
Design Document

for

HC Reimbursement Automation

Version 1.0

Prepared by

Group 6:

Group Name: Quarantined
Developers

Subhrojyoti Chatterjee
Harsh Kumar
Gaurav Kumar
Sanchit Sinha
Priyanka Jalan
Shorya Kumar
Nakula Neeraje
Atreya Goswami
Rahul Rathod
Shantanu Thakur

190866
190360
190337
190753
190649
190818
190525
190201
190667
190792

sjyoti@iitk.ac.in
harshku@iitk.ac.in
gauravkg@iitk.ac.in
sanchits@iitk.ac.in
prianka@iitk.ac.in
shoryak@iitk.ac.in
nakula@iitk.ac.in
atreya@iitk.ac.in
rrathod@iitk.ac.in
sthakur@iitk.ac.in

Course: CS253

Mentor TA: *Nikhil Kumar Singh*

Date: *13th February, 2022*



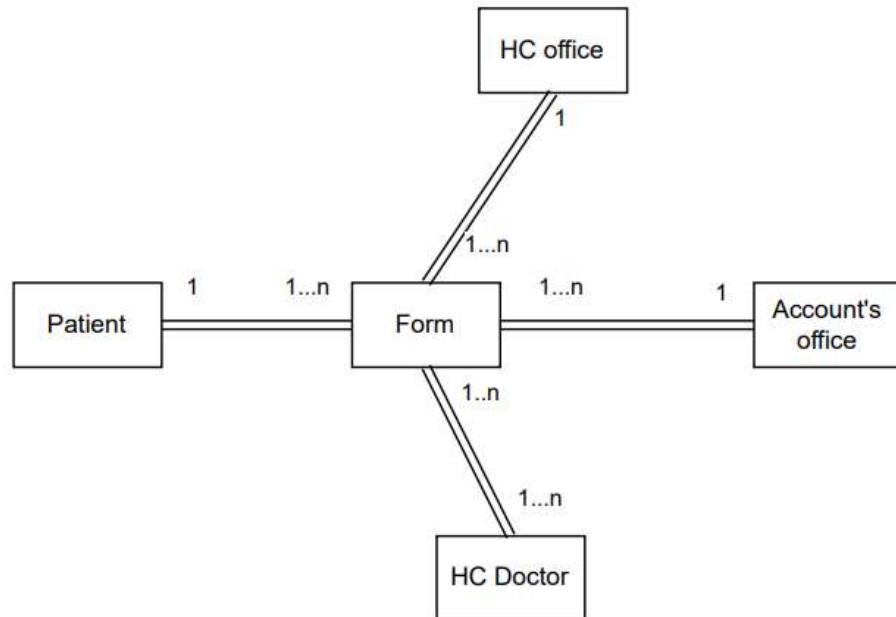
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Revisions

Version	Primary Author(s)	Description of Version	Date Completed
Initial Draft v1.0	Harsh, Gaurav, Subhrojyoti, Atreya, Sanchit, Priyanka, Shorya, Nakula, Rahul, Shantanu		13/02/22

1 Context Design

1.1 Context Model



1.2 Human Interface Design

Login Page for website:

IIT K Logo	Login Page	Contact Us
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Login

User ID
Password
Forgot Password?

Register

Enter Email-Id
Enter Password
Re-enter Password

Background:
IIT K Campus
Photo

User's / Patient's Home Page after Login :

User Details (Name, Roll No.)	IIT K Logo	Logout	Contact Us
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New Claim Form	<p> Name : _____ Designation : _____ Department : _____ Pay as defined in fundamental Rules : _____ Rs. Actual Residence Address : _____ _____ Other details as asked in online form Upload prescription : _____ Upload receipt of payment : _____ </p> <table border="1"> <thead> <tr> <th>Serial No.</th> <th>Date of Submission of Form</th> <th>Link to access/ edit forms</th> <th>Status</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>30/01/2022</td> <td>Click Here</td> <td>Forwarded to Doctor</td> </tr> </tbody> </table>	Serial No.	Date of Submission of Form	Link to access/ edit forms	Status	1	30/01/2022	Click Here	Forwarded to Doctor
Serial No.		Date of Submission of Form	Link to access/ edit forms	Status					
1	30/01/2022	Click Here	Forwarded to Doctor						
Status of previously submitted forms									

HC Official's Home Page after Login :

HC official's Details (Name)	IIT K Logo	Logout	Contact Us
---------------------------------	------------	--------	------------

New Forms for Verification	<p><u>All details filled by user</u></p> <p>Enter Comments : _____</p> <p>_____</p> <p>Accept Reject</p>
List of forms received by the official	

Serial No.	Date of Submission of Form	Link to form	Not Reviewed/ Accepted/Rejected Comment
1	30/01/2022	Click Here	Rejected Comment: Details in prescription image not clear
2	30/01/2022	Click Here	Not reviewed Comment : NA

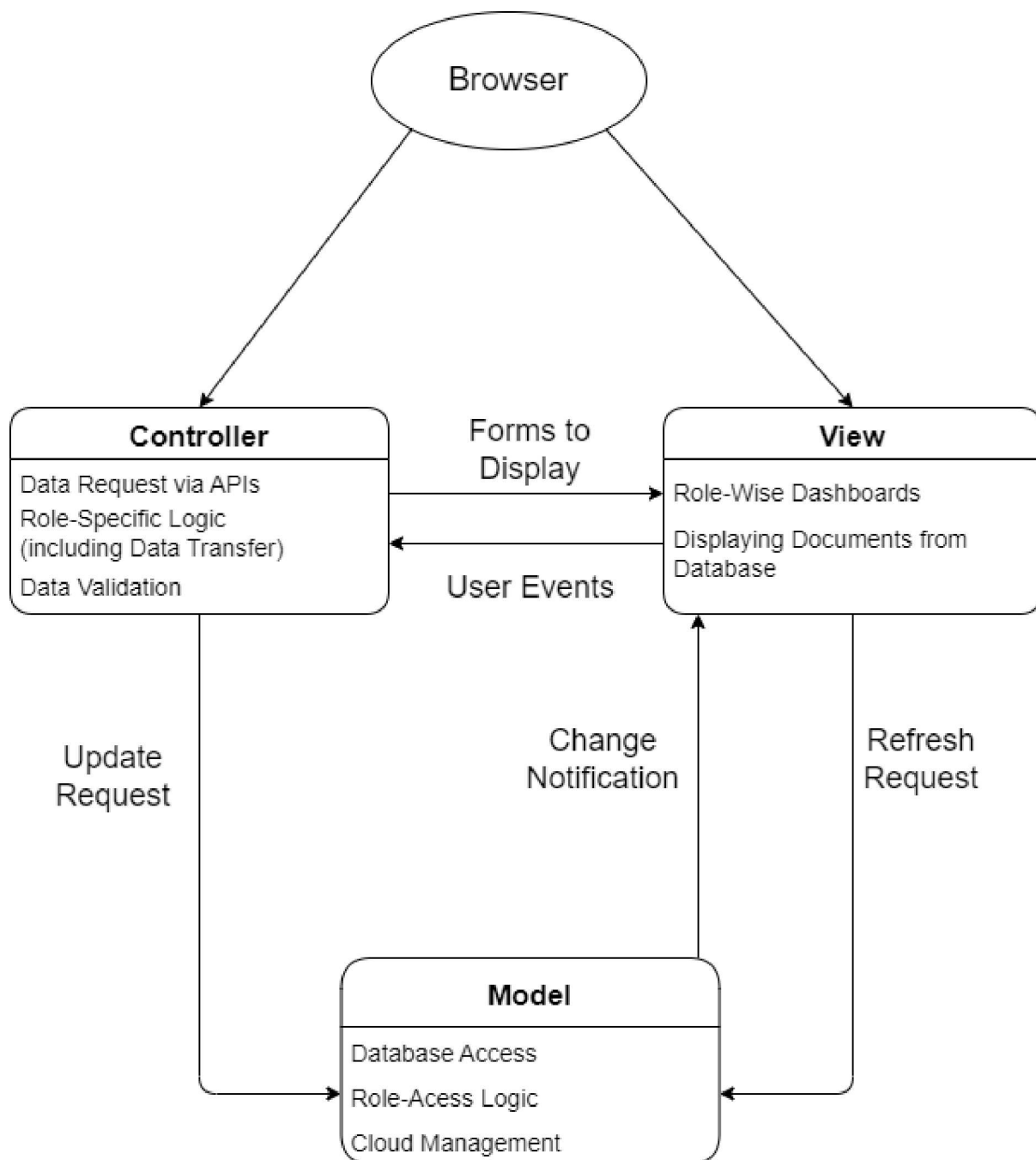
Doctor's Home Page after Login :

Doctor's Details (Name)	IIT K Logo	Logout	Contact Us											
New Forms for Verification		<div> <u>Name of patient</u> <u>Designation</u> <u>Department</u> <u>Medical Details (such as list of medicines)</u> <u>Prescription by doctor</u> <u>Receipt of payment of medicine or tests</u> Enter Comments : _____ _____ <div>Accept Reject</div> </div>												
List of forms received by the official		<table border="1"> <thead> <tr> <th>Serial No.</th> <th>Date of Submission of Form</th> <th>Link to form</th> <th>Not Reviewed/ Accepted/Rejected Comment</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>30/01/2022</td> <td>Click Here</td> <td>Rejected Comment: Prescription is fake. Not given by me</td> </tr> <tr> <td>2</td> <td>30/01/2022</td> <td>Click Here</td> <td>Not reviewed Comment : NA</td> </tr> </tbody> </table>		Serial No.	Date of Submission of Form	Link to form	Not Reviewed/ Accepted/Rejected Comment	1	30/01/2022	Click Here	Rejected Comment: Prescription is fake. Not given by me	2	30/01/2022	Click Here
Serial No.	Date of Submission of Form	Link to form	Not Reviewed/ Accepted/Rejected Comment											
1	30/01/2022	Click Here	Rejected Comment: Prescription is fake. Not given by me											
2	30/01/2022	Click Here	Not reviewed Comment : NA											

Account's Official Home Page :

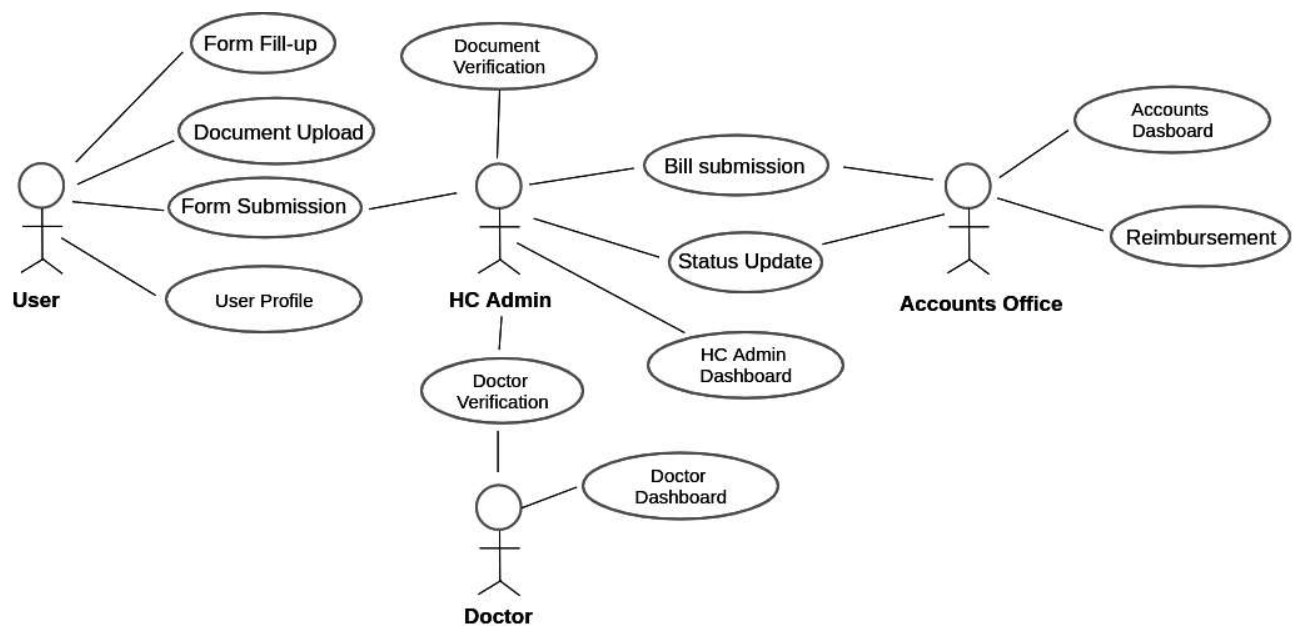
Account Official's Details (Name)	IIT K Logo	Logout	Contact Us												
Pending Reimbursement Claims		<table border="1"> <thead> <tr> <th>Serial No.</th> <th>Date of Submission</th> <th>Amount to be paid</th> <th>Click here to pay the dues</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1/02/2022</td> <td>Rs. 440</td> <td>Click Here</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Serial No.	Date of Submission	Amount to be paid	Click here to pay the dues	1	1/02/2022	Rs. 440	Click Here				
Serial No.		Date of Submission	Amount to be paid	Click here to pay the dues											
1	1/02/2022	Rs. 440	Click Here												
Completed Reimbursements	<table border="1"> <thead> <tr> <th>Serial No.</th> <th>Date of Submission of Form</th> <th>Date of Payment of Dues</th> <th>Amount paid</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>30/01/2022</td> <td>25/02/2022</td> <td>Rs.350</td> </tr> <tr> <td>2</td> <td>30/01/2022</td> <td>20/02/2022</td> <td>Rs.705</td> </tr> </tbody> </table>		Serial No.	Date of Submission of Form	Date of Payment of Dues	Amount paid	1	30/01/2022	25/02/2022	Rs.350	2	30/01/2022	20/02/2022	Rs.705	
Serial No.	Date of Submission of Form	Date of Payment of Dues	Amount paid												
1	30/01/2022	25/02/2022	Rs.350												
2	30/01/2022	20/02/2022	Rs.705												

2 Architecture Design

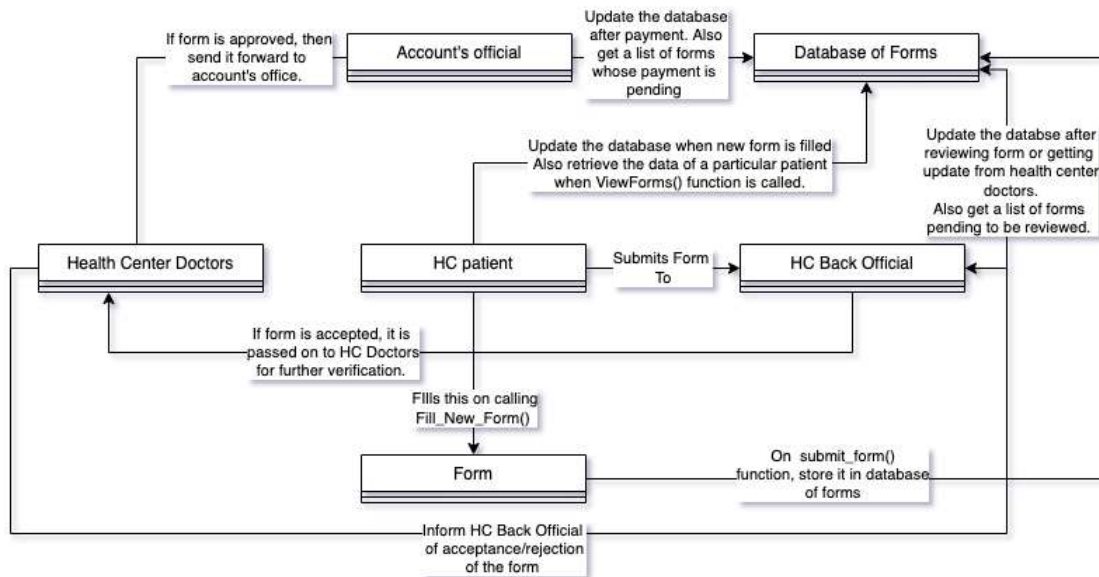


3 Object Oriented Design

3.1 Use Case Diagrams



3.2 Class Diagrams

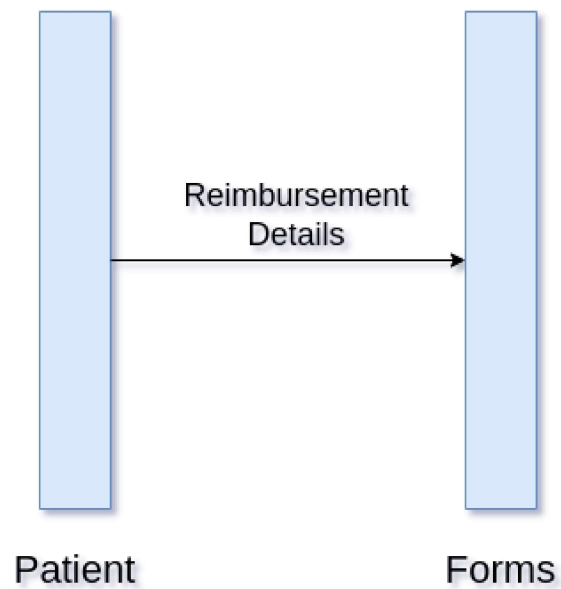


HC Patient	HC Back Official	HC Doctor	Account's Official
Login ID	Login ID	Login ID	Login ID
Login Password	Password	Password	Password
Name	Name	Name	Name
Address in Campus	Address in Campus	Address in Campus	Address in Campus
Roll No.	Email ID	Department of Work(e.g. General Physician, Ophthalmologist)	Email ID
Other Details	View_Pending_Forms()	View_Pending_Forms()	View_Pending_Forms()
Fill_New_Form()	View_Previously_Reviewed_Forms()	View_Previously_Reviewed_Forms()	View_Previously_Reviewed_Forms()
View_Previously_Filled_Forms()	Accept_Form()	Accept_Form()	Proceed_to_Pay()
	Reject_Form(string comment)	Reject_Form(string comment)	

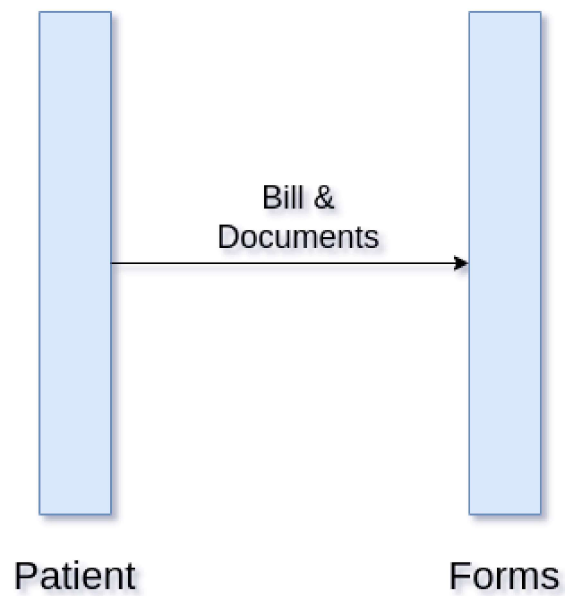
Form	Database of Forms
Name	A dynamically allocated array of quadruple of < form no., pointer or link to Form object corresponding to form no., Status of Form, Comments on Form>
Roll No.	Insert_New_Form(Form* form)
Doctor Visited	Update_Status(string new_status)
Details of tests done	Insert_New_Comment(string comment)
Details of medications given	
Submit_Form()	
Show_Form()	

3.3 Sequence Diagrams

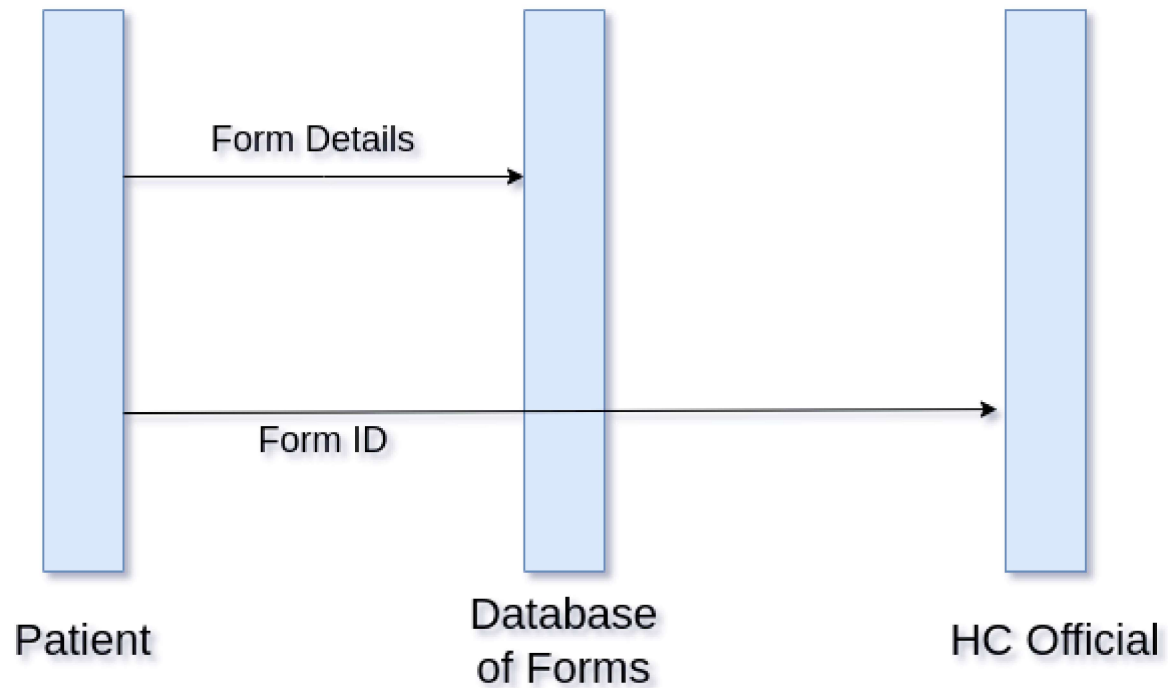
3.3.1 Form Fillup



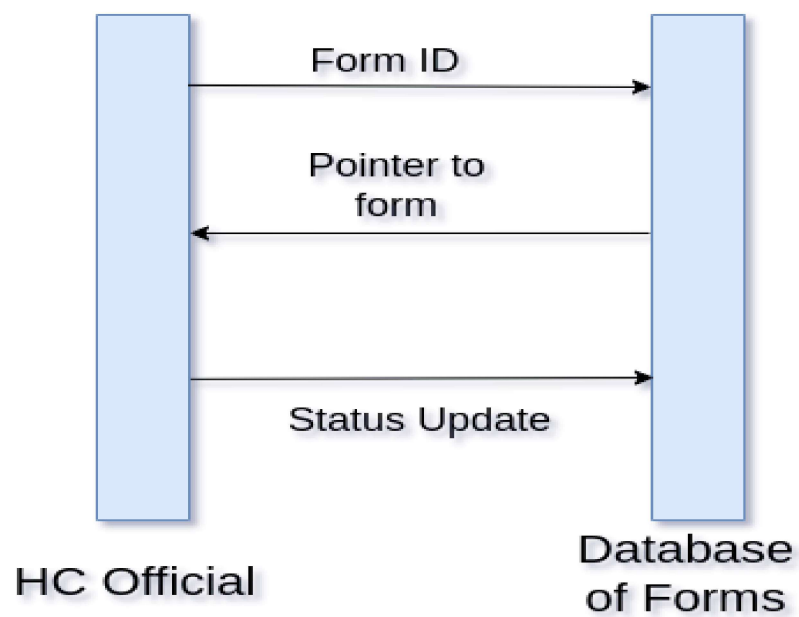
3.3.2 Document Upload



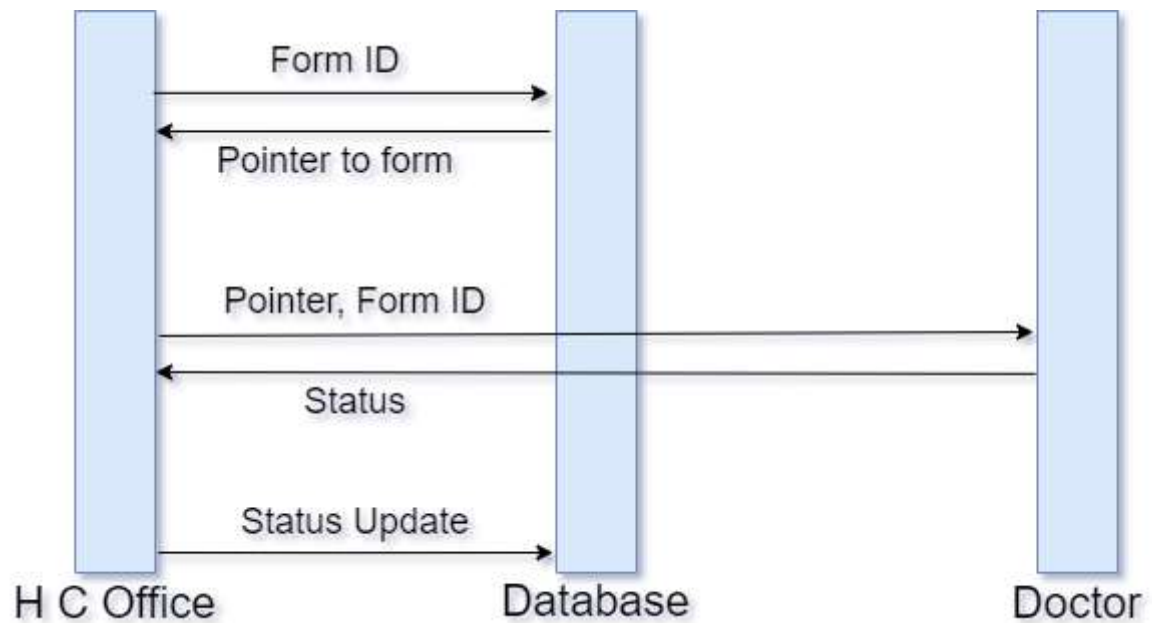
3.3.3 Form Submission



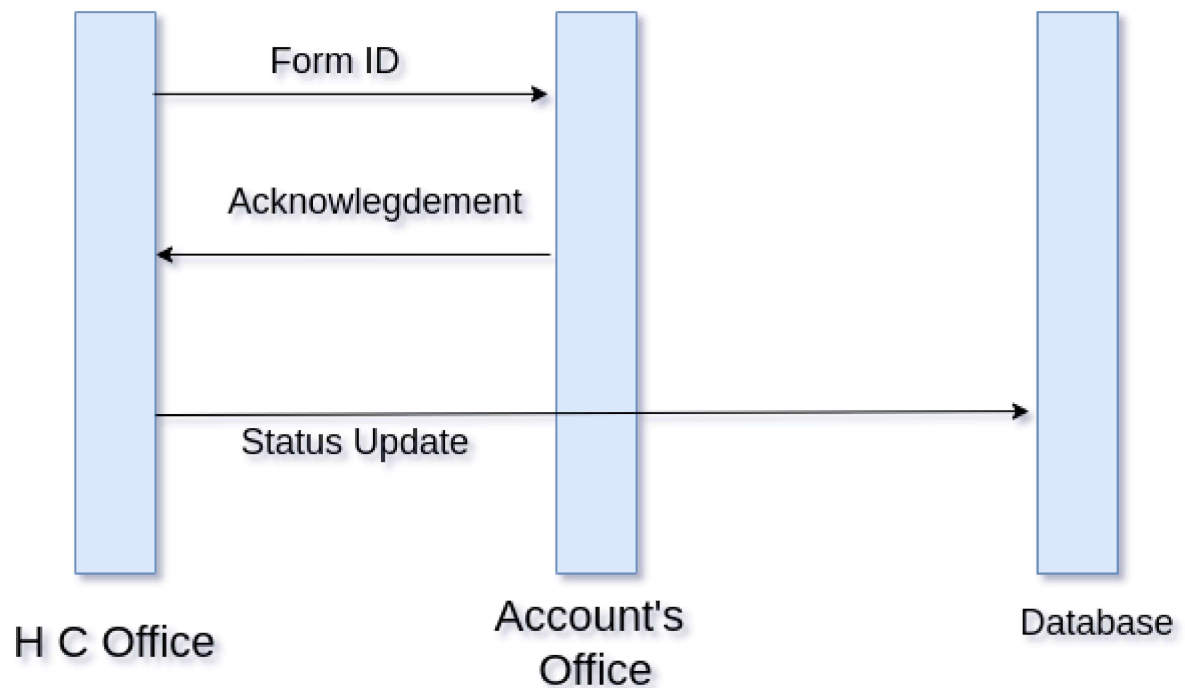
3.3.4 Document Verification by HC Admin



3.3.5 Doctor's Verification

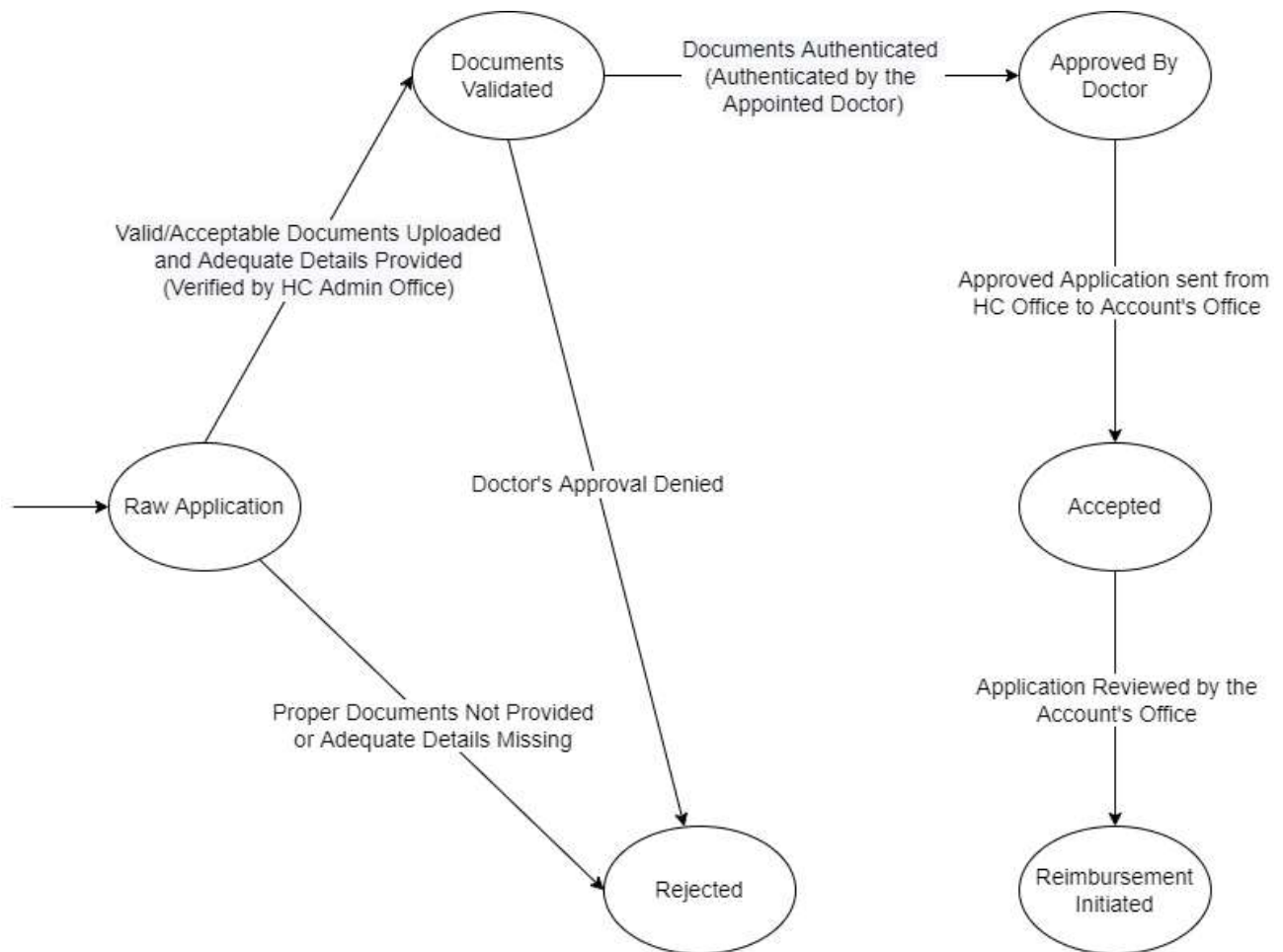


3.3.6 Bill Submission to Account's Office



3.4 State Diagrams

The Reimbursement Application filled by the Patient will have several states depending on the actions taken and the stage of the process it is at. The following State diagram helps visualise the states and actions taken to reach them.



4 Project Plan

- Frontend
 - Login Page- This page will be the entry page of the website for all the users. This page requires user identification and authentication, which will be performed by matching the credentials with the data saved in the database.
 - UI for different roles
 - User's Personal HomePage
 - Dashboard - This will have a dashboard to view the status of already filled forms which will be displayed in the form of table
 - Form UI- This page contains relevant data regarding the user and will contain forms to fill in the reimbursement claim.
 - Document Upload UI - This will be a form field allowing the user to upload documents important to claim reimbursement, which will be then saved in the cloud.
 - Health Center Admin's Page
 - Dashboard - This page will contain a dashboard to view the already filled forms which will be shown in the form of tables.
 - Form and Document Access UI- This page will allow the user to accept and reject the pending reimbursement claims, to provide feedback, to request for more information and to forward forms to specific doctors for data verification.
 - Doctor's HomePage
 - Dashboard - This page will contain a dashboard to view the recommended forms.
 - Form and Document Access UI- This page will allow the user to verify data, to provide feedback and to update status of the form.
 - Accounts Officer HomePage
 - Dashboard - This page will contain a dashboard to view the forms.
 - Form and Document Access UI- This page will allow the user to verify data, to provide feedback, to update status of the form and also help in carrying out the further process of reimbursement.
- Backend
 - Database Designing
 - Deciding the detailed schema for different tables and their column entries, keys and structure. Basic structure-
 - LoginCredential - Store each user's login ID and passwords based on their rollno as keys. (Column entries- cc user id, cc user password)

- UserInfo - Store user information to be displayed on the dashboard based on rollno as keys. (Column entries- cc_user_id, user_type, name, roll no/Institute ID, phone no, dept,hall address, HC ID)
 - TransactionDetail - Store all transactions i.e reimbursement requests based on transaction_id as key. (Column entries- cc_user_id, transaction_id, date, status, form_id, reimbursement_id for accounts, feedback by HC)
 - FormDetail - Store documents and detailed information of transactions as uploaded by the patient. Column entries- (form_id, other columns for other details, doc_access_cloud, reimbursement items). Every form will have a unique Id.
- Logic Design
 - Implementing and designing core business logic i.e. the APIs enabling various functionality.
 - verifyLogin()- Returns login access of the user to the site, based on the login id and password given by the user.
 - register()- Register a user based on the details provided as input and add the details to the database(this might not be required)
 - logout()- Access to users already logged into the site, to terminate the session and logout.
 - uploadDocument()- Add documents provided with a form submission to the cloud storage and database.
 - viewDocument()- Request to view a document stored in the database for verification by HC or doctor.
 - submitForm()- Verify the form submitted and add the transaction to the database.
 - updateStatus()- Update the status of a transaction in the database based on various stages of reimbursement.
 - addComment()- Add a comment on a particular transaction.
 - getUserInfo()- Request information from the user through the portal.
 - getTransactionInfo ()- Request information regarding the transaction between the accounts office and the user.
 - filterbydate()- A filter option that segregates the transactions based on the transaction date.
 - Cloud Management
 - Managing the storage and retrieval from the storage server
- Product Release / Testing
 - Deployment
 - The software will be hosted on online servers.
 - Alpha Testing
 - Will be tested by the team members

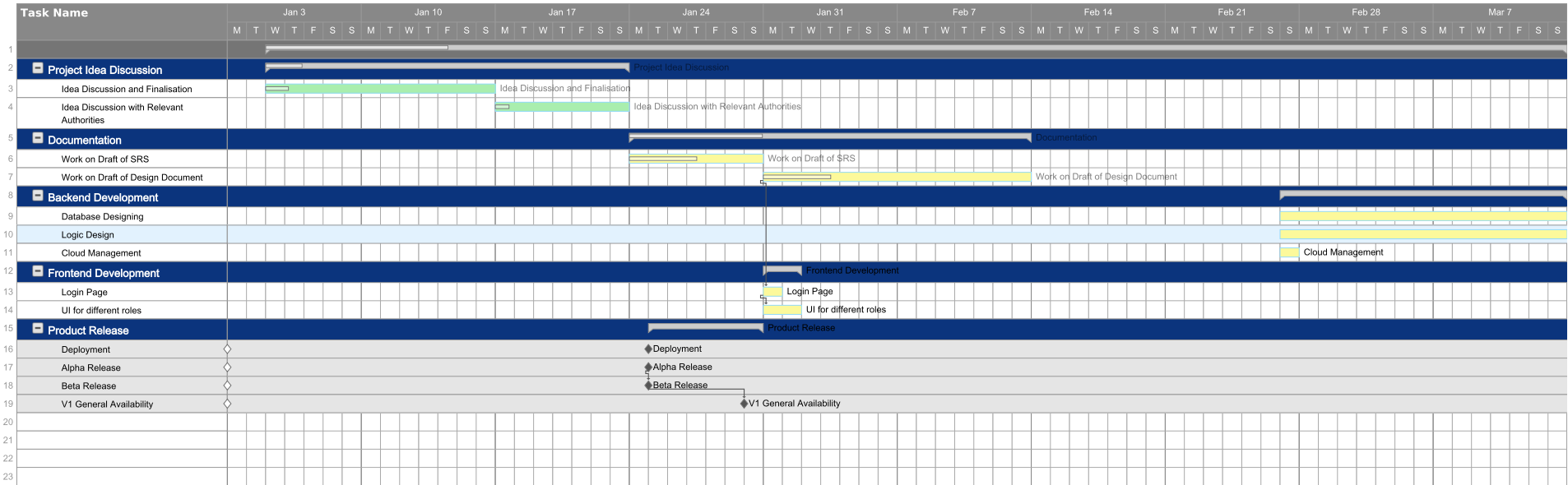
- Functionality testing, Usability testing, Interface testing will be performed to detect any bugs.
 - Functionality testing- This will involve looking for dead pages, invalid requests, and to verify the workflow of the system.
 - Usability testing- This will involve testing contents, APIs and to detect any bug in the code.
 - Interface Testing- This will involve verifying the interface and the dataflow from one component to another.
- Beta Testing
 - Software will be tested by users in a real environment
- V1 General Availability

Gantt Chart (attached below)

Link :

<https://app.smartsheet.com/sheets/vRWCgHqm4f67P5WP8fPPjRv49whrFGvcGf5G7wR1>
Pdf-

HC Reimbursement Plan



5 Other Requirements

<This section is Optional. Please provide any other details that are suitable for being included in the design document .>

Appendix A - Group Log

<u>Date</u>	<u>Members Present</u>	<u>Topic of Discussion</u>
26th January, 2022	Shorya, Gaurav, Sanchit, Harsh, Subhrojyoti	Work distribution for preparing the initial draft of the SRS document
30th January, 2022	Shorya, Gaurav, Sanchit, Subhrojyoti, Atreya, Nakula, Rahul, Priyanka	Use Case Diagrams finalisation
5th February, 2022	Shorya, Gaurav, Sanchit, Subhrojyoti, Atreya, Nakula, Rahul, Priyanka, Harsh	Software design document template