

REPORT

Project Name

Invoice and Billing Platform : AI for Developer Productivity

Team Name

Dev Dragons

Team Members

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Problem Statement

Porting an Invoice and Billing Platform for Government Universities from Ionic to React Native

GITHUB LINK

https://github.com/Aditya-giri03/SIH_INTERNAL_ROUND_1_DEV_DRAGONS

Prototype Implementation Video

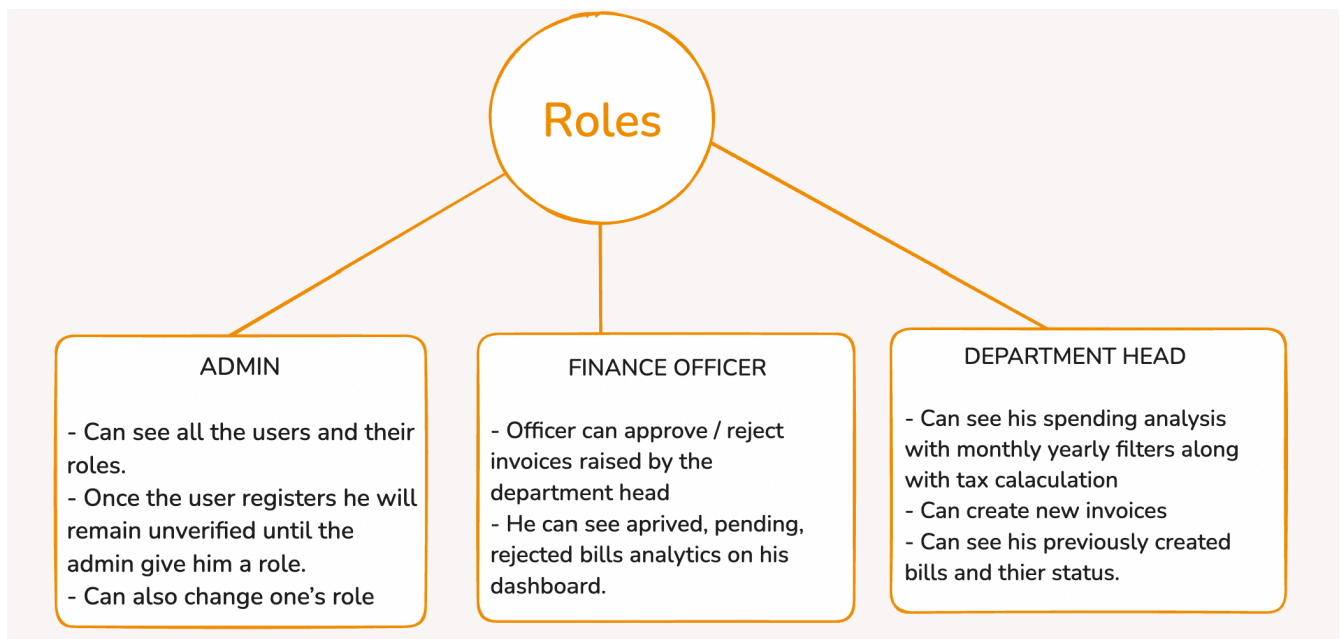
Prototype Video: <https://youtu.be/5sPn4VxfPmY>

TECH STACK USED

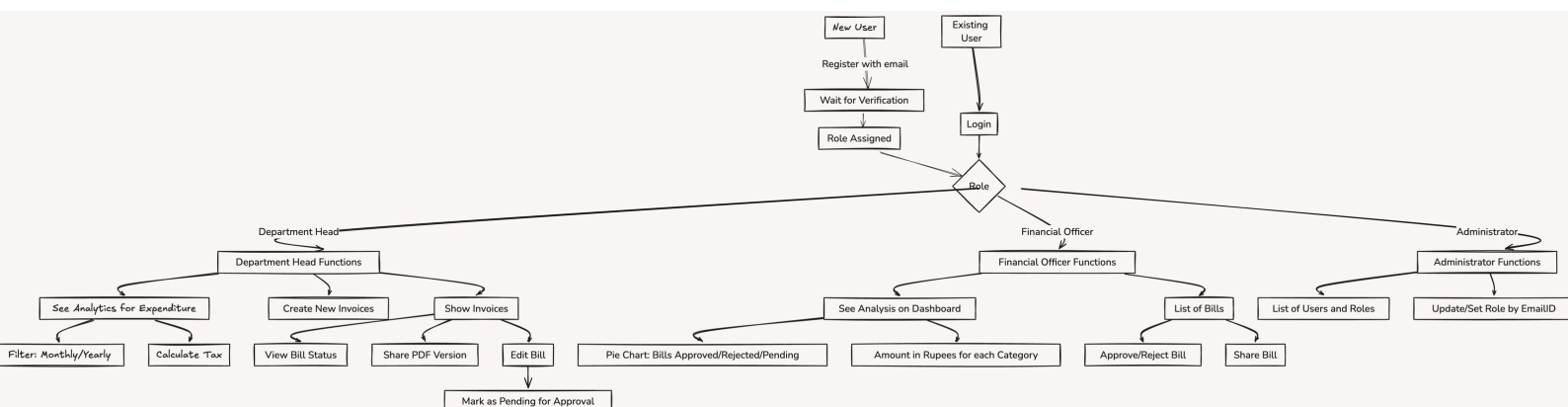
- **Front End:** React Native & Tailwind CSS
- **Back End:** Firebase

APP FUNCTIONALITIES

- **User Roles & Access Control:** Role-based access control system that allows users like administrators, finance officers, and department heads to perform specific tasks related to invoices and billing.

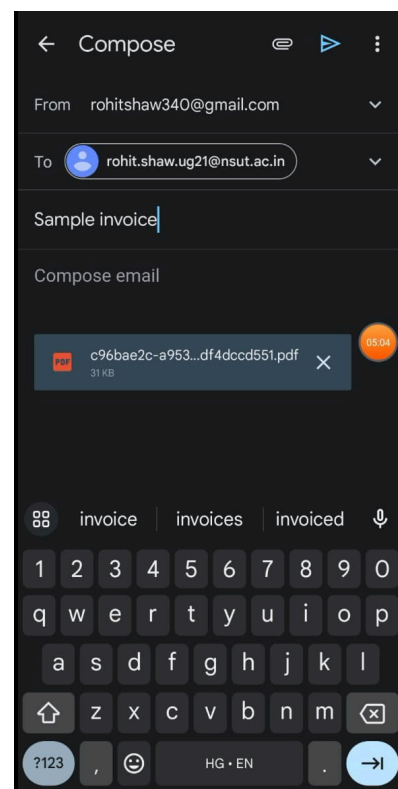
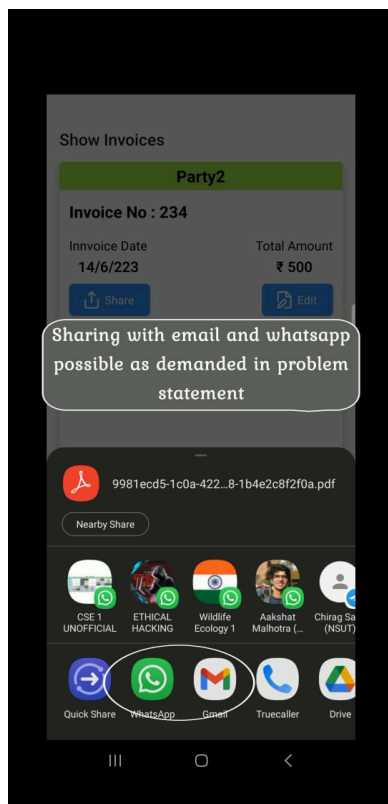


- **Approval Workflows:** Developed seamless workflow for each user role or a new customer.



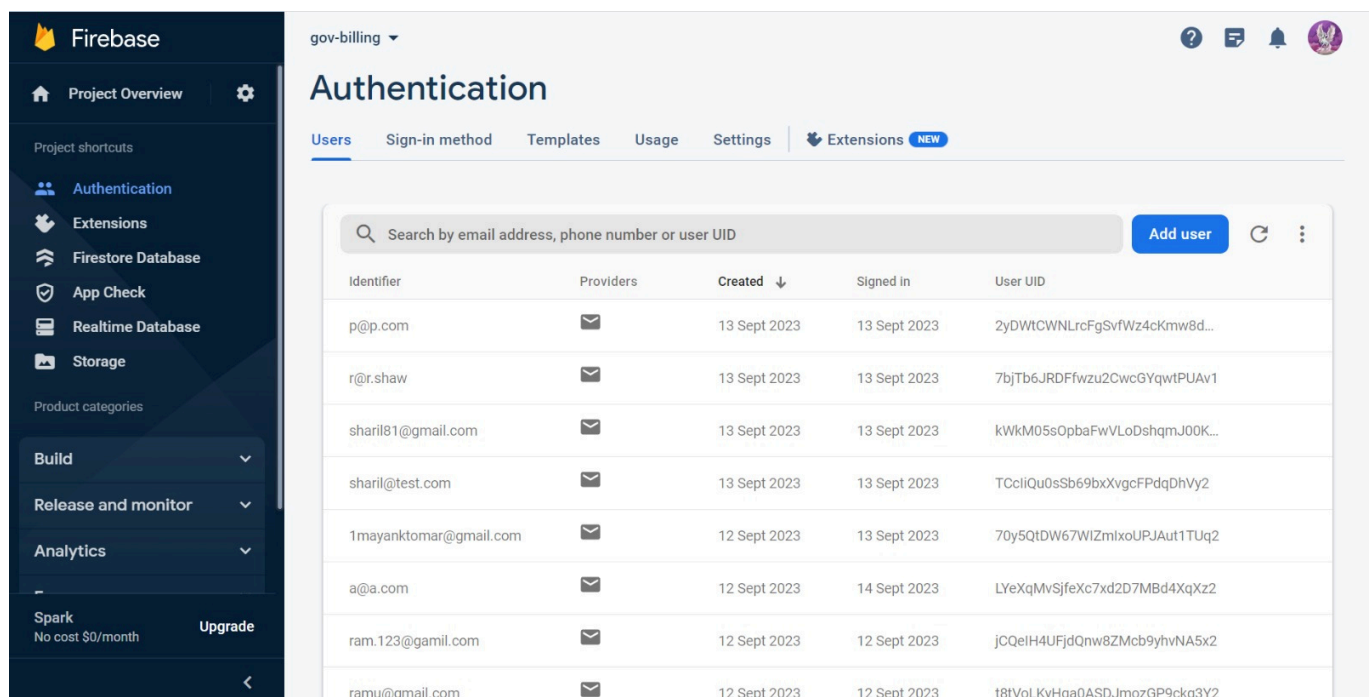
- **Reporting & Analytics:** All the user have analytics available on their dashboard.
 - The Admin can see the list of active users and their roles.
 - The Financial Officer can see a Pie chart of the number of invoices which are pending, approved or rejected along with their amount.
 - The Department head can see his expenditure with the help of monthly / yearly filters with a breakdown of tax and total costs.
- **Tax Compliance:** Support for tax calculation added for department head.
- **Responsive Mobile UI/UX:** Leveraged React Native's capabilities to provide a more responsive and intuitive user experience on both iOS and Android devices, with native-like performance and smoother animations.

User can share the invoices in form of email which full-fill second demand of our given problem statement.



- **Security Enhancements:** Implement security features by using data validation, secure user authentication with help of firebase.

This is User data and their invoice data are saved to cloud firebase. Using Firebase API , we fetch the invoice data of the user.



The screenshot shows the Firebase Authentication console for the project 'gov-billing'. The left sidebar contains the Firebase logo and navigation links for Project Overview, Authentication, Extensions, Firestore Database, App Check, Realtime Database, and Storage. The main content area is titled 'Authentication' and includes tabs for Users, Sign-in method, Templates, Usage, Settings, and Extensions. A search bar at the top of the Users tab allows searching by email address, phone number, or user UID. Below the search bar is a table listing users with columns for Identifier, Providers, Created, Signed in, and User UID. The table contains 10 rows of user data.

Identifier	Providers	Created ↓	Signed in	User UID
p@p.com	📧	13 Sept 2023	13 Sept 2023	2yDWtCWNLCrFgSvfWz4cKmw8d...
r@r.shaw	📧	13 Sept 2023	13 Sept 2023	7bjTb6JRDFfwzu2CwcGYqwtPUAv1
sharil81@gmail.com	📧	13 Sept 2023	13 Sept 2023	kWkM05sOpbaFwVLoDshqmJ00K...
sharil@test.com	📧	13 Sept 2023	13 Sept 2023	TCcliQu0sSb69bxXvgcFPdqDhVy2
1mayanktomar@gmail.com	📧	12 Sept 2023	13 Sept 2023	70y5QtDW67WIZmlxoUPJAut1TUq2
a@a.com	📧	12 Sept 2023	14 Sept 2023	LYeXqMvSjfeXc7xd2D7MBd4XqXz2
ram.123@gamil.com	📧	12 Sept 2023	12 Sept 2023	jCQeIH4UFjdQnw8ZMcb9yhvNA5x2
ramu@gmail.com	📧	12 Sept 2023	12 Sept 2023	t8tVoLKyHqa0ASDJmozGP9ckq3Y2

Fig : user data on cloud

<div> <div> <div>🏠</div> <div>> invoices > 4LagePrtsb001..</div> </div> <div>More in Google Cloud</div> </div>		
<div> <div>(default)</div> <div>+</div> <div>Start collection</div> </div> <div> <div>invoices</div> <div>></div> </div> <div> <div>user_roles</div> <div>users</div> </div>	<div> <div>invoices</div> <div>+</div> <div>Add document</div> </div> <div> <div>4LagePrtsb0011G8vP1g</div> <div>></div> </div> <div> <div>8iXQxRmS4rUu0D5KQoPB</div> <div>8wyJpGHCrkAvrL8BQTGh</div> <div>FL87zQp3uleBIzQduuEW</div> <div>JExttC9h3WmlyfKNDFrD</div> <div>JuWgRqHMoyn7wJGbJjmA</div> <div>KVEtcaiQdXqWD752wJb9</div> <div>NDRn12XcHKh79YkJxcHZ</div> <div>Qdk5K3e6D9arfYHvK3pF</div> <div>SQ1wkC1C0vSWUtE3avxV</div> <div>WrSyTgsx8Sp21HB2ZiX4</div> <div>ZfsiLoXBgrMUToyThjFP</div> <div>dfV3FekZV6Qkyr33cnvM</div> <div>djPTYwF0r2NceifdiId0</div> </div>	<div> <div>4LagePrtsb0011G8vP1g</div> <div>+</div> <div>Start collection</div> </div> <div> <div>+ Add field</div> <div>quantity: "4"</div> <div>from</div> <div>address: "Delhi"</div> <div>email: "rohan@gmail.com"</div> <div>name: "Rohan"</div> <div>phone: "4567345698"</div> <div>street: "234, xyz colony"</div> <div>zip: "110067"</div> <div>invoiceName: "Cricket"</div> <div>invoiceNumber: "145"</div> <div>owner: "tVvBfABWXNVZUc0QomnFY1kNcH22"</div> <div>status: "rejected"</div> </div>

```

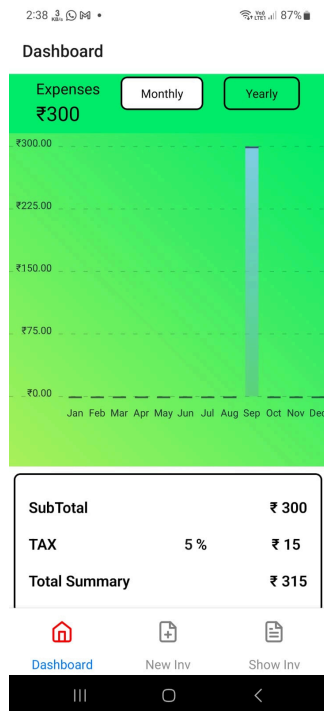
1 rules_version = '2';
2 service cloud.firestore {
3     match /databases/{database}/documents {
4         // Helper function to get user role
5         function getUserRole(userId) {
6             let userRole = get(/databases/{database}/documents/user_roles/{userId}).data.role;
7             return userRole != null ? userRole : 'none';
8         }
9
10        // Users collection
11        match /users/{userId} {
12            allow read, write: if getUserRole(request.auth.uid) == 'admin';
13            allow read: if request.auth.uid == userId;
14        }
15
16        // Invoices collection
17        match /invoices/{invoiceId} {
18            allow read, write: if getUserRole(request.auth.uid) == 'admin';
19            allow read: if getUserRole(request.auth.uid) == 'officer';
20            allow read, write: if getUserRole(request.auth.uid) == 'user' &&
21                               request.auth.uid != null &&
22                               resource != null &&
23                               resource.data != null &&
24                               resource.data.owner != null &&
25                               resource.data.owner == request.auth.uid;
26        }
27
28        // Invoice-status collection
29        match /invoice-status/{statusId} {
30            allow read, write: if getUserRole(request.auth.uid) == 'admin' ||
31                               getUserRole(request.auth.uid) == 'officer';
32        }
33    }
34 }

```

Screens

1. Department Head

- 3 Major screens



A) Dashboard Screen

This screen shows all the aggregate **expense** of user either **monthly** or **yearly** which user can choose and can also calculate how much **tax** he has to pay on his entire expenditure

The screenshot shows a mobile application interface for 'Create Invoice'. At the top, the status bar shows the time as 2:31 and battery at 88%. The app title is 'Create Invoice'. Below the title, there is a section for 'FROM :'. The details are as follows:

Name : Rohit
Address :
23/57, mb road
Tigri
110065
Phone : 363663
Email : rhff.sp.com

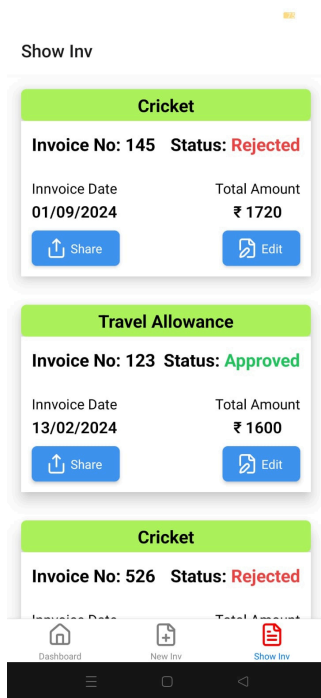
Below this is a section titled 'Description' which contains a table:

Item	Quantity	Amount	
Bat	1	200	X
Ball	2	50	X

At the bottom of the table, there is a 'Total' row showing ₹ 0. Below the table is a blue button labeled 'ADD'. At the bottom of the screen, there is a navigation bar with three icons: a house for 'Dashboard', a plus sign for 'New Inv', and a document for 'Show Inv'. The 'New Inv' icon is highlighted.

B) Create Invoice Screen

This screen provides us an user friendly user interface to fill all our invoice details and **create** new invoices.

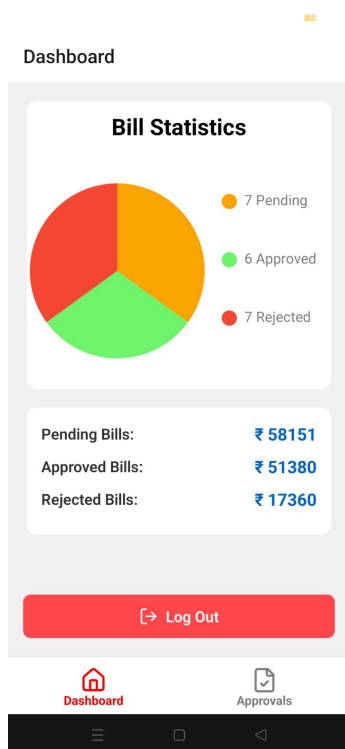


C) Invoices Screen

This screen shows all the invoices & their **status** generated by the user till date where he can view or **edit** any of his invoice and even can **share** them.

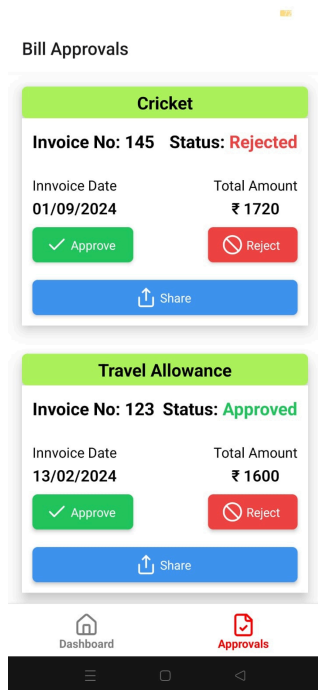
2. Financial Officer

- 2 Major screens



A) Dashboard Screen

This screen shows **analytics** for the bills like the number of bills pending for the officer to review and the amount of bills he has accepted/rejected

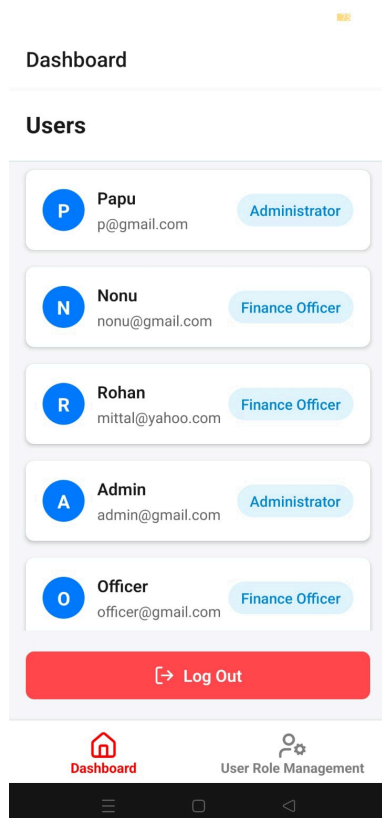


B) Bills Approval

Officer can see all the bills raised by the department heads in a user friendly & intuitive UI and decide to Approve/Reject them. He can even share them to some other authority if he/she wishes to consult them.

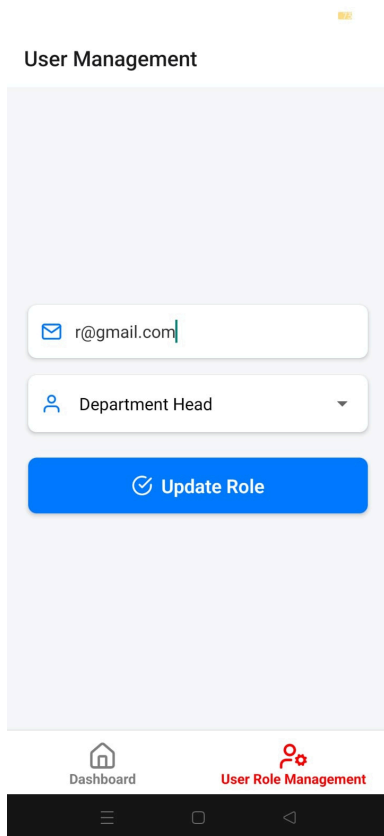
3. Administrator

- 2 Major screens



A) Dashboard Screen

This screen shows all the users and their role for the Admin for easy access and a quick look



B) User Role Management

Admin has the capability to set the role of a newly registered unverified user OR update role of existing user