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
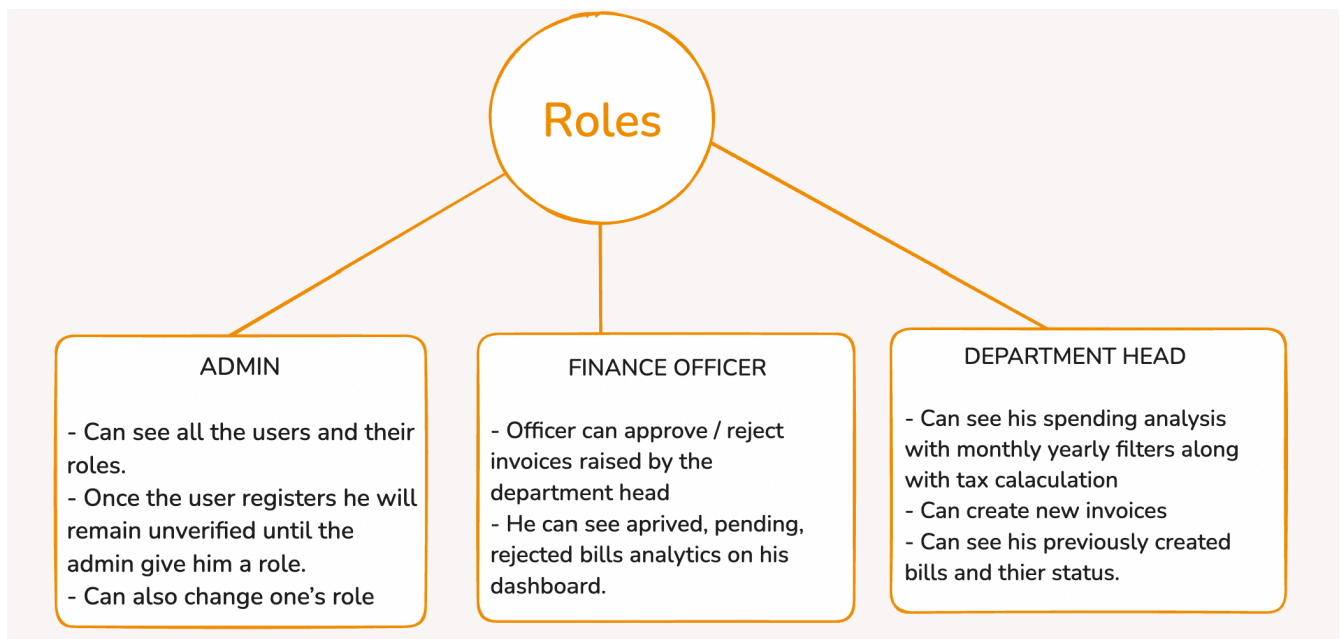
Prototype Implementation Video

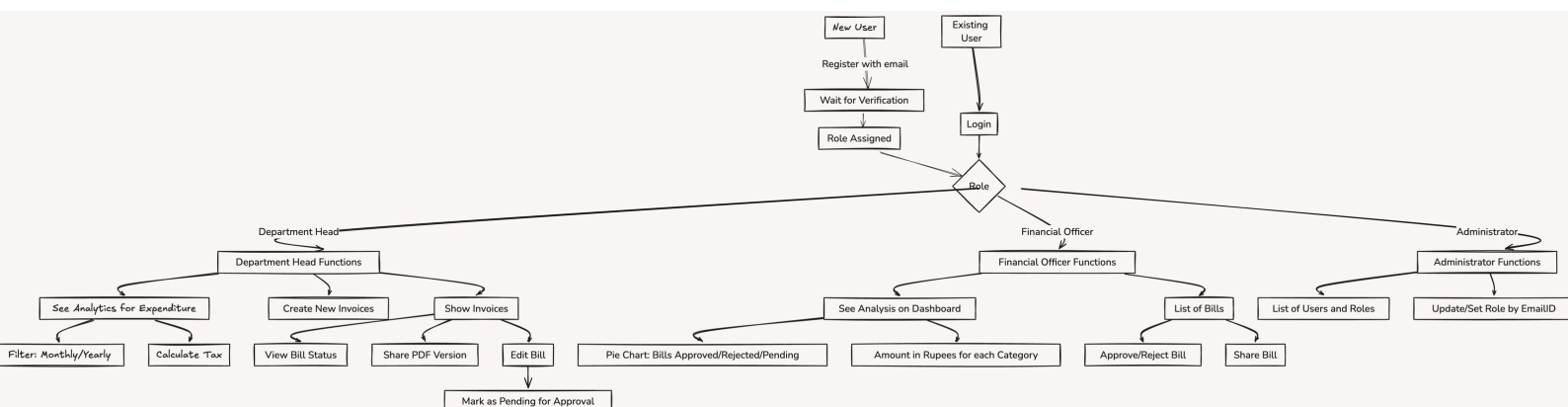Prototype Video: https://youtu.be/5sPn4VxfPmY

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.


Roles

ADMIN

- Can see all the users and their roles.
- Once the user registers he will remain unverified until the admin give him a role.
- Can also change one's role

FINANCE OFFICER

- Officer can approve / reject invoices raised by the department head
- He can see aprived, pending, rejected bills analytics on his dashboard.

DEPARTMENT HEAD

- Can see his spending analysis with monthly yearly filters along with tax calaculation
- Can create new invoices
- Can see his previously created bills and thier status.

- **Approval Workflows:** Developed seamless workflow for each user role or a new customer.
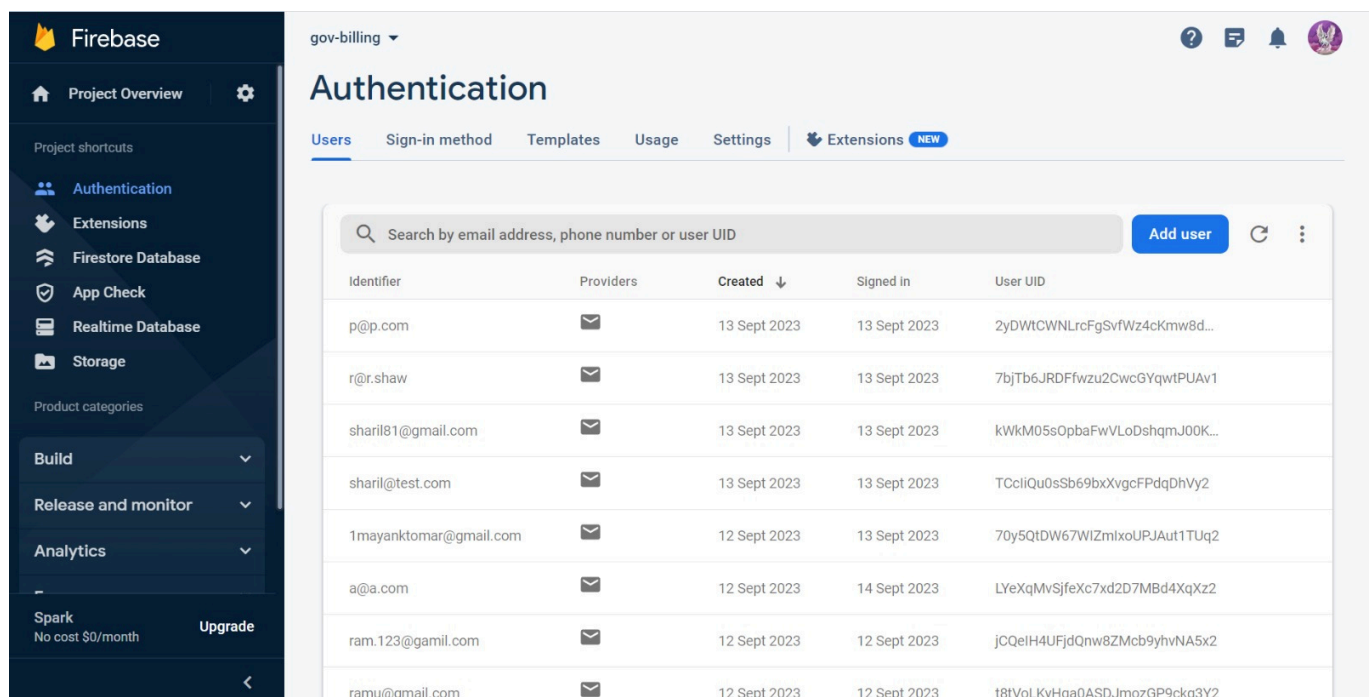
- **<u>Reporting & Analytics:</u>** All the user have analytics available on their dashboard.
  - The Admin can see the list of active users and their roles.
  - The Financial Officer can see a Pie chart of the number of invoices which are pending, approved or rejected along with their amount.
  - The Department head can see his expenditure with the help of monthly / yearly filters with a breakdown of tax and total costs.

- **<u>Tax Compliance:</u>** Support for tax calculation added for department head.

- **<u>Responsive Mobile UI/UX:</u>** 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.
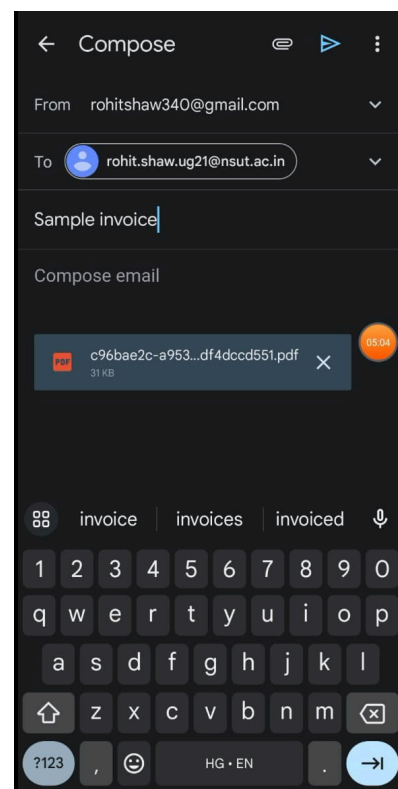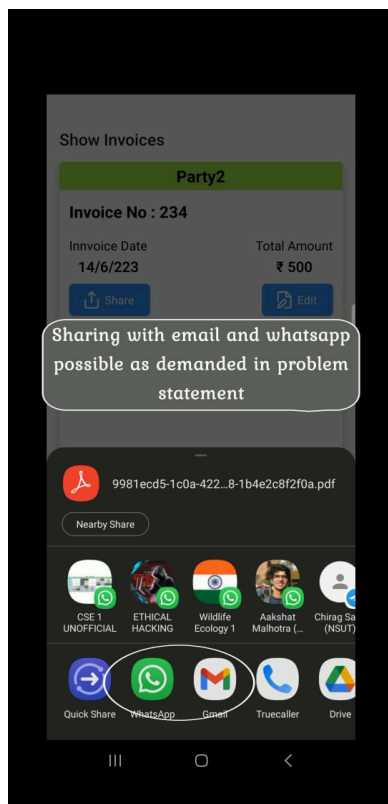
- **<u>Security Enhancements:</u>** Implement security features by using data validation, secure user authentication with help of firebase.

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

Fig : user data on cloud

Fig : invoice data on cloud

```
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   }
```

Fig : rule system for read/write according to user role

1. Department Head

- **3 Major screens**
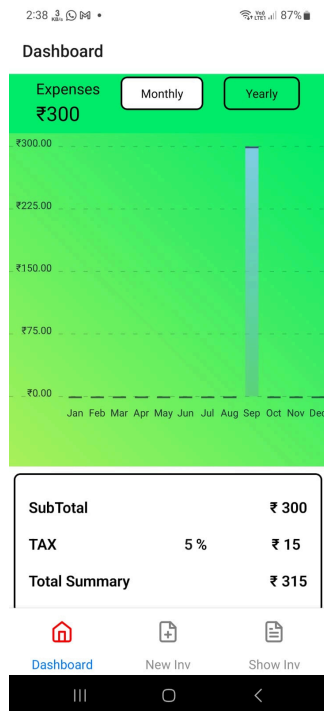
A) Dashboard Screen

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

B) Create Invoice Screen

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

Show Inv

Cricket

Invoice No: 145 Status: **Rejected**

Innvoice Date
01/09/2024

Total Amount
₹ 1720

⬆ Share   📝 Edit

Travel Allowance

Invoice No: 123 Status: **Approved**

Innvoice Date
13/02/2024

Total Amount
₹ 1600

⬆ Share   📝 Edit

Cricket

Invoice No: 526 Status: **Rejected**

🏠   📄   📄
Dashboard   New Inv   Show Inv
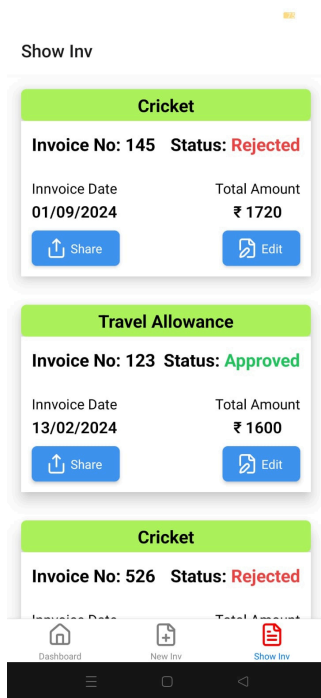
C) Invoices Screen

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**

Dashboard

Bill Statistics

🟠 7 Pending

🟢 6 Approved

🔴 7 Rejected

Pending Bills: ₹ 58151

Approved Bills: ₹ 51380

Rejected Bills: ₹ 17360

[→ Log Out

🏠   📄
Dashboard   Approvals
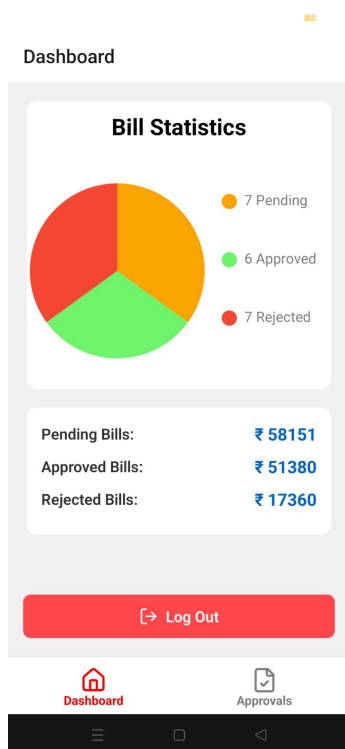
A) Dashboard Screen

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

Bill Approvals

Cricket

Invoice No: 145   Status: **Rejected**

Innvoice Date
01/09/2024

Total Amount
₹ 1720

✓ Approve   🚫 Reject

⬆ Share
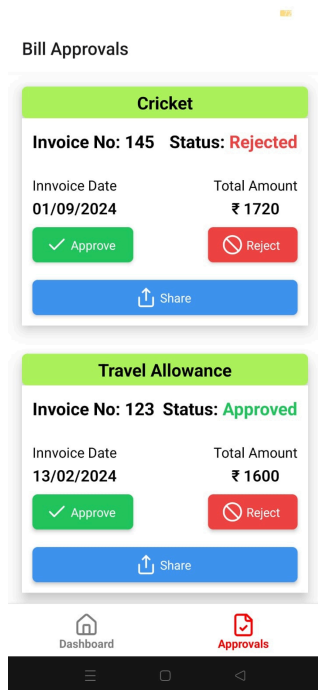
Travel Allowance

Invoice No: 123   Status: **Approved**

Innvoice Date
13/02/2024

Total Amount
₹ 1600

✓ Approve   🚫 Reject

⬆ Share
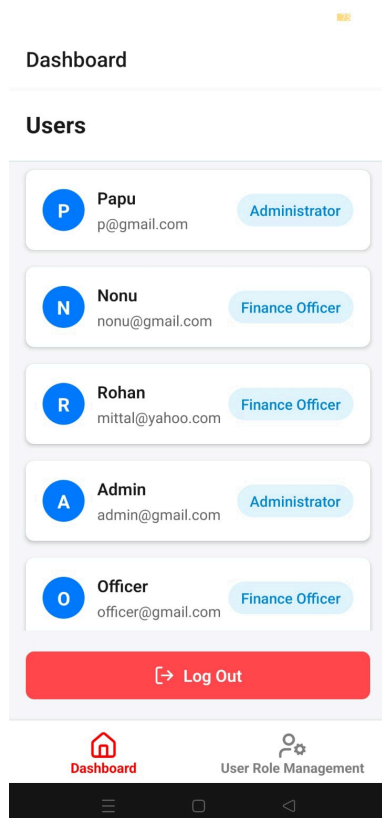
🏠 Dashboard   📄 Approvals

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**

Dashboard

Users

P **Papu**
p@gmail.com   Administrator

N **Nonu**
nonu@gmail.com   Finance Officer

R **Rohan**
mittal@yahoo.com   Finance Officer

A **Admin**
admin@gmail.com   Administrator

O **Officer**
officer@gmail.com   Finance Officer

[→ **Log Out**]

🏠 Dashboard   👥⚙ User Role Management

A) Dashboard Screen

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

r@gmail.com

Department Head

⊘ Update Role

Dashboard

User Role Management
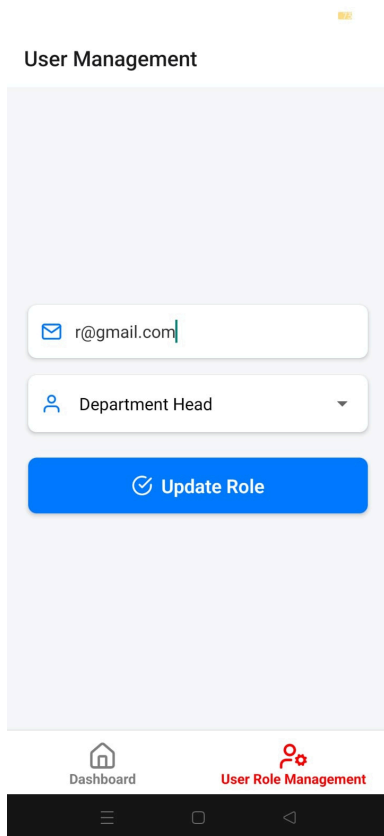
B) User Role Management

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