

Digital Policy Wallet

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Msc Software Systems

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:

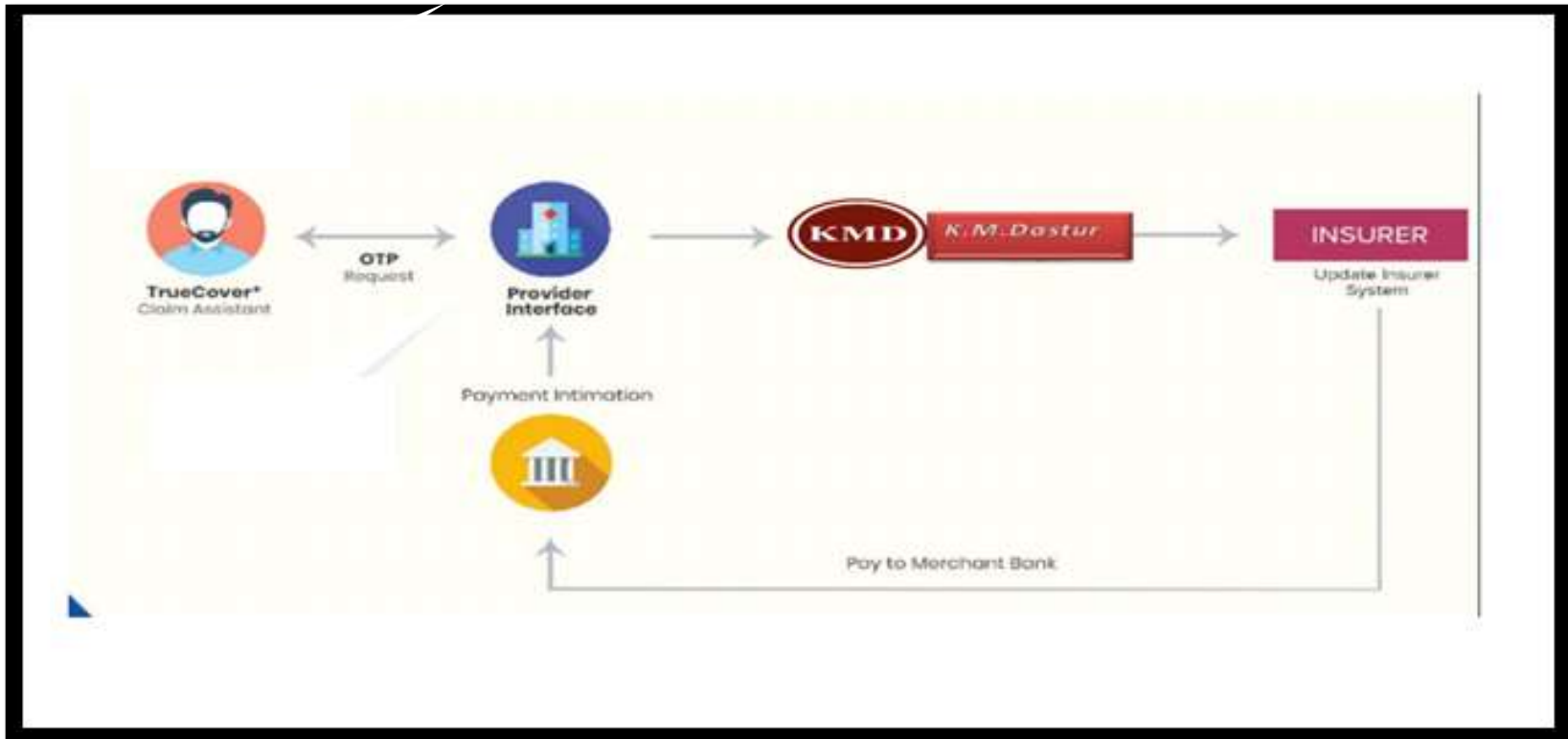
Life

- 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

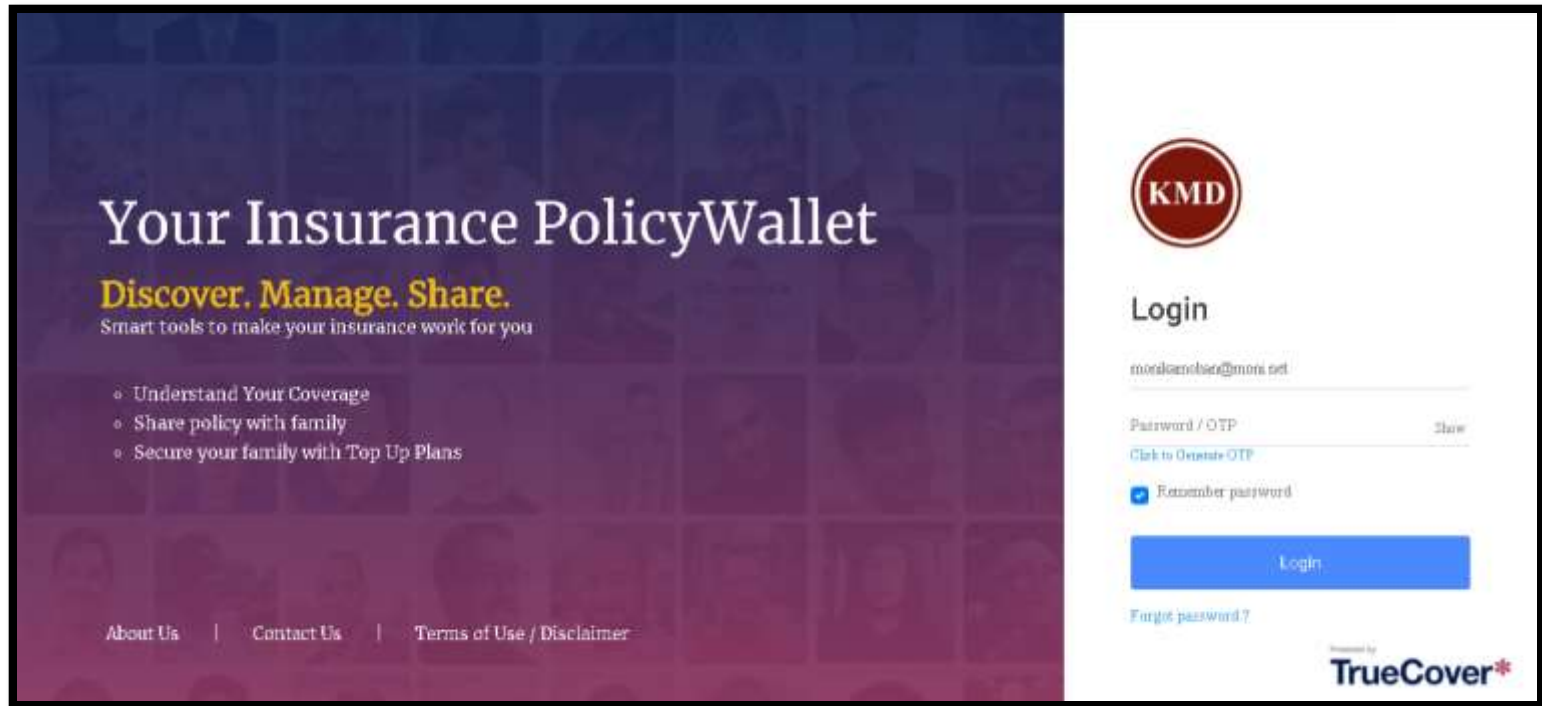
Domain Provider - GoDaddy

Hosting Provider - Amazon EC2



User interface design

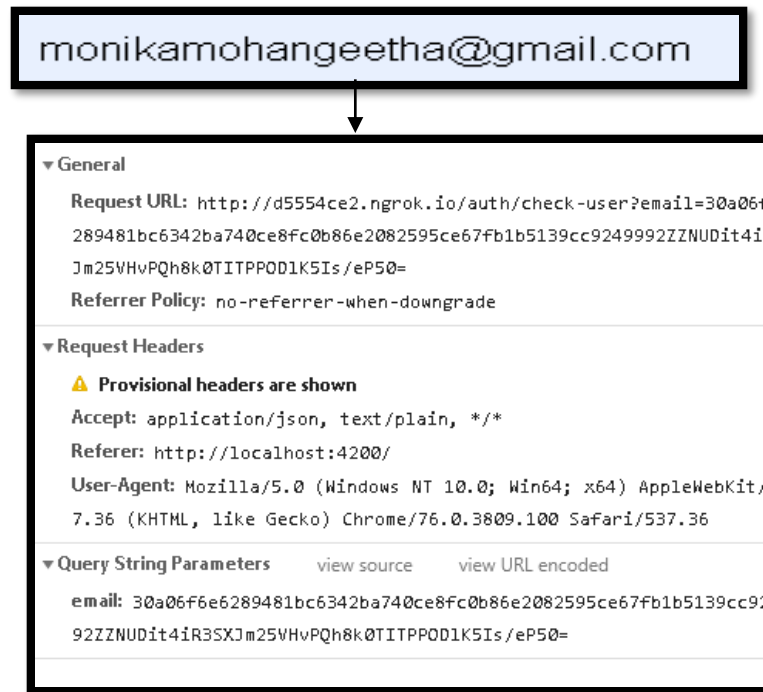
Login



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

This screenshot shows the initial confirmation step of a web application. On the left, a blue sidebar contains a user profile icon, the name 'Hi Ankit', and a brief message about creating a risk profile. The main content area is white and titled 'Welcome! Please Confirm Your Details'. It contains several input fields: 'Email' (pre-filled with 'ankit@muruganet.net'), 'Phone No.' (pre-filled with '9821123456'), 'Relationship Status' (a dropdown menu currently showing 'Single'), and 'Date of Birth' (pre-filled with '19/05/2018'). There are 'Back' and 'Next' buttons at the bottom right.

Personal Details

This screenshot shows the 'Do you have Spouse/Partner?' form. The left sidebar is identical to the previous screen. The main content area has a title 'Do you have Spouse/Partner?' and two radio buttons: 'Yes' (selected) and 'No'. Below the radio buttons, there are four input fields for spouse details: 'Spouse Name', 'Spouse Email', 'Spouse Phone No.', and 'Spouse Date of Birth'. Each field has a dropdown arrow on the right. There is an '+ Add' button below these fields. 'Back' and 'Next' buttons are at the bottom right.

Details of Partner/Spouse

This screenshot shows the 'Do you have Children?' form. The left sidebar is identical to the previous screens. The main content area has a title 'Do you have Children ?' and two radio buttons: 'Yes' (selected) and 'No'. Below the radio buttons, there are three input fields for child details: 'Child Name', 'Child Date of Birth', and 'Child Gender'. Each field has a dropdown arrow on the right. There is an '+ Add' button below these fields. 'Back' and 'Next' buttons are at the bottom right.

Details of Children

Scheme Selection

Financial support to your family members!

Sum Insured: ₹3 Lac
Premium: ₹1000/month
Type: Flouter

Sum Insured: ₹8 Lac
Premium: ₹2700/month
Type: Flouter

Sum Insured: ₹10 Lac
Premium: ₹3000/month
Type: Flouter

Note: Term Life Cover provides financial support to your dependents after your death.

Back

Save & Continue

Financial support to your family members!

Sum Insured: ₹2.5 Lac
Premium: ₹1100/month
Type: Flouter

Sum Insured: ₹6 Lac
Premium: ₹2400/month
Type: Flouter

Sum Insured: ₹8 Lac
Premium: ₹2800/month
Type: Flouter


Note: Term Life Cover provides financial support to your dependents after your death.

Back

Save & Continue

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



Congratulations

You have successfully completed the enrollment process

Company Provided Covers

1. Group ESC Spouse, Spouse, Children and Parents	₹ 2,00,000
2. Group Mediclaim Self, children	₹ 1,00,000

Voluntary Covers

	Sum Insured	Premium
1. Group ESC Topup Self, Spouse, Children and Parents	₹ 2,00,000	₹ 5,000/yr
2. Group Parents Policy Self, Parents	₹ 3,00,000	₹ 12,000/yr
3. General Critical illness Self, Parents	₹ 3,00,000	₹ 12,000/yr
Total Yearly Premium		₹ 29,000/yr

Show My PolicyWallet

Completion Card

Policy Wallet

[Home](#)
[Dashboard](#)
[My Documents](#)
[Community](#)
[Settings](#)
[Contact us](#)

Policy Wallet

Life
 Health
 Motor
 Travel
 Others

To Do (1)

Corporate Policies

Group Health Policy
 Group Critical Illness Policy
 Group Term Life Policy

Why Pay More

Consult Your Doctor Online & Get 50% Off

CallHealth^o

[Check Now](#)

RiskMap

Find your RiskMap and how your policy compares against your ideal requirements.

Trending Discussions

Connect, share and explore. Give feedback, discuss and get answers to your queries.

Articles

Read our blog to learn about nuances of your insurance policies.

Tips

Quick insights to help you maximize your insurance benefits.

Initiate Claim

Use your policies effectively by initiating claims using TrueCover.

Total Sum Insured
 ₹24,40,000

Ideal Sum Insured
 ₹10,00,000

[ADD POLICY](#)
[COMPARE](#)

You have a fantastic policy. You can potentially save on premiums by optimizing your insured sum.

Corporate Policies

TrueCover[®]	TTO				
	ESR				
Valid From 31-07-2016	Valid Until 30-07-2020	Sum Insured ₹5,00,000	Cover Type Foster	Insurer The New India Assurance Co. Ltd.	

TrueCover[®]	TTO				
	ESR				
Valid From 31-07-2016	Valid Until 30-07-2020	Sum Insured ₹5,00,000	Cover Type Foster	Insurer The New India Assurance Co. Ltd.	

TrueCover[®]	TTO				
	ESR				
Valid From 17-08-2016	Valid Until 17-08-2020	Sum Insured ₹40,000	Cover Type Foster	Insurer Apollo Munich Health Insurance Company Limited	

Other Policies

	Health Guard	Sum Insured ₹4,00,000	Rating ★★★★★	Start Date 01/01/2016	Renewal Date	
	Health Guard					

	Health Guard	Sum Insured ₹10,00,000	Rating NA	Start Date 01/01/2016	Renewal Date	
	Health Guard					

	Health	Sum Insured ₹	Rating NA	Start Date	Renewal Date	
	Health					

[illegible]

Inclusion of Retail Policy

Upload your policy to know more

Add Details Manually

----- Or -----

Have a PDF Policy handy? Use our automated tool by simply uploading the document

Health

Apollo Munich

Add PDF Document

Browse

(Only .pdf format are supported)

By proceeding ahead you expressly agree to the [Access-Insure terms of use](#) and [privacy policy](#)

UPLOAD PDF POLICY

Uploading Retail Policy by uploading document

Upload your Policy

Insurance Type

Health

Insurer Name

Apollo Munich

Policy Name

Easy Health

Sum Insured

Sum Insured

Policy Start Date

Please enter policy start date

First Inception Date

Please enter first policy inception date

Family Covered (Relationship)

Select Covered Members

[Manage Family](#)

NEXT

SKIP

Uploading Retail Policy by manually providing details

TrueCover*

TO BE DIGITISED | **ALREADY DIGITISED**

Line ID	Email	Mobile Number	Policy ID	Policy Type	View	Digitise
148	akc@adef.com	NA	25	HEALTH	View	Digitise
148	akc@adef.com	NA	26	HEALTH	View	Digitise
145	schard@gmail.com	NA	41	LIFE	View	Digitise
148	akc@adef.com	NA	41	CRITICAL ILLNESS	View	Digitise
145	schard@gmail.com	NA	49	LIFE	View	Digitise
145	schard@gmail.com	NA	50	LIFE	View	Digitise
145	schard@gmail.com	NA	51	LIFE	View	Digitise
145	schard@gmail.com	NA	52	LIFE	View	Digitise
145	schard@gmail.com	NA	53	WATER	View	Digitise
145	schard@gmail.com	NA	60	LIFE	View	Digitise
145	schard@gmail.com	NA	69	LIFE	View	Digitise
158	mer@gmail.com	NA	70	LIFE	View	Digitise
148	akc@adef.com	NA	78	LIFE	View	Digitise
158	akc@adef.com	NA	79	LIFE	View	Digitise

Digitization by Back office controller

Document

QoL Performer Plus®
Form (QOLP4 - 14578)
A Flexible Premium Adjustable Life Insurance
Universal Life Policy
June 17, 2016

LIFE

Designed for: Mr. VC
New State, USA

Presented by: Lisa Rogers
NA

Prepared: 6/17/2016

Illustration Description: Please read your illustration carefully. It is designed to aid your understanding of the policy by demonstrating how policy benefits and premiums are affected by different assumptions. This illustration is not a contract and is not intended to predict actual performance.

Issuing Company: American General Life Insurance Company
1717 A-100 Parkway
American General Life Insurance Company (the "Company") is the sole owner of QoL Performer Plus Policies.

Contents:
Your Policy Summary 3
Important Information About Your Policy 3
Narrative Summary 5
Coverage Applied For 5
Premiums Payable 5
Policy Description 5
The Action Changes and Expenses 5
Policy Expense 5
Surrender and Withdrawals 5
Key Terms and Definitions 5
Summary Summary 10
Tabular Detail - Current 12
Important Information About Your Policy 15
Tax and Compliance 15

This illustration is not complete unless all pages are included.
June 17, 2016 F000000000 F000000000
R000000000 / Worksheet / Rev 03/2013 / Rev. 03/16 A-5

Digitise Policy

Insurance Type
HEALTH

Policy Name
Policy Name

Sum Insured
Sum Insured

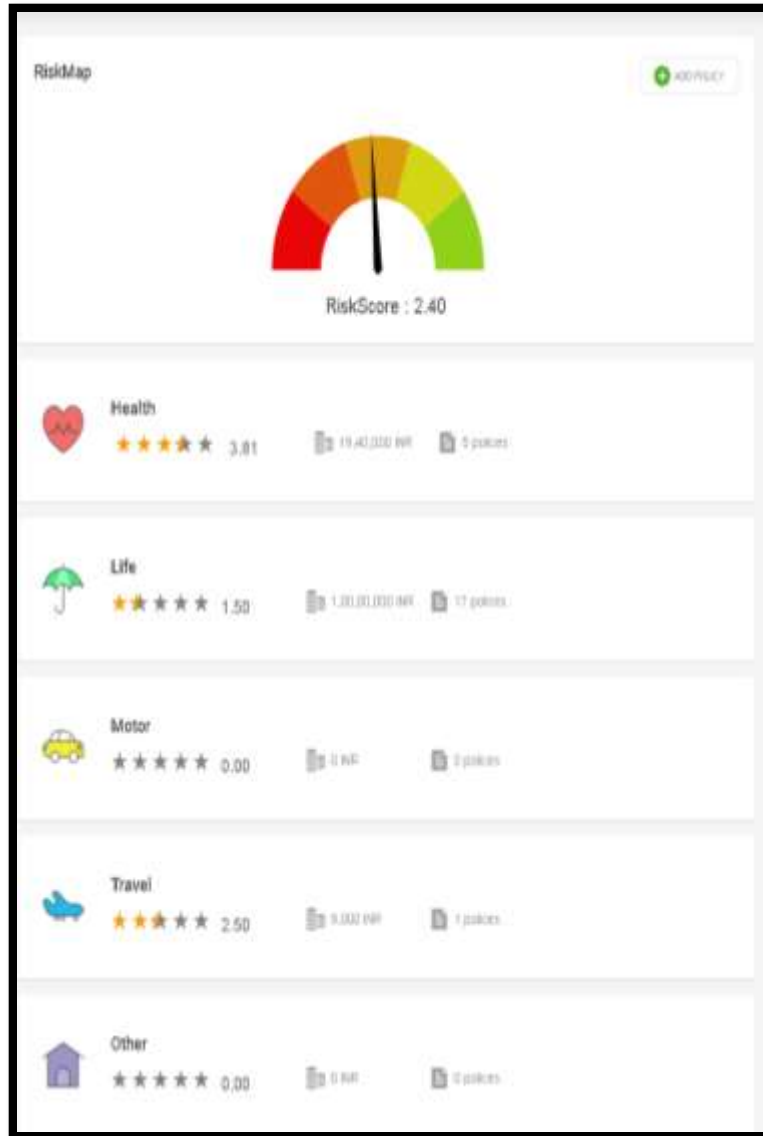
Policy Start Date
mm/dd/yyyy

First Injection Date
mm/dd/yyyy

NEXT

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 += $0.4 * 5 * (\text{current sum insured} / \text{ideal sum insured})$

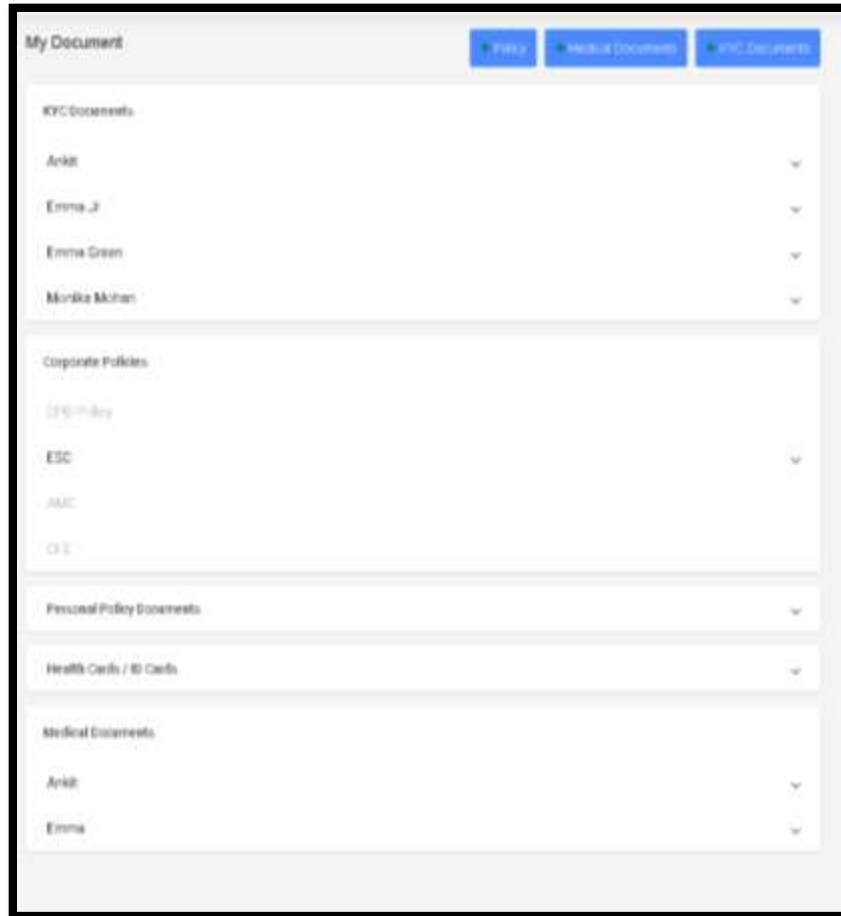
Check 4:

Risk score += $0.3 * 5 * \text{policy Rating}$

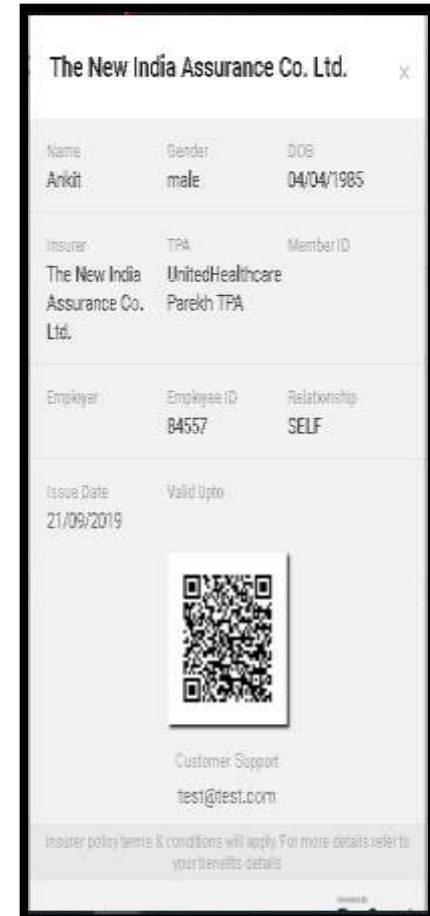
Overall Risk Score Calculation:

OverallRiskScore = $(0.25 * \text{riskScoreLife}) + (0.5 * \text{riskScoreHealth}) + (0.15 * \text{riskScoreMotor}) + (0.05 * \text{riskScoreTravel}) + (0.05 * \text{riskScoreOthers})$

Documents




Listing all the documents of consumer



Viewing the id card of consumer

Edit Profile



APRIL
Change Profile Pic
(PNG, JPEG, JPG and .png format size allowed)

Name
Anil

Mobile
Primary
(+91)-9822112666
(+91)-9887455674 [Add another mobile no.](#)

Email
Primary
anil@bluecover.net
aniln@gmail.com [Add another email](#)

Gender
☒ Male ☐ Female ☐ Other

Date of Birth
1995-04-04

City
Jaipur

Annual Income (INR)
₹42,60,000

Marital status
☐ Single ☒ Married

My parents are dependent
☒ Yes ☐ No

I have bike I have car

I have house

Family Members

Name	Relationship	DOB	Add member
Anil	Self	04/04/1995	
monika mohan guo	Grand mother	0000/1/000	
chandran	Father in law	16/09/2019	
shirna	Mother in law	09/09/2019	
Jenny	Daughter	07/10/2018	
Father	Father	15/02/1954	
Mother	Mother	10/10/1977	

[SAVE CHANGES](#)


Community

Policy Type ▼

[Q&A](#) [ARTICLES](#) [TIPS](#) [TESTIMONIES](#)

[Ask A Question](#)


Search a question [Search](#)



Monika Mohan
1000000

Accident Policy


12 replies 1



Richard
1200000

personal accident

12 replies 1



Richard
9400000

On Top

12 replies 1

Editing Personal Details

Community dashboard



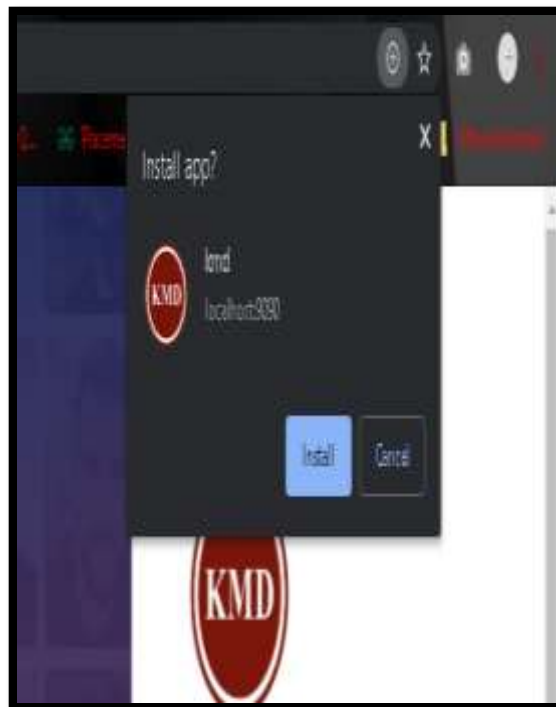
Project Implementation

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**



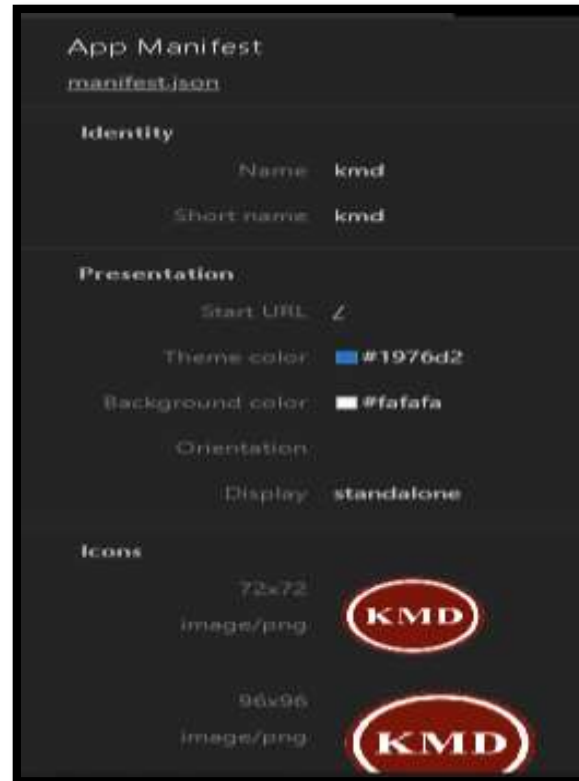
Desktop App



Chrome App

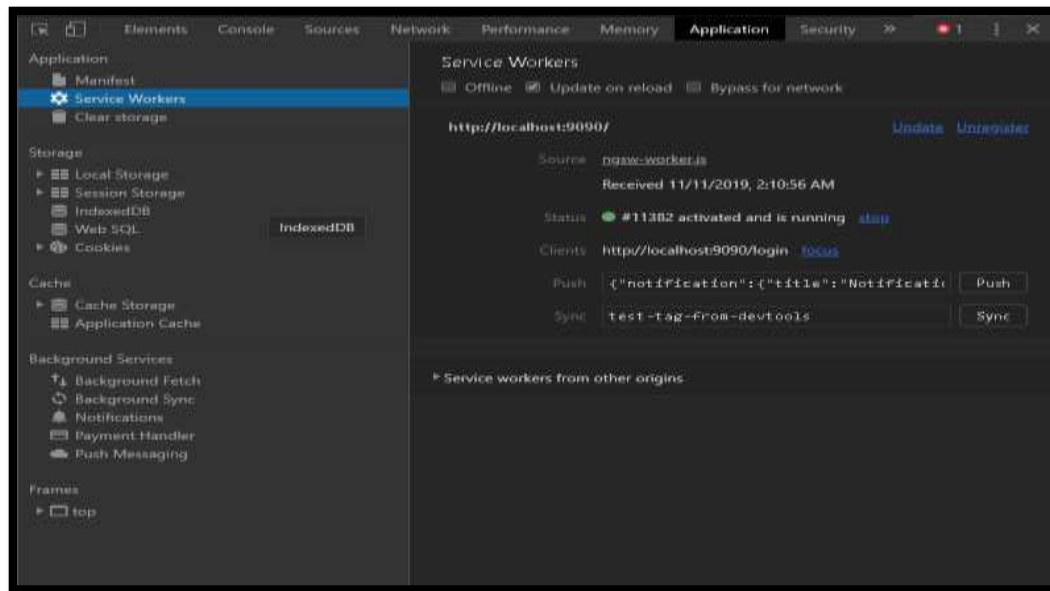
Progressive Web App Checklist

- App should have a Web App Manifest file
- App should have a working Service Worker

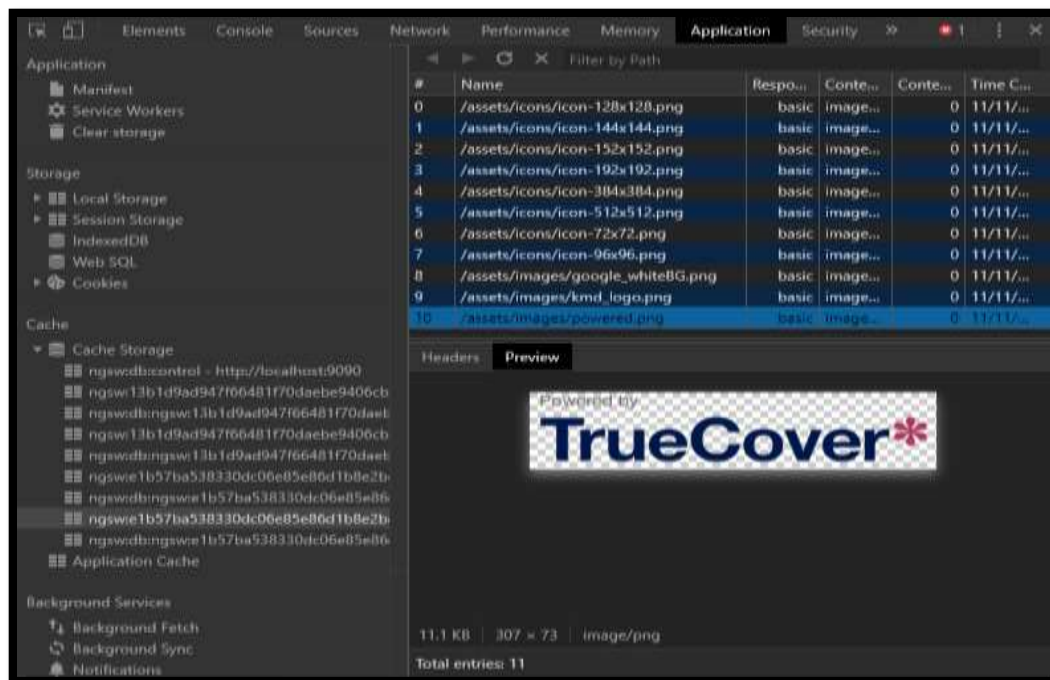


Web app manifest of Digital Policy wallet

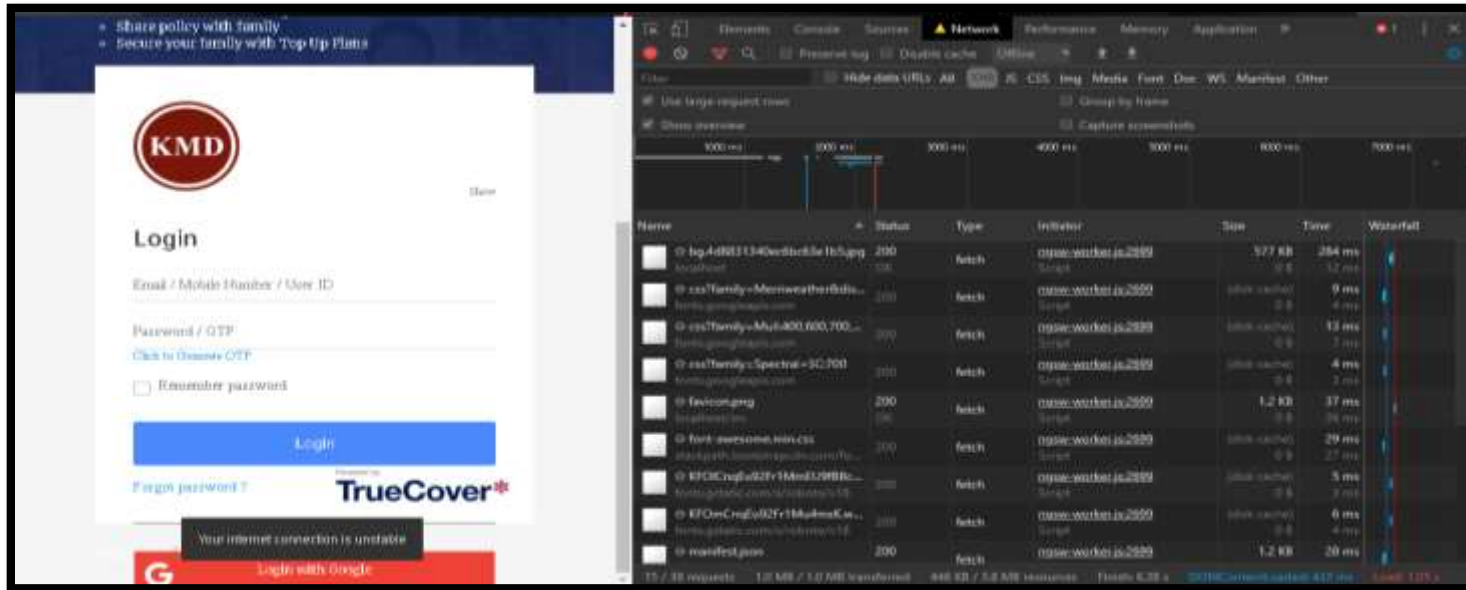
The above screen shows a web app manifest which is a Json file with metadata about app. The content from the manifest is especially important to allow browsers like Chrome on Android phones to present an option to repeat visitors to install the web app on their home screen app on their home screen.



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



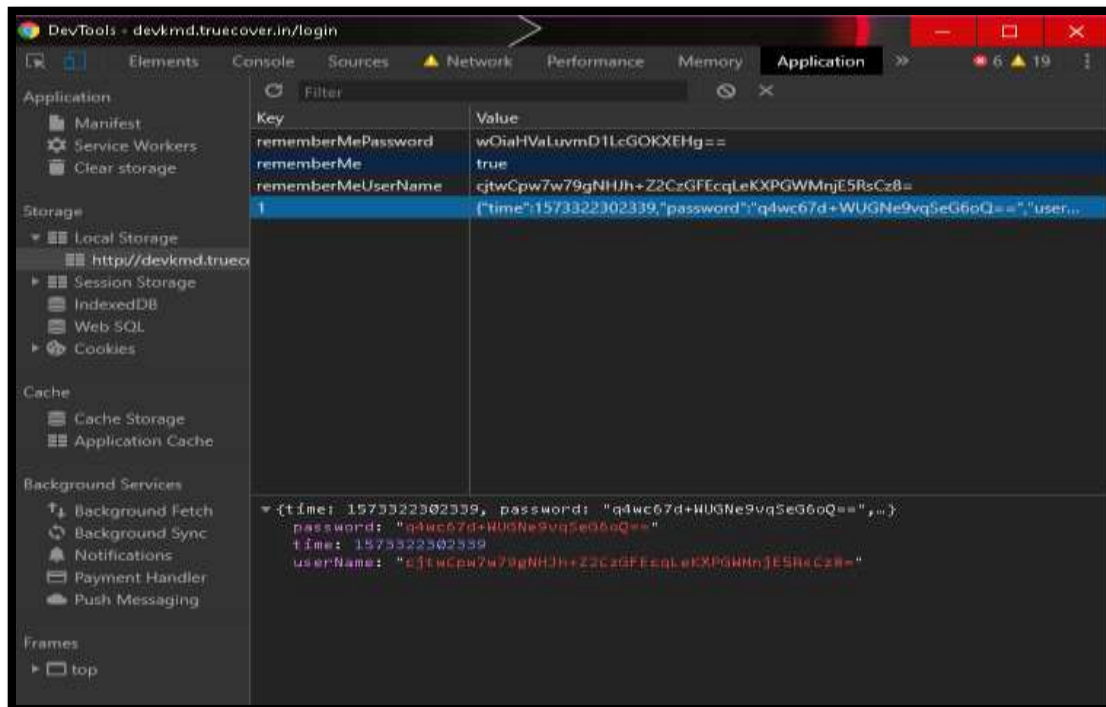
Caching by service worker. All the css, js and images are cached and stored in cache storage during initial load.



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

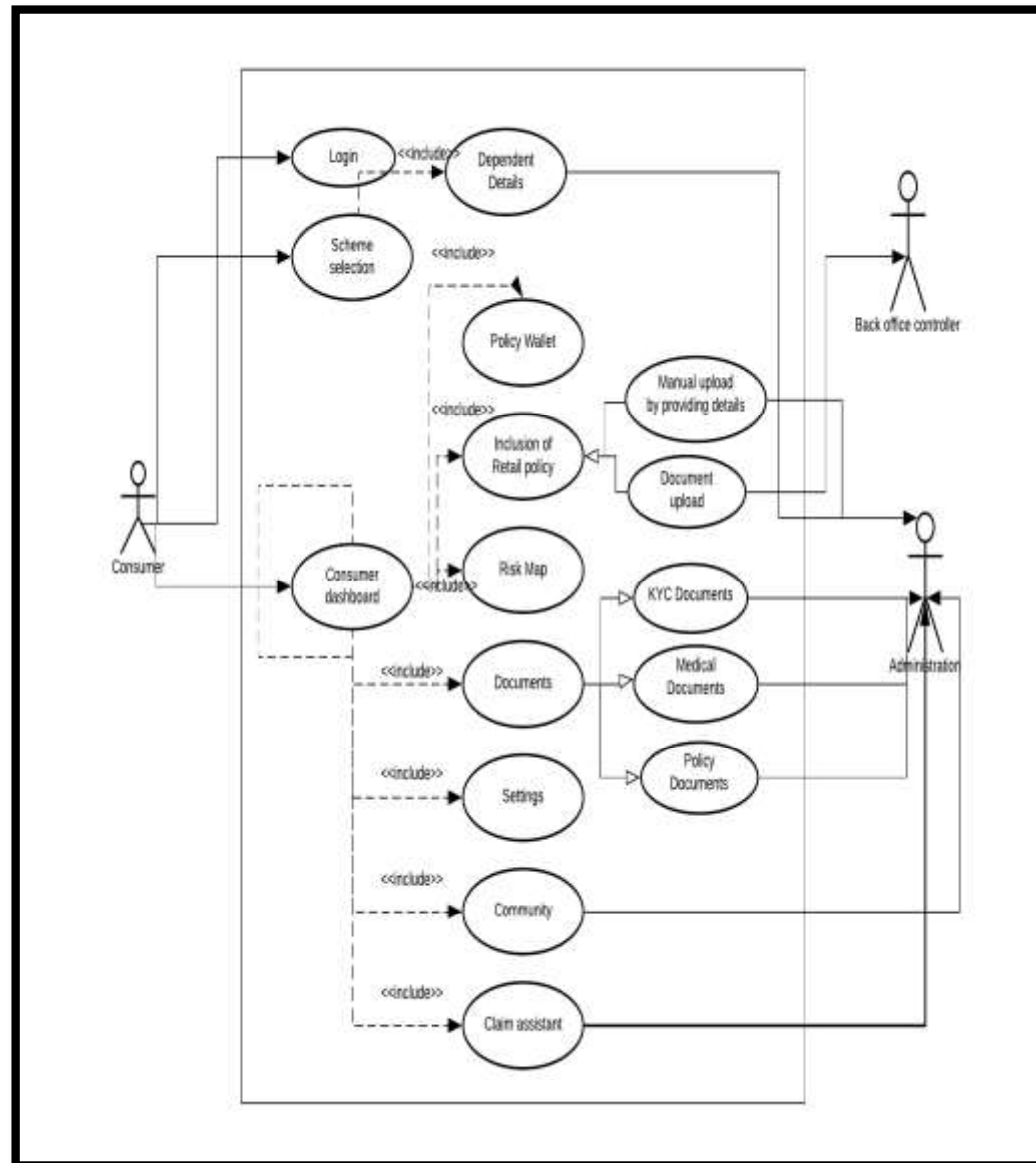
- Forms on the web don't usually play nice with bad connections. If a consumer tries to submit a form while offline, most likely the input will be lost.
- The form data entered by the consumer will be encrypted and stored in localStorage when the user has left offline.
- Now if the consumer has pressed 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).

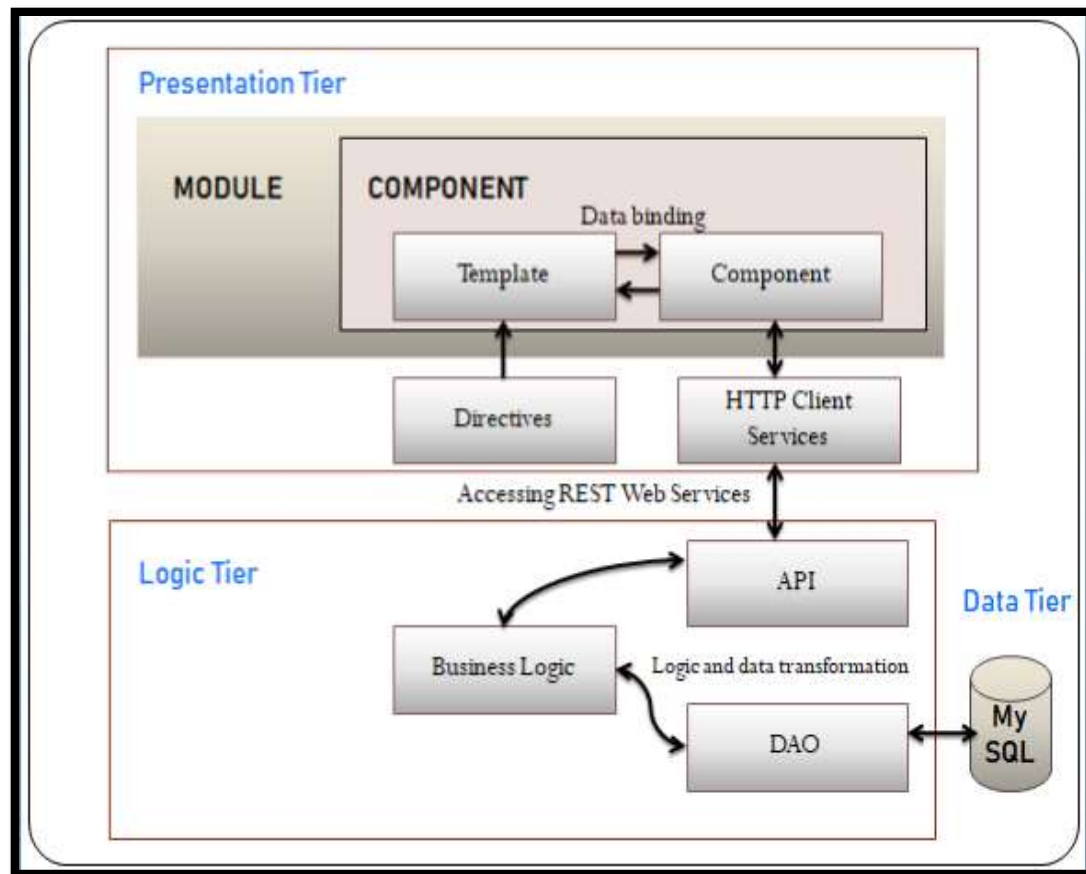


Use case model





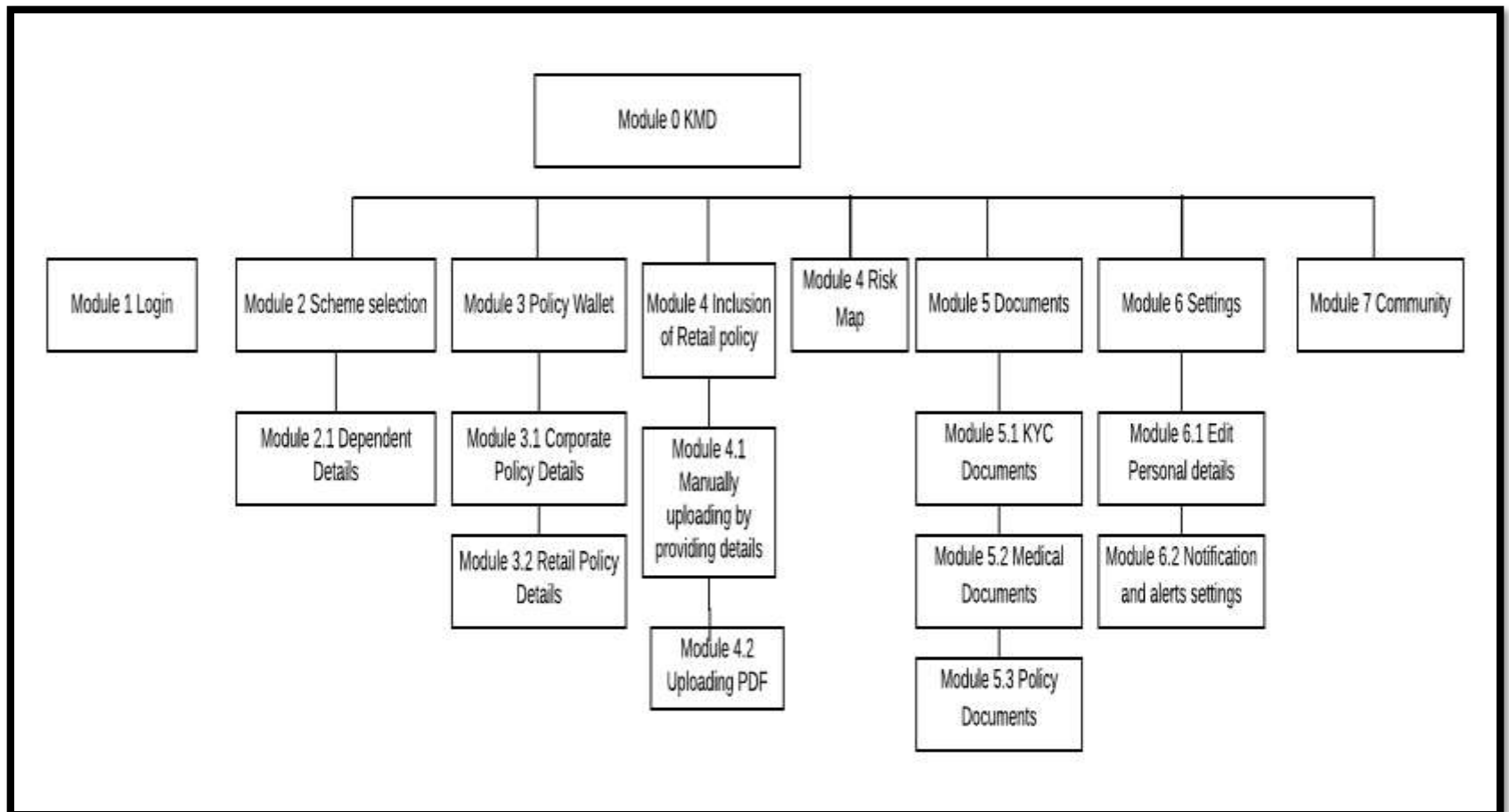
Architectural design





Structural design

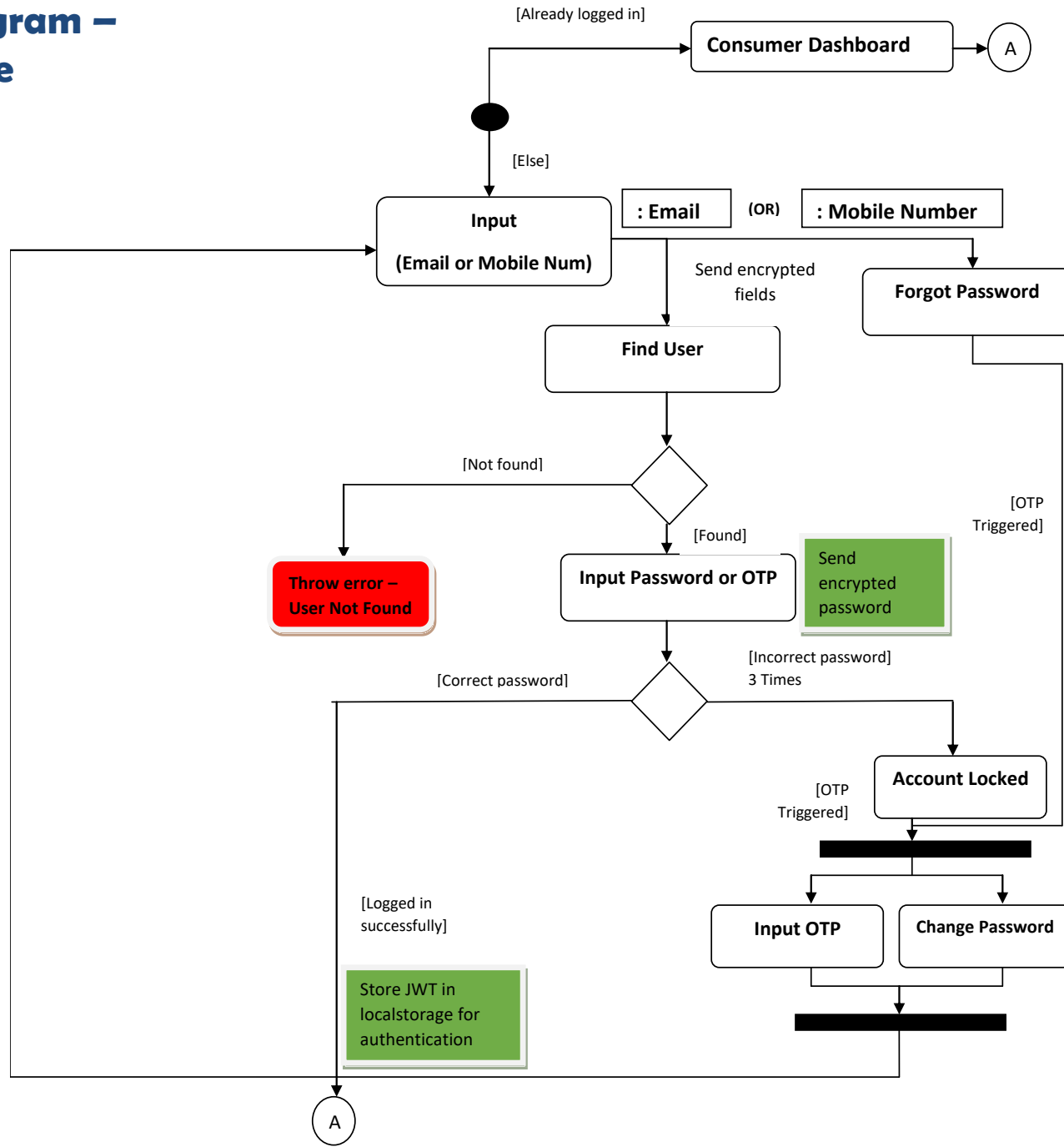
Module diagram



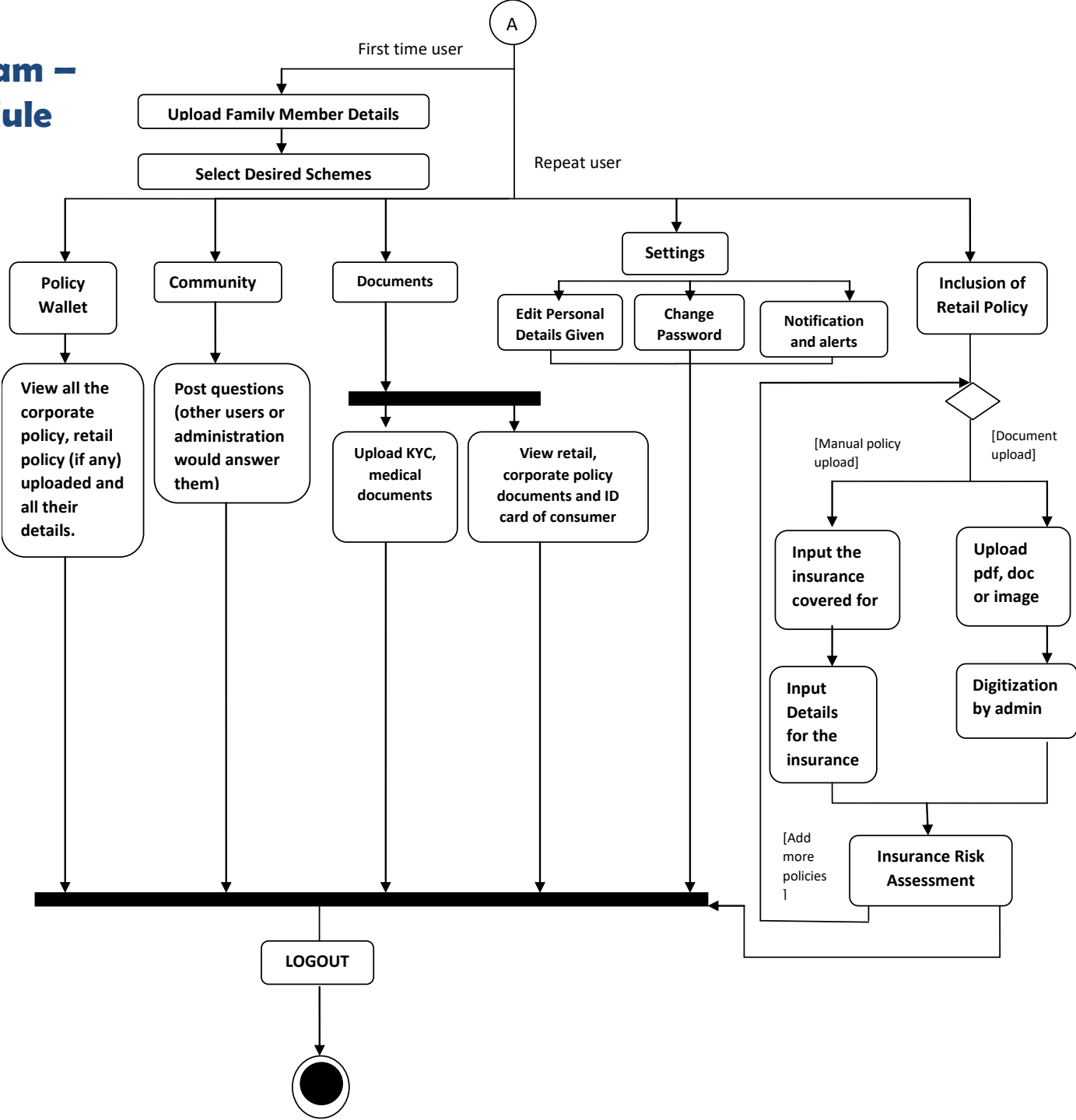


Behavioural design

Activity Diagram – Login Module

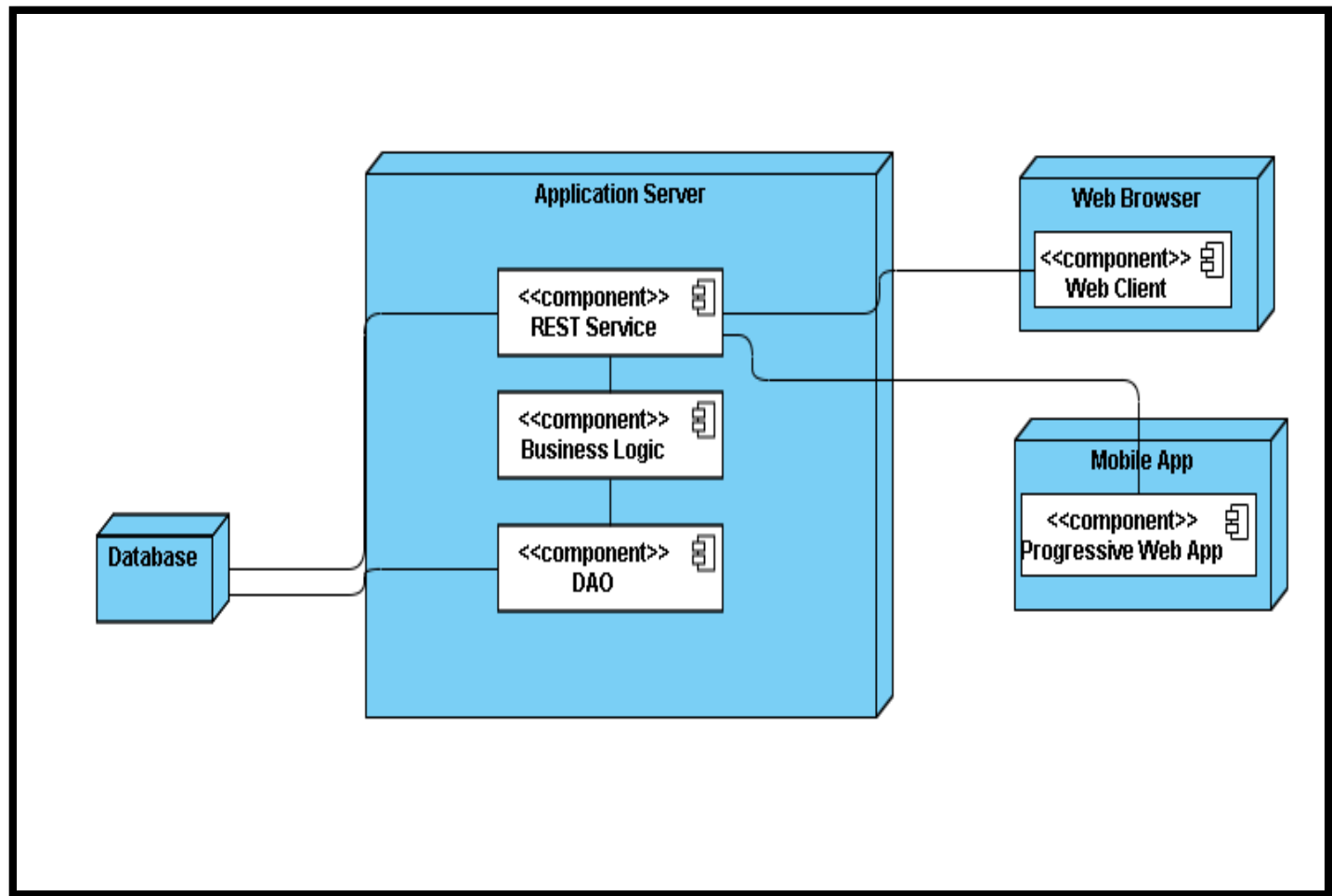


Activity Diagram – Consumer Module





Deployment design



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!