NDI: TAP Technical Assessment Report
Solution Proposal
SG Events

SG
EVENTS

By:
Koh Jun Kai

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Product Description

1. Problem Statement

The events space in Singapore presents numerous opportunities for leveraging the national identity features of SingPass. Three primary issues are identified:

Complex Registration and Verification Processes
Certain events such as marathons and competitions often require intricate data input such as Emergency Contacts, Medical Information and Insurance details, which is very tiresome and requires great manpower for verification.

Accessibility to Government Subsidies
Accessing government-subsidized events is not centralized, making it difficult for target audiences to benefit from subsidies seamlessly. A consolidated platform is needed to provide a one-stop avenue for visibility into and accessibility to various government initiatives and subsidies.

Lack of a Unified Platform for Event Information
There is a need for a centralized platform where individuals can easily access comprehensive event information, including registration details and event eligibility for a diverse range of events, from marathons to cultural exhibitions.

The scope will explain some key use cases, and how they are relevant and useful.

2. Scope of Proposed Solution

1. **Streamlined registration and verification for National and Community level events.**
    a. Marathons / Sporting Events
        i. Outside of basic personal information, these events often require additional information such as Emergency Contacts, Medical Information, Insurance. This information can be quickly prefilled with participant information.
        ii. National Level Event sign ups such as purchasing of NDP/Chingay Parade Tickets. As these are events that are catered for Singaporeans, ticket registration information can be directly linked to NDI and the KYC process can be greatly enhanced with this app.
    b. Nation-wide Open Tournaments, Hackathons, Competitions
        i. Any kind of national-level tournament that requires need eligibility and verification
        ii. Using Singpass helps with any kind of seamless registration and verification process
    c. Job-related Events. Job Fairs, Employment Events, Conventions, Talks and Networking Events.
        i. Companies might prefer a national profile, having access to singpass/work permit registration could be very useful for employers.
2. **One-stop avenue** for government subsidies and initiatives.
    a. Eg. sparkconnections.sg / SG Rediscovers / SkillsFuture / SAFRA Vouchers / NSMen Vouchers /GST Vouchers.
    b. It can also be a useful tool for Targeted Subsidies.
    c. Promote participation of Culturally Significant events such as Plays, Symphonies and Orchestras, Local Comedy, Museums and Exhibitions
    d. Workshop and Talks / Skills upgrading

        i. These initiatives could be targeted at a certain demographic or general. The online platform will filter for you the events that you are eligible for

    e. Senior Citizen Support
        i. Given our ageing population, this is a demographic that requires more government support
        ii. Government can more easily push for senior citizen engagement and initiatives if all they need is to login to singpass and register.
        iii. Helps elderly feel more involved in the community, and build digital confidence (through using this app)
    f. Healthy Living Support
        i. Event participation can be linked to a subsidy scheme that encourages healthy living such as the HPB Credits (ties in nicely with the consolidated credit system of the whole app)
    g. Good opportunities for the private sector to collaborate with government initiatives.

3. **Platform for Private Sector to promote and facilitate events**
    a. Ease of registration
        i. Big events might feel that it easier to handle registration and verification with singpass workflow
        ii. However, the major weakness of this point is that this only works for citizens. The company will still need to provide alternative registration and verification for non-singaporeans, which might be more complex than just doing it themselves.
        iii. This workflow might only benefit them on a case by case basis, such as if the expected citizen turnout is much higher.
    b. Platform for eyeballs and marketing
        i. If the platform has widespread adoption, companies might want their events displayed on the website even if they don't benefit from singpass KYC.

        ii. Possible source of government revenue, through collaboration with private sector to promote their event on our platform

4. Supporting quality of life features
    a. Portal to view all ticket information
    b. Event Calendar to keep track of registered events
    c. Event Calendar to keep track of available events

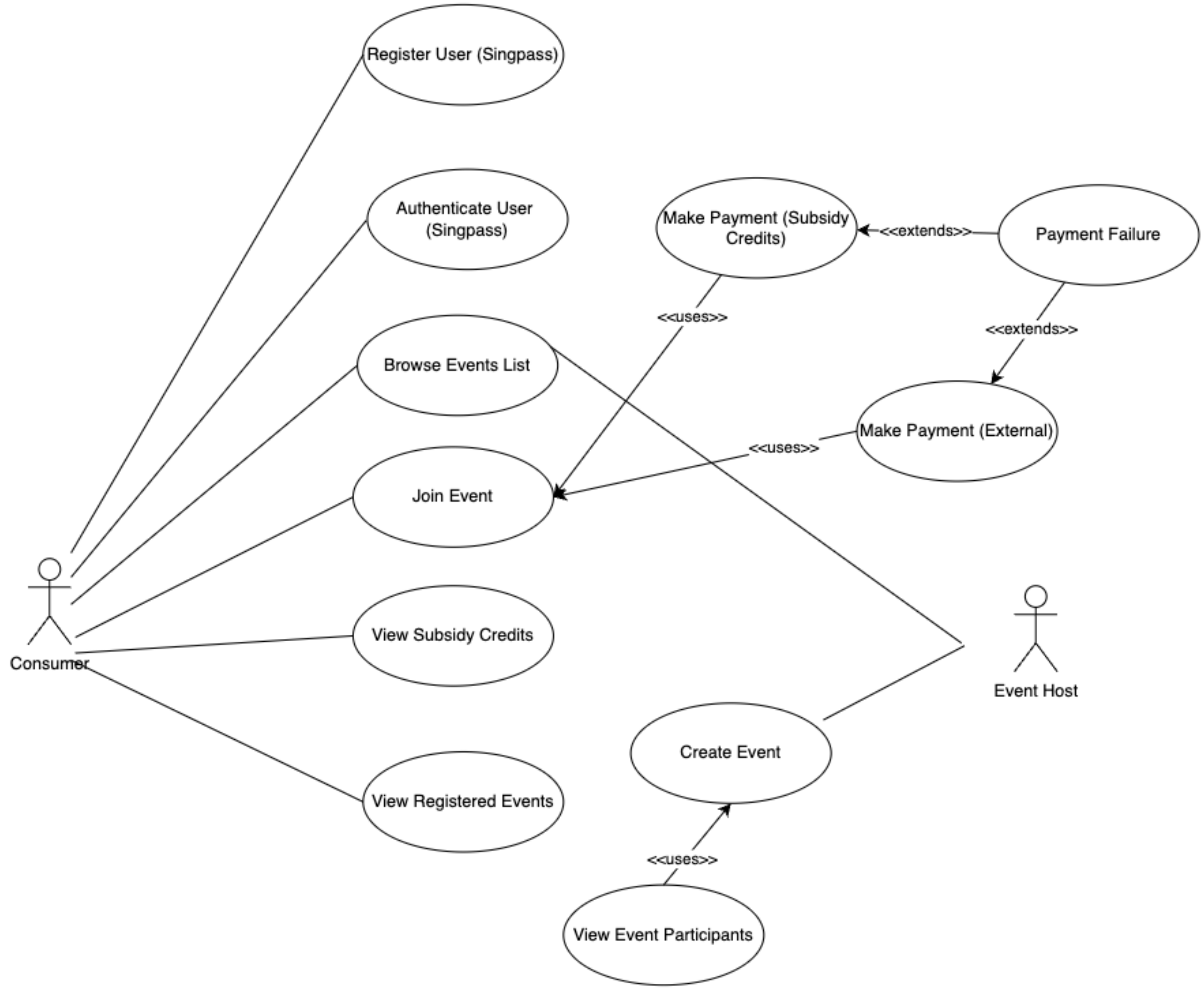
3. Users and Stakeholders

The users are Singaporean Singpass/Corppass holders who are looking to participate in events

Event organisers who would like to integrate registration and verification into the event.

The Government may also use the platform to promote certain lifestyles and distribute subsidies to the community.

Use Case Diagram



Frontend Documentation

Website URL: https://react-frontend-production-9531.up.railway.app/

Vite + React + Caddy

This is a Vite + React project that uses Caddy.

How to use

Install required dependencies with npm install
Start the server for local development npm run dev

Using Caddy when deploying to Railway

Caddy is a powerful, enterprise-ready, open source web server, and therefore Caddy is far better suited to serve websites than Vite is, using Caddy will result in much less memory and cpu usage compared to serving with Vite (much lower running costs too)

Tailwind

- Tailwind defines css classes for you, so that you can additively write css directly into your jsx code
- This kind of structure is preferred as you do not need to spend time managing, naming, css classes
- The workflow is much faster as well as you can design and implement pages directly on the jsx
- Using predefined tailwind colours allow us to have consistent colour schemes, text sizes, etc...

Flowbite Tailwind Components

- Flowbite components are essentially template javascript+tailwind components that you can copy paste into your website
- As imported component libraries are often opiniated and hinder flexbility and adaptability in projects
- Using Flowbite, you have the benefits of flexibility and at the same time the ease of using pre-built components, best of both worlds!
- Bonus benefit of the ability to learn how to build encapsulated and reusable components as time goes on!

Backend Documentation

Backend URL: https://expressjs-mongoose-production-30d5.up.railway.app/

Available endpoints:

POST /register {“username”: “tom”, “password”:”asdf”}

POST /auth {“username”: “tom”, “password”:”asdf”}

// refreshToken in cookie

GET /refresh

// deletes refreshToken from db

GET /logout

// require accessToken

GET /api/user {"username": "tom"}

POST /api/user {"username": "tom"}

DELETE /api/user {"username": "tom"}

ExpressJS Mongoose

ExpressJS server that connects to a Railway MongoDB database using MongooseJS

Deployed on Railway

How to use

Install dependencies yarn

Connect to your Railway project railway link

Start the development server railway run yarn dev

Reasons for choosing Mongoose

- Mongoose ORM provides a structured way to model entities and maintain consistency and organization in our data.

DB Documentation

Reasons for choosing MongoDB

- NoSQL database is chosen to offer flexibility in storing semi-structured data, given the diverse data types we might encounter in an event management application

MongoDB is designed to scale horizontally, meaning that we can easily distribute data across multiple servers as we scale. Aligning well with increased usage of the application

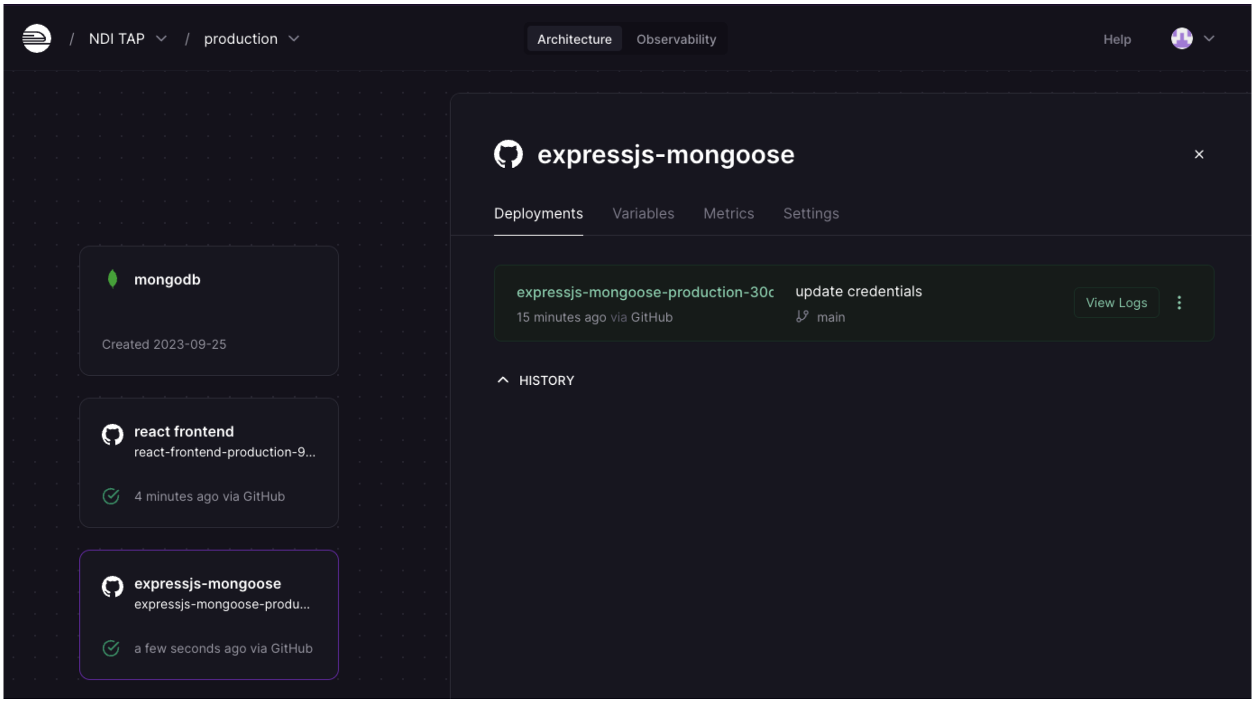
```
const RegisteredEventSchema = new Schema({
  id: {
    type: String,
    required: true,
  },
  name: {
    type: String,
    require: true,
  },
  date: {
    type: Date,
    require: true,
  },
});

const SettingsSchema = new Schema({
  email: {
    type: String,
    require: true,
  },
  isNotificationOn: {
    type: Boolean,
    require: true,
  },
});
```

```
const UserSchema = new Schema({
  username: {
    type: String,
    unique: true,
    required: true,
  },
  password: {
    type: String,
    required: true,
  },
  acessToken:{
    type: String,
    required: false,
  },
  refreshToken:{
    type: String,
    required: false,
  },
  registeredEvents: {
    type: [RegisteredEventSchema],
    default: [],
  },
  settings: {
    type: SettingsSchema,
    default: {email: "", isNotificationOn: false},
  }
});
```

Deployment and DevOps Documentation

Reasons for deploying with Railway

- Simplified deployment process and integration with Github
- Managed Database hosting
- Environment management, easily store database and configuration settings securely whilst sharing with different deployments on the same project
- Automated CI/CD deployment with Github repositry
- Analytics tools to monitor traffic and performance
- Since all website, api server and db deployments are managed on Railway, it is easy to monitor and configure seamlessly


/ NDI TAP
/ production
Architecture
Observability
Help
mongodb
Created 2023-09-25
react frontend
react-frontend-production-9...
4 minutes ago via GitHub
expressjs-mongoose
expressjs-mongoose-produ...
a few seconds ago via GitHub
expressjs-mongoose
×
Deployments
Variables
Metrics
Settings
expressjs-mongoose-production-30c
15 minutes ago via GitHub
update credentials
main
View Logs
HISTORY