Software Requirements Specification

for

HC Reimbursement Automation

Version 1.0

Prepared by

Group 6:

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Revisions

Version	Primary Author(s)	Description of Version	Date Completed
Initial Draft (v1)	Gaurav, Shorya, Sanchit, Atreya, Subhrojyoti, Harsh, Rahul, Nakula, Priyanka	Information about the revision. This table does not need to be filled in whenever a document is touched, only when the version is being upgraded.	26/01/22

1   Introduction

1.1   Product Scope

Our product aims to automate the reimbursement facility provided by the health center, which is currently manual and paper-based. To claim reimbursement, one needs to visit the HC, fill out the paper forms, attach bills and printouts, and submit. It is also not possible to track the application's progress remotely, and the applicant needs to visit the HC for any information regarding the application. Also, visiting the HC just for this is risky given the COVID scenarios and also time-consuming and tedious & everything is maintained on paper, even from the Administration side.

Our software enables an entirely online application process which will eliminate the need to visit the HC. The users can track the status of the application remotely. Users no longer have to go through a painstaking visit to HC.

1.2   Intended Audience and Document Overview

This document is meant to facilitate any interested parties to go through the proposed model for our product. It includes the user requirements as collected by the team and the corresponding specifications for the system to fulfill those requirements.

- Section 2 consists of the summarized description of the model of our system. This section is mainly intended for the project managers and the developers as it summarizes the entire model.
- Section 3 consists of the technical requirements of our system. The developers need to pay close attention to this section as this contains detailed information regarding the interfaces used in creating the system. Along with it, the project managers can also find this section useful while supervising the project team. The documentation writers also need to be extra careful while writing this section. Even a slight detail mismatch can lead to a bad build of our product
- Section 4 consists of all other non-functional requirements and specifications of our system. The testers and the users can go through this section to understand the non-functional behavior of the system.

1.3 Definitions, Acronyms, and Abbreviations

## 1.4 Document Conventions

1.5 References and Acknowledgments

- All the different stages and processes related to the reimbursement process were discussed with the Office Automation Department and HC Back Office members.
- Keeping in mind the future scope of integrating our software with Office Automation Portal, all technicalities followed by the Office Automation portal were discussed and noted to keep that integration as smooth as possible.

2 Overall Description

2.1 Product Overview

This is a standalone software with its registration and login facilities. It is a new, self-contained product and such a software for the specific purpose of easing Health Center Reimbursement is not available. It is not part of any larger system. The following is a diagram connecting all the significant components.
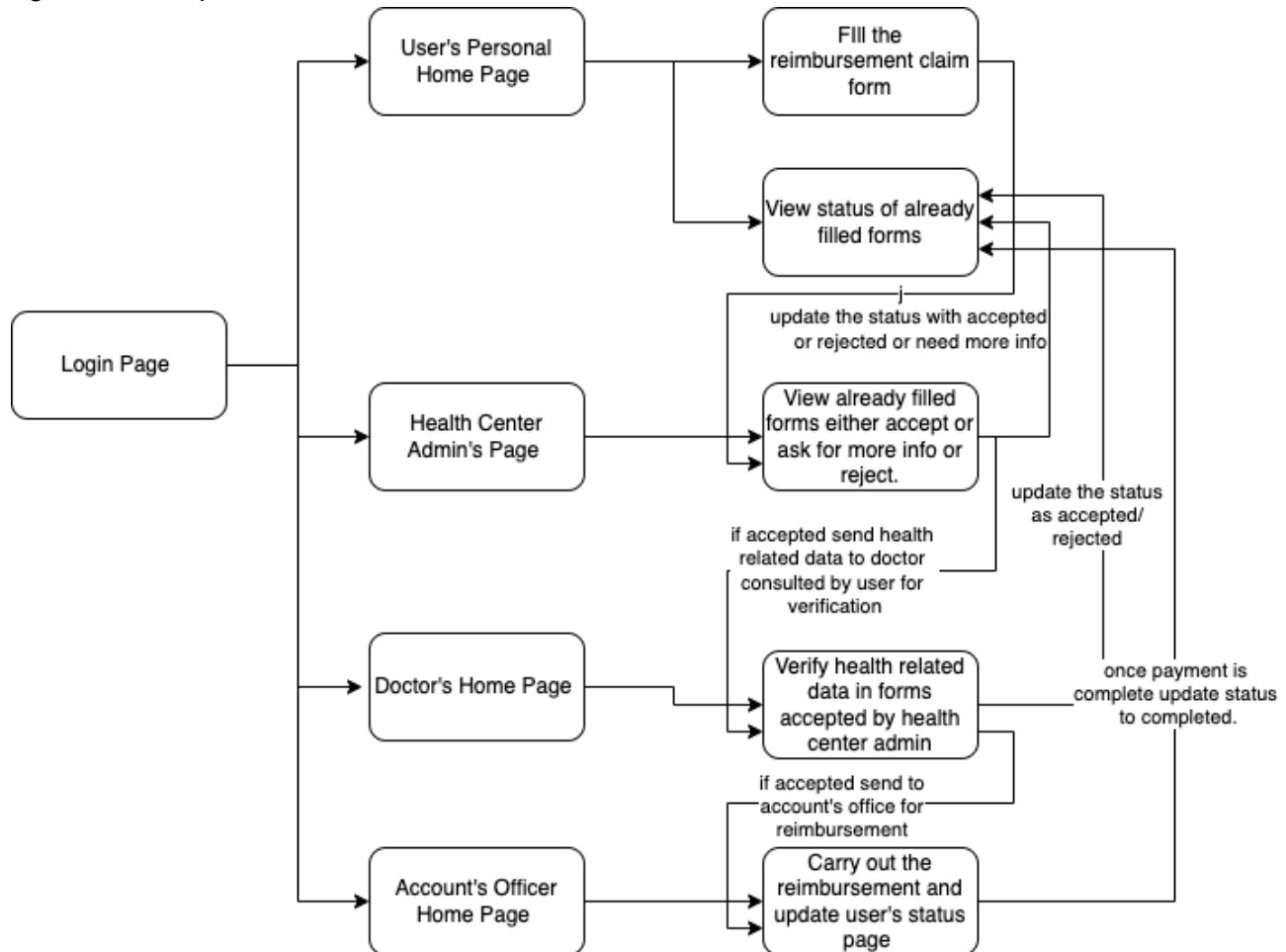
2.2 Product Functionality

Our product will have the following functionalities -
- The users will be able to apply for reimbursement claims online using our system, by filling an online form and submitting scanned copies of the required documents.
- The system would also help users view already submitted forms and their status.
- The HC staff can scrutinize and verify the applications. Then they can approve and send the details to the Accounts department or reject the claims and update the status of the form accordingly (adding comments/reasons for the same).

2.3 Design and Implementation Constraints

- As the user would have to upload bills and other documents, there would need to be dedicated storage space in the server with periodic recycling of data contained in the claims that have already been processed.
- In order to allow integration to the OA portal in the future, it is preferable that our backend is compatible with the OA portal. Hence JAVA will be used for backend development.
- We will be using a MySQL database for our application , which will be hosted online.
- To address security concerns, we will be storing the salted hash of user passwords .
- As our software is web-based, Frontend will be developed using HTML, CSS,Javascript.
- Our system will use HTTP protocol for communication between servers.
- Cloud storage facility will be used to store uploaded documents related to reimbursements.
- We will be using the Object-Oriented Programming paradigm to design our application.

2.4 Assumptions and Dependencies

Following are some of the assumptions and dependencies that might affect our design:
- We assume that the dummy data which we will be using for testing and development purposes mimics the exact data correctly.
- We assume already existing HC staff database can be accessed for profile management and regulating access control of HC staff.
- We assume that the HC back office and Accounts office do not behave in an undesired way. (i.e none of the patients is censored, or none of the valid requests are rejected).

3 Specific Requirements

3.1 External Interface Requirements
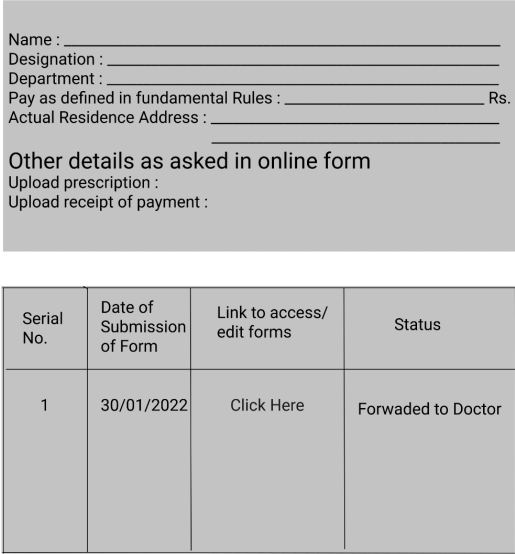
3.1.1 User Interfaces

- Webpage: This will act as an interface for users to interact with our system.
- Dashboards: This page will primarily be used to display pending/approved reimbursements, to save important data corresponding to the user, and to display the current status of the reimbursement claim.
- Forms: This will be used by the users(patients) to fill in their requests for reimbursements.

The following is our planned layout for the web page or the user interface.

Login Page for website:

IIT K Logo	Login Page	Contact Us

Login

User ID
Password
Forgot Password?

Background:
IIT K Campus
Photo

Register

Enter Email-Id
Enter Password
Re-enter Password
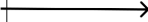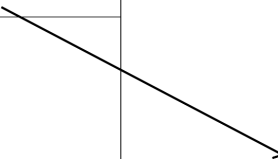
User's / Patient's Home Page after Login :

User Details (Name,Roll No.)	IIT K Logo		Logout	Contact Us

New Claim Form →

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 :

Status of previously submitted forms

Serial No.	Date of Submission of Form	Link to access/ edit forms	Status
1	30/01/2022	Click Here	Forwaded to Doctor
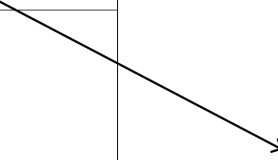
HC Official's Home Page after Login :

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

New Forms for Verification →

<u>All details filled by user</u>

Enter Comments : _____
_____
_____

    Accept   Reject

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	
List of forms received by the official	

Name of patient
Designation
Department
Medical Details (such as list of medicines)
Prescription by doctor
Receipt of payment of medicine or tests
Enter Comments : _____
_____

       Accept   Reject

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	
Completed Reimbursements	

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 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

3.1.2 Hardware Interfaces

- A physical device (mobile/laptops/computers) will be required to interact with the software via a web browser.
- Printers and Scanners might be connected to print/upload receipts for claiming reimbursements. The same can be used by the HC office, if physical documents are needed.
- Hardware devices for memory management to store details of reimbursements (completed and requested) will be required.

3.1.3 Software Interfaces

- Our system will require APIs to connect with the database to fetch user data or reimbursement status data.
- Our system will need APIs for different user interactions (like Uploading, Making Requests, Approving Requests, Rejecting Requests).
- Our system will require APIs to validate the login and registration process in the system.

3.2 Functional Requirements

3.2.1 Apply for reimbursement claims online: fill an online form and submit scanned copies of the required documents

The users shall be able to fill in an online reimbursement form which asks for all the details asked in the offline form and provide the scanned copies of the required documents which were otherwise asked to submit along with the offline form.

3.2.2 The system would also help users view already submitted forms and their status.

The user will have a dashboard to view previously submitted forms and their status. We will also provide a feature to view previous reimbursement claims by a user. They will also be shown comments alongside the status of their claim. Also, the back office staff and doctors will see a log of claims they have accepted or rejected or deferred for the moment. The application status should correctly display the current location of the form within the system at all times.

3.2.3 The HC staff can scrutinize and verify the applications. Then they can approve and send the details to the Accounts department or reject the claims and update the status of the form accordingly.

The HC officials can see all reimbursement forms pending approval/rejection. They will

have an option to approve or reject or even ask for specific information through comments. If rejected they can tell why through comments as well. The user's dashboard will be updated accordingly. The doctors can also see all the health-related details of the forms approved by the health center officials. The doctors can verify whether they were consulted and the details provided are correct. They can accordingly update the form status. The Accounts Office officials shall also update the dashboard and end the reimbursement claim, and complete the procedure after paying the amount.

3.3 Use Case Model
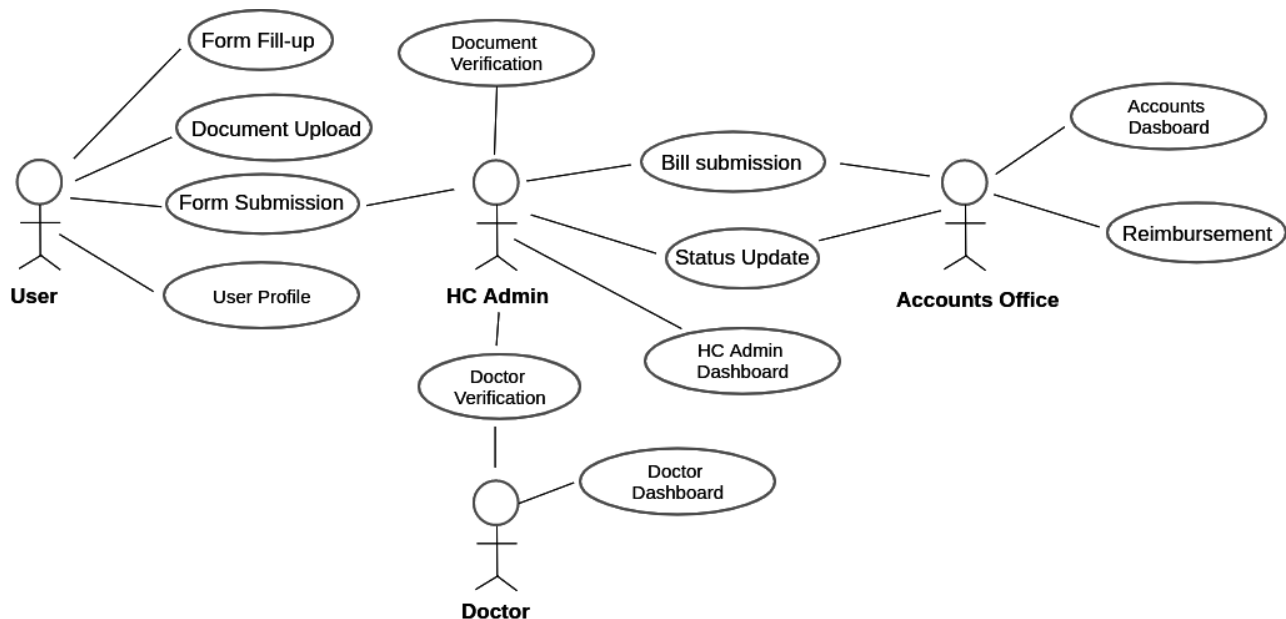
3.3.1 U1 - Form fillup

Author – **Shorya**

Purpose - It allows the user to fill the reimbursement details in a form.

Requirements Traceability – Users should possess valid bills and HC reimbursement slips.

Priority - HIGH

Preconditions - User should possess the login credentials

Post conditions - The draft of the filled form will be saved in the application on the user dashboard.

Actors – Patient/user

Exceptions - None

Includes - None

Notes/Issues - *NA*

3.3.2 U2: Documents Upload

Author – Atreya

Purpose - Allows the user to upload the HC reimbursement slip and bills to the portal.

Requirements Traceability – The user should be registered in the portal and should be logged in using the correct credentials.

Priority - High

Preconditions - The size of the document should be within the specified limit and the document should be in an acceptable format. (image/pdf)

Post conditions - After document upload, the file should be available on the server and can be accessed by the user who has uploaded the file.

Actors – User who is uploading the document

Exceptions - None

Includes None

Notes/Issues - Space required for storage and maintenance as well as the document size limit.

3.3.3 U3: Form Submission

Author – Gaurav

Purpose - Allows the user to submit the reimbursement form so that it can be further sent to HC Admin to be reviewed for further process.

Requirements Traceability – Form is filled properly e.g. mandatory fields are filled.

Priority - HIGH

Preconditions - The form is filled properly with required details & required documents are uploaded properly.

Post conditions - The HC Admin receives the request regarding the reimbursement request. Submitted form appears in the dashboard.

Actors – User who claims the reimbursement, HC Admin who handles reimbursement requests,

Exceptions - None

Includes U1 U2

Notes/Issues - N/A

3.3.4 U4: Status Update

Author – Shorya

Purpose - It allows the HC admin as well as to Accounts Office to update the status of reimbursement application on the portal

Requirements Traceability – There has been an update in the state of the application.

Priority - MEDIUM

Preconditions - NONE

Post conditions - The profile of the User is synced with the latest update of the application with the HC.

Actors – HC Admin, Accounts Office

Exceptions - None

Includes U3, U5, U6,U7

Notes/Issues -

3.3.5 U5: HC verification

Author – Shorya

Purpose - It allows the HC admin to verify that the application is valid, that is the uploaded documents and form are valid.

Requirements Traceability – NONE

Priority - MEDIUM

Preconditions - HC admin should have received an application request on the HC admin portal.

Post conditions - After the Verification the admin page is updated by the state .

Actors – HC Admin

Exceptions - None

Includes (other use case IDs)

Notes/Issues - Any relevant notes or issues that need to be resolved*

3.3.6 U6: Bill Submission

Author – Atreya

Purpose - It allows the HC admin to submit the reimbursement bill for further procedure to be undertaken by the Accounts office.

Requirements Traceability – HC admin should be able to access the bill.

Priority - High priority

Preconditions - The bill has been verified by the doctor.

Post conditions - After bill submission, the Accounts office should be able to access the submitted bill for further process.

Actors – HC Admin, Accounts office

Exceptions - None

Includes

Notes/Issues -

3.3.7 U7: Doctor Verification

Author – Nakula

Purpose - To verify if the information provided in U1 and U2 is consistent by the doctor.

Requirements Traceability – The form should be valid as per U5

Priority - High

Preconditions - NONE

Post conditions - The doctor will pass-on/reject the form based on the verification, the status will be visible on the user's dashboard.

Actors – The HC admin sends the verified form to the doctor. The doctor again verifies the form and the bills uploaded by the user.

Exceptions - None

Includes

Notes/Issues - NONE

3.3.8 U8: User Profile

Author – Atreya

Purpose - It allows the user to view the uploaded bills and documents and status of past reimbursement requests.

Requirements Traceability – The user should be registered in the portal and should be logged in using the correct credentials.

Priority - Medium

Preconditions - The profile view of the user should always be in sync with the status of reimbursement requests.

Post conditions -

Actors – User

Exceptions - None

Includes U4

Notes/Issues -

3.3.9 U9: Account's Dashboard

Author – Gaurav

Purpose - Shows the claims that have been forwarded to the Accounts department from the HC admin, and the claims that have been verified by the Accounts Office for further reimbursements processing related to payment.

Requirements Traceability – Accounts office should be able to access the bill.

Priority - Medium

Preconditions - The bill has been verified by the HC Admin and passed to the Accounts office and previous requests status are present.

Post conditions - After update of status of any reimbursement request the update is reflected on the user dashboard.

Actors – Accounts office

Exceptions - None

Includes (other use case IDs)

Notes/Issues -

3.3.10 U10: Doctor's Dashboard

Author – Nakula

Purpose - Shows the claims that have been forwarded to the doctor from the HC admin, and the claims that have been passed by the Doctor after verification.

Requirements Traceability – The dashboard should reflect if the Doctor has processed the specific claim or not. The Doctor should verify the claim.

Priority - High priority

Preconditions - The bills to be verified have been passed by the HC admin. The Doctor should possess his login credentials.

Post conditions - The bill has been passed onto the Accounts dept., with the status being reflected on the user dashboard.

Actors – HC Admin, Doctor,

Exceptions - None

Includes U8,

Notes/Issues -

3.3.11 U11: HC Admin Dashboard

Author – Priyanka

Purpose - Shows the reimbursement forms which have been submitted by any user as well as the bill status and comments.

Requirements Traceability – The admin should have the required credentials and has login to the system.

Priority - Medium

Preconditions - The user has submitted the form and the required documents, and the current status of pending applications are reflected on the dashboard.

Post conditions - The admin can perform form verifications as well as update the status of the reimbursement applications present on the dashboard.

Actors – HC Admin

Exceptions - None

Includes - U5

Notes/Issues -

4 Other Non-functional Requirements

4.1 Performance Requirements

- API calls must return in less than 1000ms.
- The webpage should load and be usable within 3 seconds.
- The software/server side should be able to handle moderate to high traffic.

4.2 Safety and Security Requirements

- Every party using the application will have a well defined scope and any party will not be able to access any part of the application out of his/her scope. Login to the scope will be secured by a login portal which requires access credentials.
- To address security concerns, we will be storing the salted hash of user passwords in our database. No plaintexts passwords will be in the database.

4.3 Software Quality Attributes

4.3.1 Portability

We are using HTML5, CSS3 and JavaScript to design the frontend part of our application, thus our application is portable, responsive and can run on any modern web browser.

4.3.2 Maintainability

Our software is easily maintainable as our use of OOPS technique will ensure that any modification in any of the components will not affect the overall structure of the application. Also there will be a web interface to access the backend directly (accessible to admin) through which the webapp can be easily maintained periodically.

5 Other Requirements

Appendix A – Data Dictionary

Appendix B - Group Log

Date	*Members Present*	*Topic of Discussion*
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 finalization