Digital Policy Wallet

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TrueCover

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KMD is a leading insurance and reinsurance broker in Asian, African and Middle Eastern markets for General & Life Insurance. Kmd offers employee benefits.

KMD Employees Benefits Solutions:

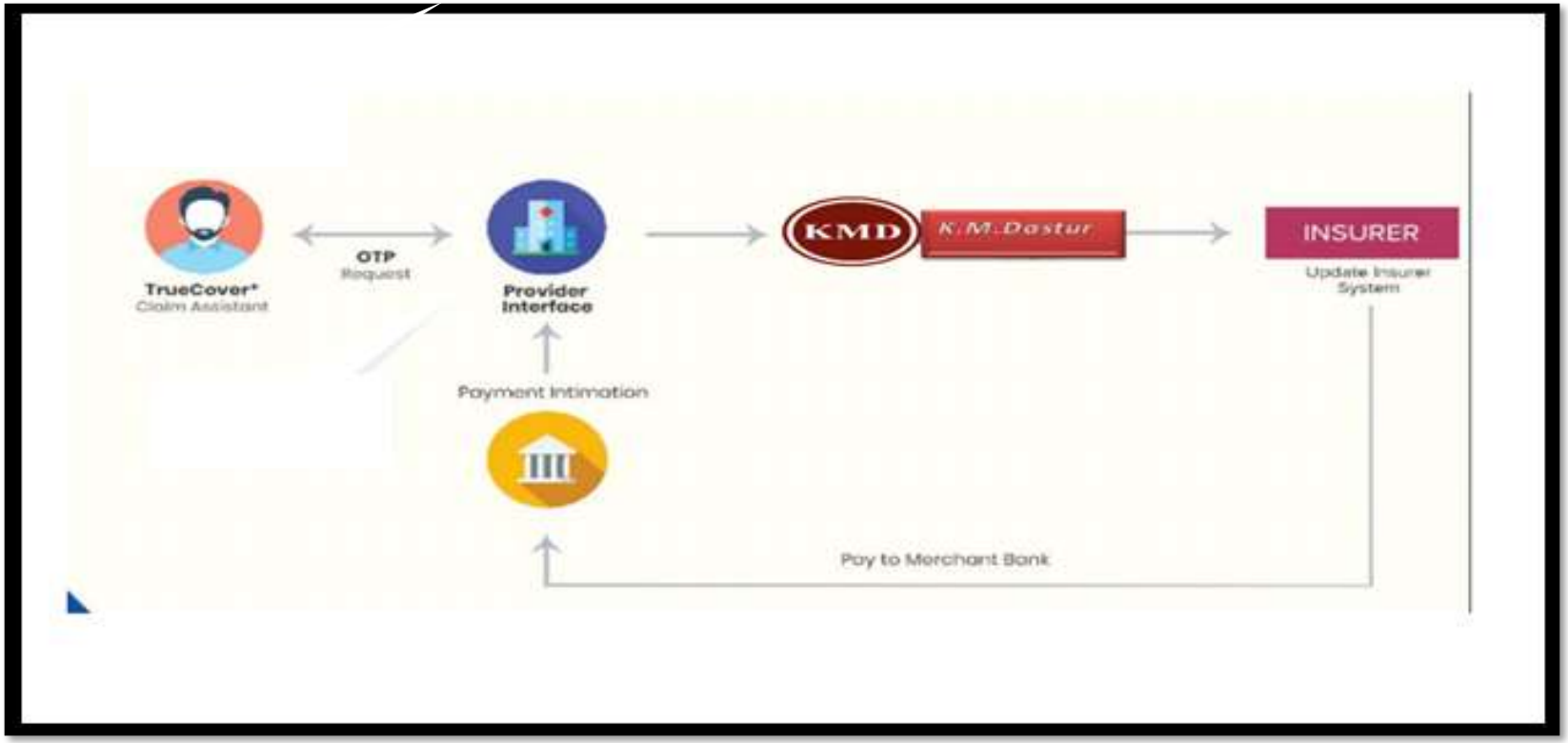
Life

- Group Term Life
- Group Gratuity Scheme
- Group Superannuation
- Employee Deposit Linked Insurance
- Group Credit Insurance

Non life

- Group Critical Illness
- Group Personal Accident
- Group Mediclaim
- Hospital Cash
- Overseas Mediclaim
- Workmen’s Compensation

How is Truecover connected to KMD?



Provider Interface offers:

- Top up plans for existing company provided corporate covers.
- Can add voluntary corporate covers.
- Can add family members in the profile. (But they cannot be added in the corporate cover likewise members already added in the cover cannot be deleted)
- Can add nominees to Term Life and Personal Accident Policy.
- Claim Assistance (KYC documents, Medical documents to be uploaded) – Under Development
- Can add existing retail policies (Risk Score is calculated using an algorithm)
- Community dashboard to connect with other consumers.

Abstract

- Project entitled '**Digital Policy Wallet'** wallet has been designed where the Consumer can store all the retail and corporate policies for free and maximize insurance benefits.
- The Consumer should be able to login to view or add retail or corporate policies.
- The Consumer must provide dependent's details to choose a desired topup plan for a corporate policy or the consumer can add voluntary corporate covers.
- For Corporate policies the account manager details, claim administration details and benefits of the policies covered can be seen so that the consumer can easily figure out what all the consumer has been covered for and what all benefits consumer has for it.
- Smart tools compare existing retail policies against family's requirements and give a true picture of insurance needs.
- Community board to help connect with other Consumers and get quick help.

Objective

- To help consumers understand their risk coverages better the product assists them in making informed decisions and more effective use of their insurance.
- To build an intelligent policy wallet where the Consumer can store all the retail and corporate policies for free and maximize insurance benefits.

Scope

- The platform takes one step forward by providing retail and corporate policies in a single application so that the consumers view all of their policies in a single application itself.
- Risk score tells whether the consumer is over-insured or under-insured and give a true picture of insurance needs.

Requirement Analysis

Software Requirement Specification

Functional Requirements

- **Login** - The Consumer should be able to login to view or add policies.
- **Scheme Selection** – The Consumer must give his dependents details to enroll his dependents to corporate policies for which the window period is open.
- **Digital Policy Wallet** – Arrange insurance policies by type and sub type with key details easily marked out.
- **Inclusion of retail policy** – Retail policies can be added in the policy wallet by providing details or by uploading pdf.
- **Insurance risk assessment** – Get a Risk Score measuring the coverage against Consumer's and Consumer's family's requirements.
- **Documents** – Consists of personal policy and retail policy documents. KYC and medical documents must be uploaded for claim assistant. Also consists of system generated ID card which consists of Insurer and TPA details.
- **Settings** – Settings consists of editing of personal details, notification and alerts can be set and password can be changed.
- **Community board** – to help connect with other Consumers and get quick help.

Software Requirement Specification(Contd.)

Non Functional Requirements

Reliability

- Not attributed to breaking of application
- Easily be able to determine which piece of code is erroneous and quickly fix the same

Security

- Json Web Token.
- Passwords are sent in encrypted format using crypto-js algorithm.

Performance

- Progressive Web Apps
- Single-page application (SPA)
- Lazy loading
- Offline friendly form

System Requirements

Hardware Environment

RAM - 2GB
Hard disk - 500MB
Processor - Intel Core i5-3210M (3rd Gen)

Software Environment

Operating system - Windows
Web server - Nginx
Programming Language - Typescript, Java
Frameworks - Angular, Spring Boot
Database - MySQL

Deployment Environment

Domain Provider - GoDaddy
Hosting Provider - Amazon EC2

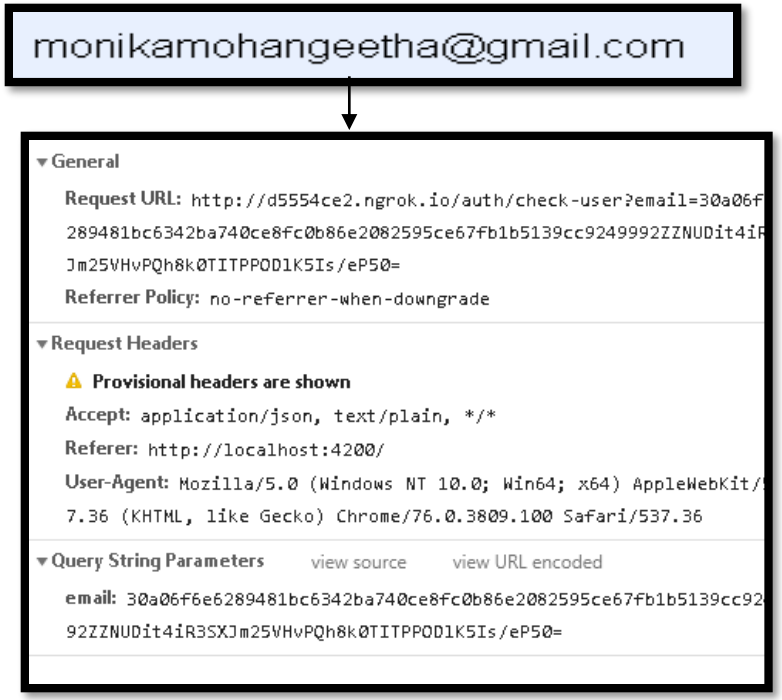
User interface design

Login

Landing Screen

The above screen represents the first and foremost screen of the application, the landing screen which contains login.

Encryption using crypto-js algorithm:



A sample input given as monikamohangeetha@gmail.com as form data is encrypted using crypto-js algorithm and the encrypted data is sent in the API calls. This encryption is used in login form and in details for scheme selection module.

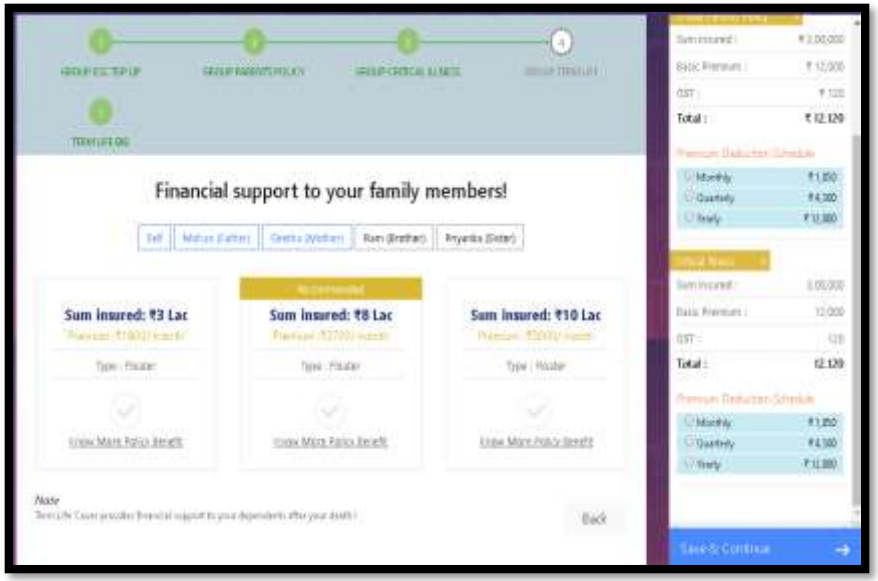
Details for scheme selection

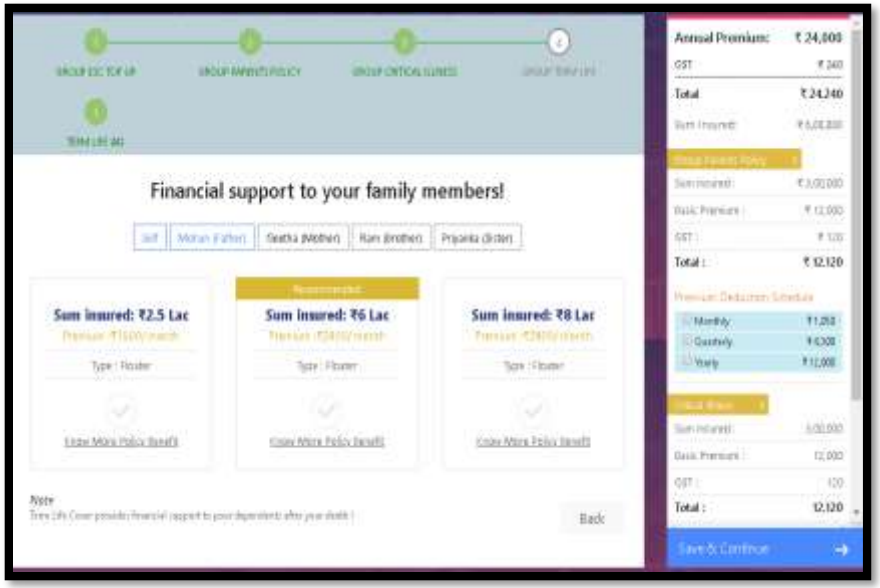
Personal Details

Details of Partner/Spouse

Details of Children

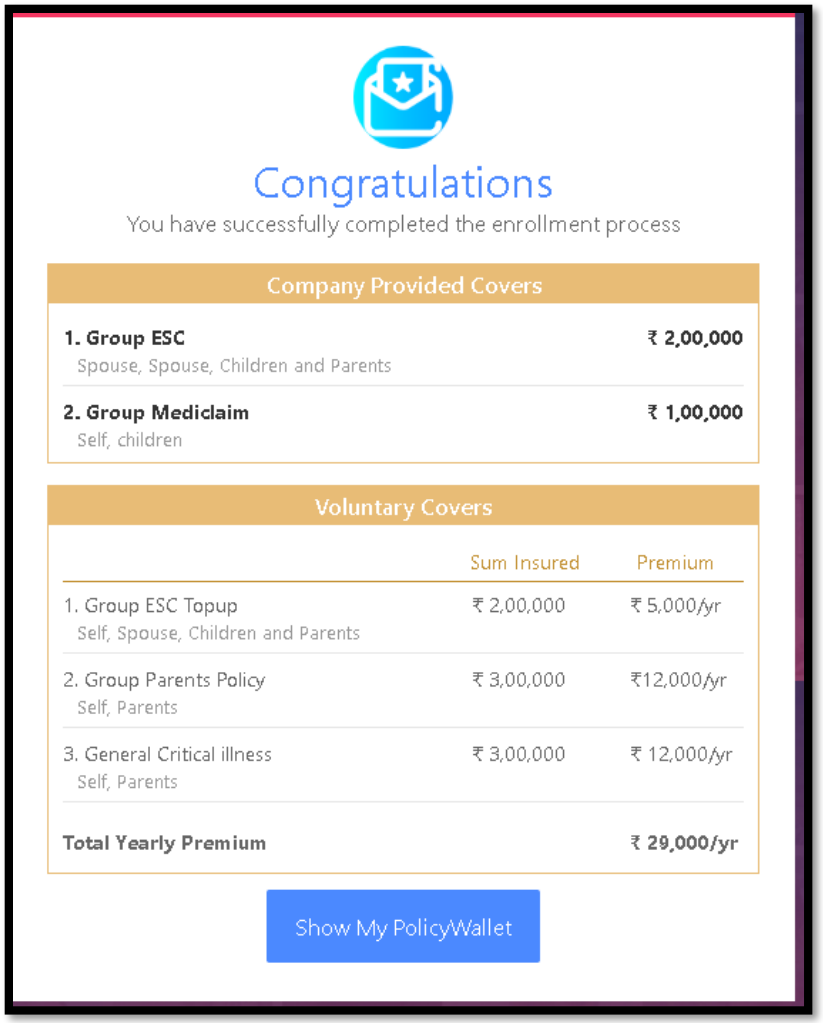
Scheme Selection





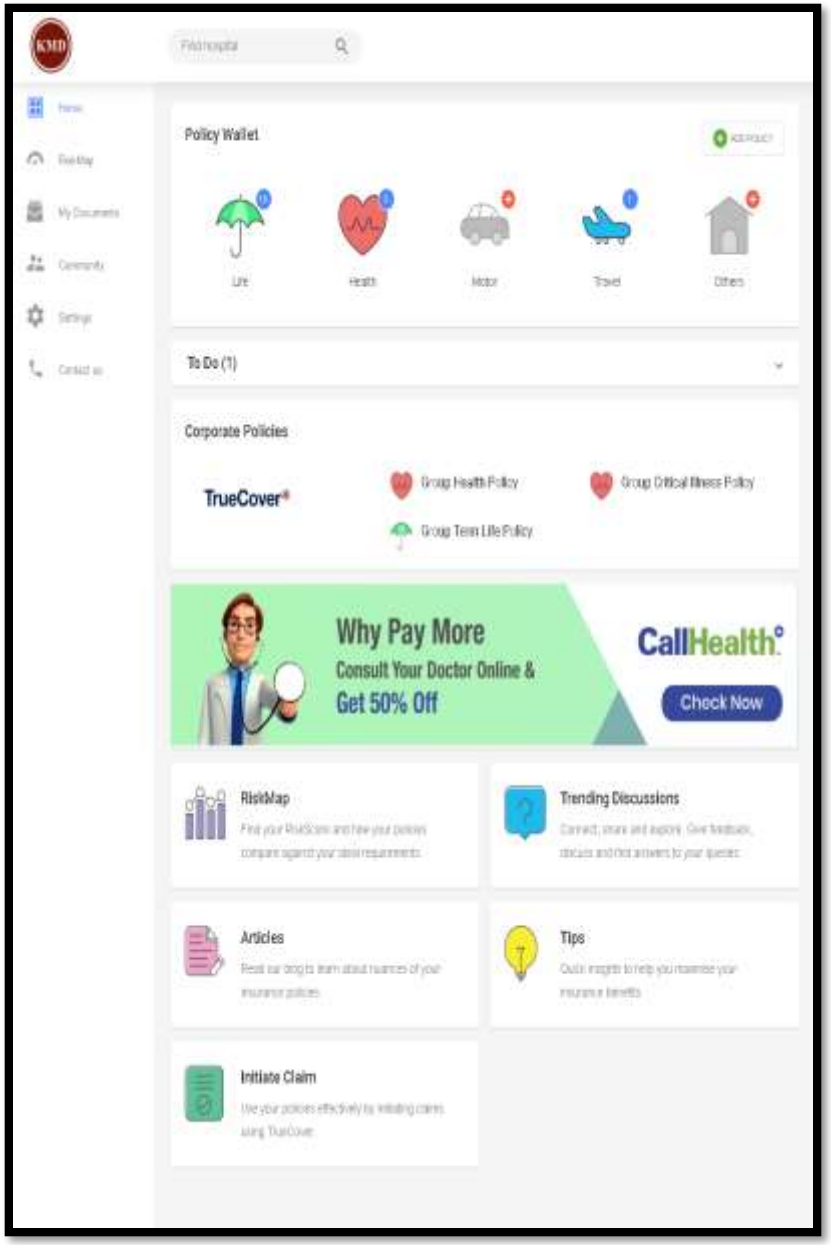
The above shows scheme selection which consists of policy names at the top progress bar. Family members are displayed. Consumer can select the desired the family member to be included in the scheme. Consumer can add the desired topup plan from the cards displayed. The card consists of topup amount, Premium and sum insured. The recommended plan will also be displayed. The cart at the right side consists of all the topup plans (or voluntary covers) selected and the premium rates with GST. The two screen shows that the Premium, Sum insured are shown based on the selection of family members

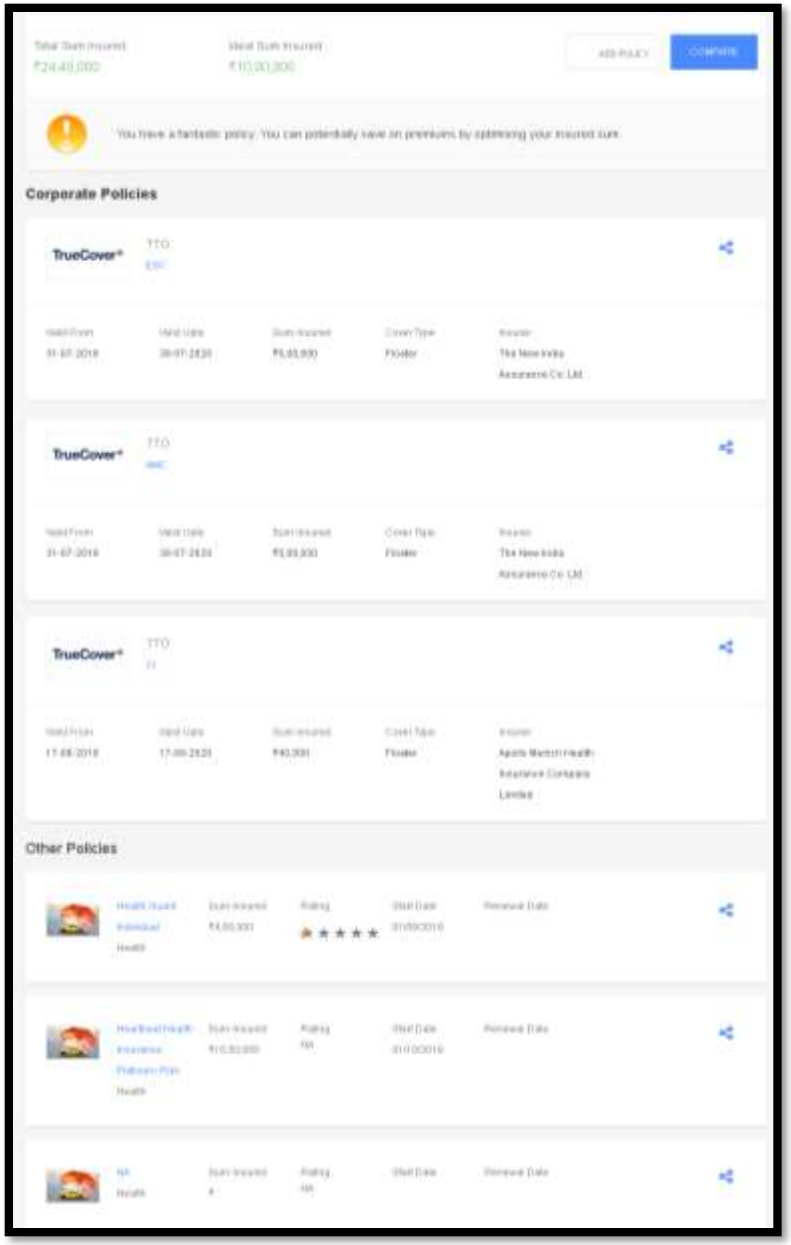
Scheme Selection



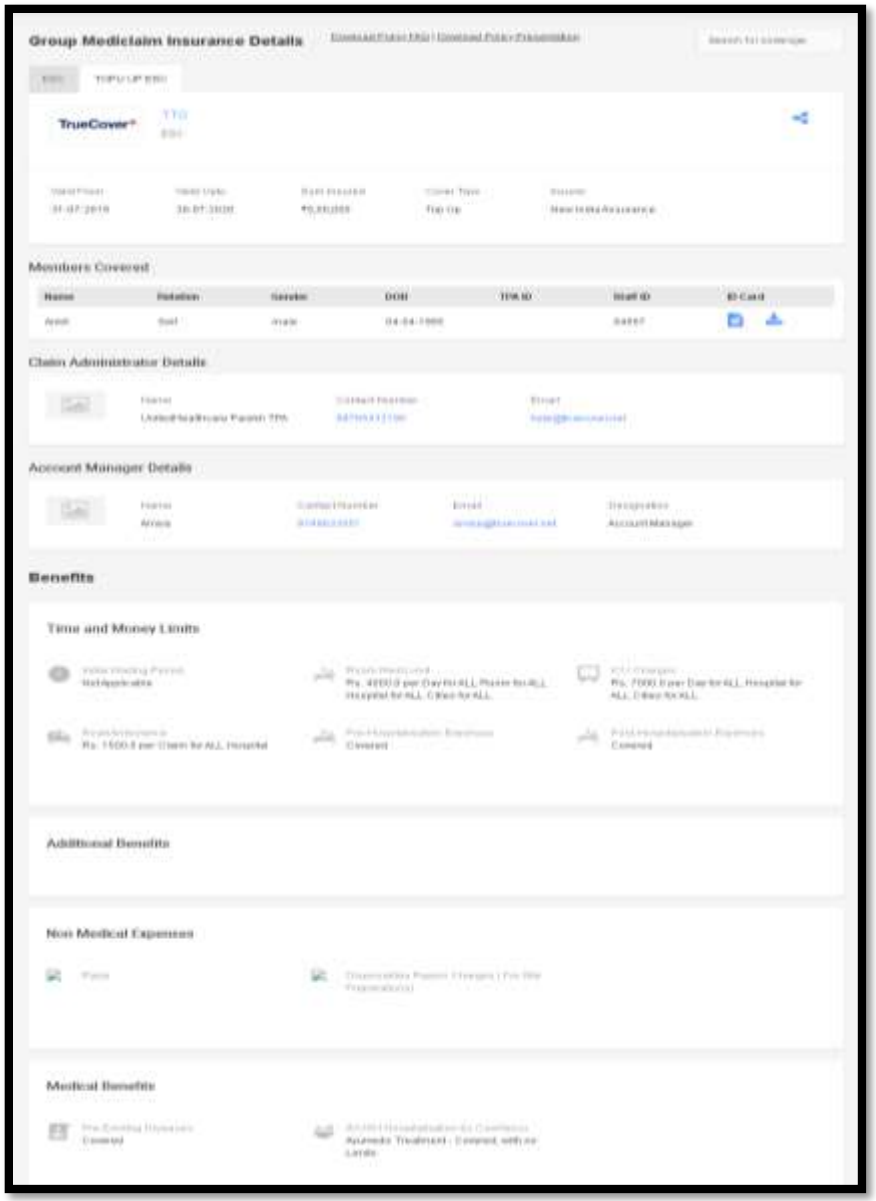
Completion Card

Policy Wallet

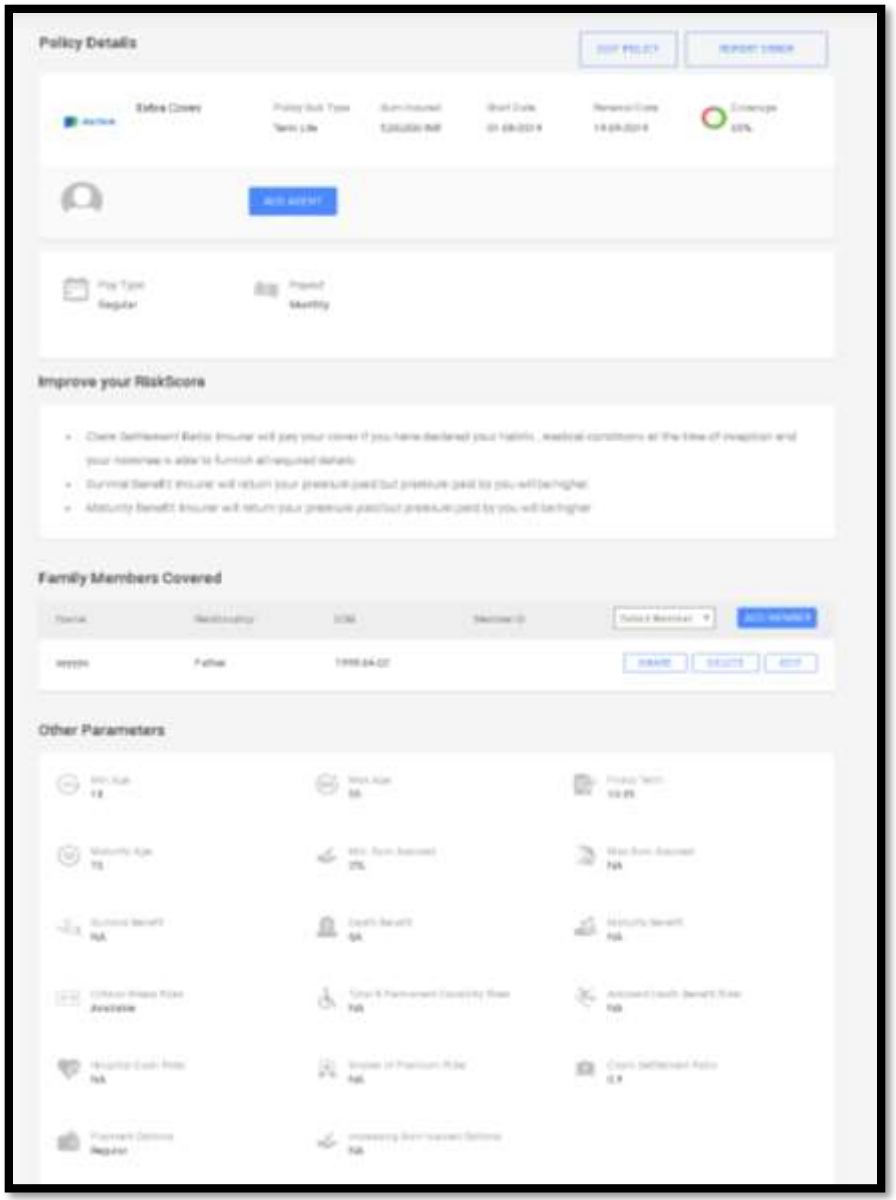




Policy Wallet

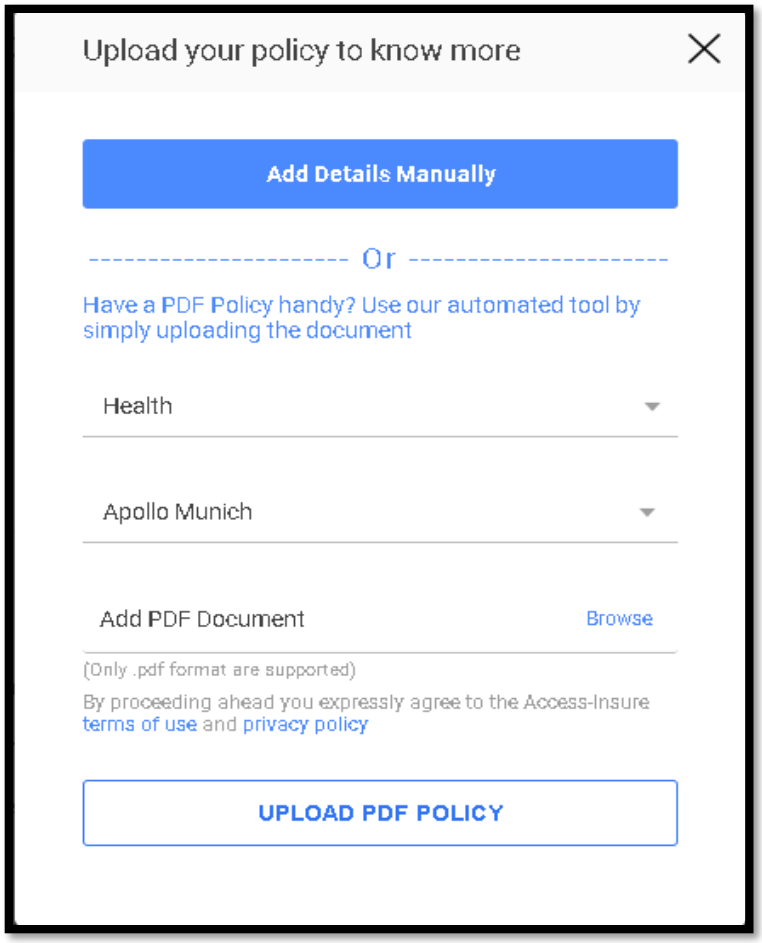


Details of selected Corporate Policy

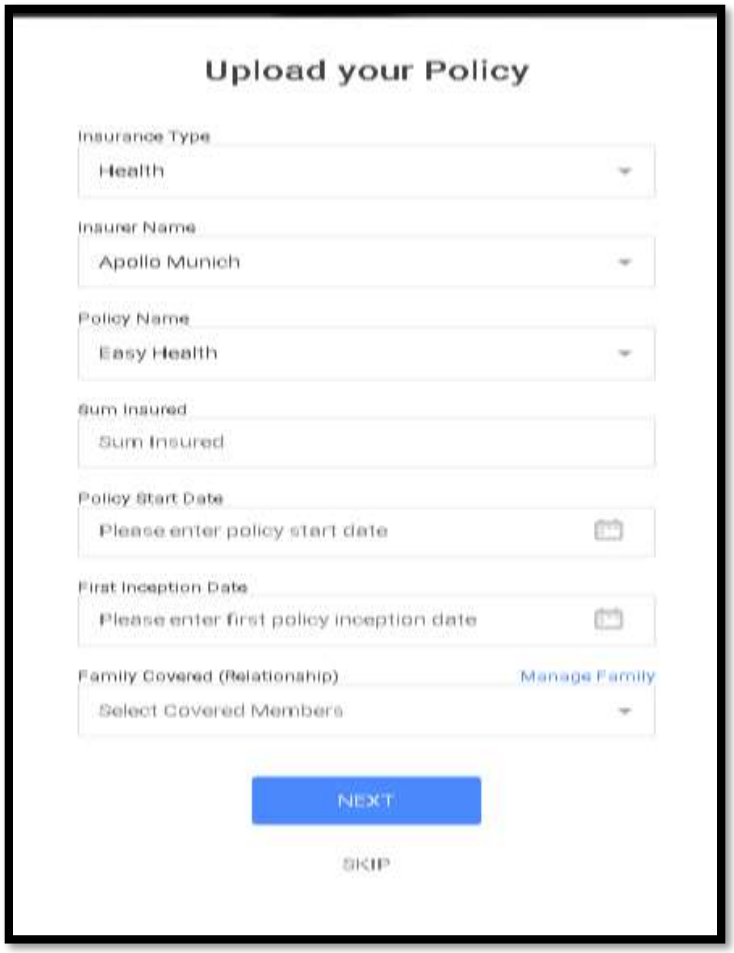


Details of selected Retail policy

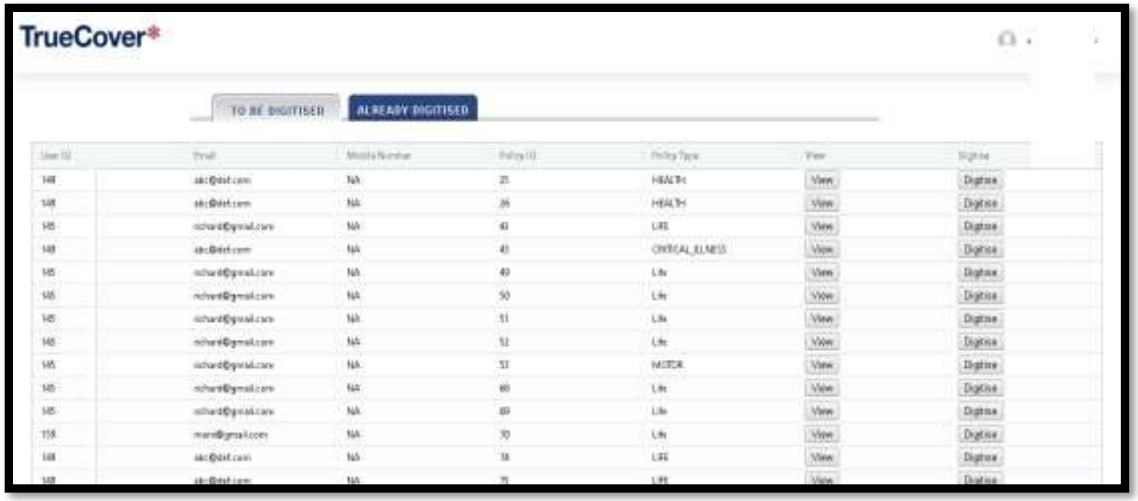
Inclusion of Retail Policy



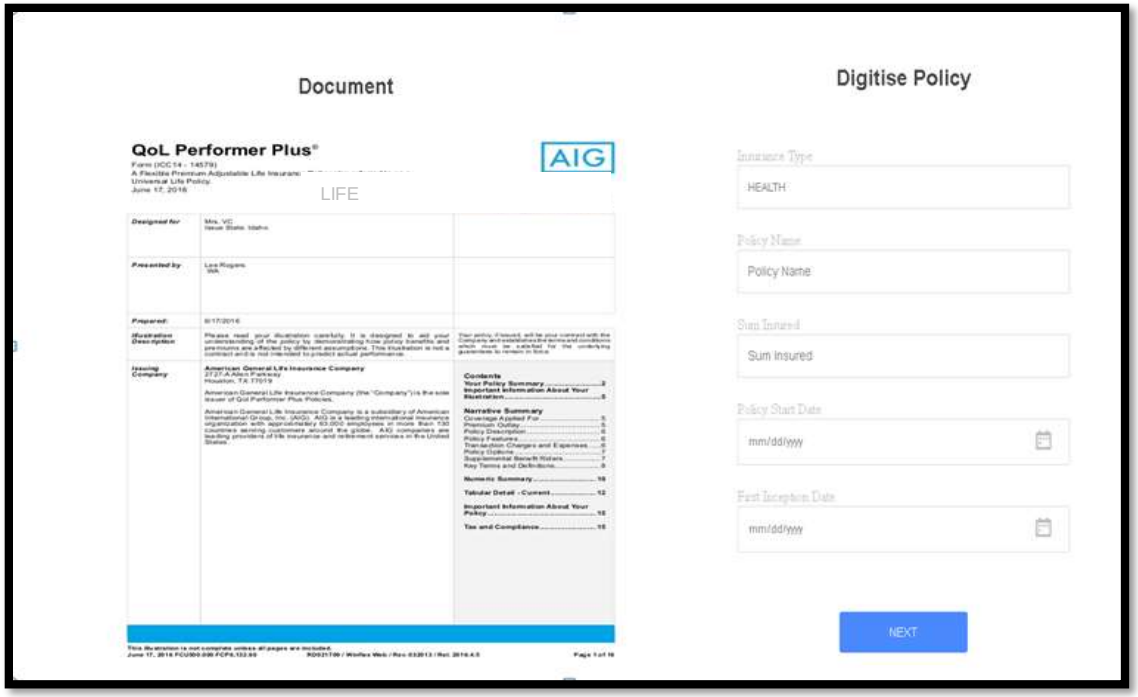
Uploading Retail Policy by uploading document



Uploading Retail Policy by manually providing details

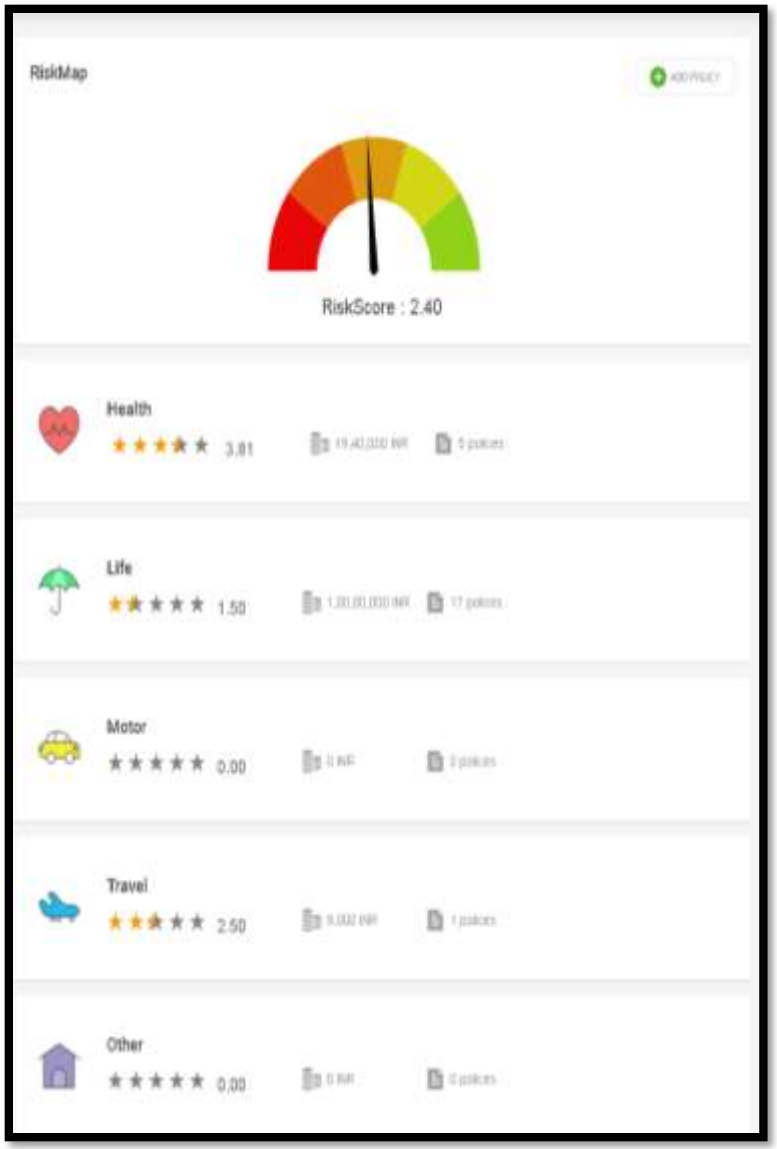


Digitization by Back office controller



Viewing the document uploaded

Risk Map



ALGORITHM TO CALCULATE RISK SCORE:

Check 1:

If no policies are found return 0.0 as risk score.

Check 2:

If any policy is uploaded (because having a policy itself is a advantage) then risk score = 0.3 * 5.

Check 3:

Step 1:

Find the current Sum Insured.

Step 2:

Find the ideal Sum Insured.

Ideal sum insured is calculated based on:

1. Income
2. Age
3. Marital Status
4. Number of children
5. Parents
6. Other dependents

These parameters are listed priority wise. A multiplication factor is obtained based on the priority.

Step 3:

If Ideal sum insured is less than current sum insured i.e. the consumer is over-insured then,

Risk score += 0.4*5

Else i.e., the consumer is under-insured,

Risk score += 0.4*5*(current suminsured/ ideal suminsured)

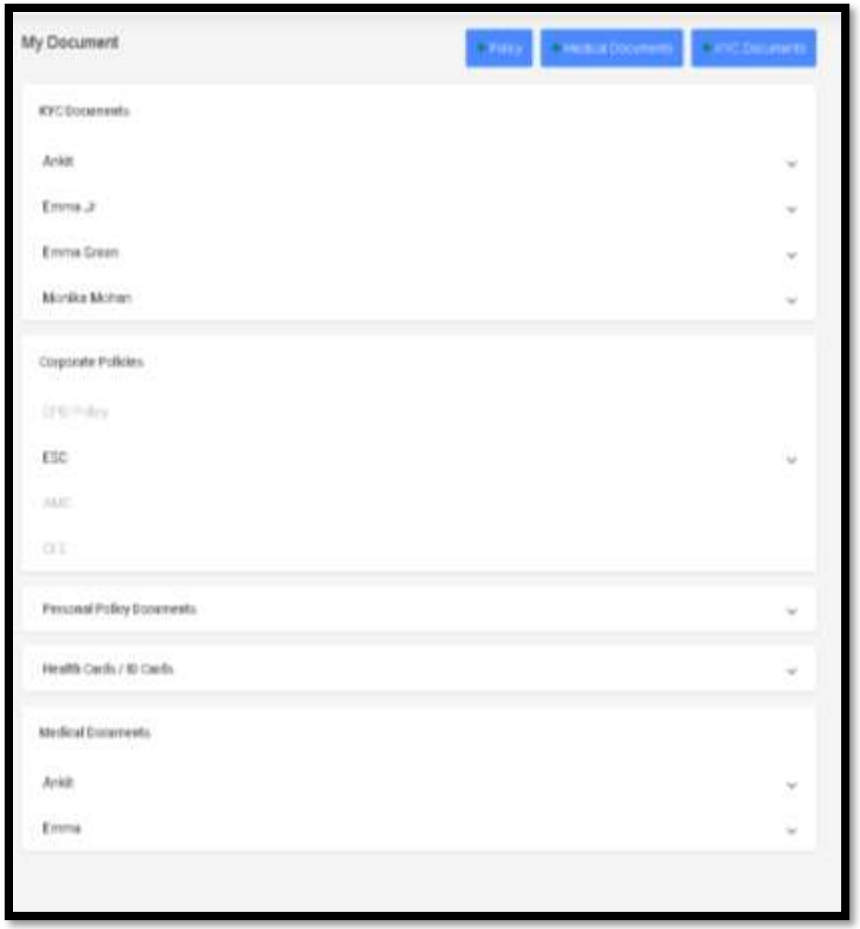
Check 4:

Risk score += 0.3*5*policyRating

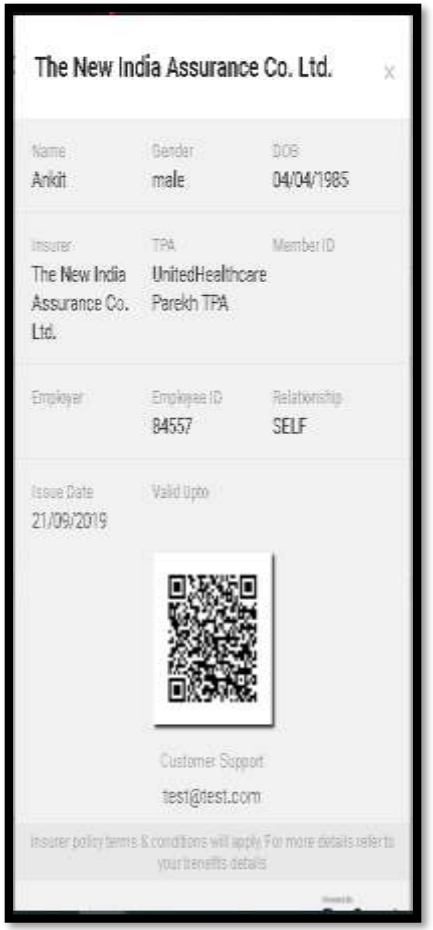
Overall Risk Score Calculation:

OverallRiskScore = (0.25 * riskScoreLife) + (0.5 * riskScoreHealth) + (0.15 * riskScoreMotor) + (0.05 * riskScoreTravel) + (0.05 * riskScoreOthers)

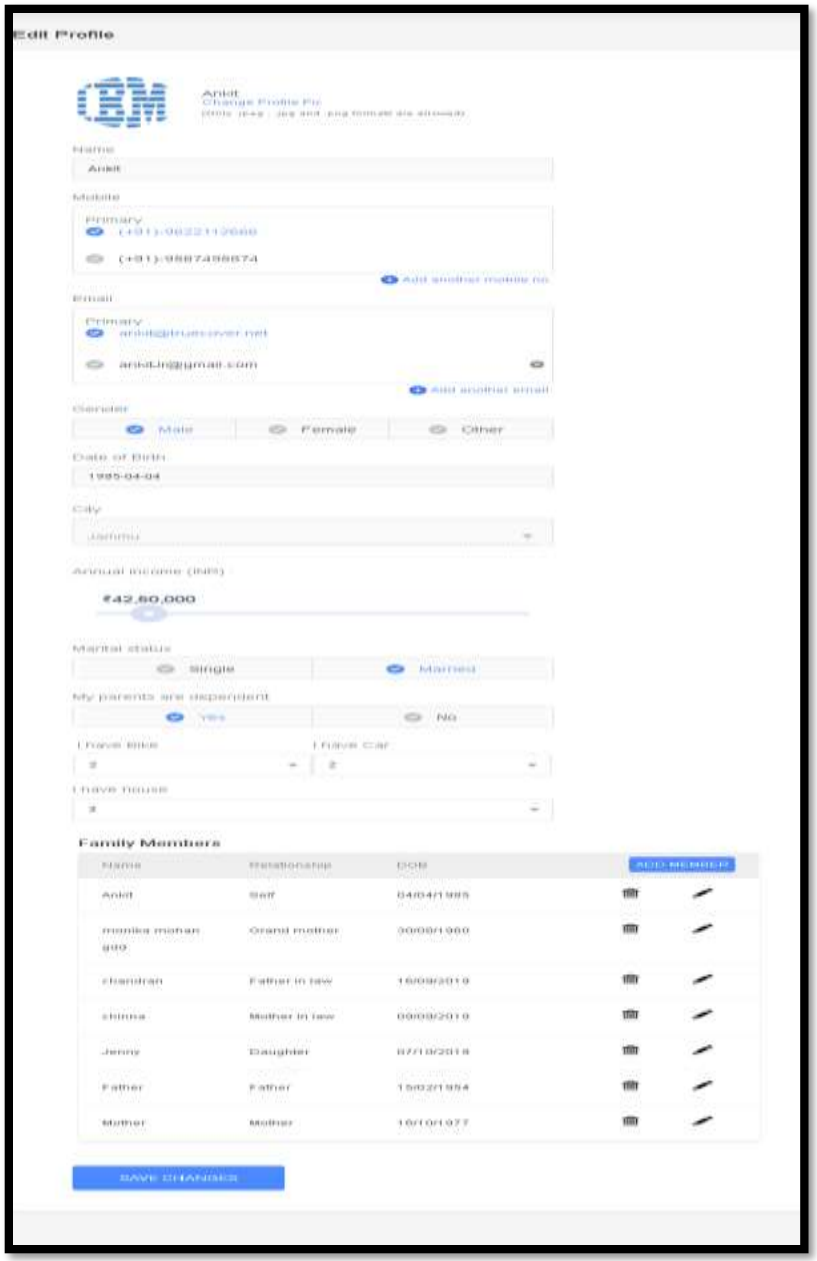
Documents



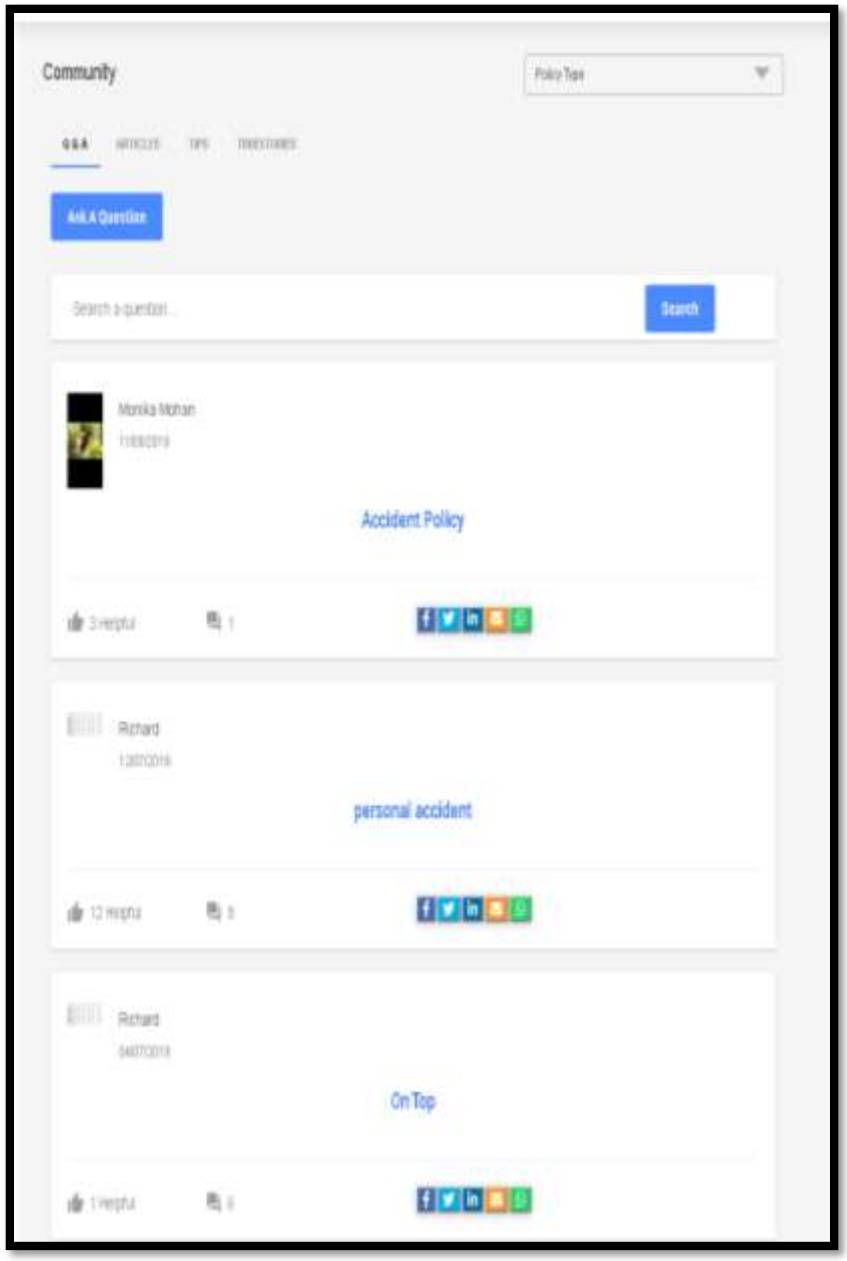
Listing all the documents of consumer



Viewing the id card of consumer



Editing Personal Details



Community dashboard

Project Implementation

Implementation of Progressive Web App

- A Progressive Web App (or PWA) is a web application that provides a set of capabilities to give web sites an app-like experience (a site that has a banner at the bottom asking ‘Add to home screen’).
- Because of the caching strategies they can paint a picture on a user’s screen when there’s no network. This makes them more reliable.

Mobile App store

Desktop App

Chrome App

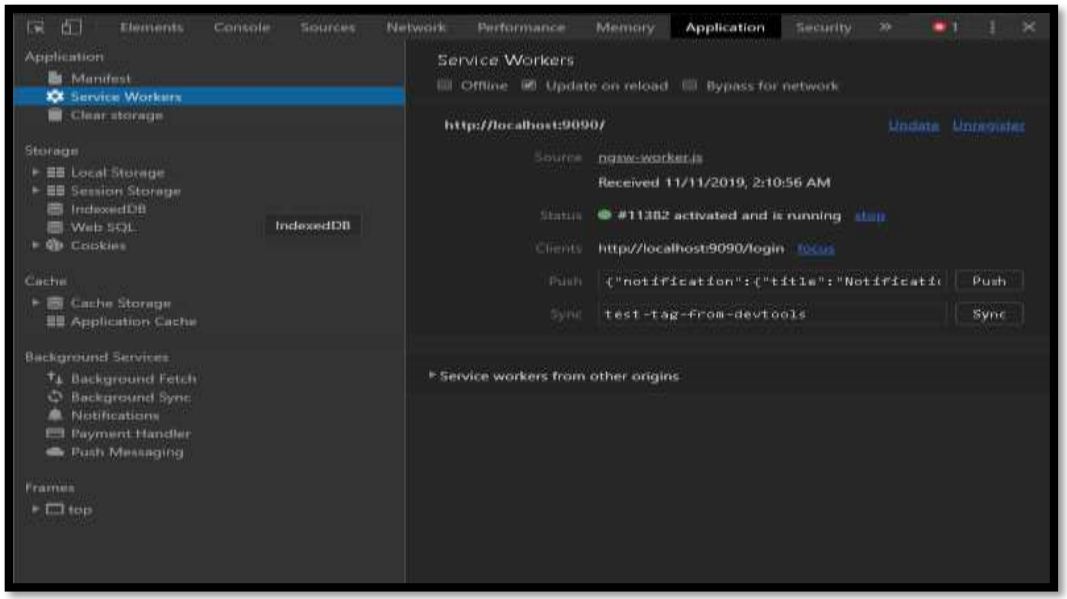
Progressive Web App Checklist

•App should have a Web App Manifest file

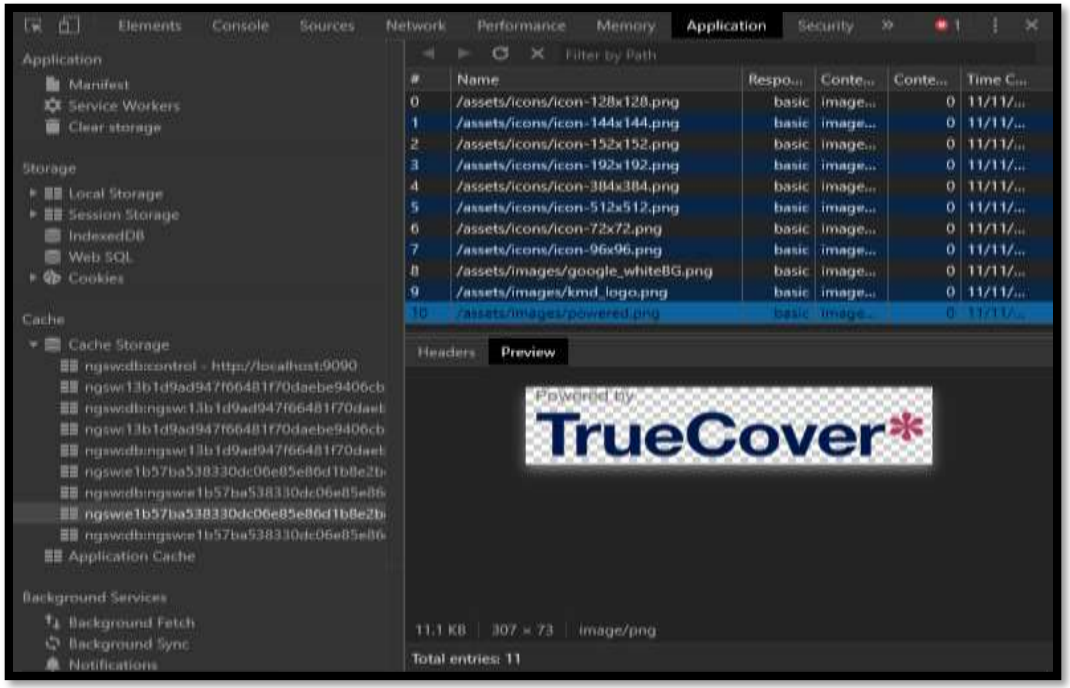
•App should have a working Service Worker

Web app manifest of Digital Policy wallet

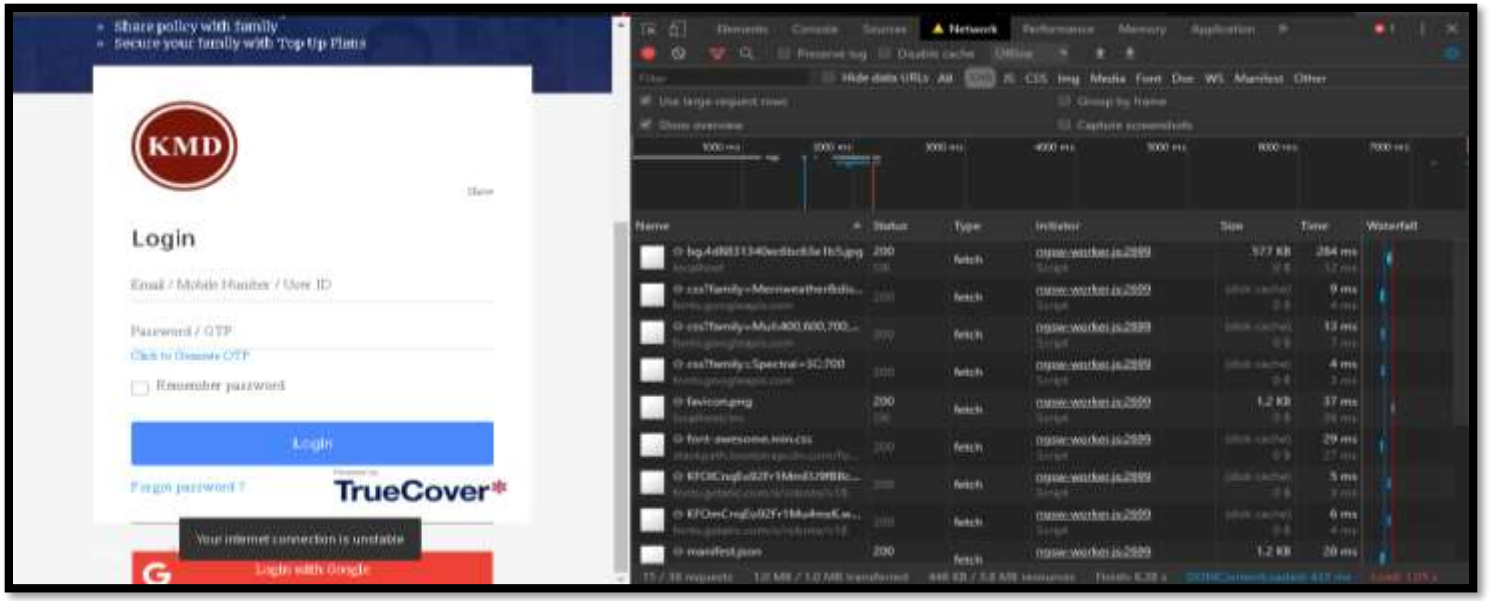
The above screen shows a web app manifest which is a Json file with metadata about app. The content from the manifest is especially important to allow browsers like Chrome on Android phones to present an option to repeat visitors to install the web app on their home screen app on their home screen.



Registering a service worker. A service worker is a script that runs in the web browser and manages caching for an application



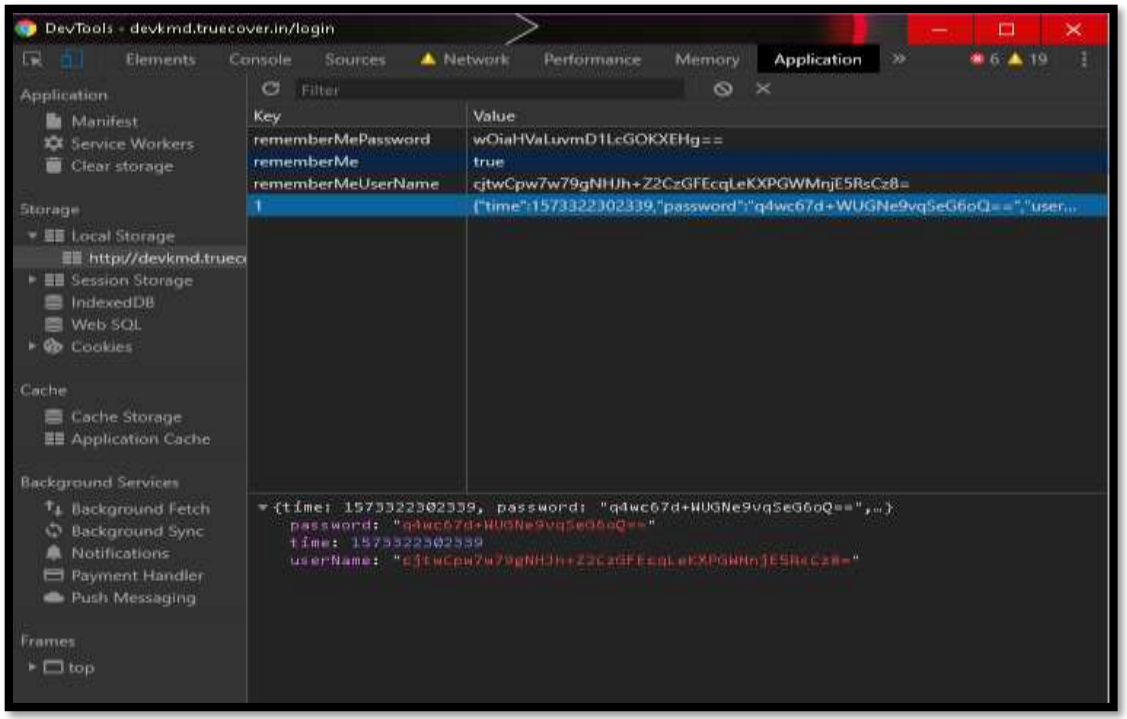
Caching by service worker. All the css, js and images are cached and stored in cache storage during initial load.



The above screen depicts that when users are offline, they see the latest fully cached version. New tabs load the latest cached code i.e. the users won’t see the dinosaur showing that there is no internet connection.

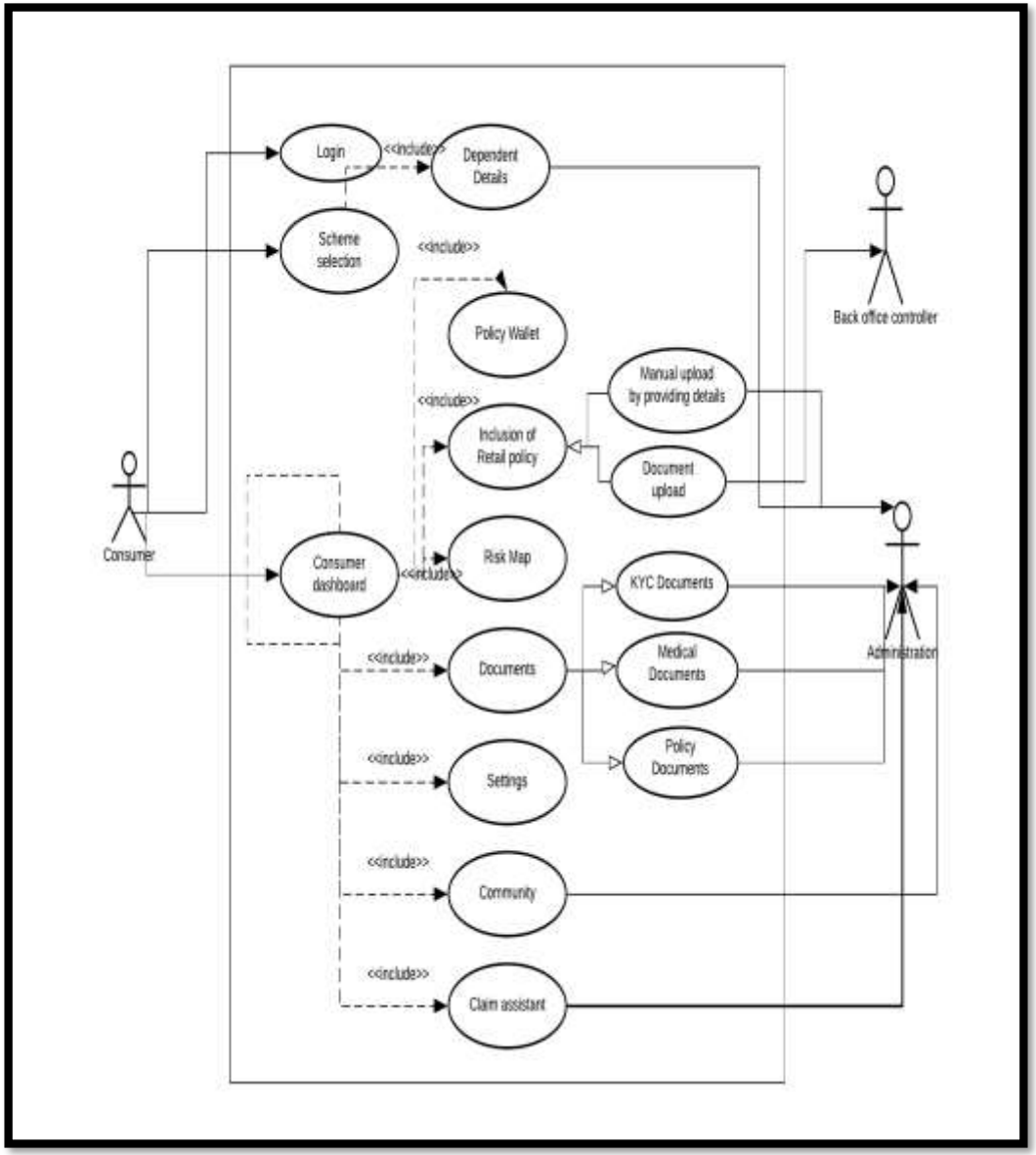
Implementation of Offline Form

- Forms on the web don't usually play nice with bad connections. If a consumer tries to submit a form while offline, most likely the input will be lost.
- The form data entered by the consumer will be encrypted and stored in localstorage when the user has left offline.
- Now if the consumer has pressed login button while offline, a flag is stored locally and while consumer comes back online the decrypted values are sent in the API calls.
- The advantage is that the consumer need not fill the details again.

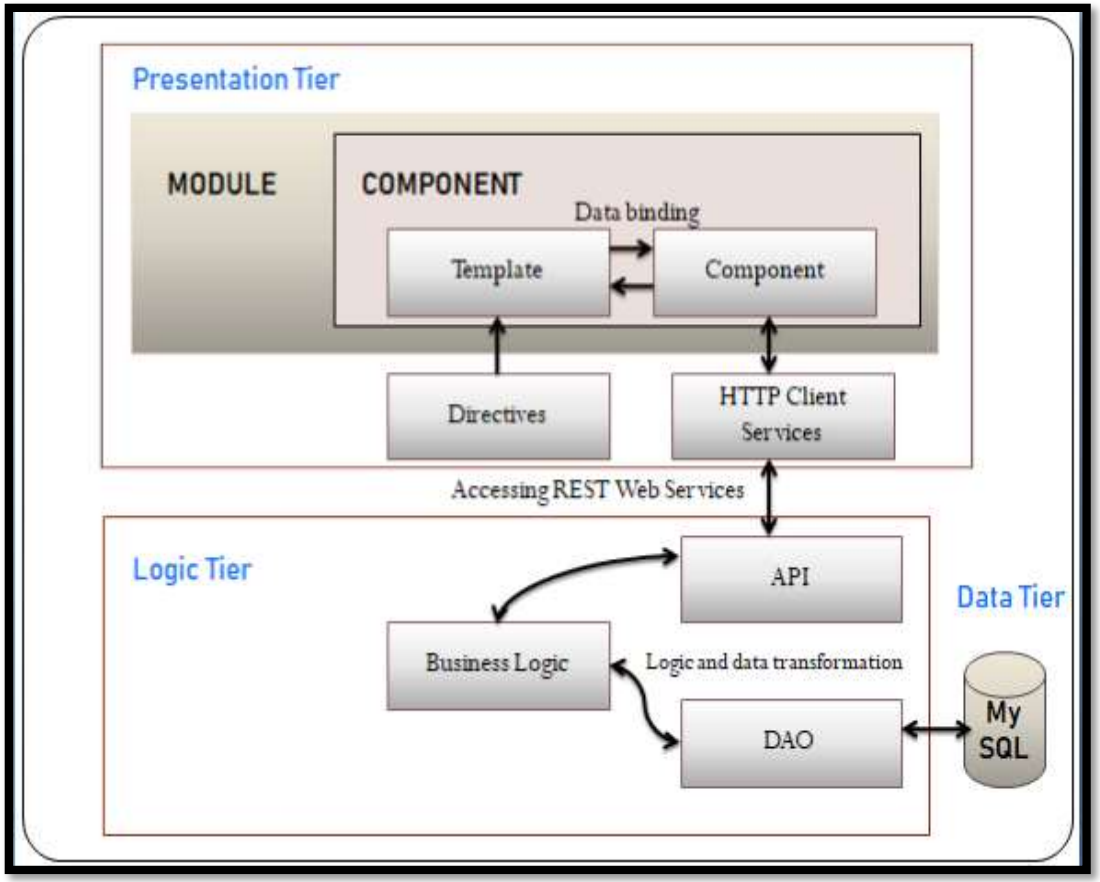


The screen displays the localstorage in developer tools, which contains the encrypted username and password along with a timestamp (optional).

Use case model

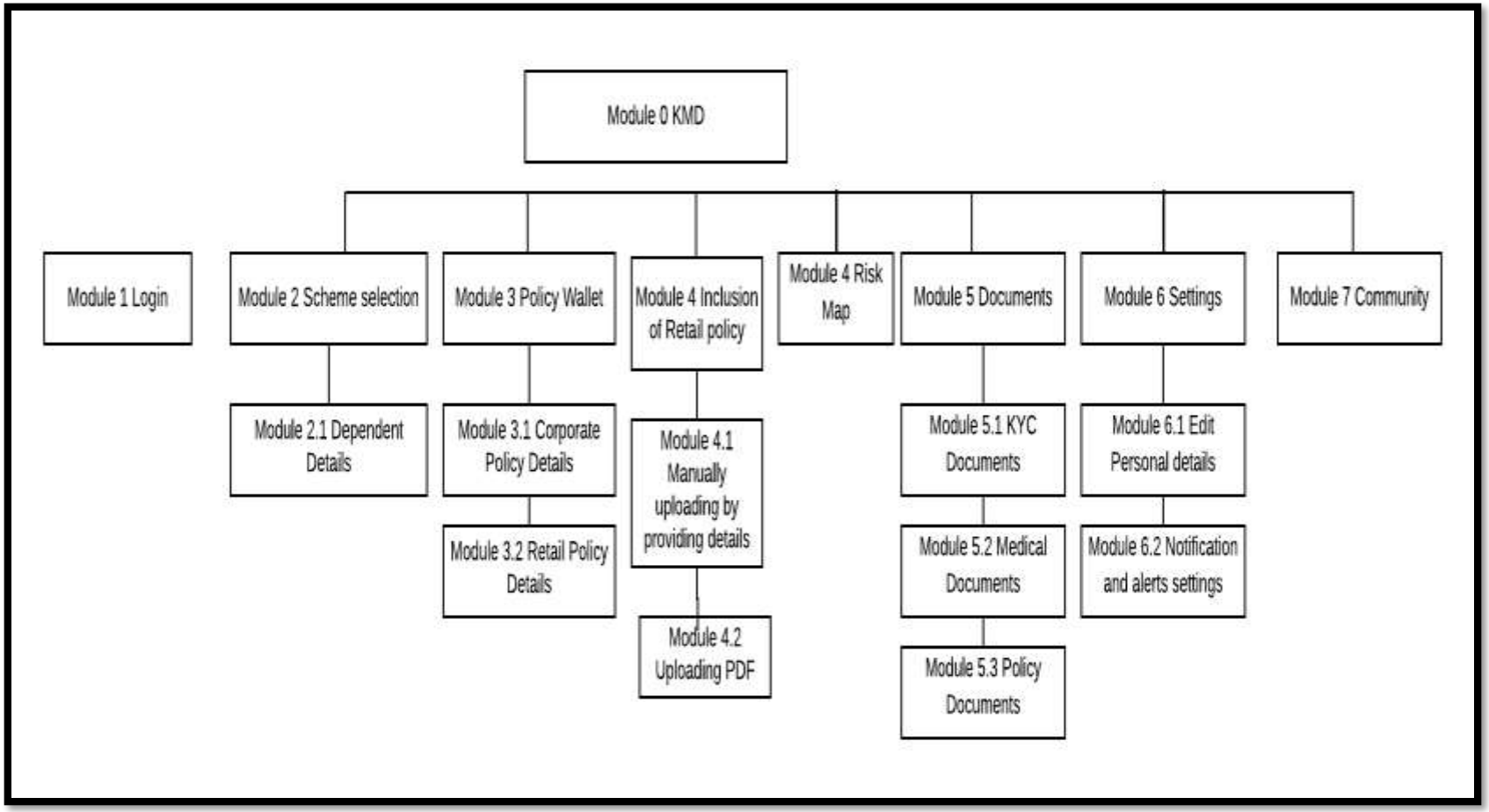

Login
<<include>>
Dependent Details
Scheme selection
<<include>>
Policy Wallet
<<include>>
Inclusion of Retail policy
Manual upload by providing details
Document upload
Risk Map
Consumer
Consumer dashboard
<<include>>
Back office controller
Administrator
KYC Documents
Medical Documents
Policy Documents
<<include>>
Documents
<<include>>
Settings
<<include>>
Community
<<include>>
Claim assistant

Architectural design


Presentation Tier
MODULE
COMPONENT
Data binding
Template
Component
Directives
HTTP Client Services
Accessing REST Web Services
Logic Tier
API
Business Logic
Logic and data transformation
DAO
Data Tier
My SQL

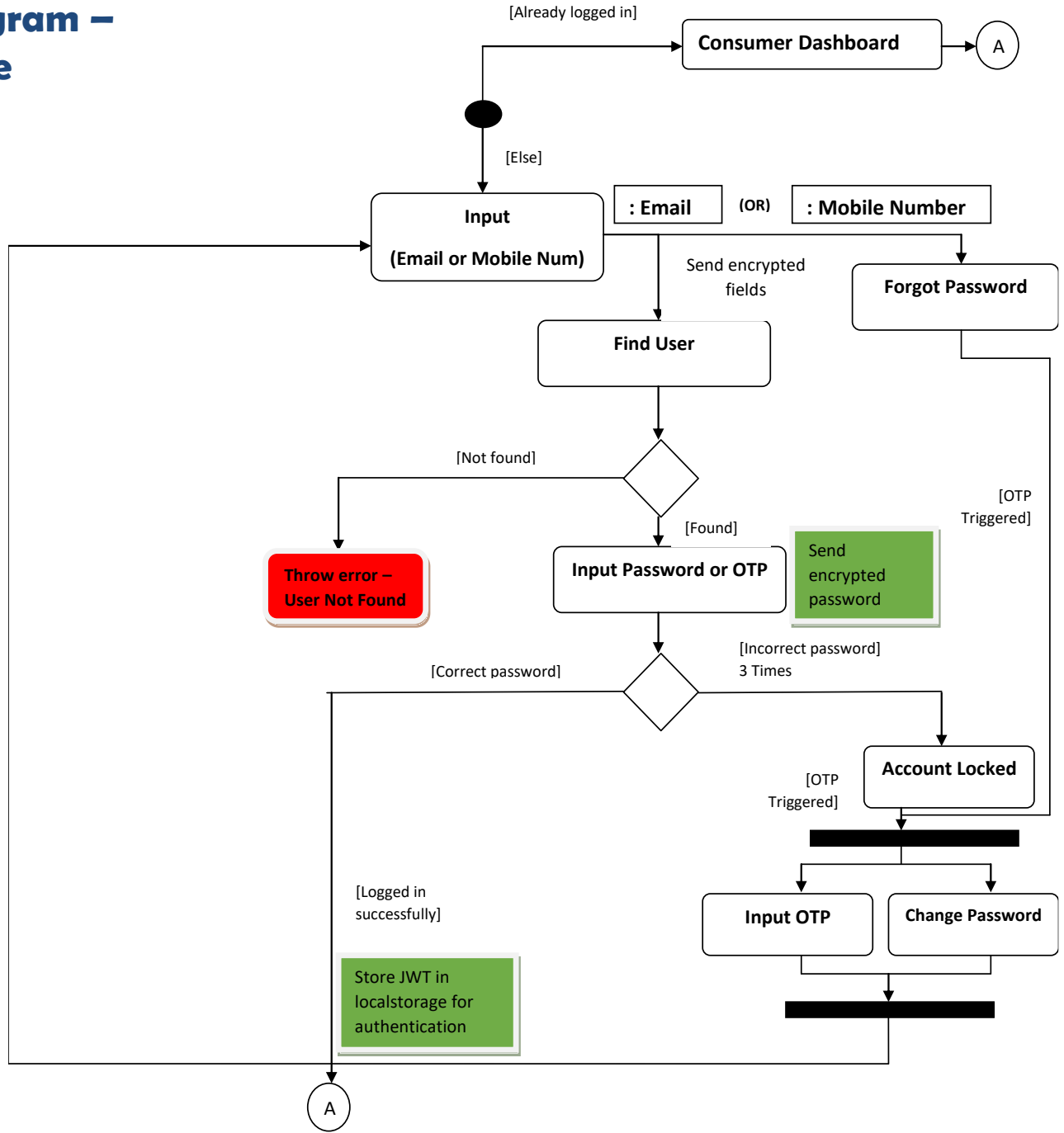
Structural design

Module diagram

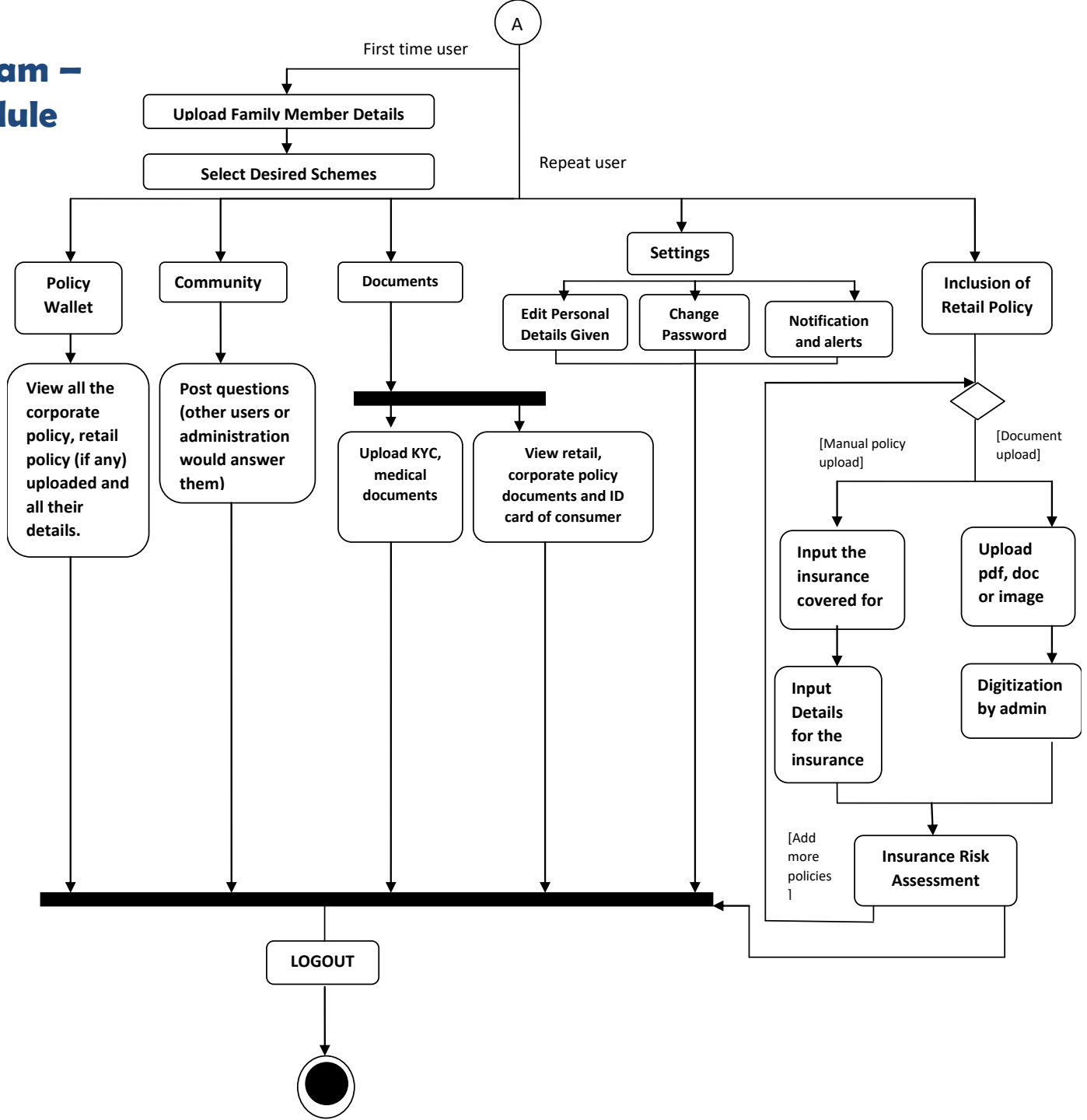


Behavioural design

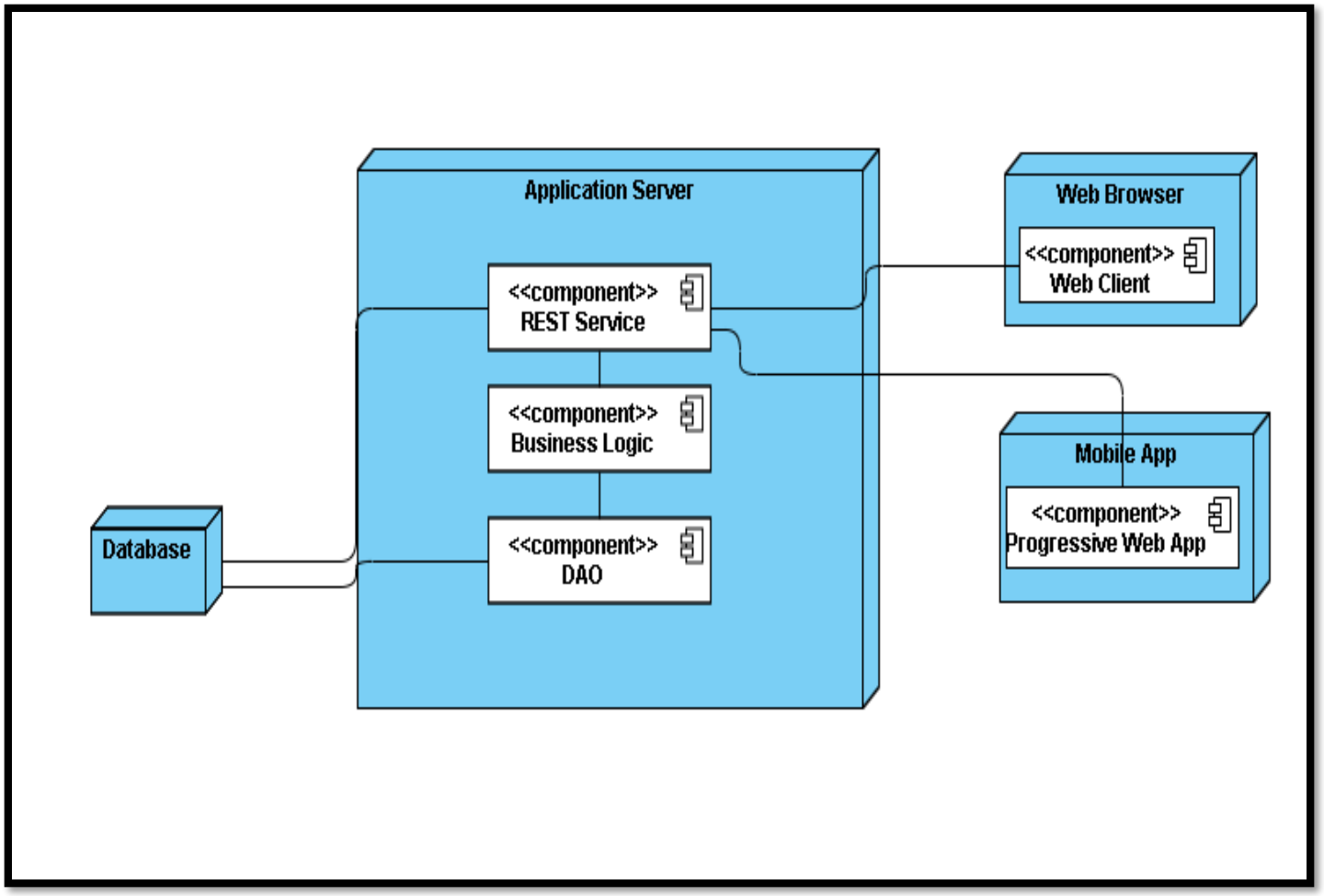
Activity Diagram – Login Module



Activity Diagram – Consumer Module



Deployment design


Application Server
<<component>>
REST Service
<<component>>
Business Logic
<<component>>
DAO
Database
Web Browser
<<component>>
Web Client
Mobile App
<<component>>
Progressive Web App

Test plan

TESTING TECHNIQUE

FUNCTIONAL TESTING

•Whether result of processing the functions are accessing and picking up right data from right source.

•Whether the results meet all requirements that are specified by the user according to the business rules

Test case results and reports

TestCase ID	Testcase	Given Input	Expected Output	Result
TC1	Type of username	monikamohan@gmail.com	Consumer Logged in using email	Pass
TC2	Type of username	9489165011	Consumer Logged in using mobile number	Pass
TC3	Validation in login form	948	Invalid username	Pass
TC4	Validation in login form	Mgm.com	Invalid username	Pass
TC5	Validation in change password form	truecover	Minimum length must be 8 and must contain at least one special character	Pass
TC6	Internet connectivity	Login button clicked	Your internet connection is not stable popup to be shown	Pass
TC7	Must not hit API if mandatory fields are not given	Next button clicked	Please fill all the mandatory fields	Pass

Testcase ID	Testcase	Given Input	Expected Output	Result
TC8	Parents age must be at least 15 years greater than Consumer's age	Mother's age: 11/1/2015	Please enter valid age	Pass
TC9	Policy end date must be at least one month after the policy start date	Policy Start Date: 11/5/2018 Policy End Date: 12/5/2018	Please enter valid Policy End date	Pass
TC10	Document Format check	Doc.gif	Only pdf, doc, docx, png, jpeg, jpg formats are allowed	Pass
TC11	Document size check	75Mb doc size	Maximum document size allowed is 10Mb	Pass
TC12	Deletion of primary email	Primary email: monikamohan@gmail.com Secondary email: monika@gmail.com	Primary email cannot be deleted	Pass
TC13	Session logged out	Consumer visiting the page after 3 hours	Session logged out	Pass
TC14	Family Members that are covered in policy cannot be deleted	Trying to delete spouse who is included in a policy	Spouse cannot be delete since consumer is covered in 'Selected' Policy	Pass

CONCLUSION

- Digital policy wallet helps consumers understand their risk coverage better.

- The product assists the consumers in making informed decisions and more effective use of their insurance.

Future Enhancements

- Truecover aims to remove the hassles and pain involved in processing claims. It also wants to eliminate the core challenge of trust in the insurance claims industry by leveraging Blockchain technology
- After the development of this new platform, signature-based certificates get attached to every document and the process gets automated via Smart Contracts, helping Consumers complete their insurance claims in approximately 5 minutes, unlike the old method which took hours and even days at times.
- In effect, the Consumer simply scans the QR from their TrueCover dashboard and obtains the validation of the certificate as well as who issued the certificate.

Thank You!