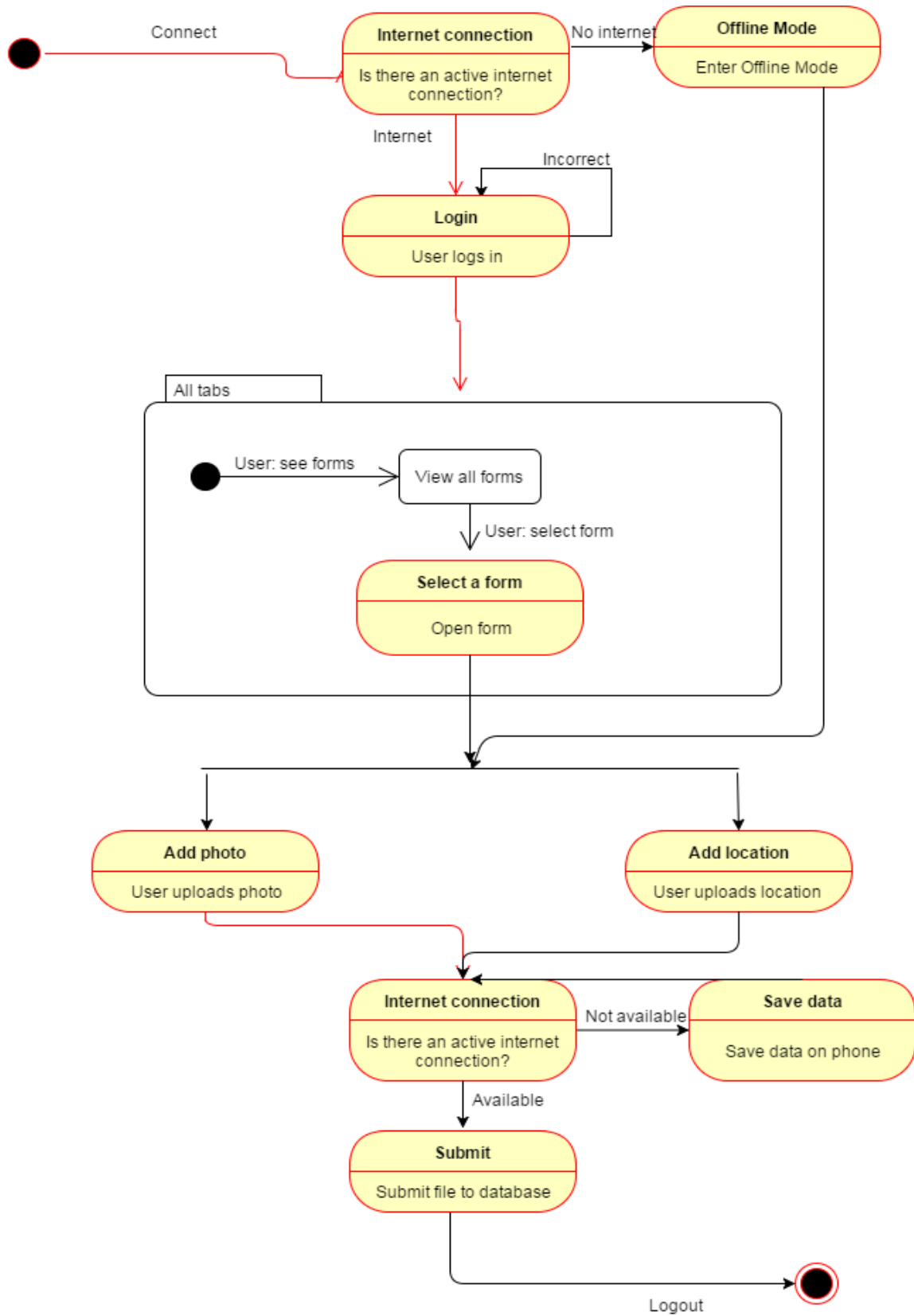
Activity Diagram 4 – Desktop version



Activity diagram 5 – Desktop version

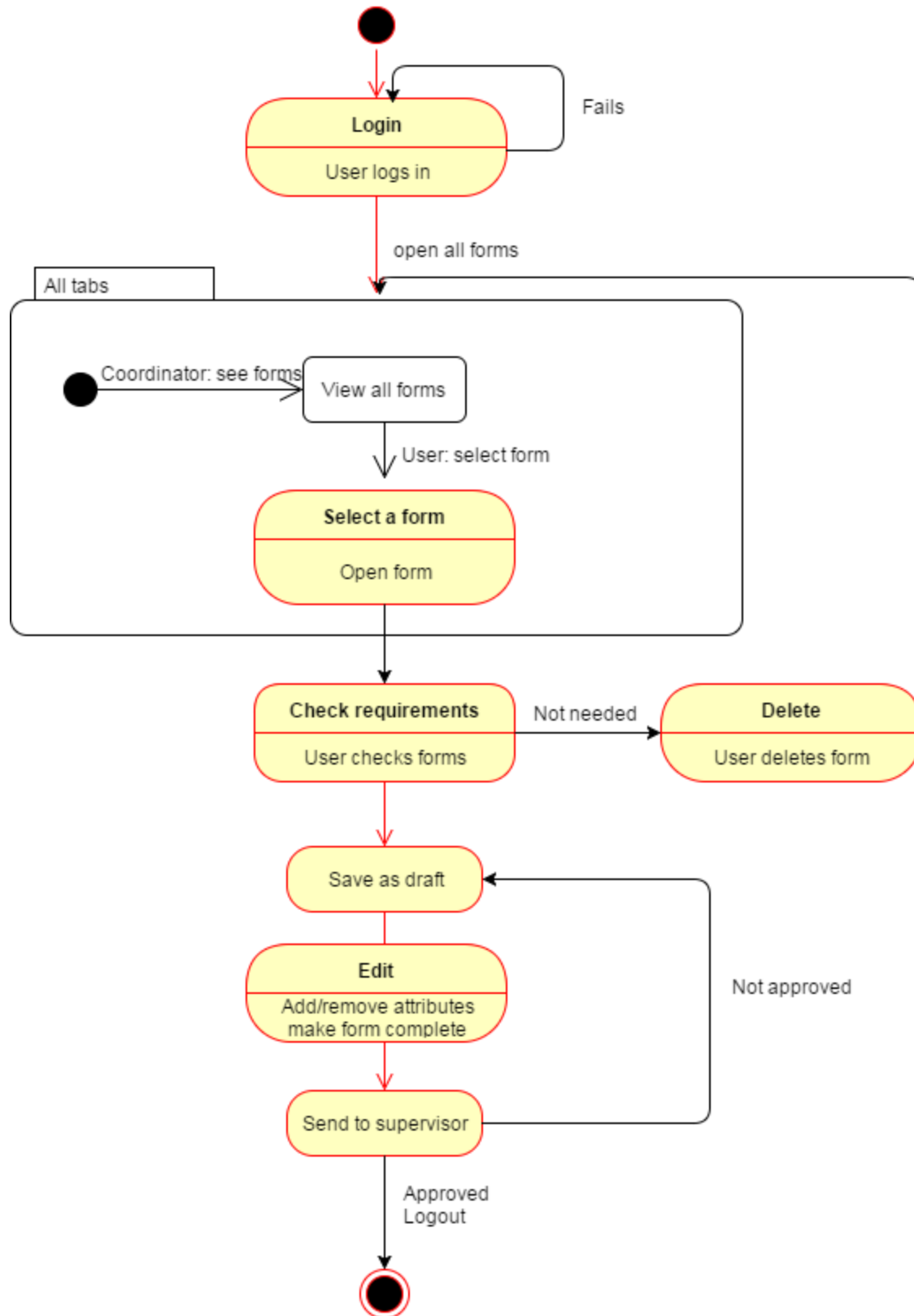


Activity Diagram 6 – Desktop version

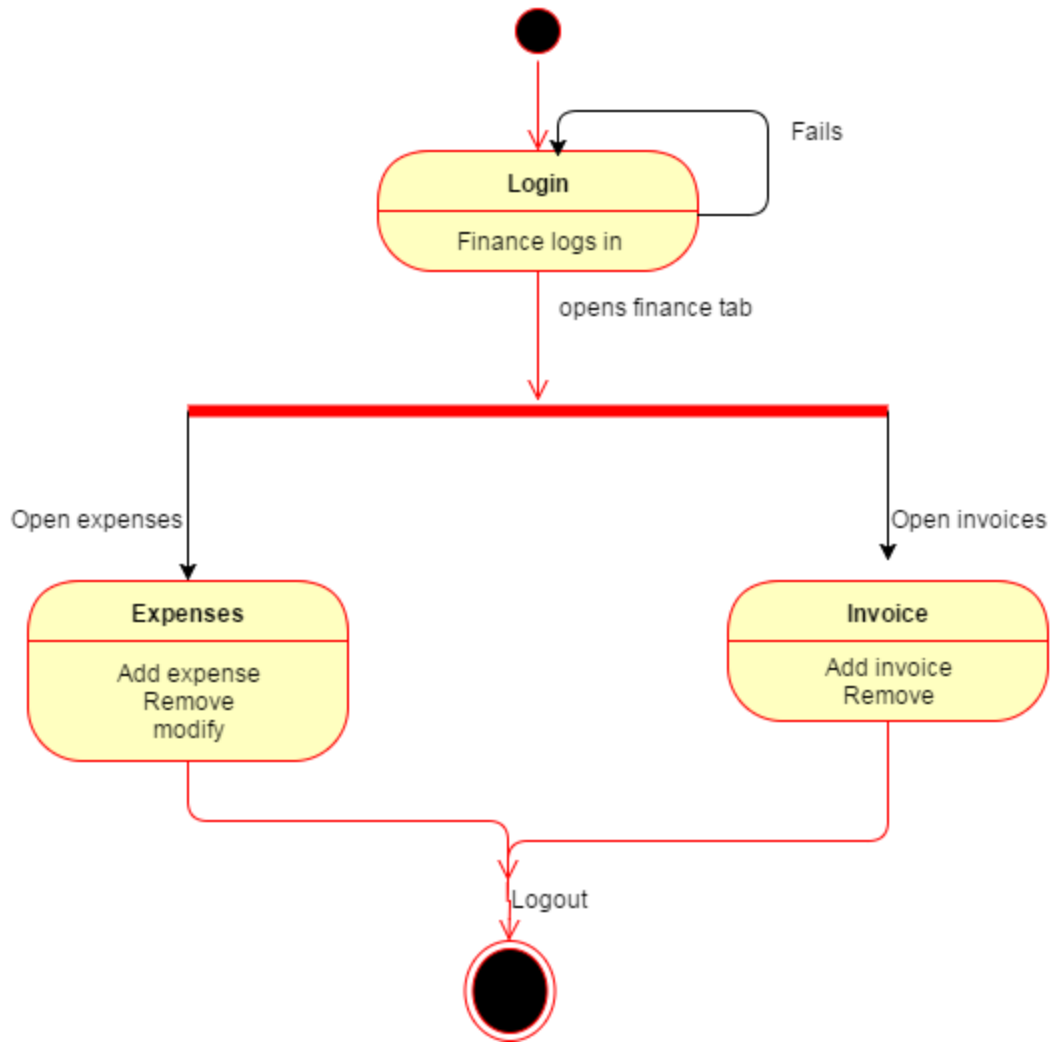


State Diagram 1 – Mobile version

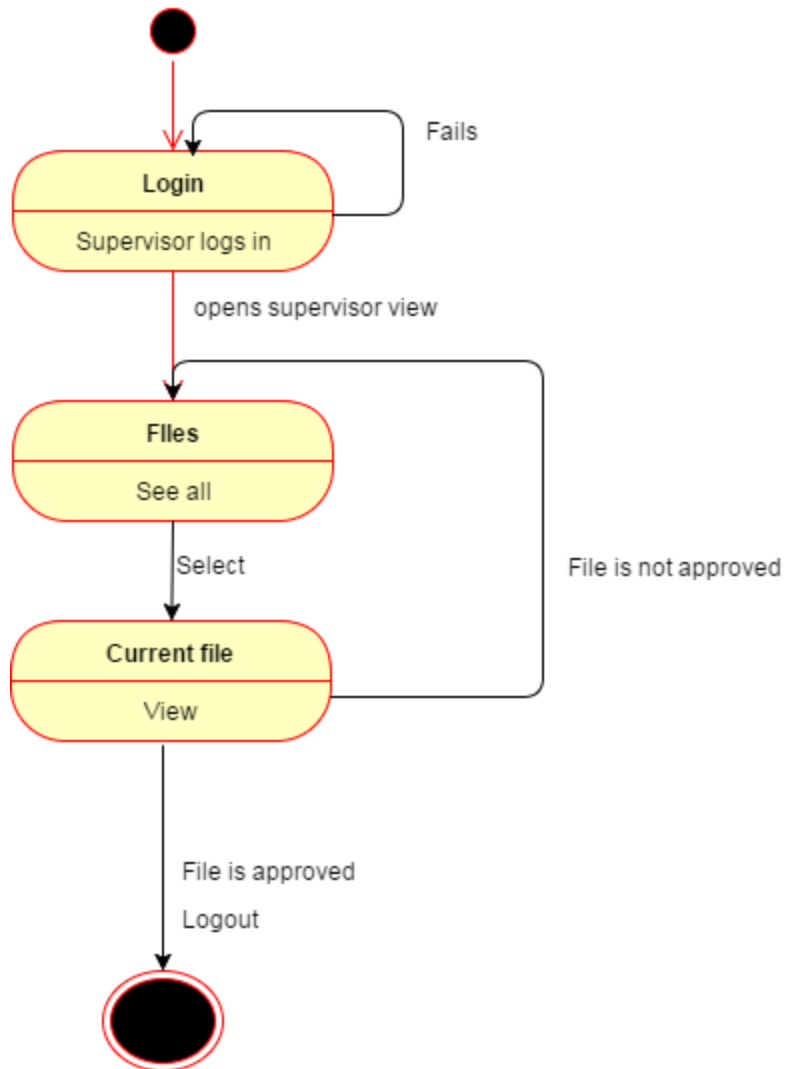




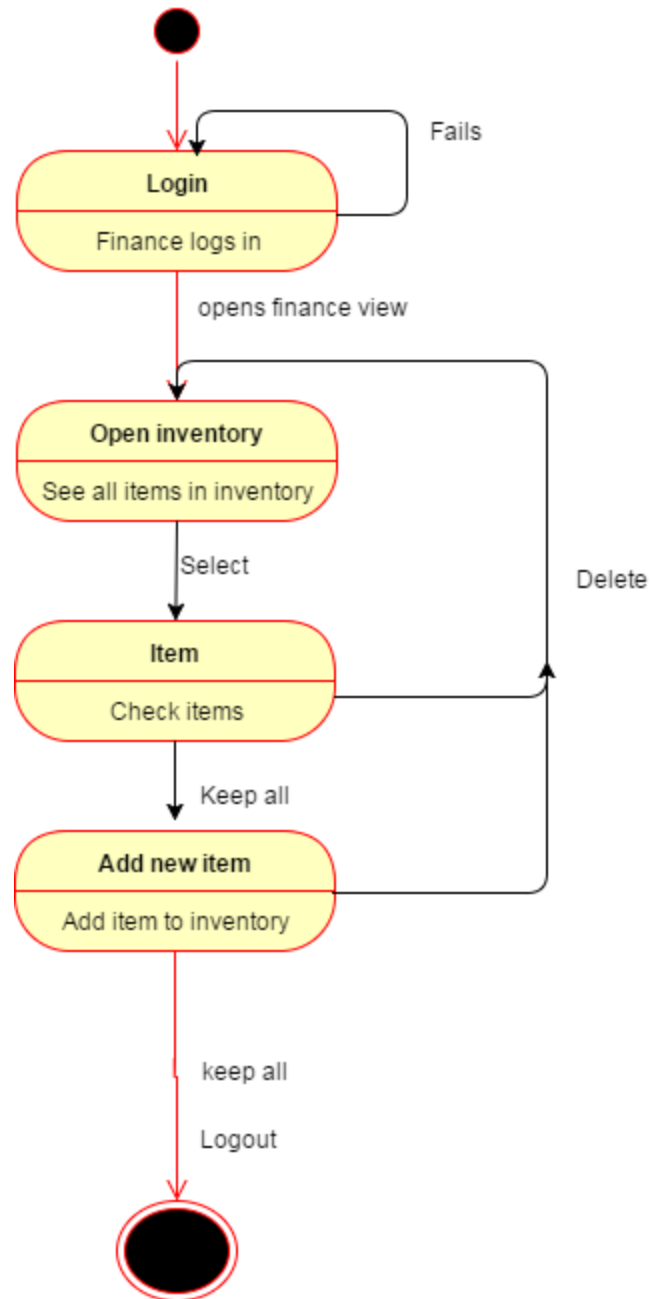
State Diagram 2 – Desktop version



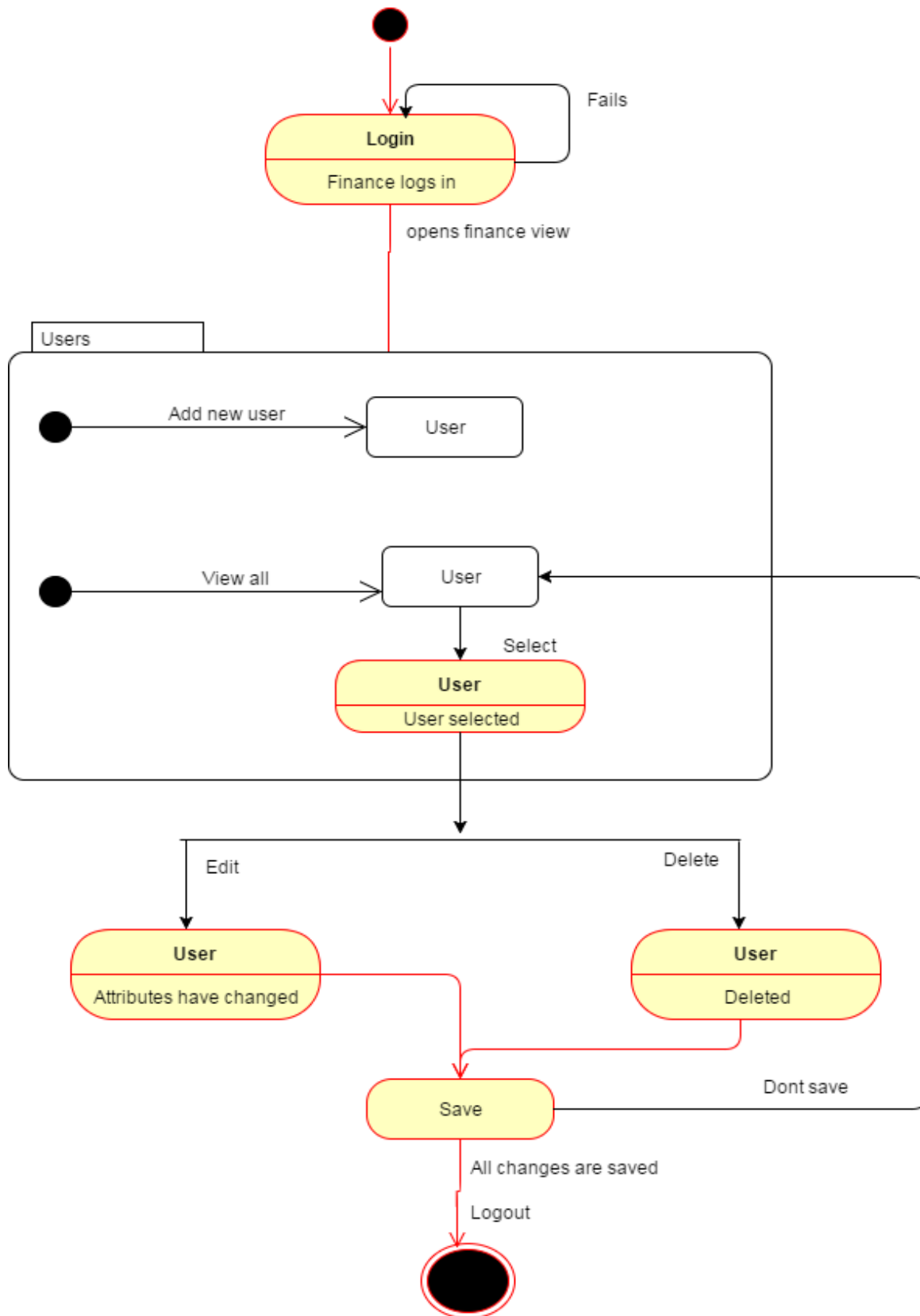
State Diagram 3 – Desktop version



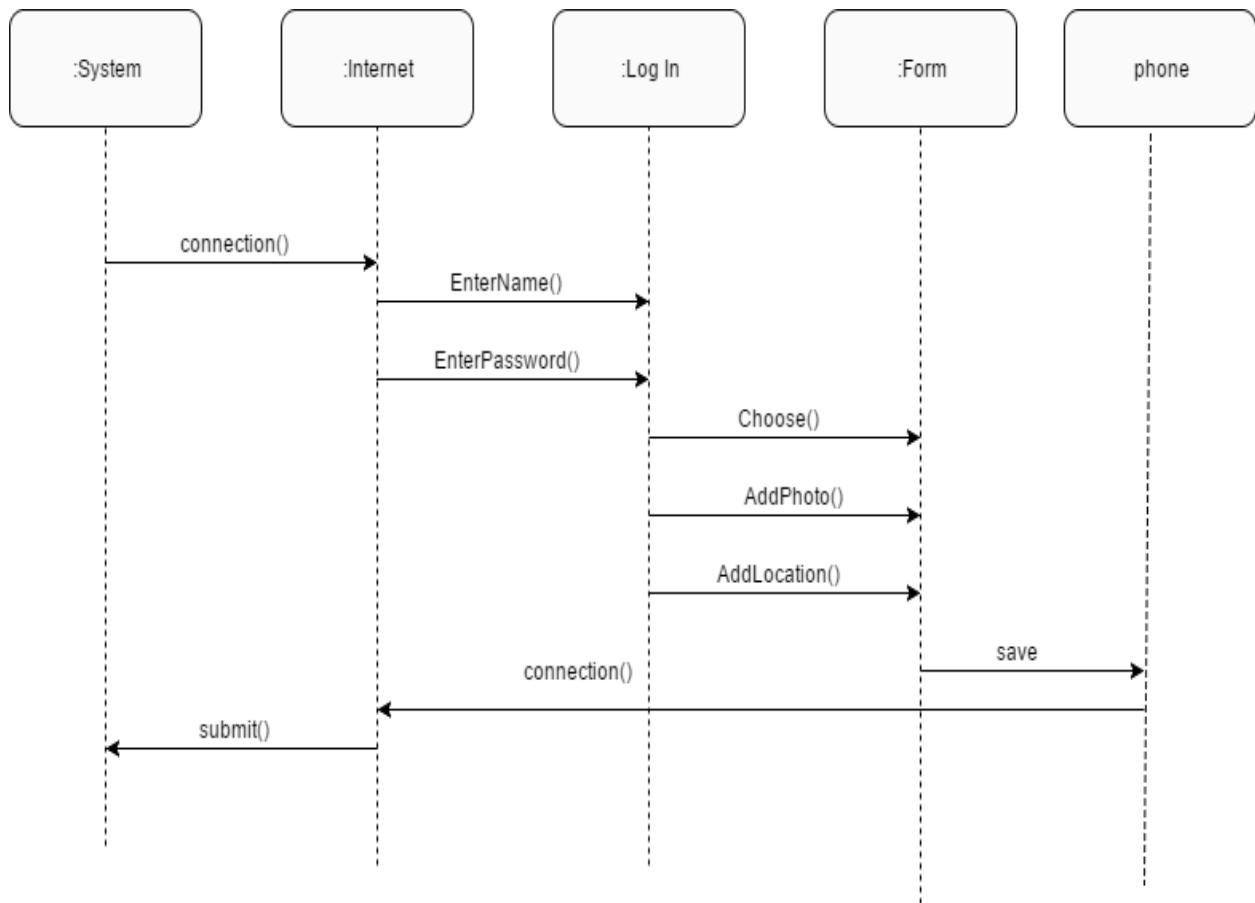
State Diagram 4 – Desktop version



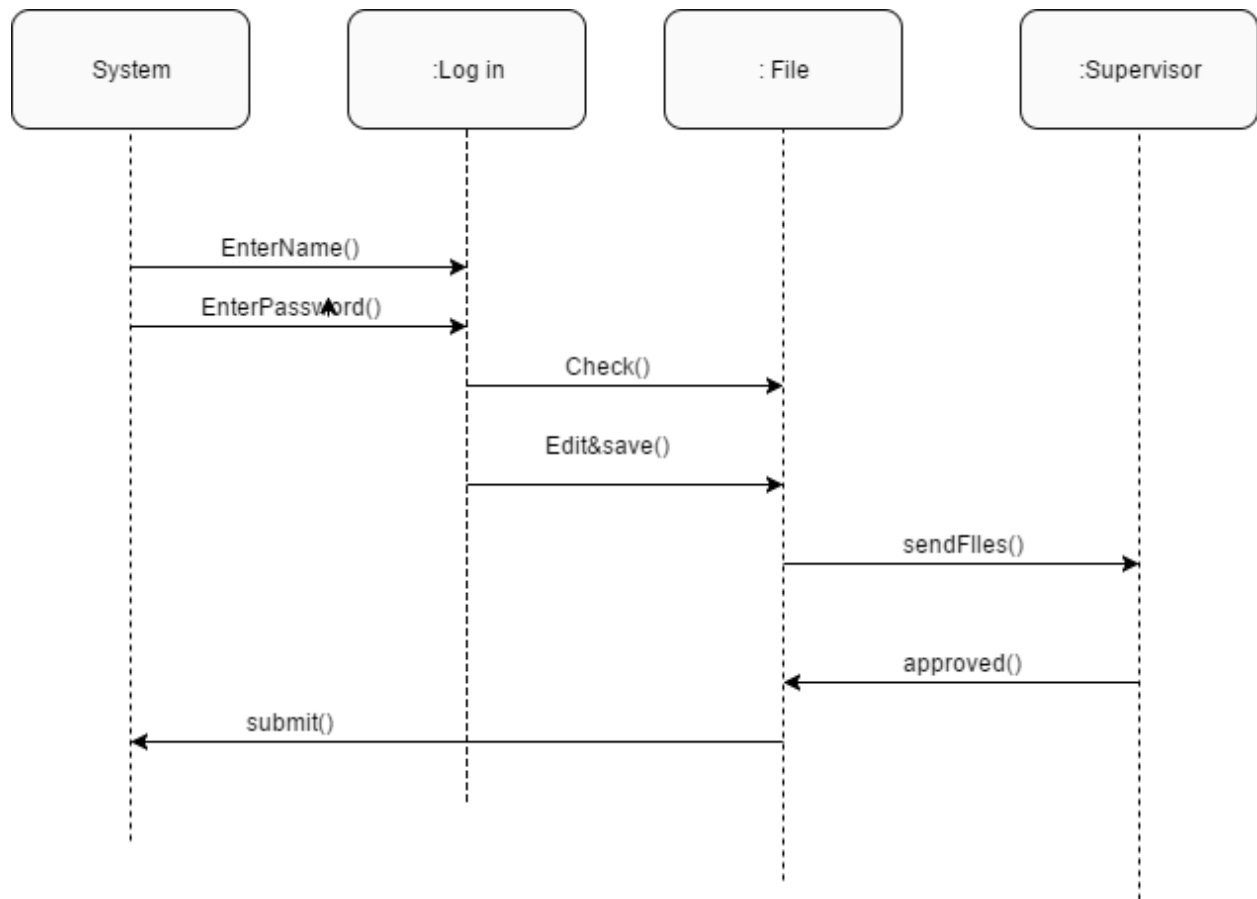
State Diagram 5 – Desktop version



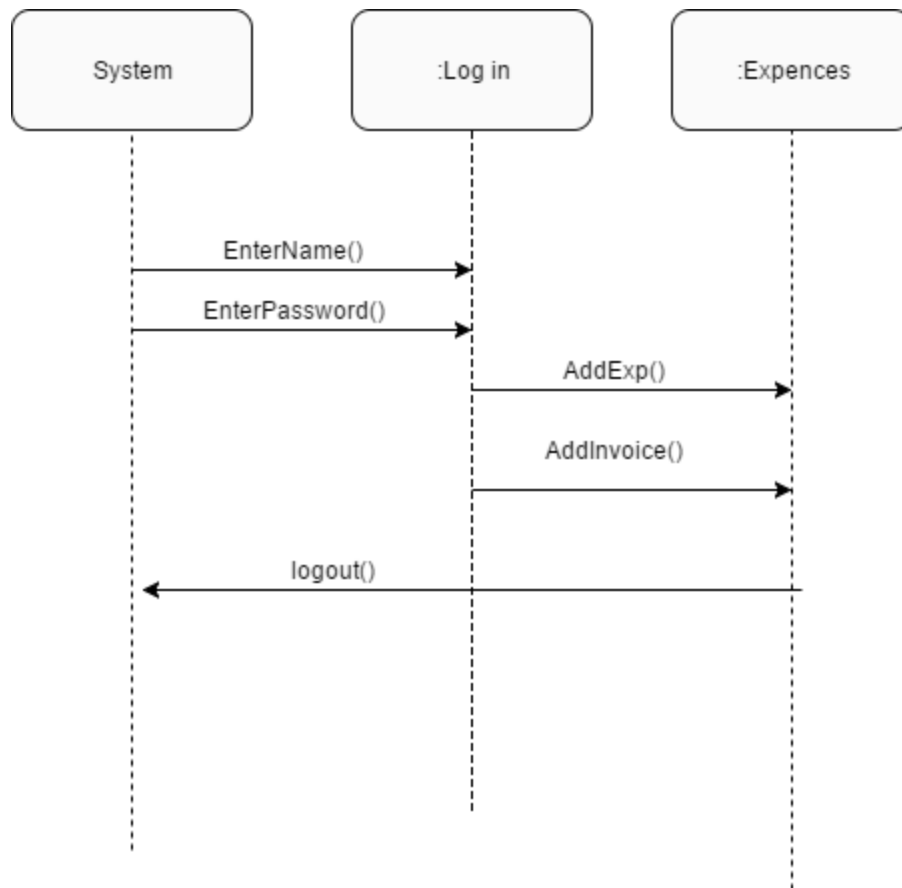
State Diagram 6 – Desktop version



Sequence diagram 1

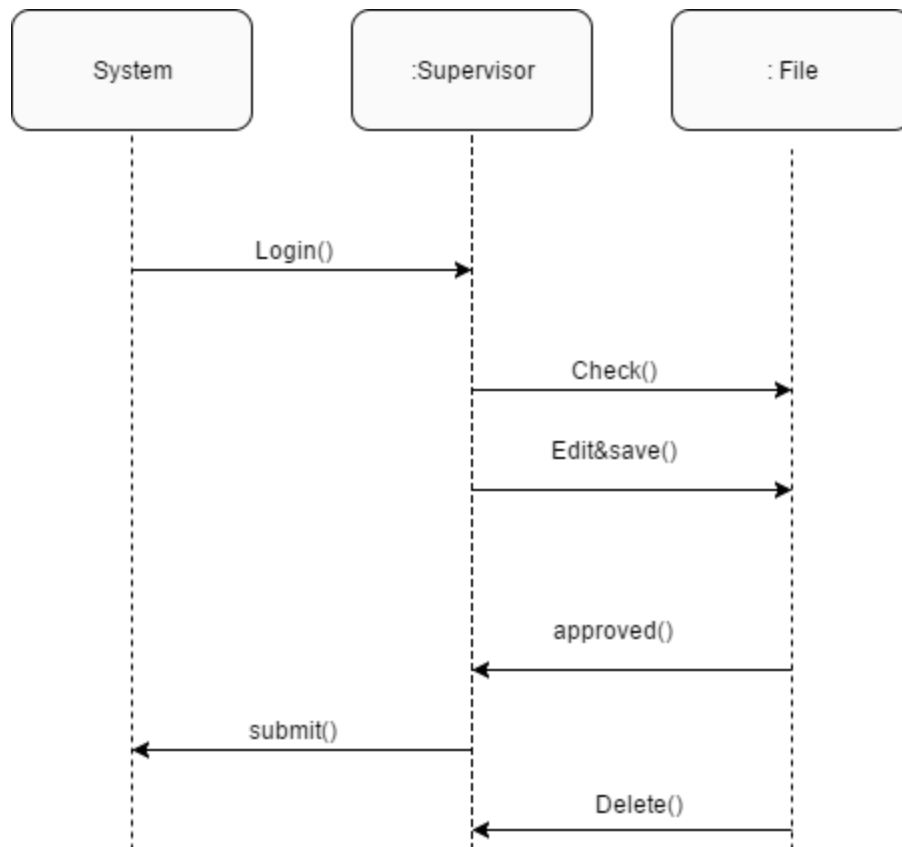


Sequence diagram 2

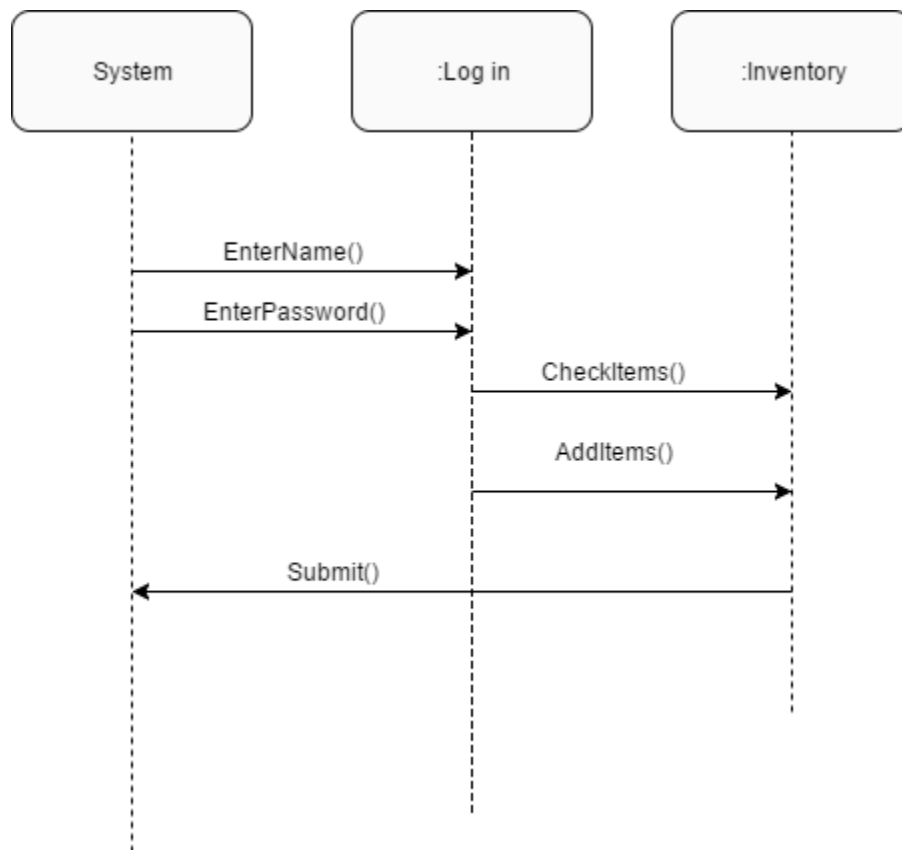


Sequence diagram 3

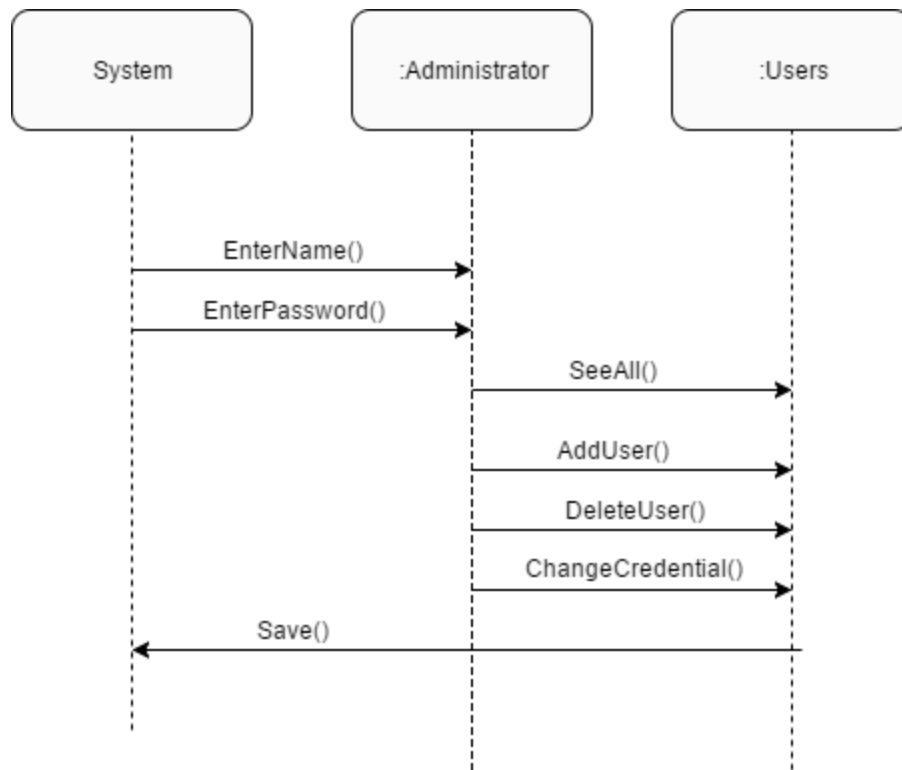




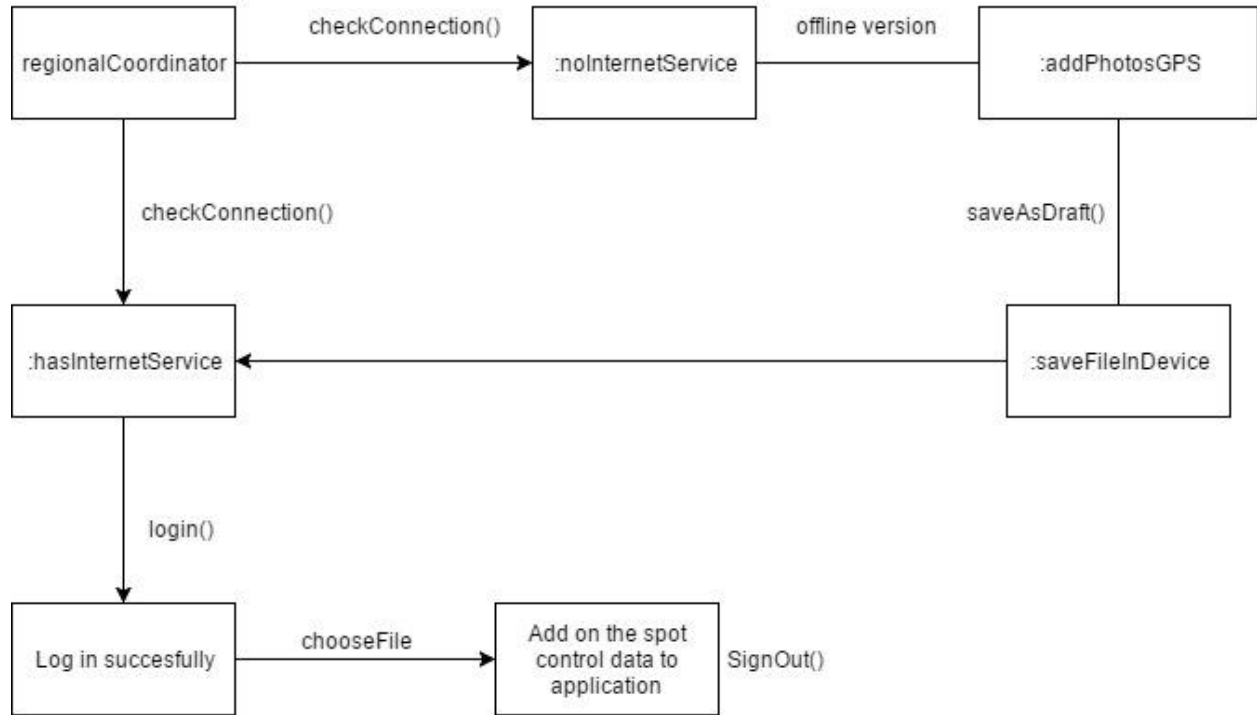
Sequence diagram 4



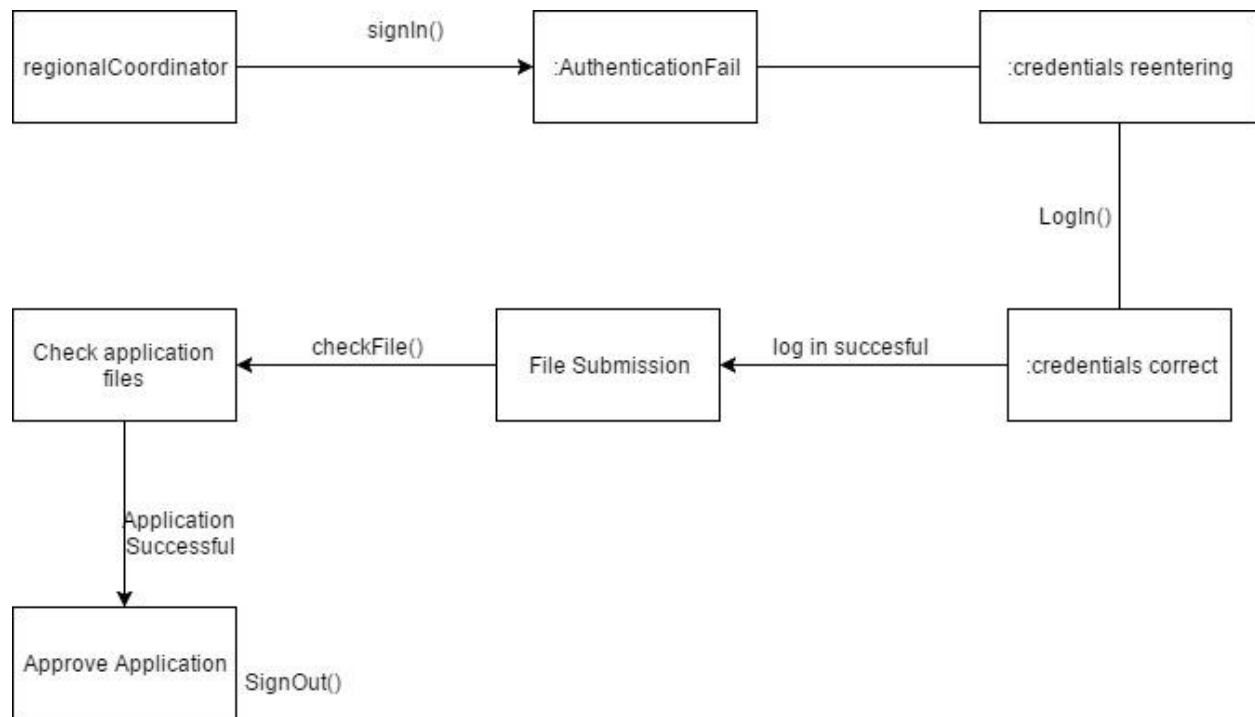
Sequence diagram 5



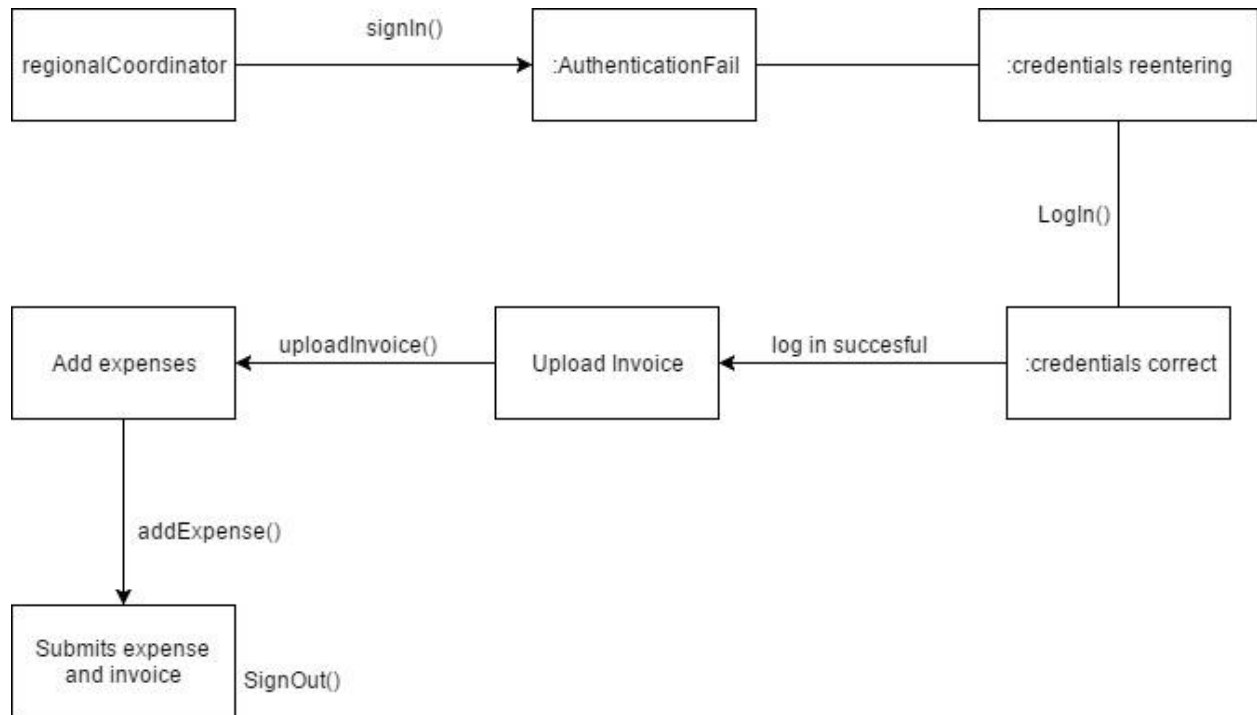
Sequence diagram 6



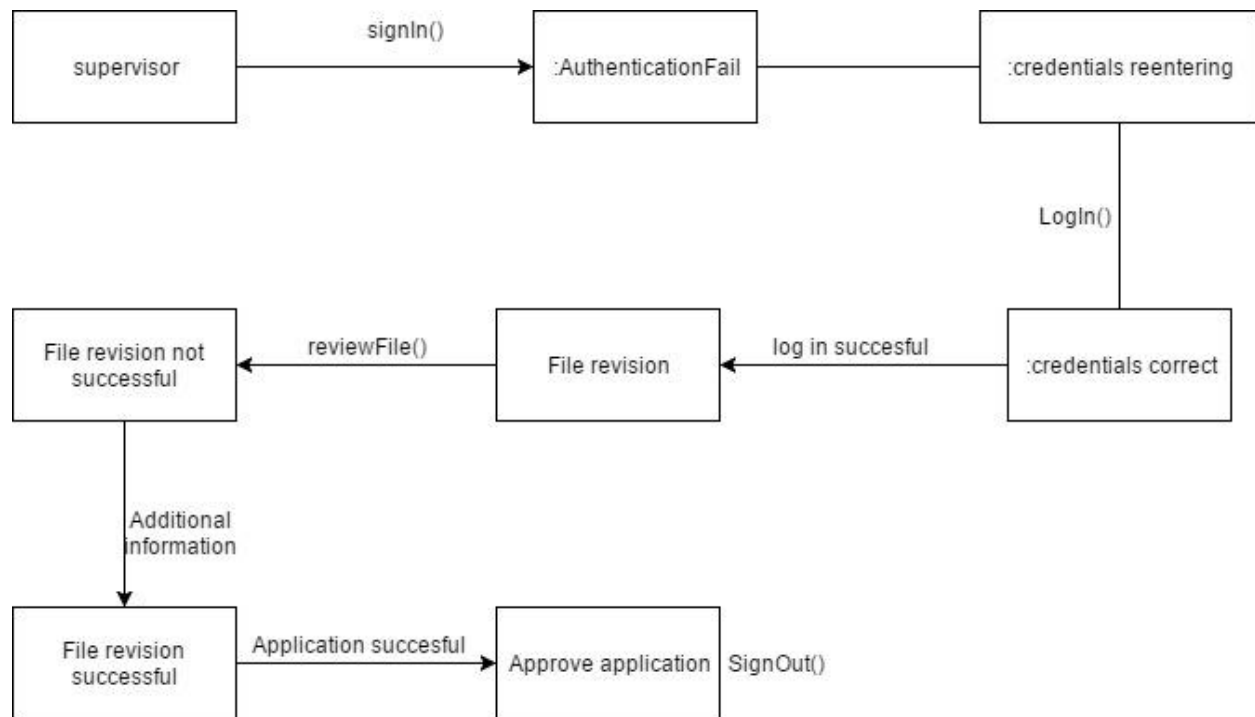
Collaboration diagram 1



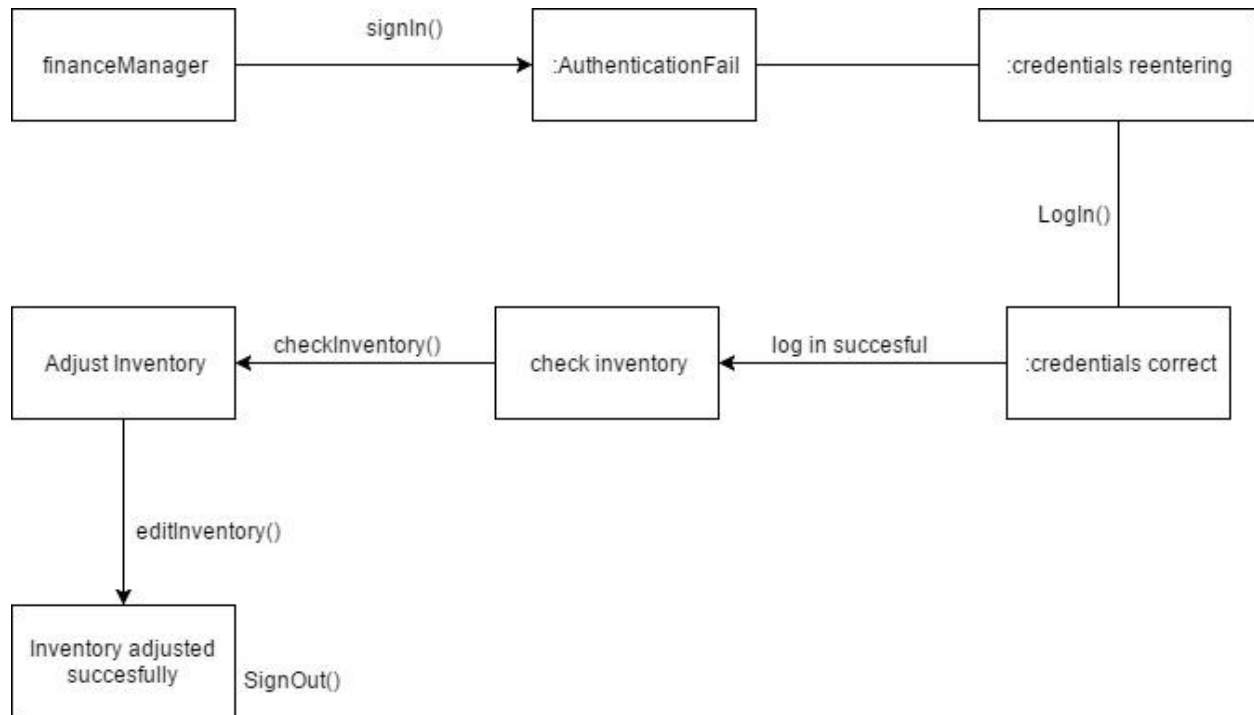
Collaboration diagram 2



Collaboration diagram 3

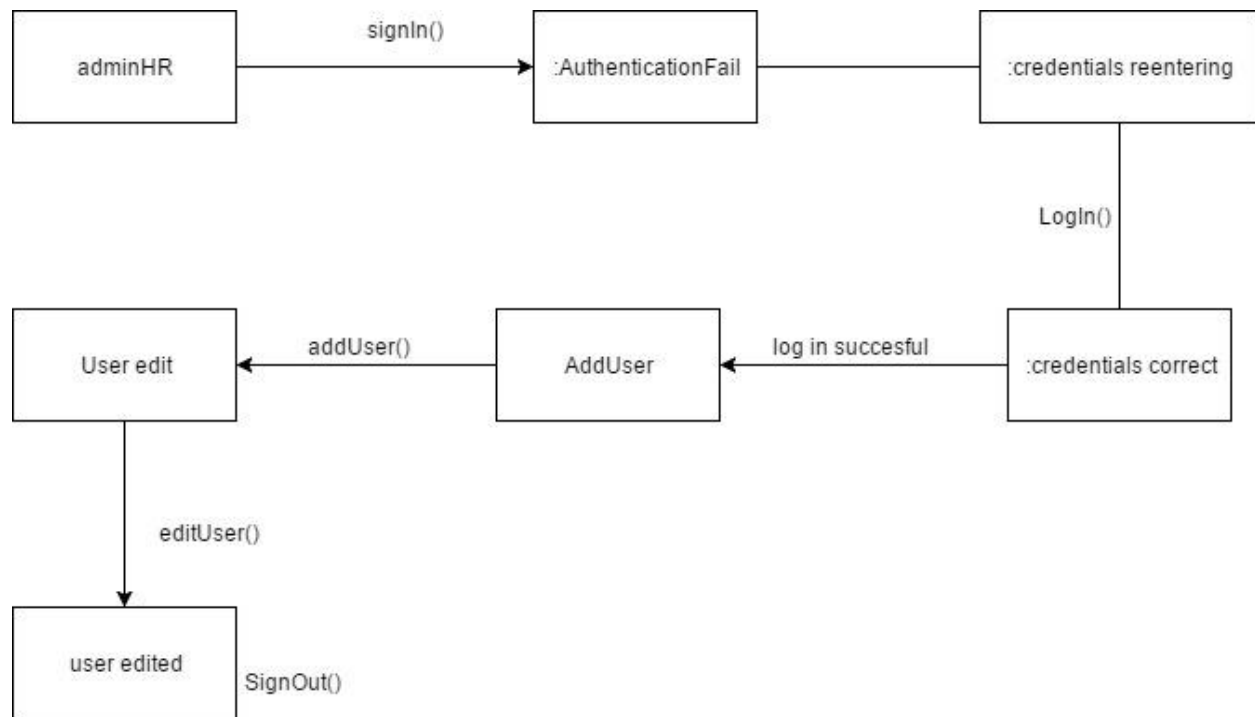


Collaboration diagram 4



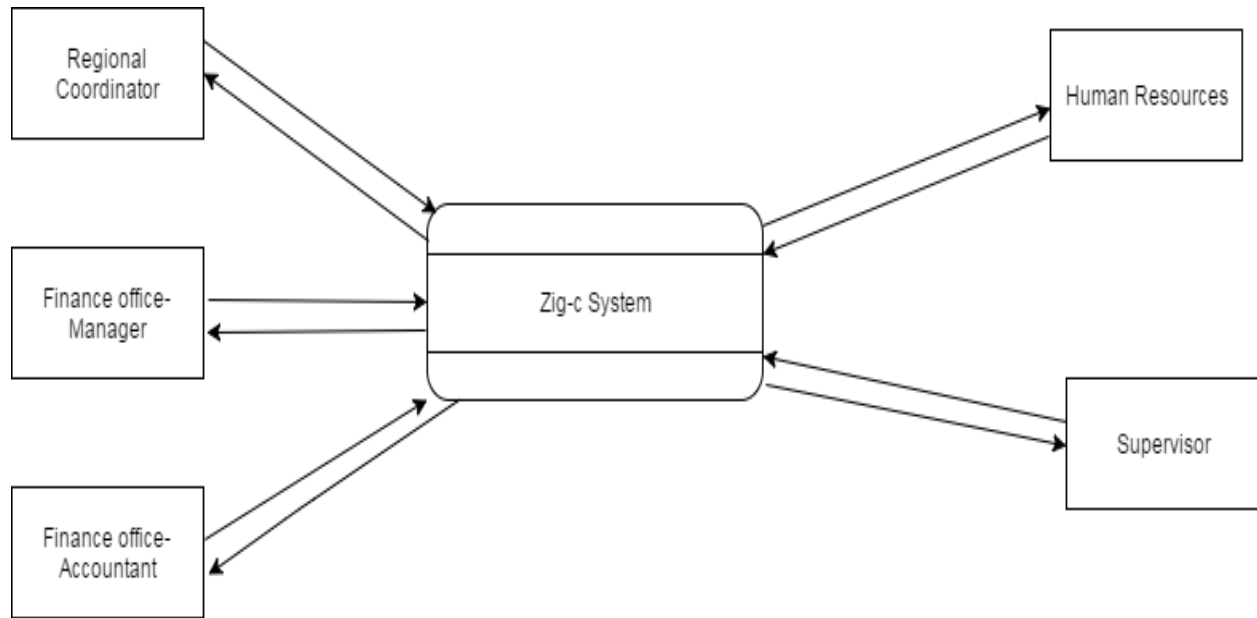
Collaboration diagram 5



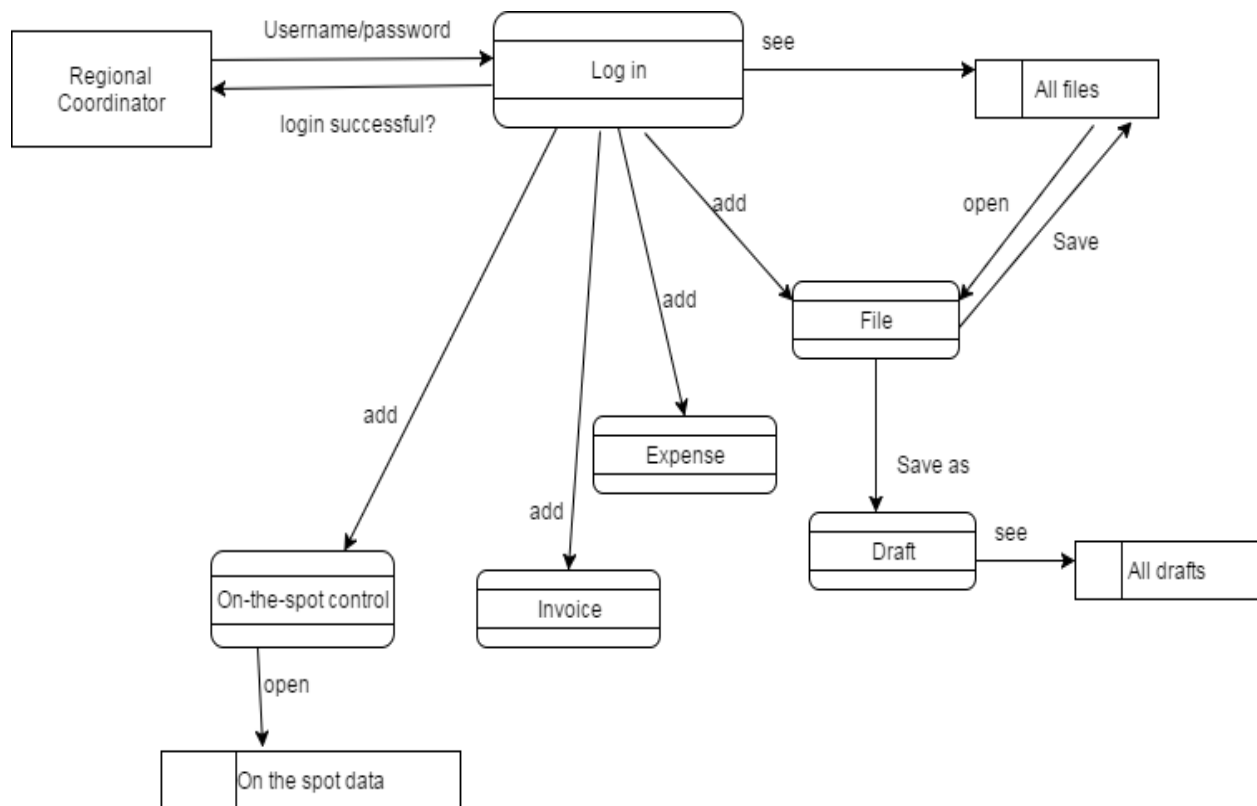


Collaboration diagram 6

## Zig-C Requirements Specifications

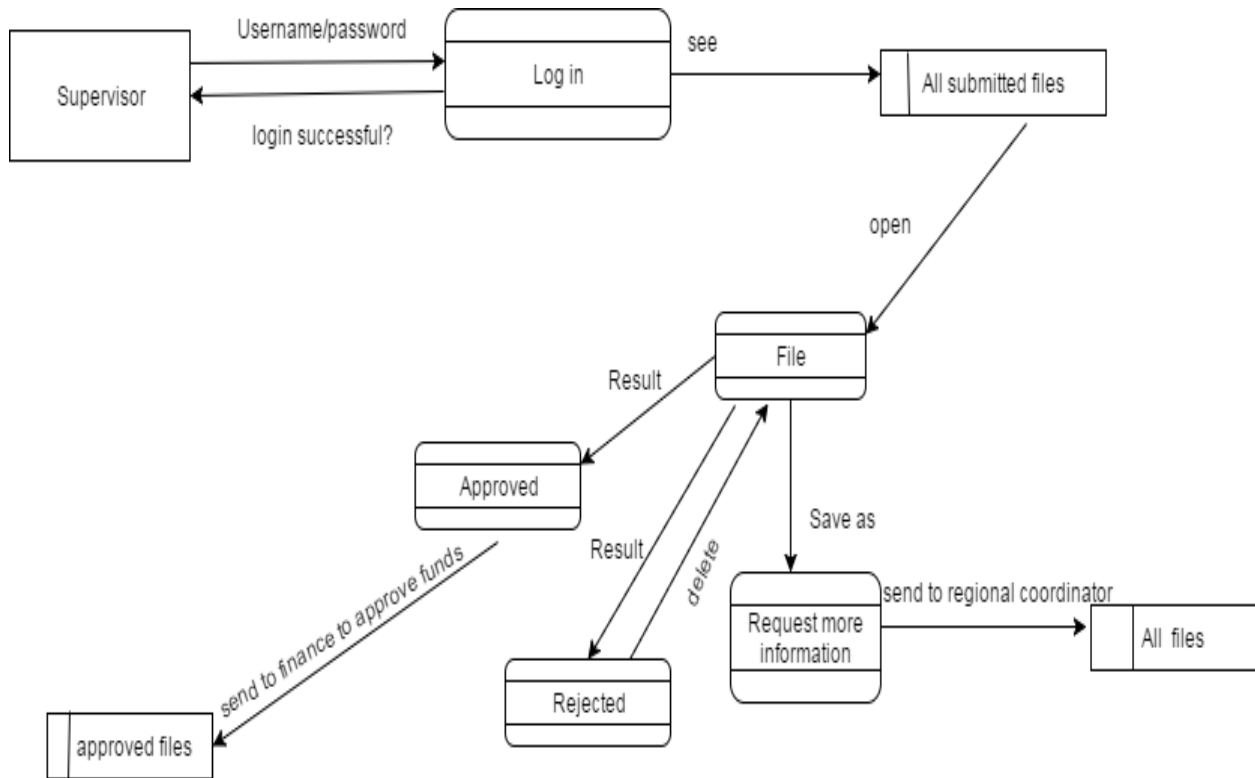


### Data Flow Diagram Context Level

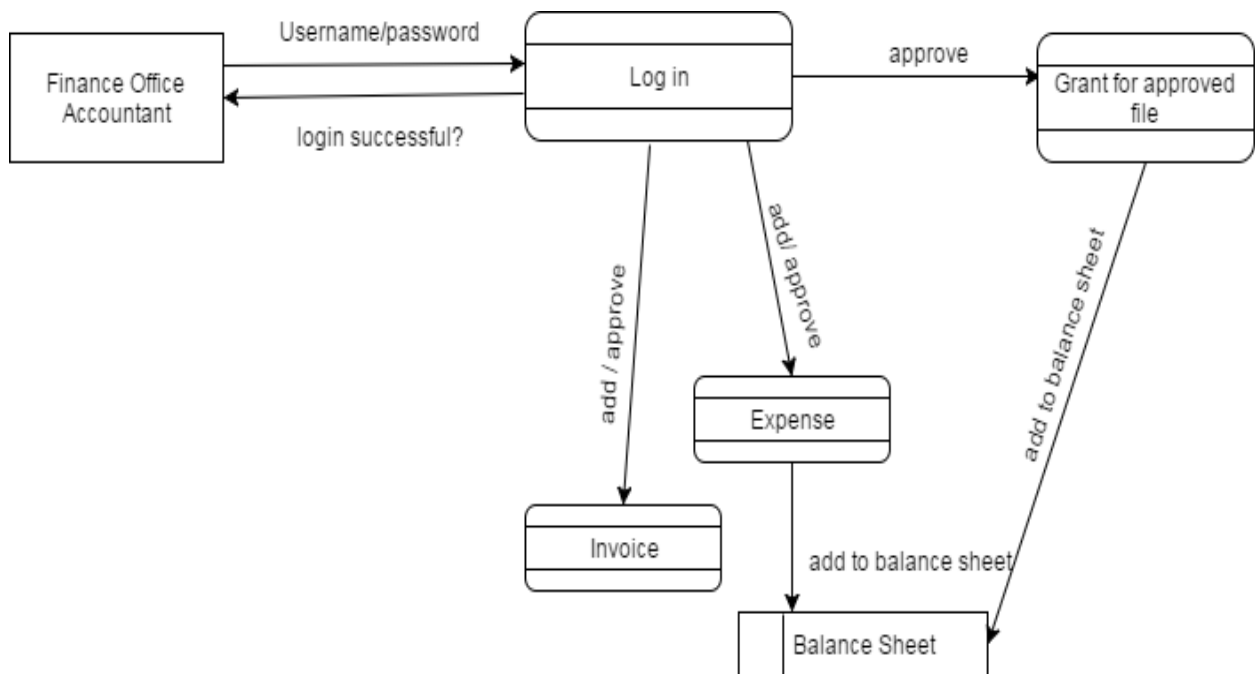


### Data Flow Diagram Level 1- Regional Coordinator

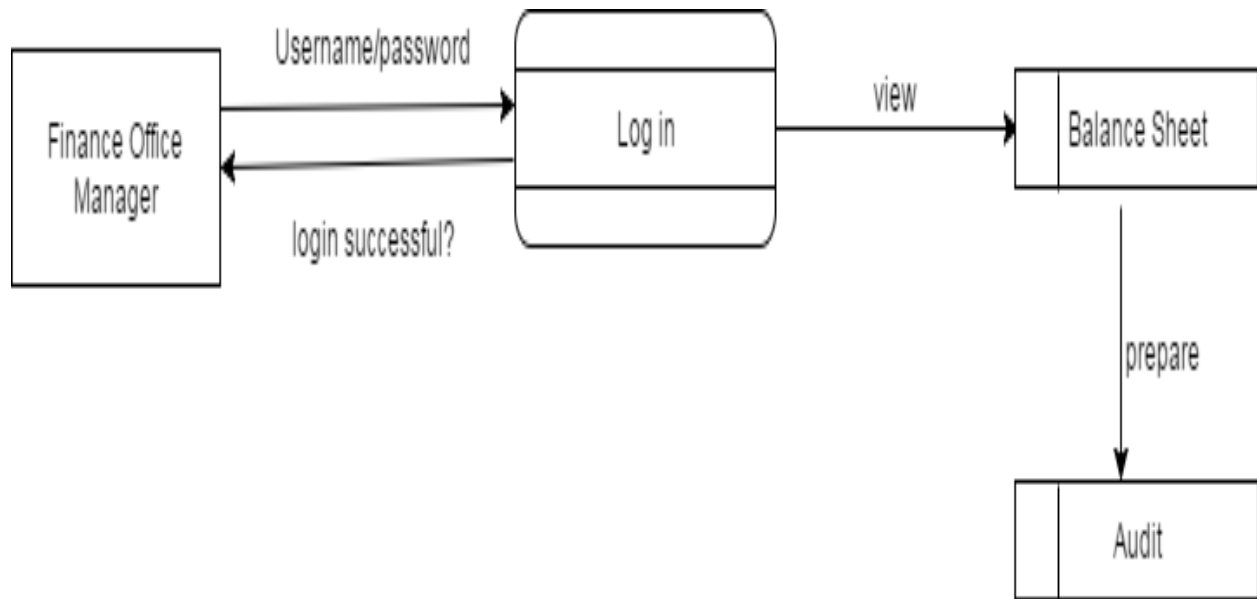
## Zig-C Requirements Specifications



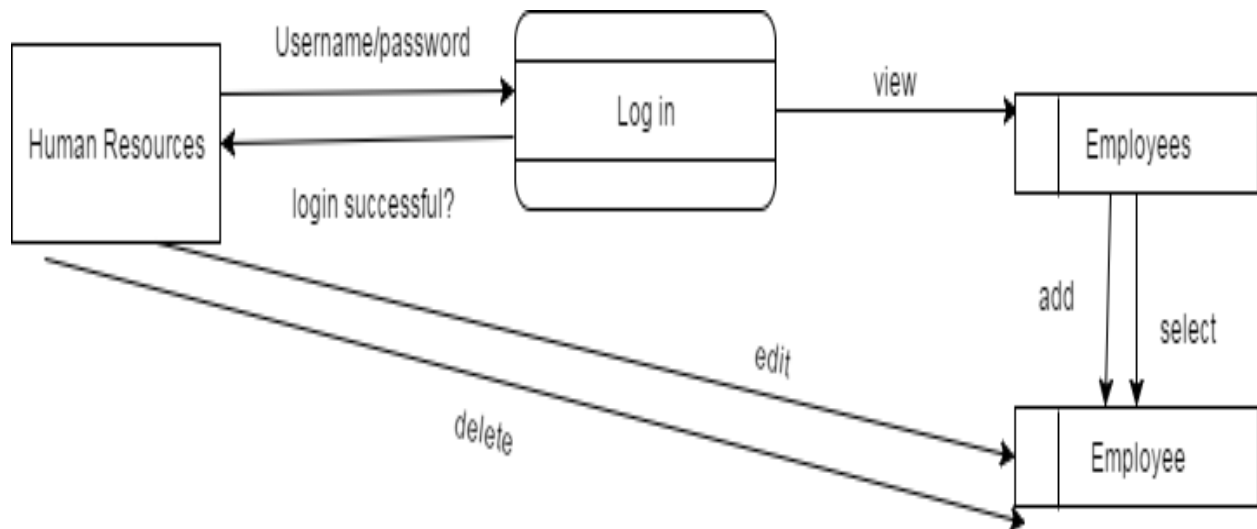
Data Flow Diagram Level 1-Supervisor



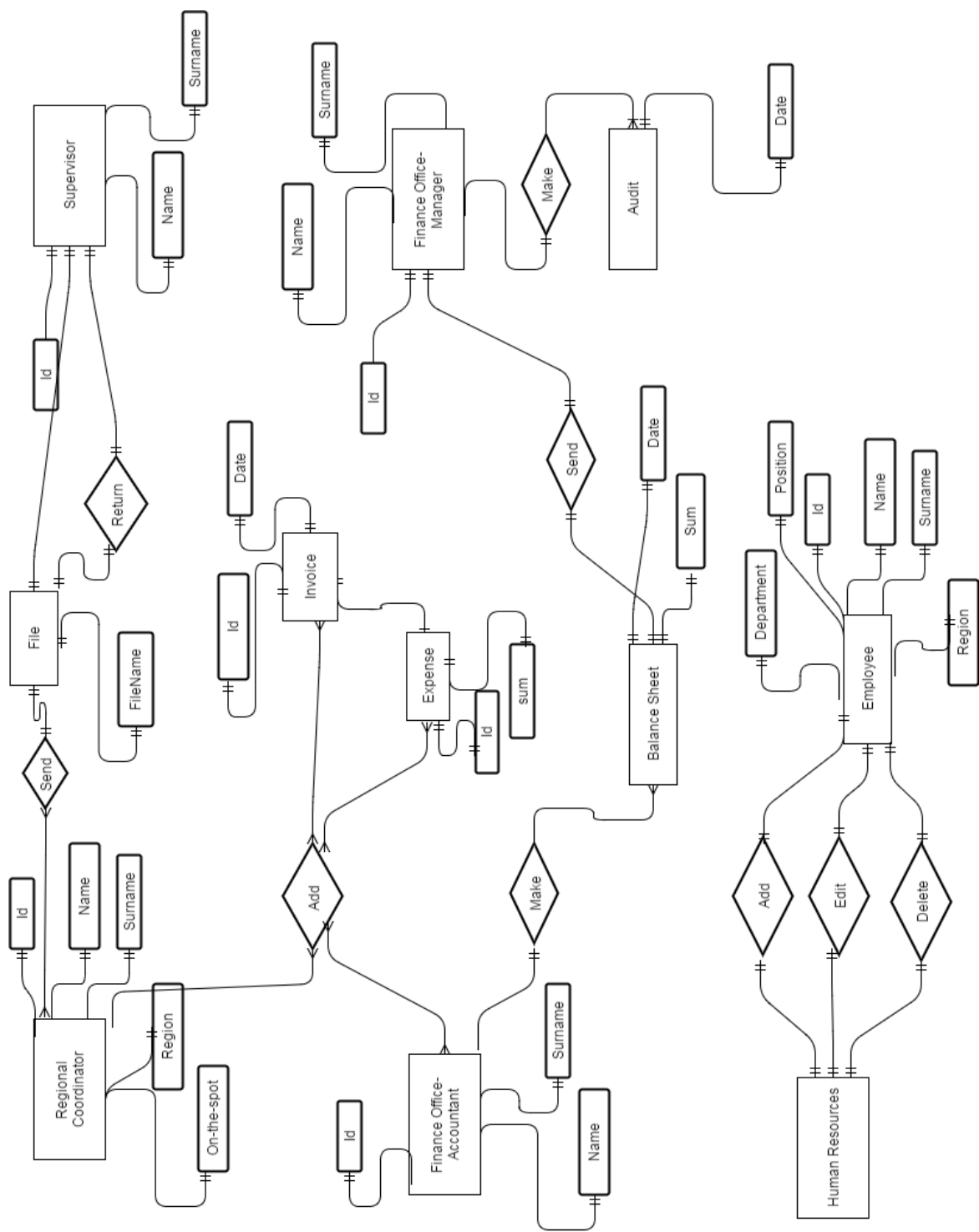
Data Flow Diagram Level 1- Finance Office Accountant



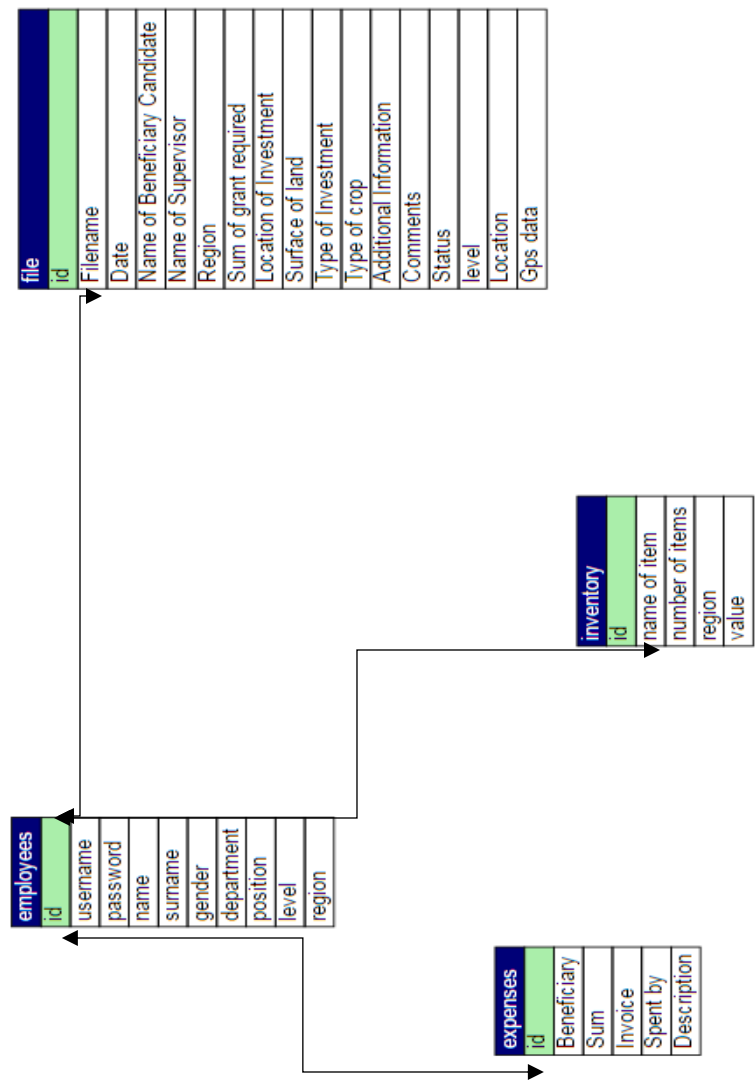
Data Flow Diagram Level 1- Finance Office Manager



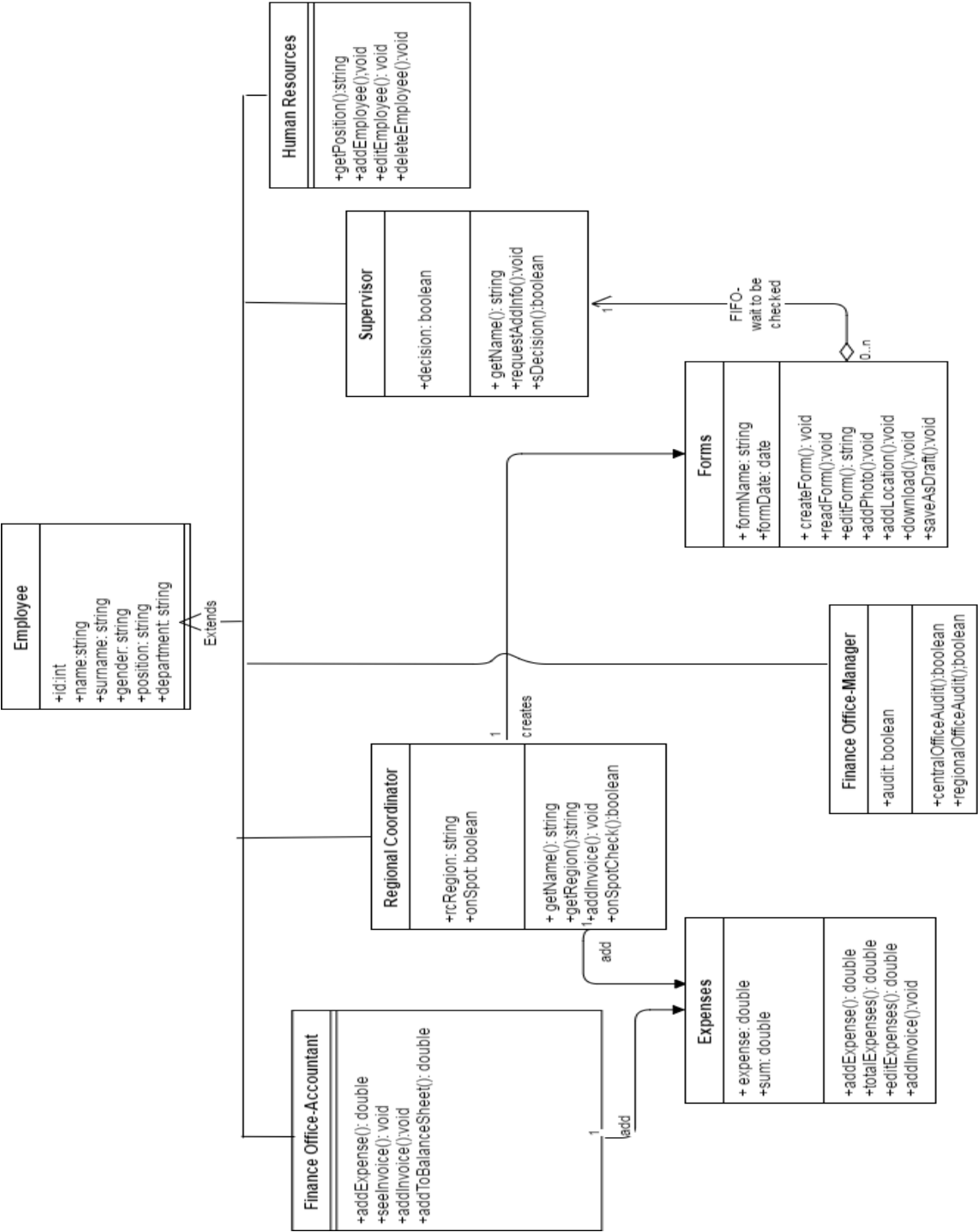
Data Flow Diagram Level 1- Human Resources



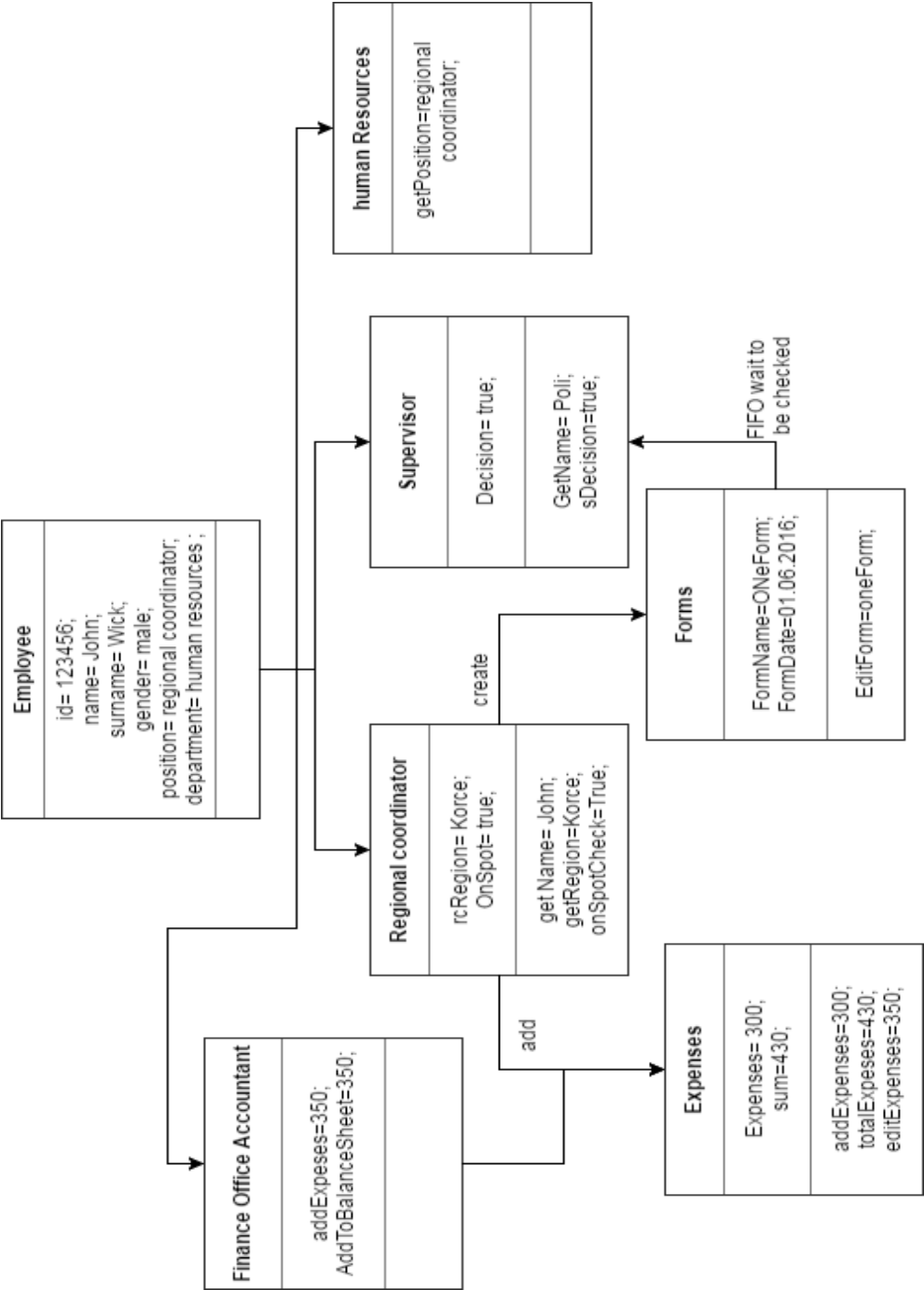
Entity Relationship Diagram



Database Diagram



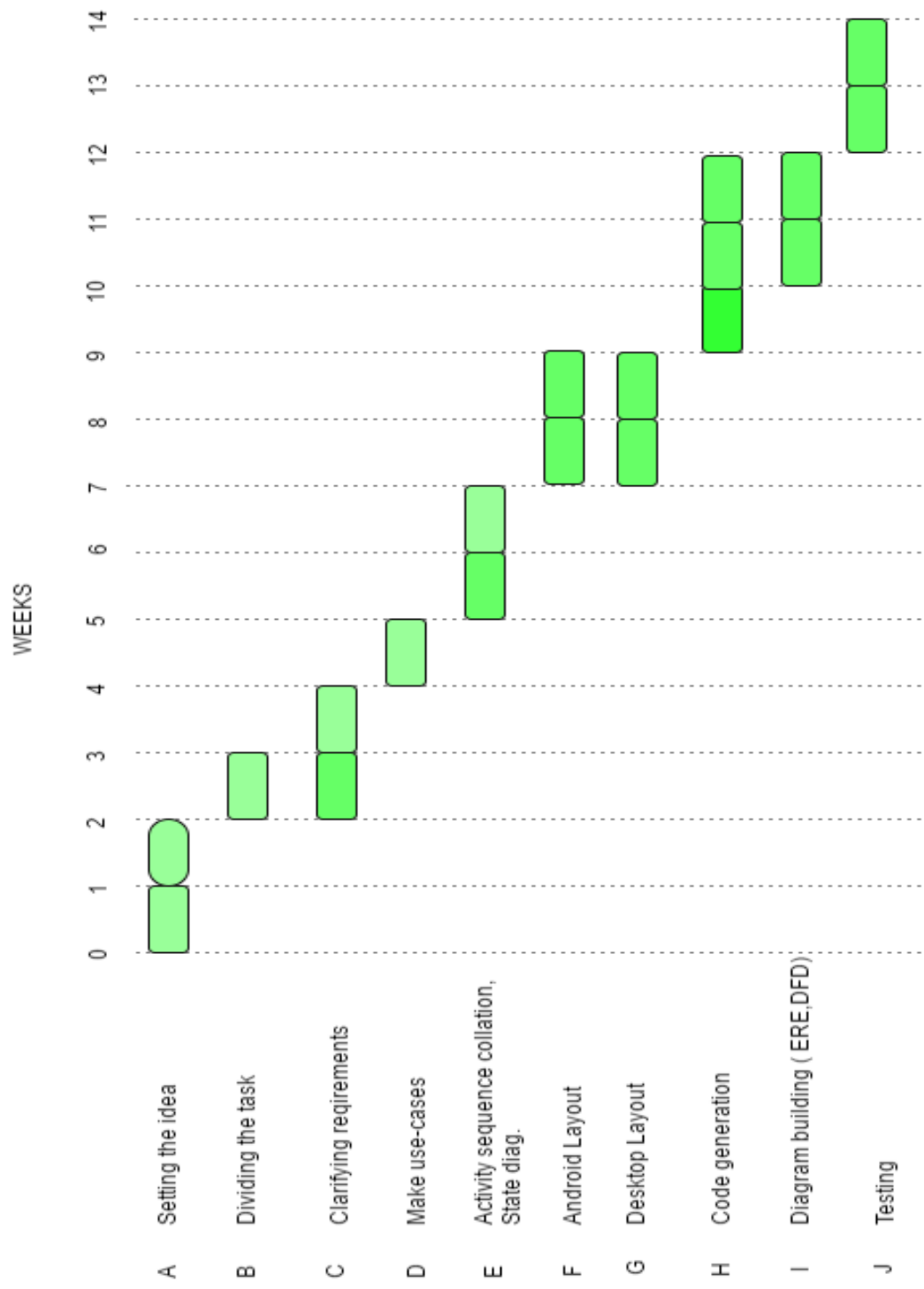
Class Diagram



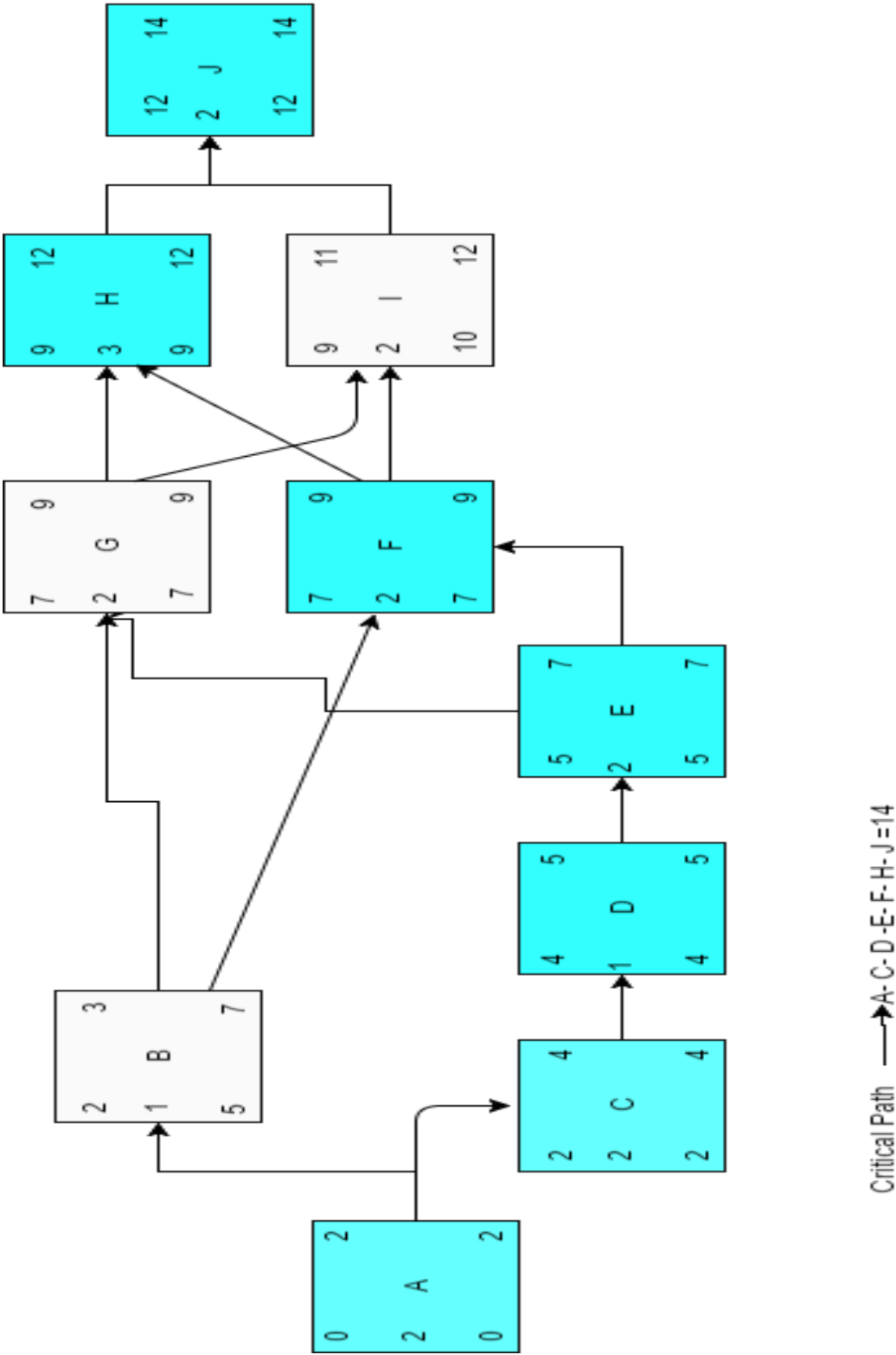
Object Diagram



5. Project Planning

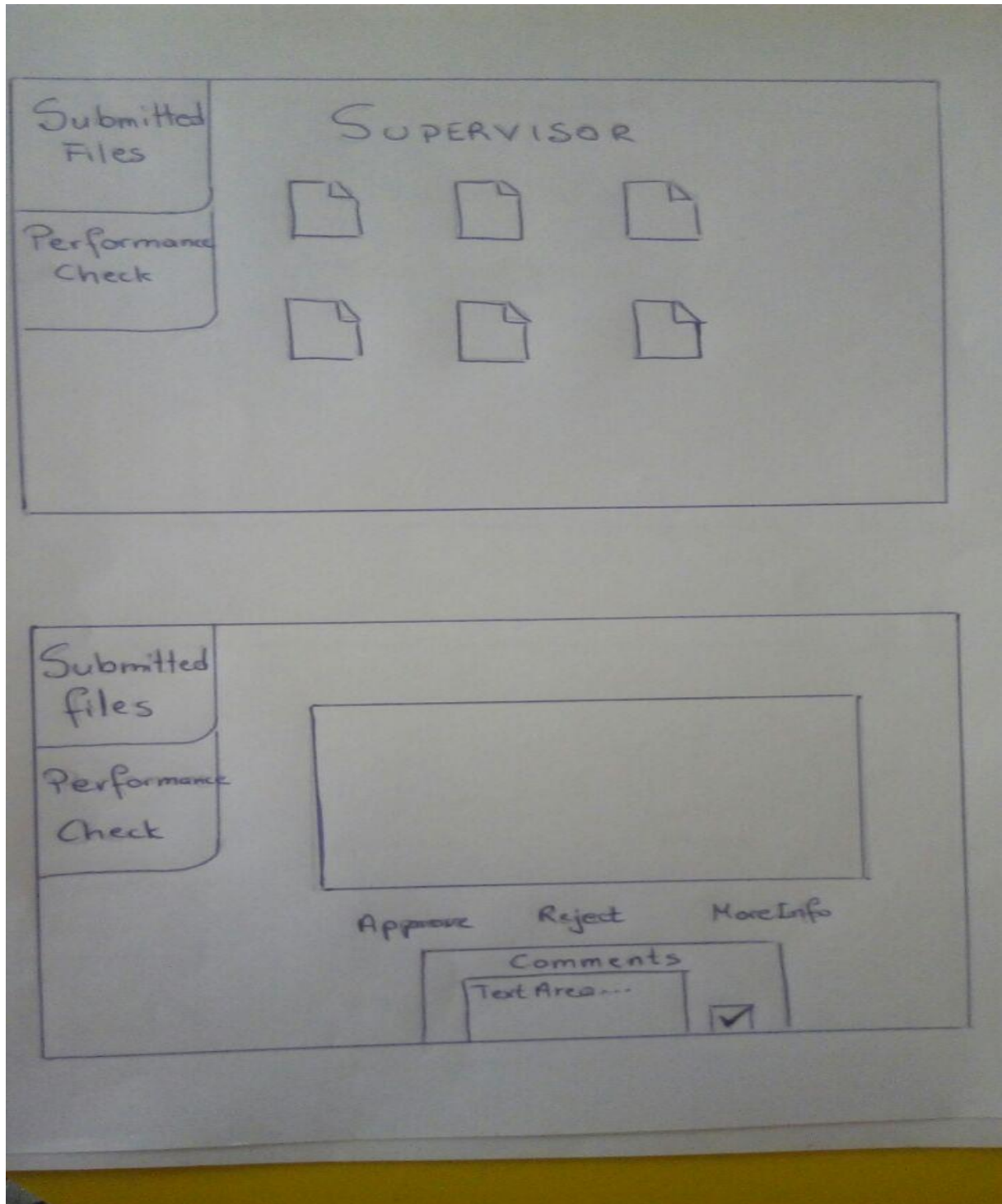


Gantt Chart







Network Diagram

## 5.1 Sketches



Documents	<div>1. To <input type="text" value="Company Name"/></div> <div>2. Total <input type="text"/></div> <div>3. Upload Invoice</div> <div><input type="button" value="Submit"/></div>
Finance	
All Submissions	

Regional Offices	 Elbasan	 Korçë
Central Office	 Kukës	 Berat
Inventory Regional		
Inventory Central		

Documents
Finance
On Spot
All Submissions

## FORM



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## ADMIN

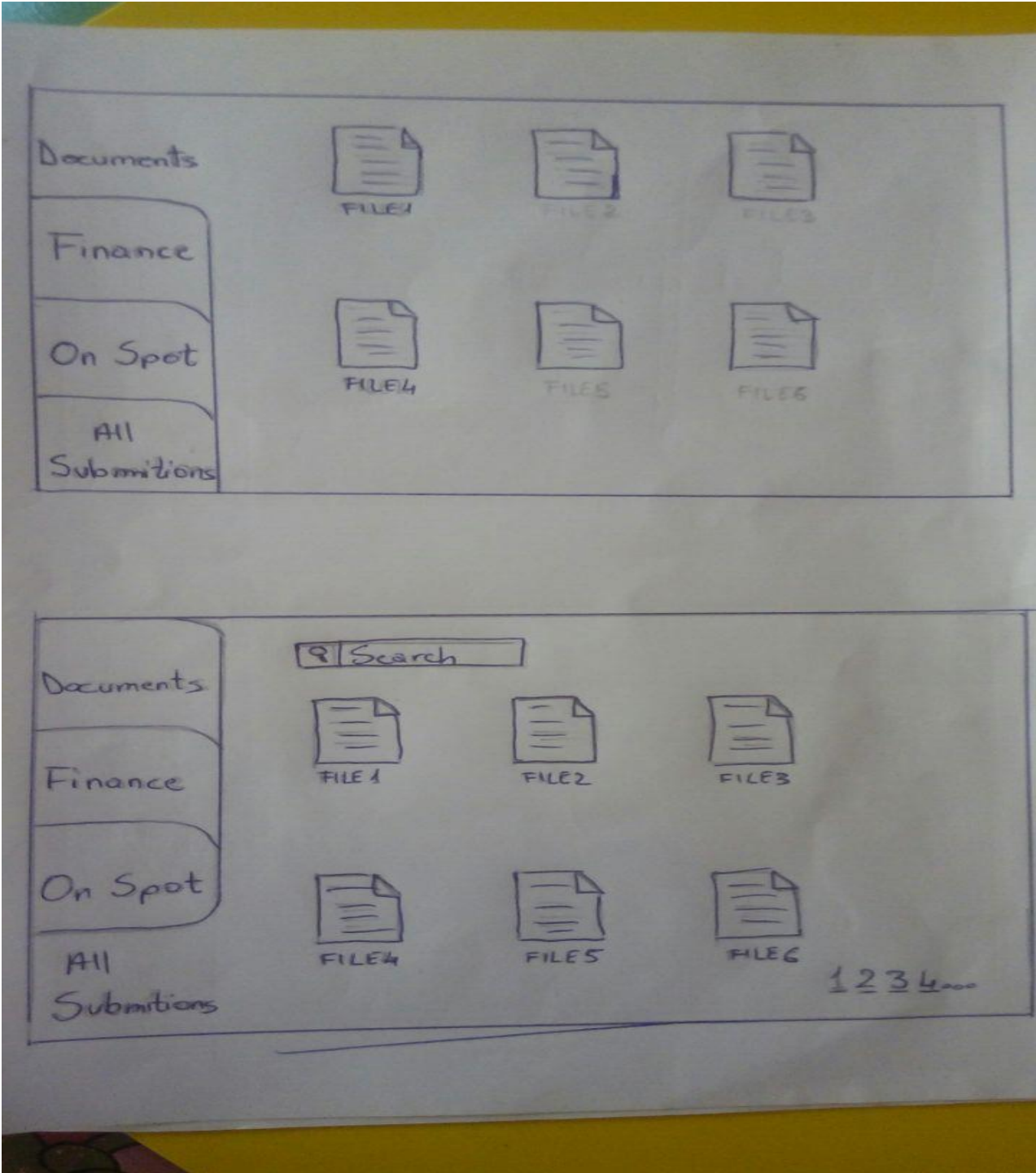
◀ USER 1	...EDIT...	
◀ USER 2	...EDIT...	
◀ USER 3	...EDIT...	
◀ USER 4	...EDIT...	



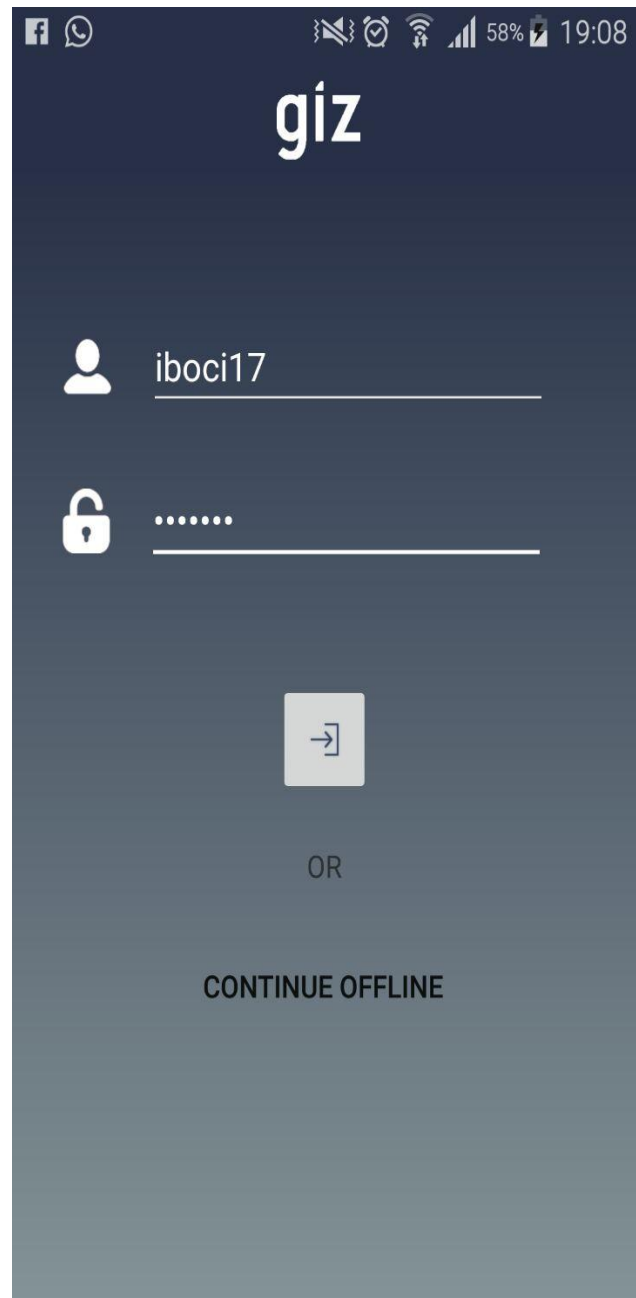
Regional Offices	Credit	Debit	INVOICE	
Central Office	—	—	 EL. 21.07.16	 EL. 22.08.16
Inventory Regional				
Inventory Central				

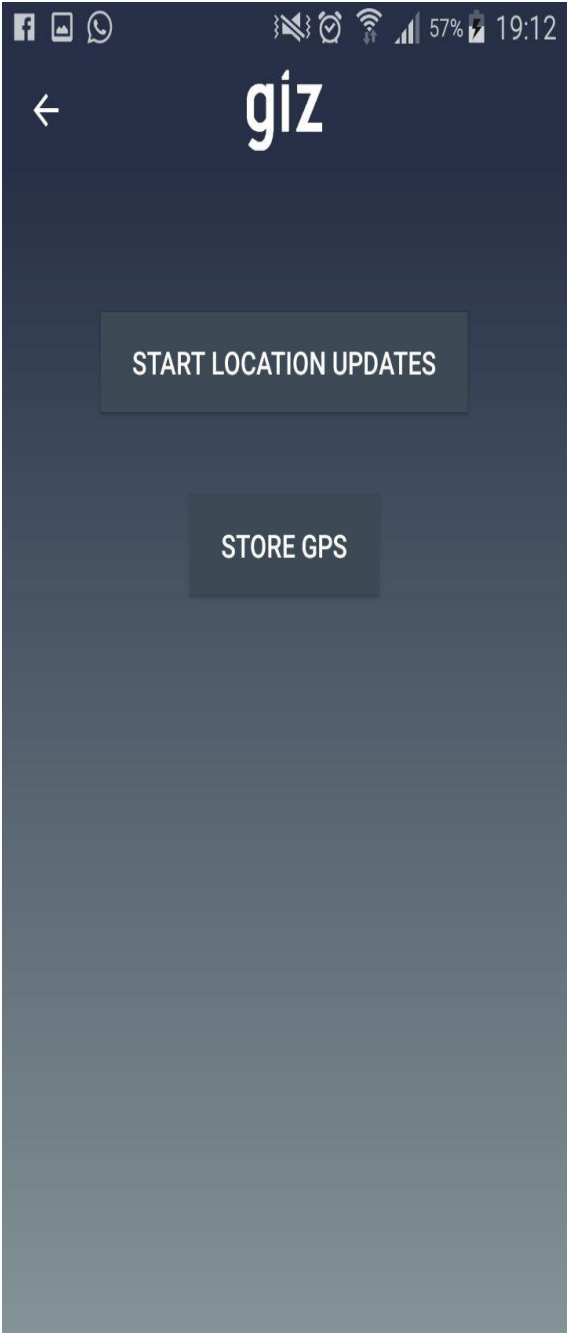
Regional Office	Inventory
Central Office	1.
	2.
	3.
	4.
	5.
	6.
Inventory Regional	7.
	8.
	9.
Inventory Central	10.

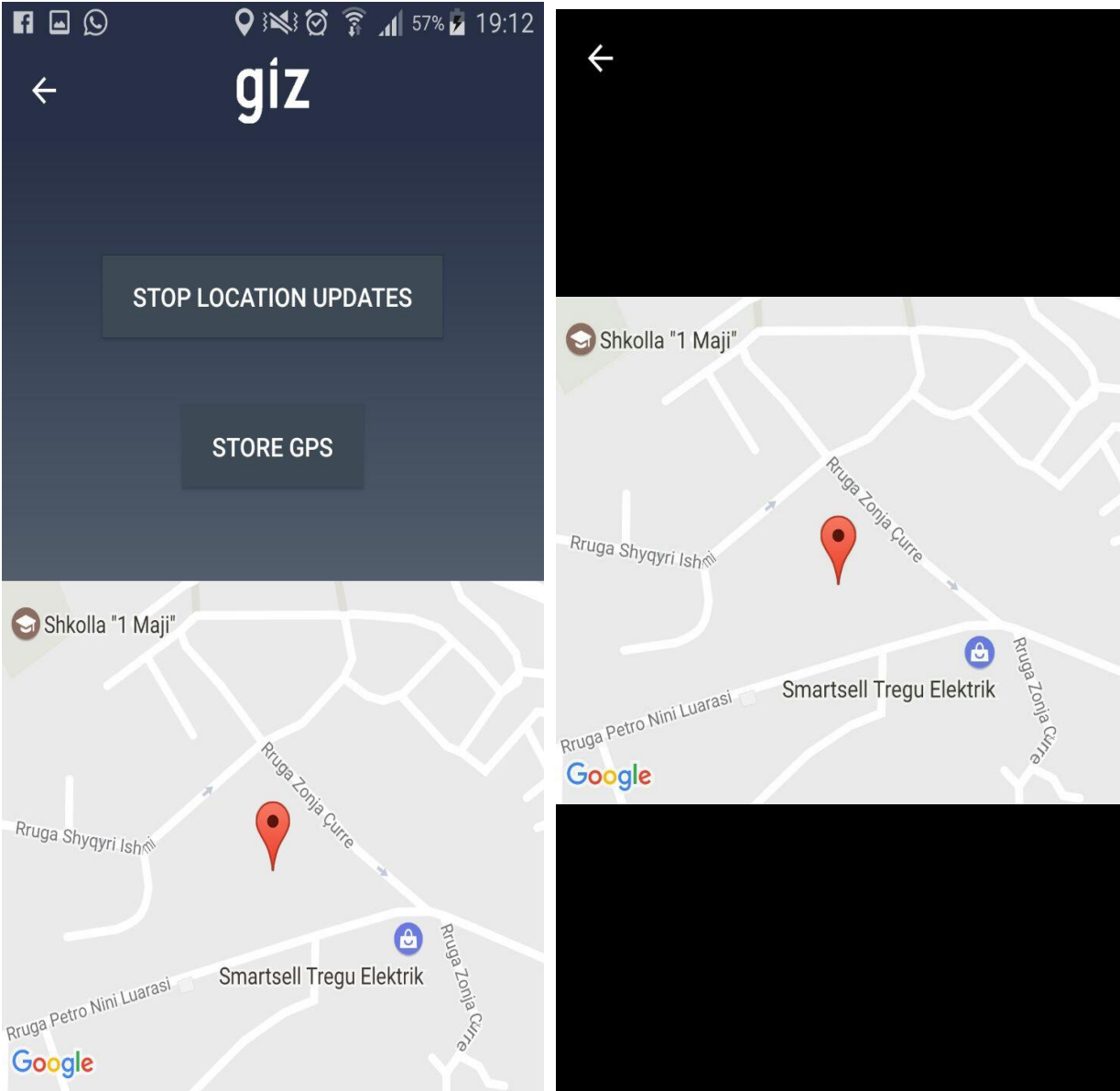


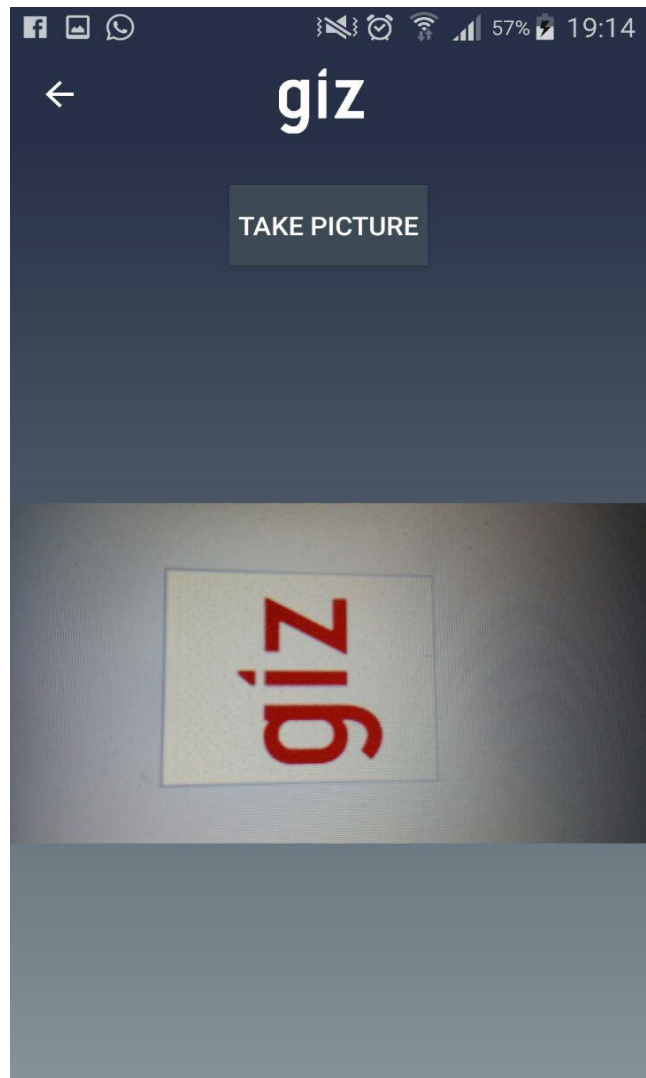
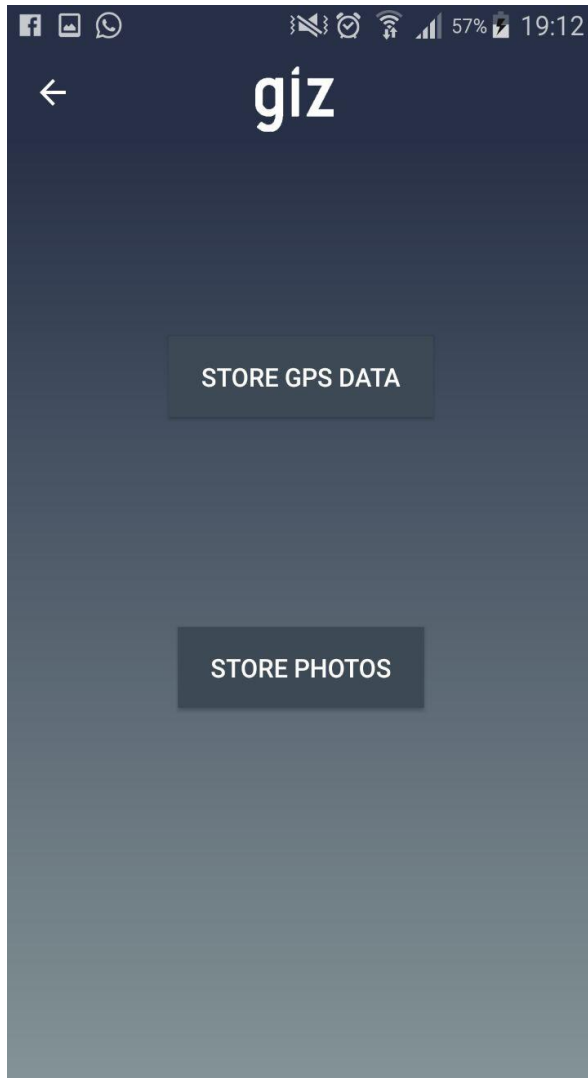
## 5.2 Screenshots mobile

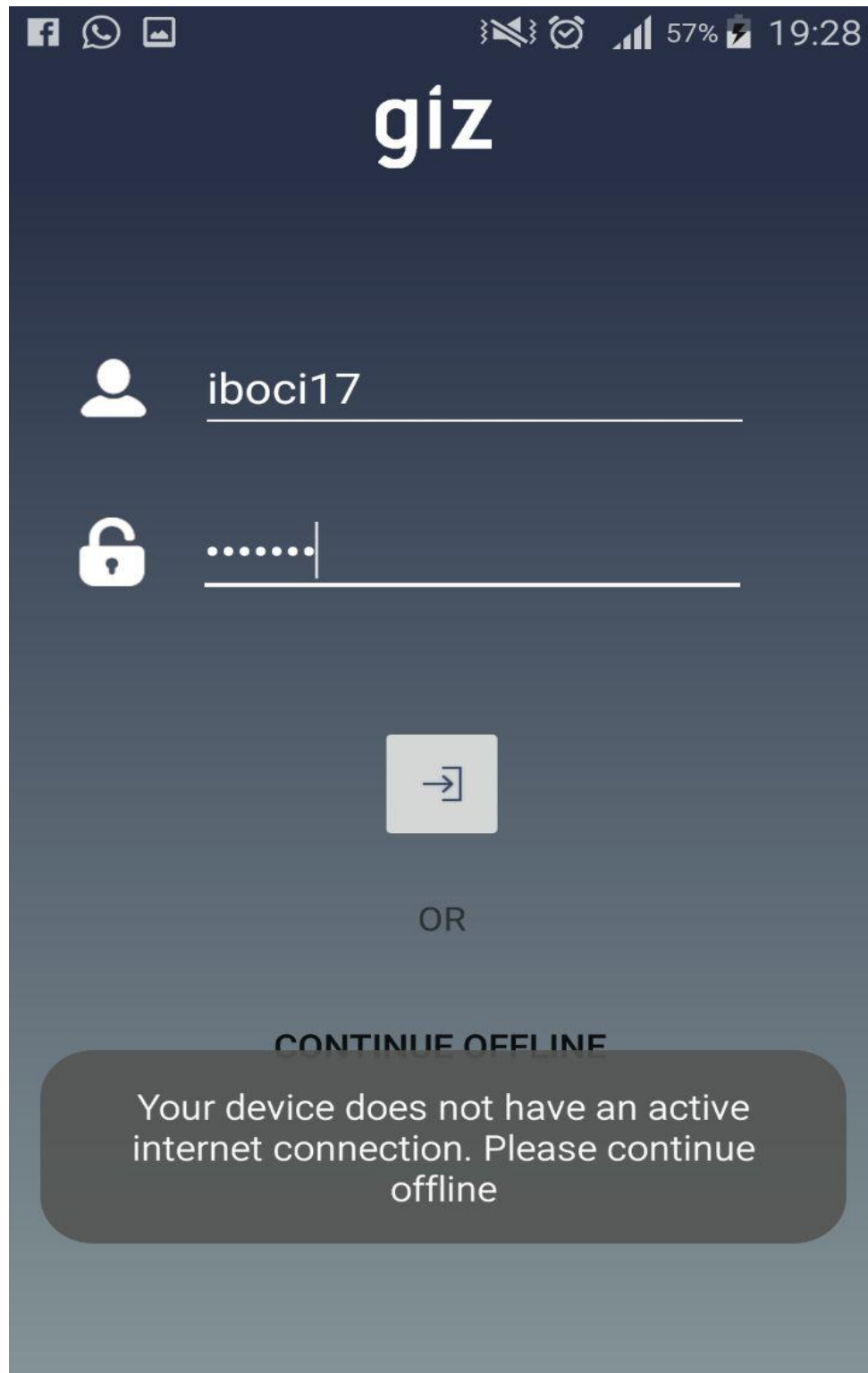




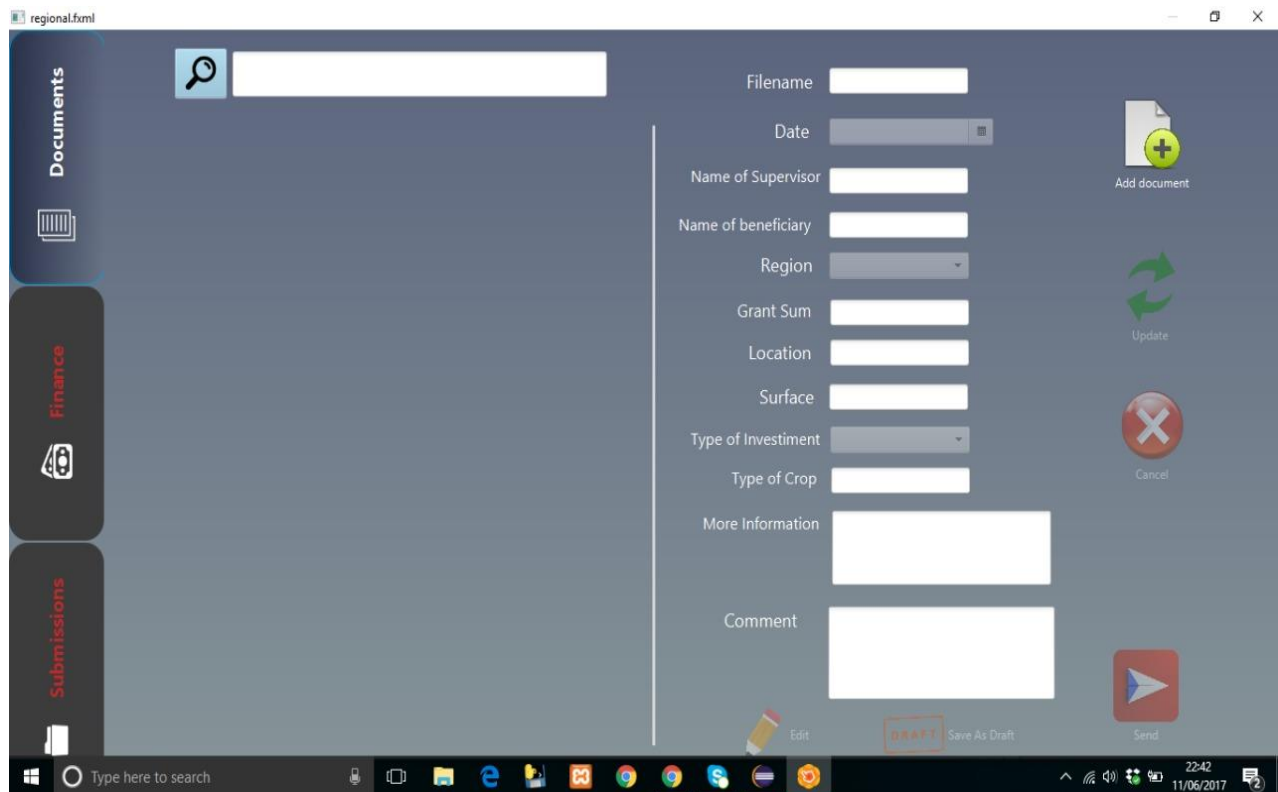




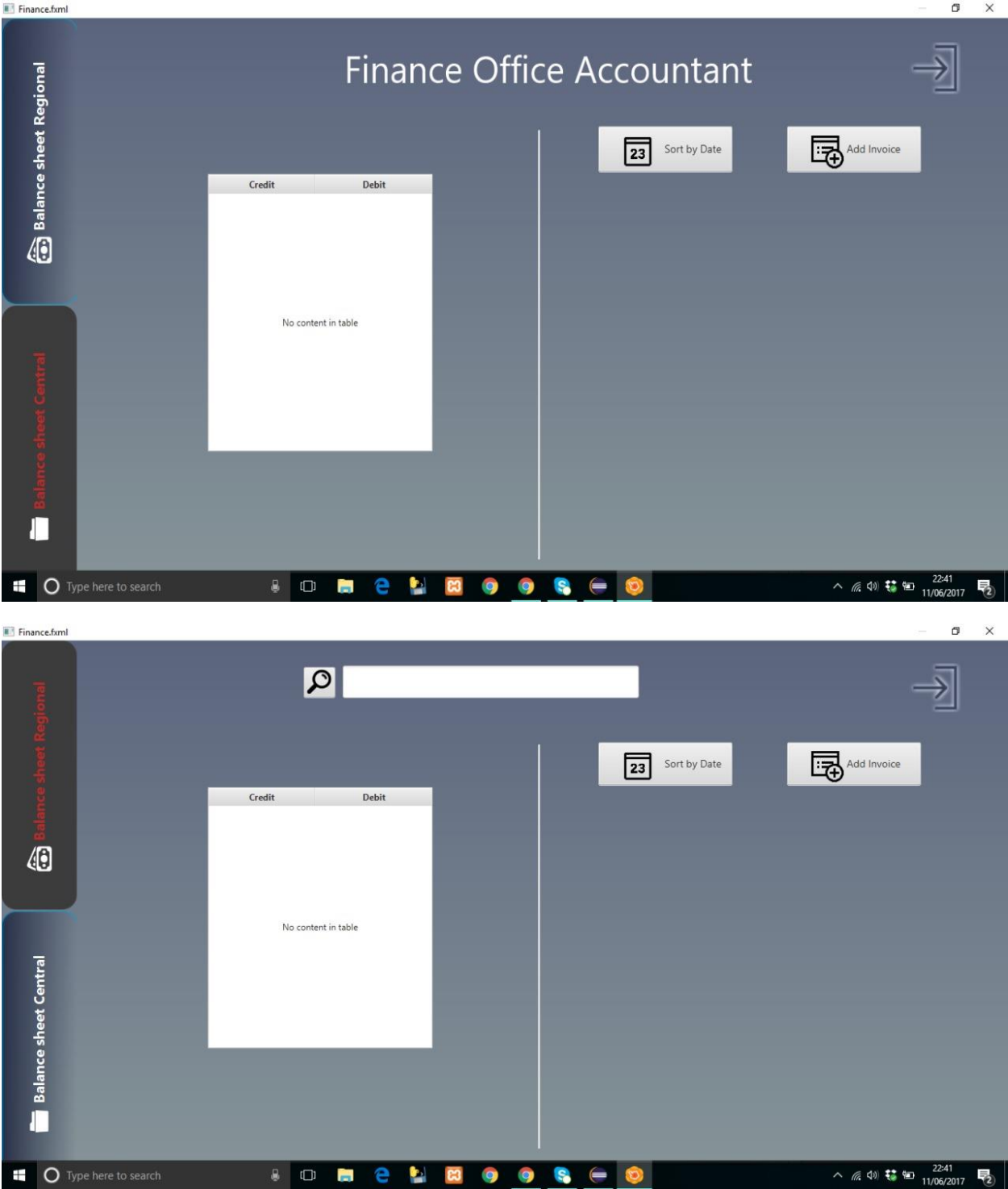




## 5.3 Screenshots Desktop



Zig-C Requirements Specifications



## Zig-C Requirements Specifications

[illegible]

The screenshot shows a web application titled 'regional.xml'. On the left is a sidebar with three main sections: 'Documents' (with a folder icon), 'Finance' (with a document icon), and 'Submissions' (with a document icon). The main content area is divided into two panels. The left panel, titled 'Expenses', contains three input fields labeled 'TO', 'SUM', and 'Description'. Below these fields are two buttons: 'Upload Invoice' (with an orange circular arrow icon) and 'Save' (with a floppy disk icon). The right panel, titled 'Invoice', is currently empty. The bottom of the image shows a Windows taskbar with various icons and a system clock indicating 22:42 on 11/06/2017.

Zig-C Requirements Specifications

