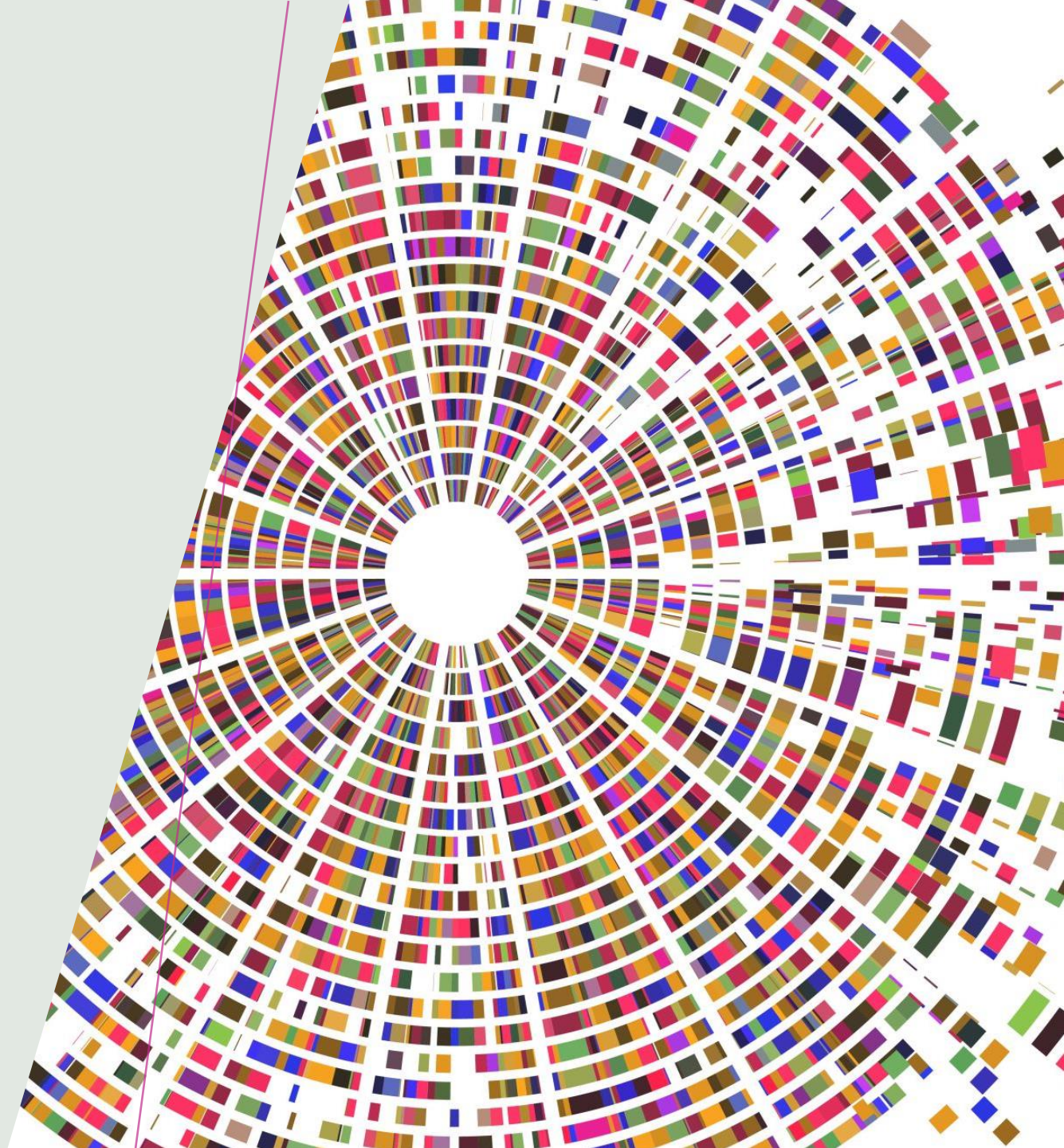


SOFTWARE REQUIREMENTS SPECIFICATION

ETIMELY

MATT KORTE, CALEB OBI, CHRIS GUMIENY,
& SAMIA CHOWDHURY

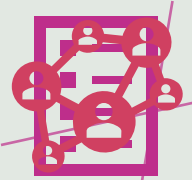




INTRODUCTION

DEFINITIONS

Term	Definition
Availability	The specified times and days of the week an employee is willing to be scheduled.
Business	A company that has a sign up for the use of eTimely.
Employee	A singular person who works at the business who is using eTimely.
Organization	A business account and all associated staff accounts.
Staff	All employees of a business.
User	Any person using the application, generally someone using a business or staff account.



PURPOSE AND SCOPE

Purpose

Outline of what eTimely is (and *is not*)
Guide development team

Scope

Give businesses and their staff the tools to create
schedules that work for everyone
Improve communication within organization by creating
a space that can be accessed by all members

PRODUCT PERSPECTIVE

Both Users

- Dashboard
- Schedule Page
- Announcements
- Messages
- Settings

Business User

- Create schedule
- Make announcements
- Approvals

Staff User

- Enter availability
- View personal schedule
- Request days off

USER CHARACTERISTICS

Business

- Ownership and/or management
- Wants to improve shift planning and communication
- Decides to use eTimely

Staff

- Average employee of business
- Uses eTimely in conjunction with business

ASSUMPTIONS AND CONSTRAINTS

Assumptions

- Firestore

Constraints

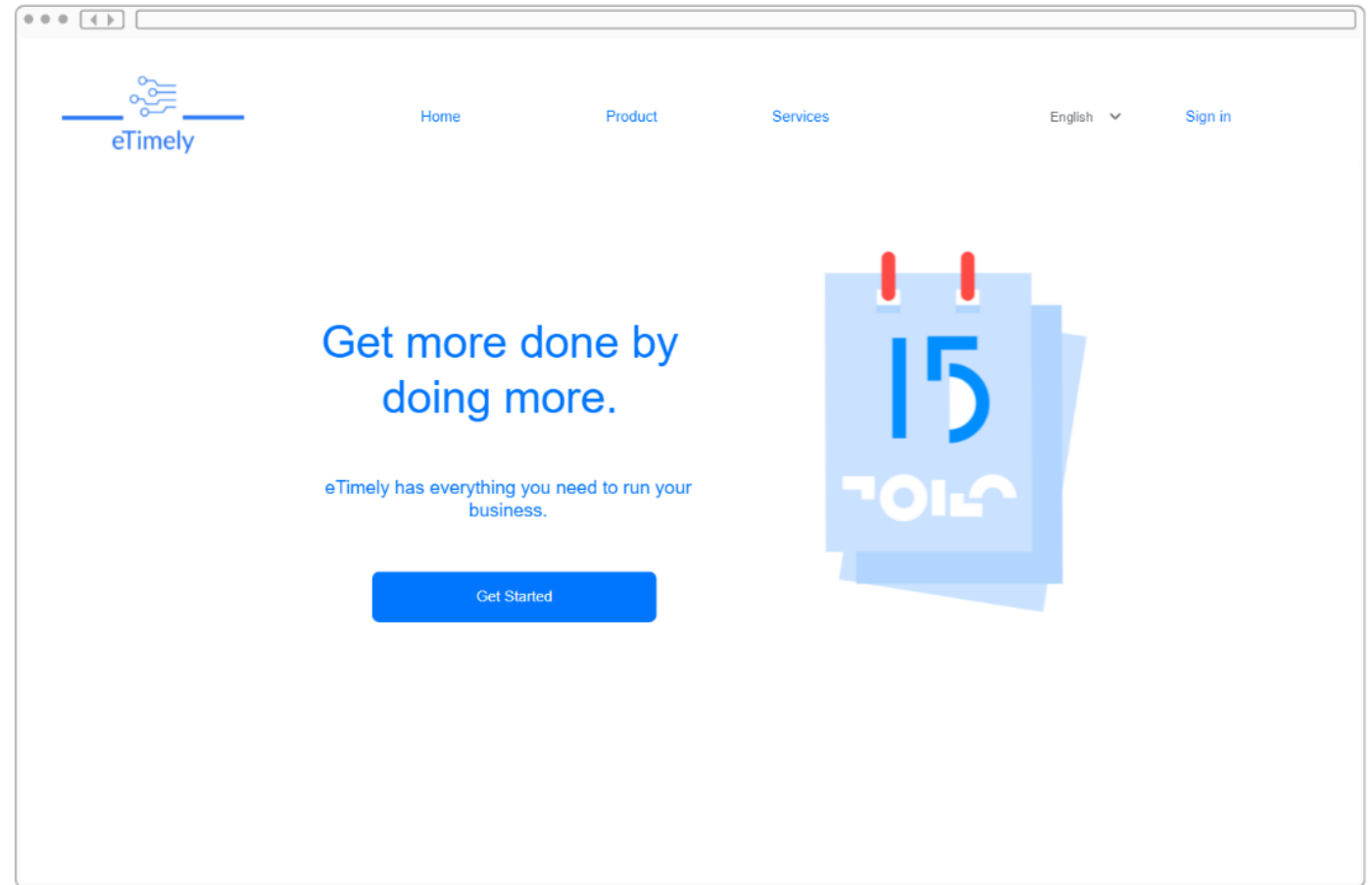
- Time
- Team size
- Funding



SPECIFIC REQUIREMENTS & USER INTERFACES

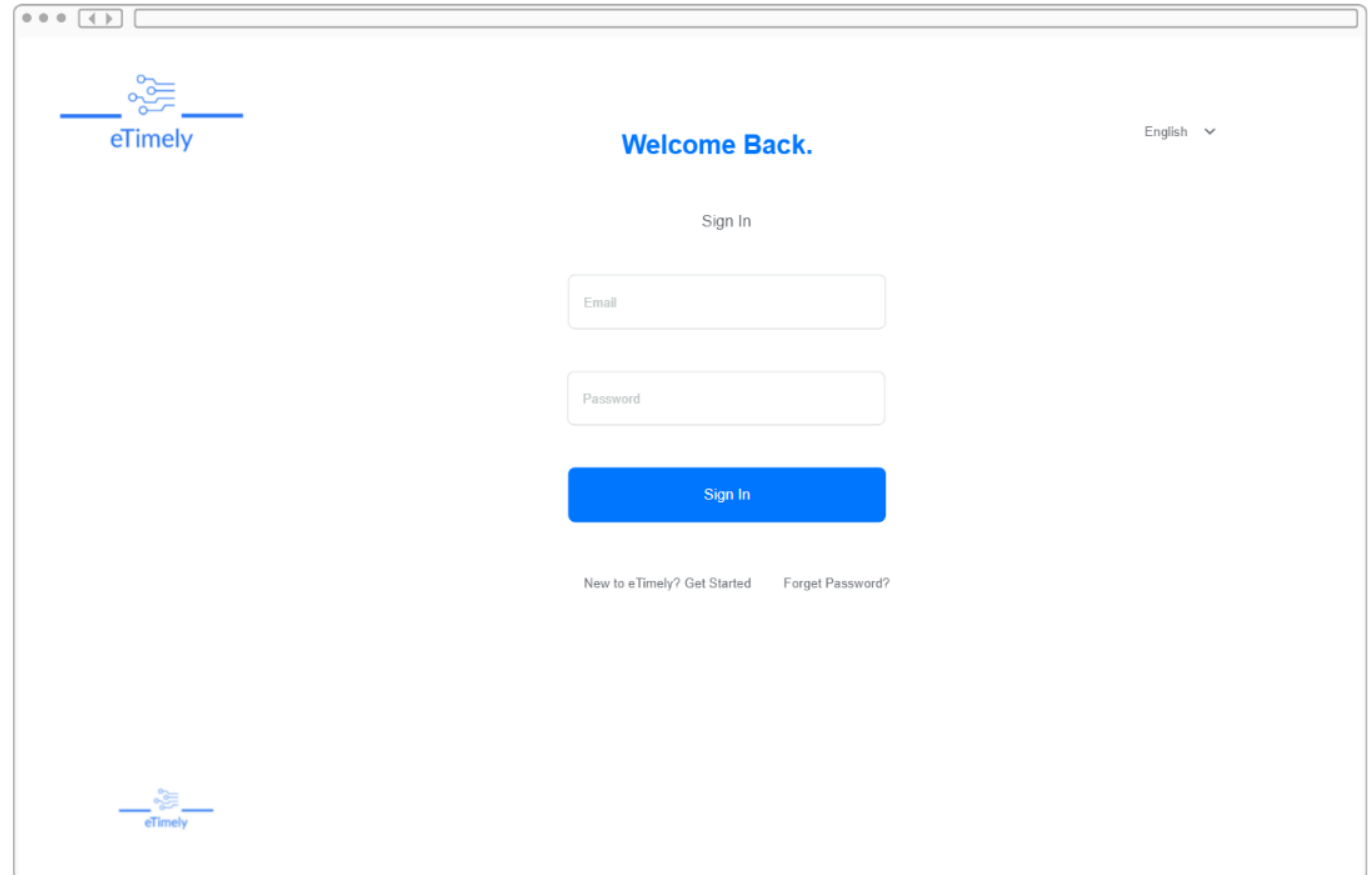
DEFAULT VIEW

- FR3.2.1: Landing Page
- FR3.2.2: About Us Page
- FR3.2.3: Contact Us Window



ACCOUNT CREATION

- FR3.2.4: Business User Account Registration
- FR3.2.5: Staff User Account Registration
- FR3.2.6: User Login
- FR3.2.7: Password Reset
- FR3.2.8: Email Account Confirmation Link
- FR3.2.9: Credential Validation on Sign Up
- FR3.2.10: Password Complexity
- FR3.2.11: Business Invites for Staff

A screenshot of a web browser displaying the eTimely login page. The page has a white background with a blue eTimely logo in the top left corner. In the top right corner, there is a language selector showing 'English' with a dropdown arrow. The main heading is 'Welcome Back.' in blue. Below it is a 'Sign In' link. There are two input fields: 'Email' and 'Password'. A blue 'Sign In' button is positioned below the password field. At the bottom, there are two links: 'New to eTimely? Get Started' and 'Forgot Password?'. The eTimely logo is also present in the bottom left corner of the page content area.

eTimely

Welcome Back.

English ▼

Sign In

Email

Password

Sign In

New to eTimely? Get Started Forgot Password?

eTimely

FR3.2.5: STAFF USER ACCOUNT REGISTRATION

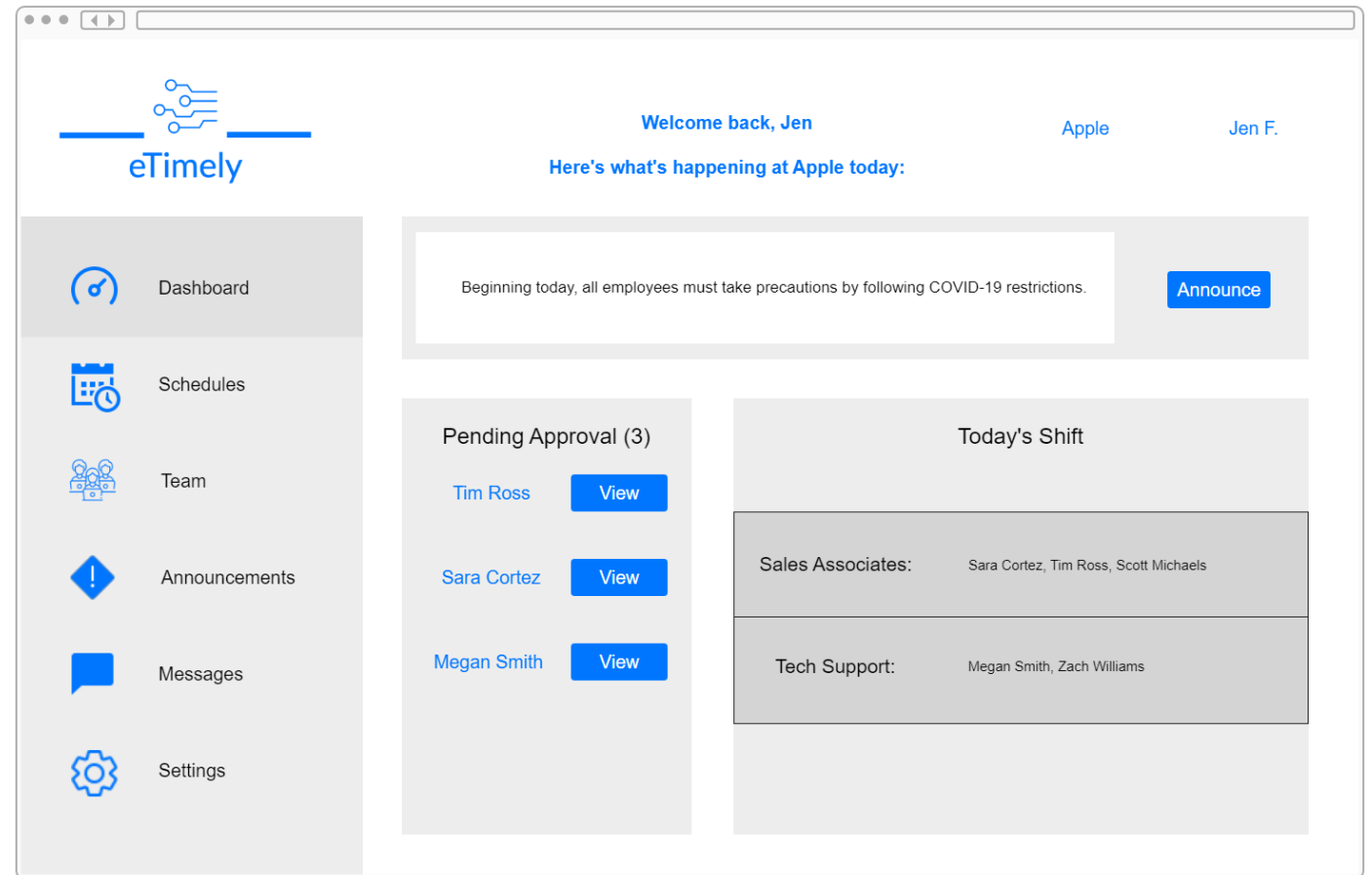
The screenshot shows a web browser window with the eTimely logo in the top left corner. The page title is "Sign up to eTimely" with the subtitle "Create a staff account". On the right, there is a language dropdown menu set to "English". The form contains four input fields: "Email*", "Mobile Number*", "Password*", and "Confirm Password*". Below these fields is a link that says "By signing up you agree to the Terms of Service". A prominent blue button labeled "Create Account" is centered below the form. At the bottom, there is a link that says "Already have an account? Sign In".

Staff Registration

ID: FR3.2.5	Title: Staff User Account Registration	
Description: A user will be able to create a staff account by entering the staff member's first name, last name, email address, and password. This page will be accessed from an invite link generated from a business account. Once the staff account is registered, the user will have to verify the registered email before they can log in.		
Inputs: Staff member's first and last name, email, and password.		Outputs: If the registration is successful, the user will be shown a "success" message and will be taken to the staff dashboard. If the registration is not successful, the user will be shown an error message.
Processing: The staff member's first name, last name, email address and password will be saved in a database. This data will be able to be viewed by the business account on the staff roster management page as well as by the corresponding staff user in the staff account settings.		
Error Handling: If the user is attempting to register with invalid credentials, or credentials already associated with an existing account, an error message will be shown, and the user will be unable to create an account with that information.		
Priority: High	Dependencies: FR3.2.4: Business User Account Registration, FR3.2.8: Email Account Confirmation Link, FR3.2.9: Credential Validation on Sign Up, FR3.2.10: Password Complexity, FR3.2.11: Business Invites for Staff, FR3.2.16: Staff Account Settings	

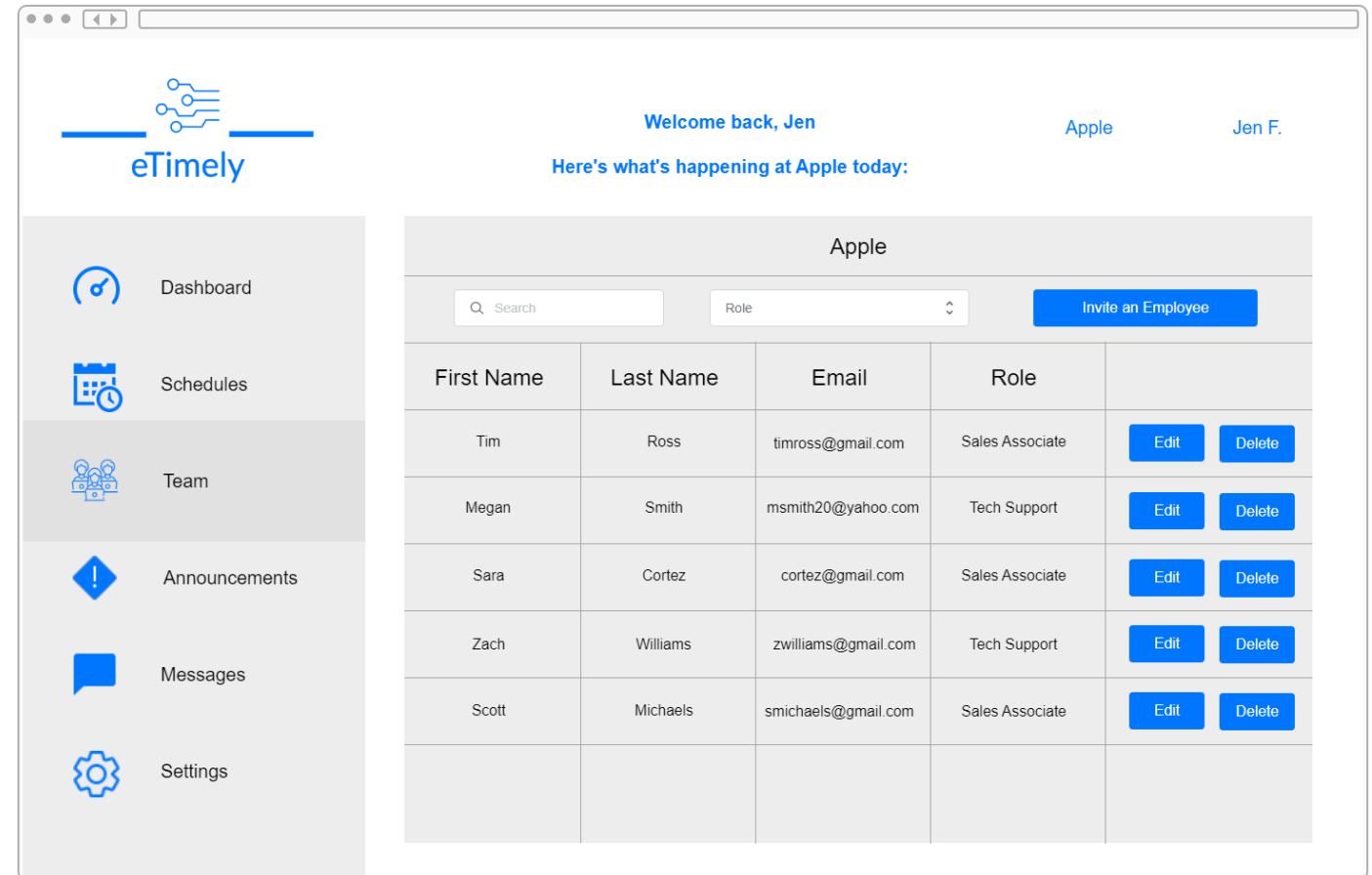
SHARED USER VIEW

- FR3.2.12: Navigation Menu
- FR3.2.13: Business Dashboard
- FR3.2.14: Staff Dashboard
- FR3.2.15: Business Account Settings
- FR3.2.16: Staff Account Settings
- FR3.2.18: Announcement Board
- FR3.2.26: Message Board

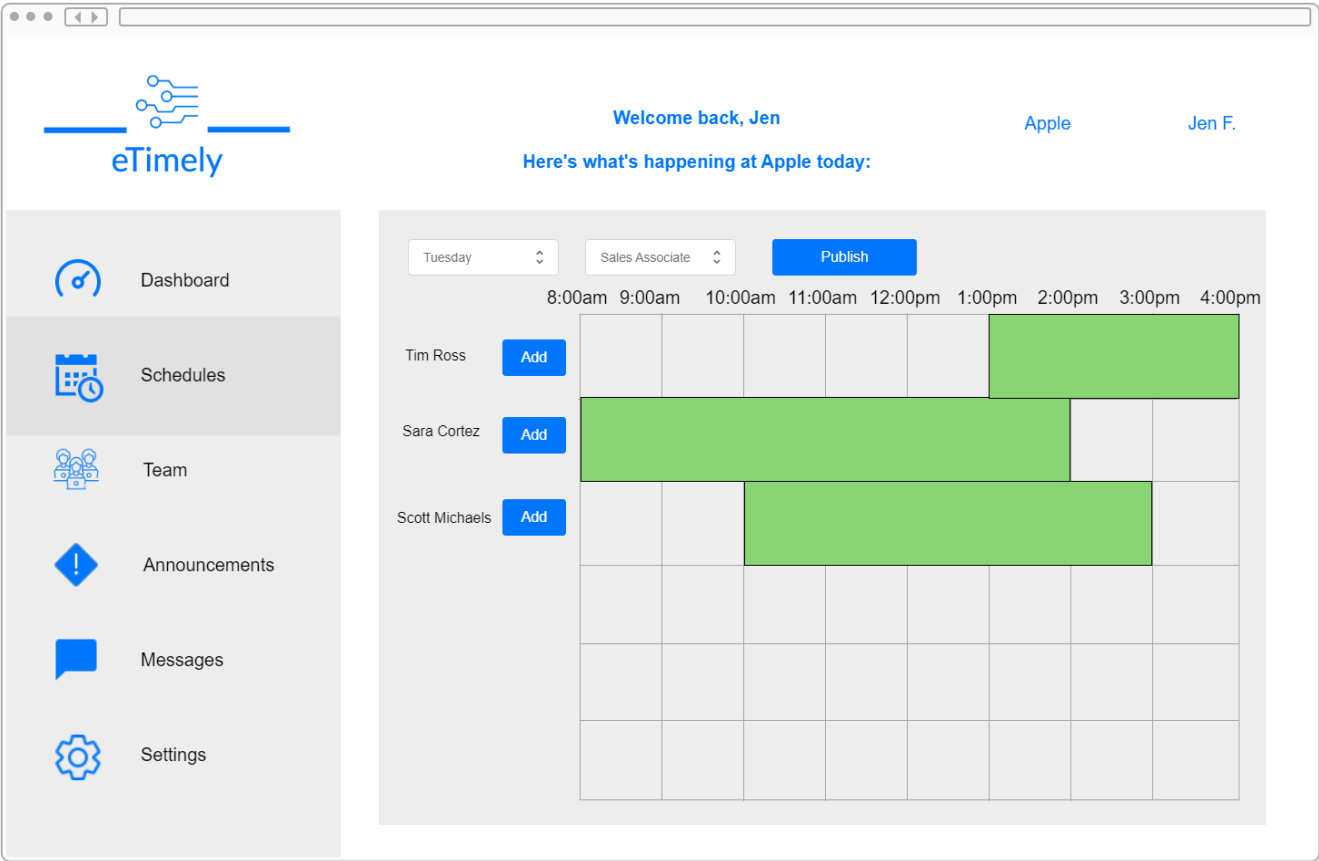


BUSINESS USER VIEW

- FR3.2.17: Staff Roster Management
- FR3.2.19: Role Assignment
- FR3.2.20: Business Approval
- FR3.2.21: Schedule Creation
- FR3.2.22: Show Employee Availability



FR3.2.21:
SCHEDULE
CREATION

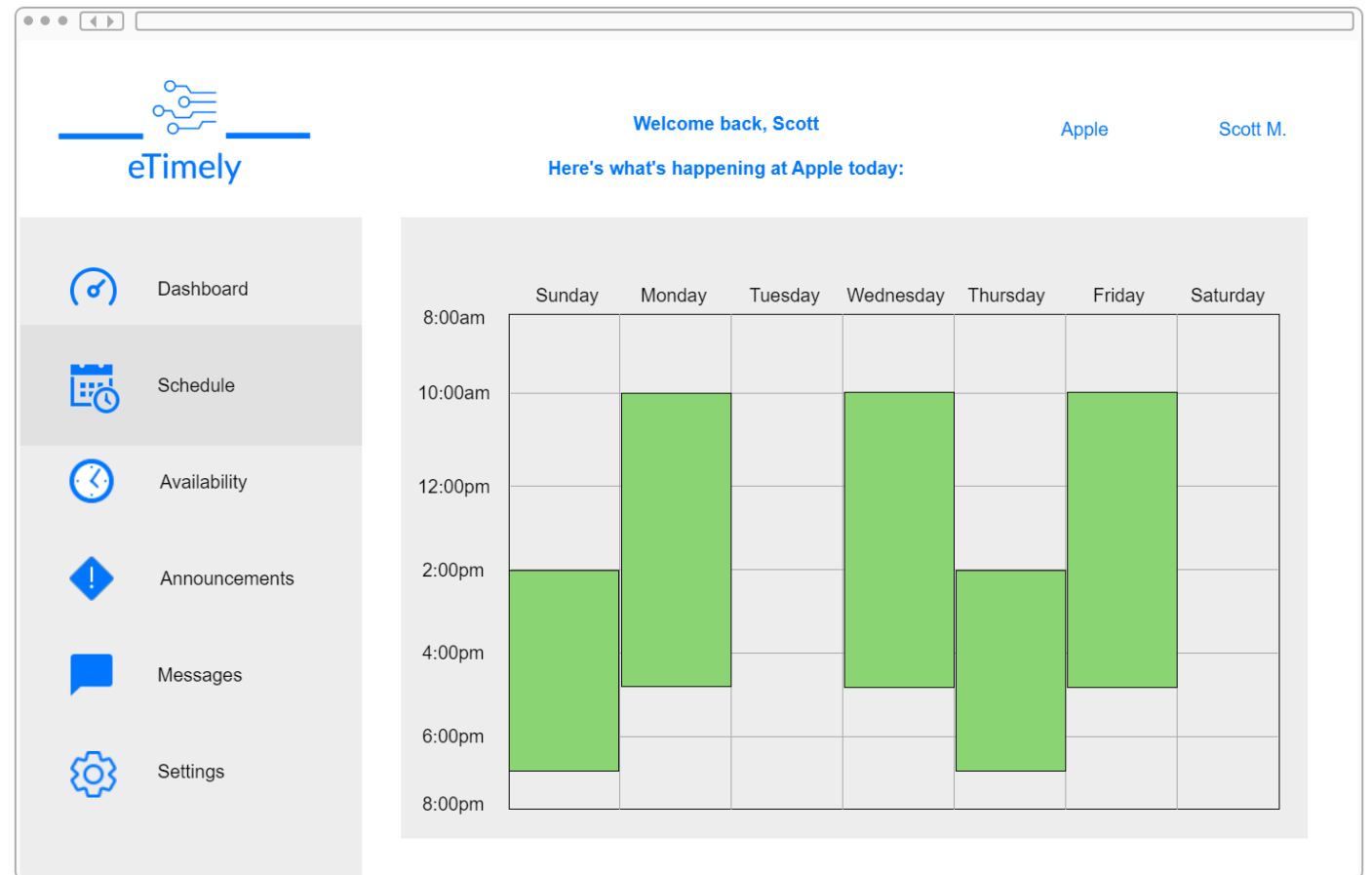


Schedule Creation Page

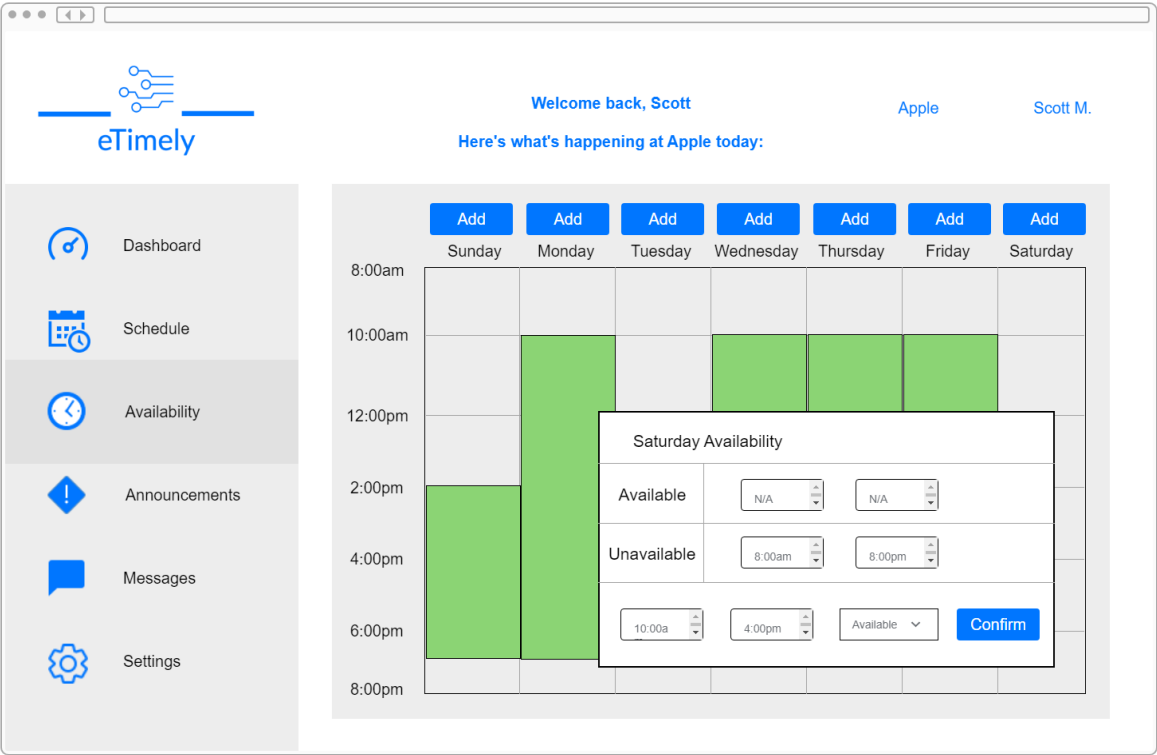
ID: FR3.2.21	Title: Schedule Creation
Description: The business user will be able to create a schedule for the employees that can then be viewed by the entire organization. A schedule will be made for each day separately, and employees will be able to be filtered by role. The business user will be able to add a shift for each employee based on their availability. When the schedule is complete, the business user will click the “Publish” button in order to send the schedule to all employees.	
Inputs: Employee shifts to be added to the new schedule	Outputs: Newly published schedule
Processing: Stored data containing employee availabilities will be used to allow the business user to create a schedule for all employees. The created schedule will also be stored and sent out to all employees that are included in the schedule.	
Error Handling: If the business user attempts to schedule an employee for a timeslot that the employee is not available for, there will be an error message and the business user will not be able to add that shift to the employee and must select a time where the employee is available.	
Priority: High	Dependencies: FR3.2.4: Business User Account Registration, FR3.2.6: User Login, FR3.2.12 Navigation Menu, FR3.2.19: Role Assignment, FR3.2.22: Show Employee Availability, FR3.2.24: Staff Availability Input, FR3.2.25: Staff Requests for Days Off

STAFF USER VIEW

- FR3.2.23: View Schedule
- FR3.2.24: Staff Availability Input
- FR3.2.25: Request Days Off

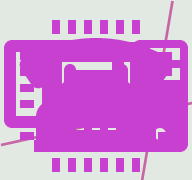


FR3.2.24: STAFF AVAILABILITY INPUT



Staff Availability Input

ID: FR3.2.24	Title: Staff Availability Input
Description: Staff users will be able to add and update the times that they are available to work by each day of the week. Any times that the staff user does not designate as “available” will be listed as unavailable by default. In order to list a time as available, the staff user must select a start time and an end time for the block of time they are available on that day.	
Inputs: Available work times	Outputs: Visual representation of available time
Processing: The times that a staff member designates as “available” will be stored and will be made available for the business account to view and use for schedule creation.	
Error Handling: If a staff user attempts to input a time block that is invalid, then the user will be given an error message and will not be able to submit the new availability until a valid time block is entered.	
Priority: High	Dependencies: FR3.2.5: Staff User Account Registration, FR3.2.6: User Login, FR3.2.12: Navigation Menu, FR3.2.21: Schedule Creation, FR3.2.22: Show Employee Availability



EXTERNAL INTERFACES

Hardware

The eTimely web application will rely on any computer or mobile device in order to access the web application through a browser.

Software

eTimely's user interface will be built with React and JavaScript, and our server-side interactions will be built with NodeJS and ExpressJS.

For our database we will use firebase firestore to store all our application data.

Communication

The eTimely web application will use Rest API's to communicate with the backend servers.

JWT (JSON Web Tokens) will also be used to authorize and validate users in this application.

NON-FUNCTIONAL REQUIREMENTS

Performance

- Restful API's requests performance

Reliability

- Database error handling

Availability

- Website maintenance time
- Website availability

Security

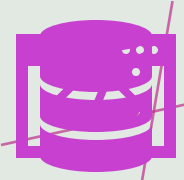
- Encrypt passwords

Maintainability

- Application Extensibility

Portability

- Website Responsiveness



DESIGN CONSTRAINTS

Deployment Constraints

Rest API needs deployment

Database Constraints

Firestore can store only 1 GB of data

Firestore can handle only 50,000 read requests per day

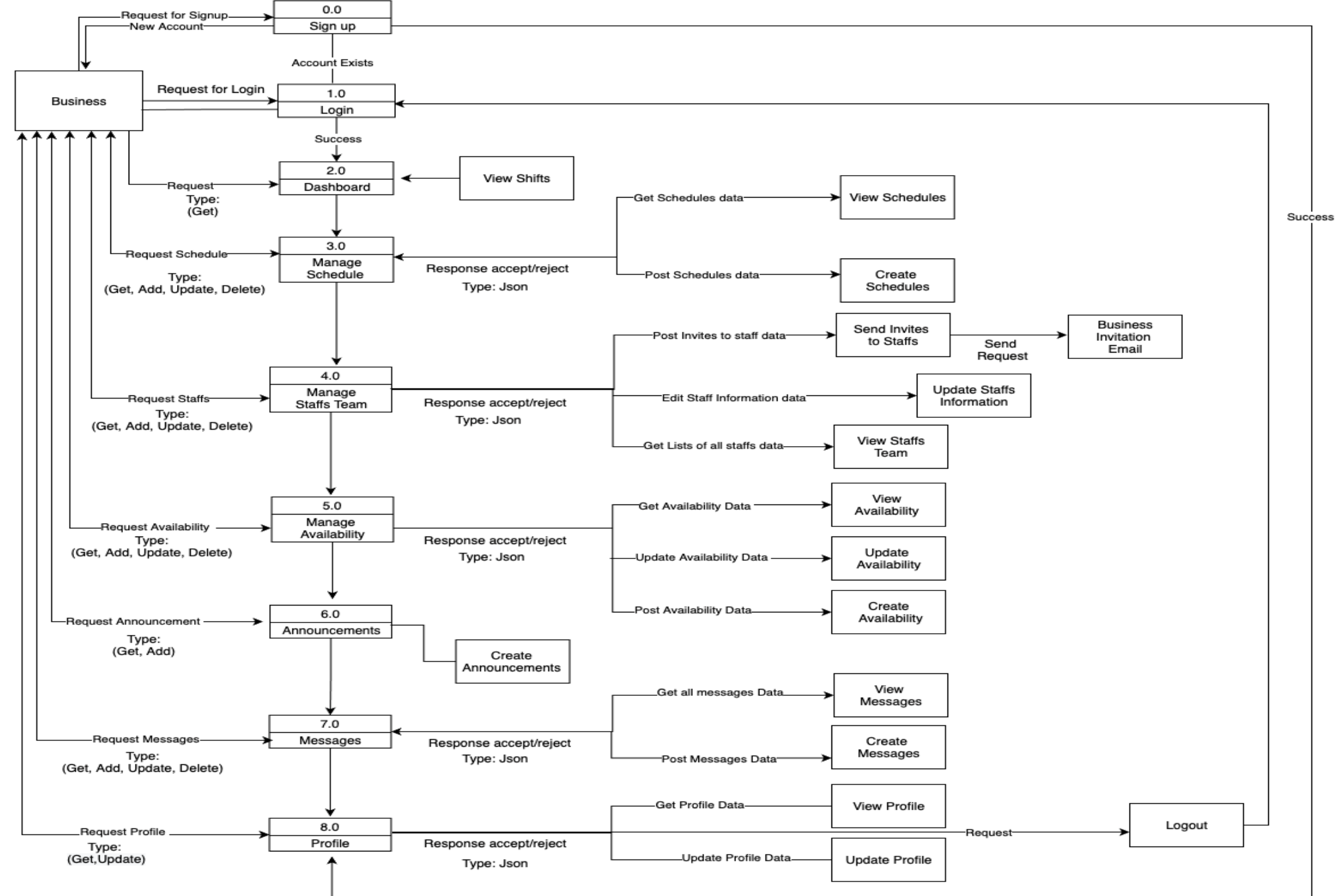
Firestore can handle only 20,000 write requests per day

Firestore can handle only 20,000 delete requests per day

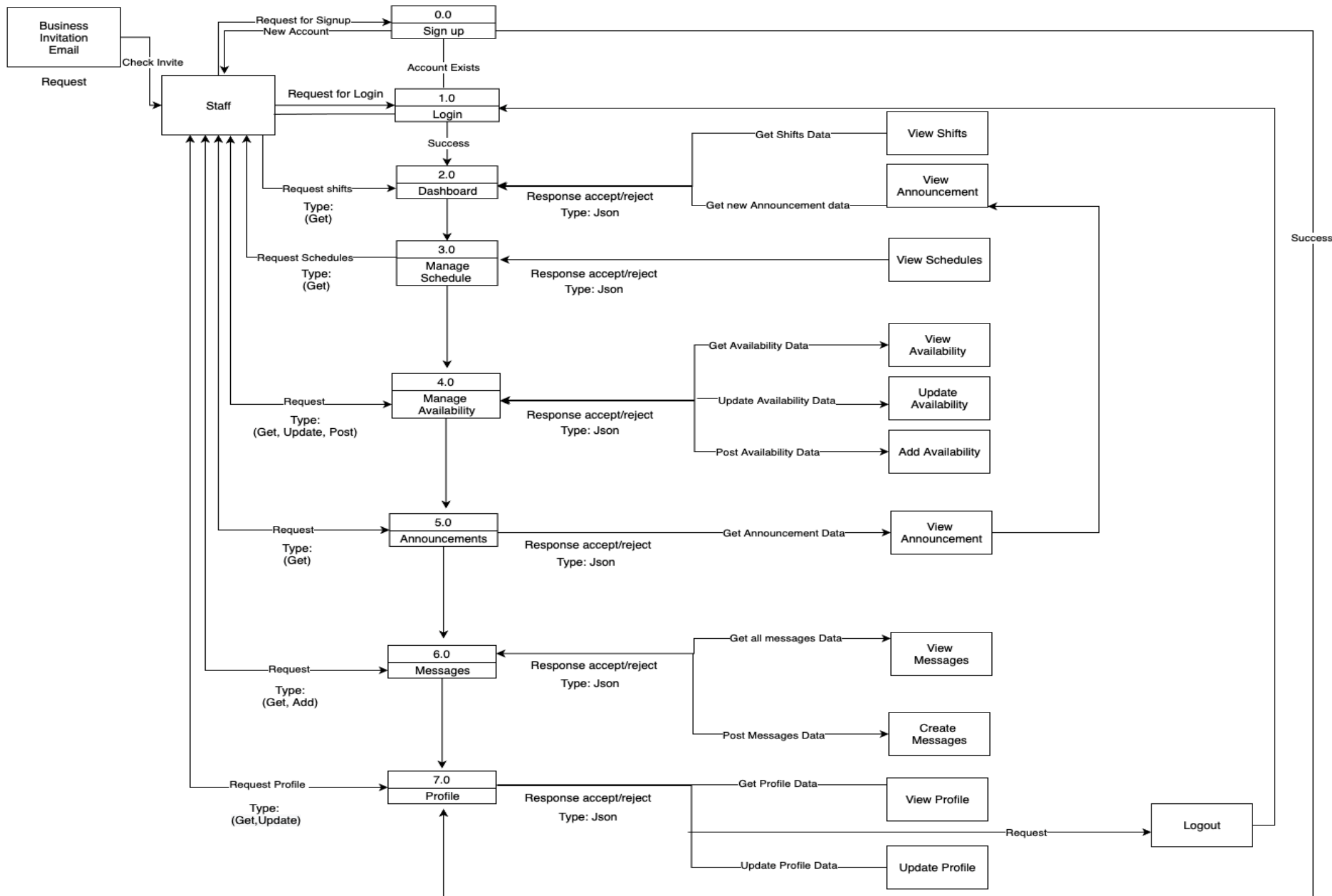
Firestore supports only 1,000,000 concurrent connections

LOGICAL DATABASE REQUIREMENTS

- Business user collection
 - Unique business id
 - Company name
 - Company phone number
 - Role types
 - Password
 - Company Staff
 - Announcements
 - Schedules
 - Messages
- Staff user collection
 - Unique staff id
 - Staff first name
 - Staff last name
 - Password
 - Schedule
 - Role
 - Availability



BUSINESS DATA FLOW DIAGRAM



STAFF DATA FLOW DIAGRAM



REFERENCES

- [1] Google, “Firebase Build Documentation” <https://firebase.google.com/docs/build>
- [2] Google, “Firebase Firestore Collection Structure” <https://firebase.google.com/docs/firestore/manage-data/structure-data>



QUESTIONS