We preface this design document by stating that we are not using an object-oriented development model. The following CRC cards are meant to illustrate our data model and routing system, but do not correspond with actual objects that will be instantiated and used. There are a few actual objects, which are indicated with an asterisk on the class name.

Template:

Class name:	
Parent class (if any**):** **Subclasses:**	
Responsibilities: ●	**Collaborators:** ●

Class name: Pool*	
Parent class (if any**): N/A** **Subclasses (**if any**): N/A**	
Responsibilities: ● Connecting to our PostgreSQL database, which is hosted on CockroachDB ● Executing SQL queries for the purpose of returning or updating data	**Collaborators:** ●

Class name: Experience	
Parent class: N/A **Subclasses:**	
Responsibilities: ● Knows internal ID?, name of experience, location, description, organizer, start time, end time, event category, tags?, max capacity, current attendance, list of users attending, list of users interested?,	**Collaborators:** ● Users ● Organizer

Class name: User	
Parent class (if any**):** **Subclasses:**	
Responsibilities: ● Knows username, hashed password, email, phone number, social media links, subscription status, lists of attending, attended, and interest experiences, and a list of participating chats ids.	**Collaborators:** ● Experiences ● Clubs ● University ● Chats

Class name: Club (Organizer)	
Parent class (if any**):** **Subclasses:**	
Responsibilities: ● Knows club name, id, hashed password, club's social media links, website, a list of users in the organization and a list of participating chats ids	**Collaborators:** ● Experiences ● Users ● University ● Message

Class name: University (Enterprise)	
Parent class (if any**):** **Subclasses:**	
Responsibilities: ● Knows a list of participating chats ids	**Collaborators:** ● Clubs ● Users ● Experiences ● Chats ● Message

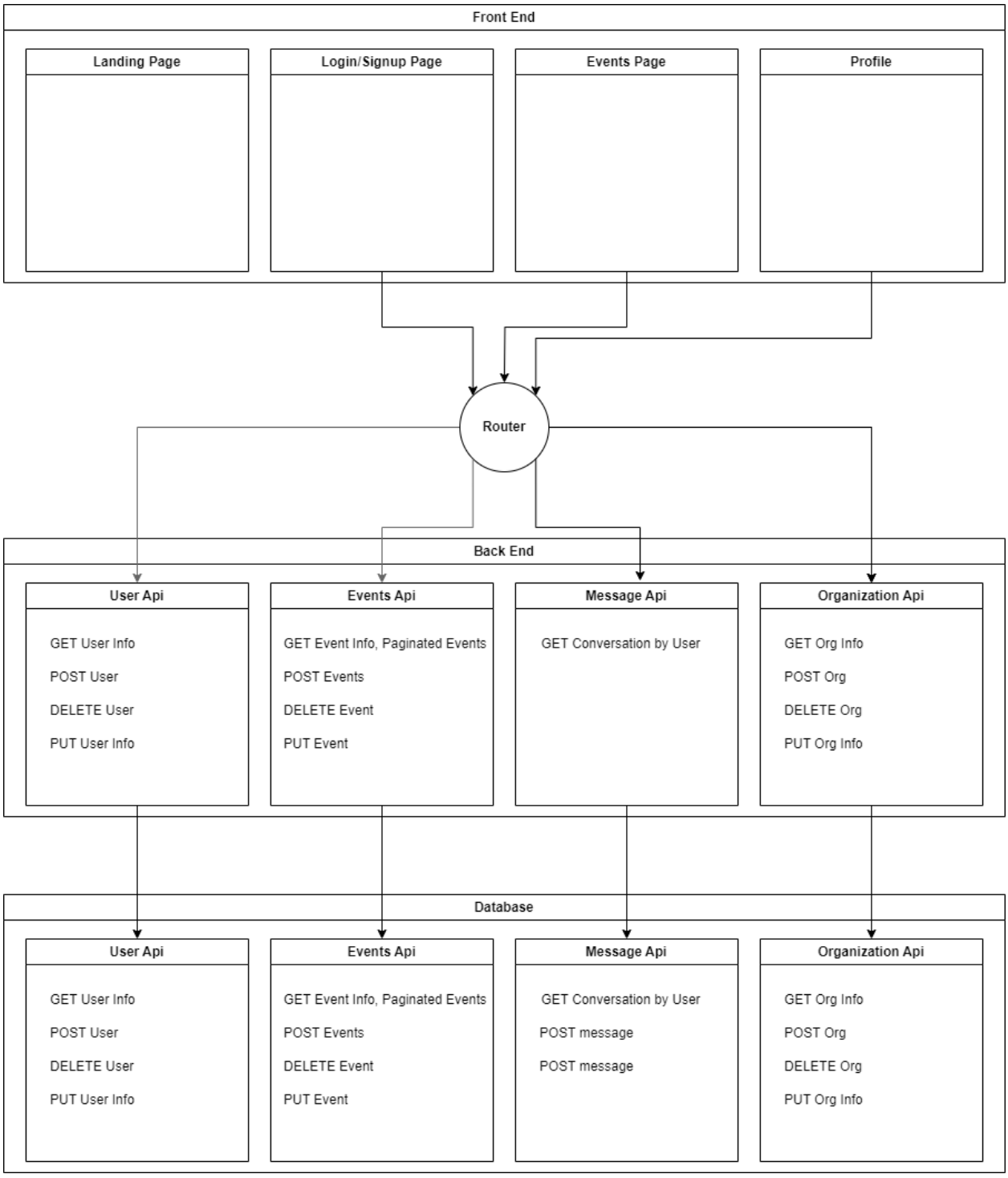
Class name: Message	
Parent class (if any**):** **Subclasses:**	
Responsibilities: ● Knows internal id, chat ID, message	**Collaborators:** ● Users

text, message time, message sender,	● Clubs ● University

Class name: Api Route	
Parent class (if any**):** **Subclasses:** user api route, club api route, university api route, event api route, message api route	
Responsibilities: ● Get data from database ● Post data to database ● Delete data from database ● Put (update) data in database	**Collaborators:** ● Pool

System interaction with the environment:

- **Dependencies and assumptions:**
  - *Programming language compilers*: If the user is self-hosting the app, they must have Node.js installed. They must also install the dependencies for the app using npm install.
  - *Databases:* The app assumes that the user has a PostgreSQL database set up, and that they have run our setup.sql file to create all the relevant tables. The connection string for this database must be stored in .env
  - *Network configuration:* The app assumes that port 3000 is unblocked and available, as it will try to host itself at localhost:3000 for local runs.
  - *Operating system:* The development work for the app was done in Linux. It should work on Windows or MacOS as well.



System decomposition

- **Router:** The router is the core entity of any web app created using Next.js. The router picks up all files under the app/ directory in the source code with special file names, such as page.tsx or route.tsx, and creates HTTPS routes to each of them.

    - **route.tsx**: Designates the URL *baseurl/parentfolder* as an API route, enabling the handling of HTTP API requests
    - **page.tsx:** Designates the URL *baseurl/parentfolder* as a normal route, displaying front-end elements generated dynamically and returned by page.tsx
- **Specific routes:**
    - **Backend / API**
        - User REST API
            - **GET**: retrieve single user info, paginated list of users, search for users
            - **POST:** create user, add event to interested, going, or attended list
            - **PUT**: update user information
            - **DELETE**: remove user, remove event from interested, going, or attended
        - Events REST API
            - **GET:** get event information, get paginated list of events, search for events
            - **POST:** create events
            - **PUT:** update event information
            - **DELETE**: remove event
        - Message API
            - **GET:** get paginated list of messages from message id, get info about chat, get specific message
            - **POST**: create message, create chat
            - **PUT:** edit message, edit chat
            - **DELETE:** delete chat, delete message
        - Organization API
            - **GET:** get org info, get list of org, search org
            - **POST:** create org, add events
            - **PUT:** edit org info
            - **DELETE:** delete org, remove event
    - **Frontend**
        - Landing page
        - Login/signup page
        - Events page
        - Profile page
- **Database**
    - **Tables**
        - **Explained in detail in the CRC cards above**
        - Users
        - Events
        - Organizations
        - Messages

Anticipated errors and exceptions

Usually, our endpoints will return a 200-level return code to indicate that the request was made correctly and the backend handled it correctly as well.

Anticipated errors include invalid input, malformed requests, database errors, users attempting to access resources that don't exist or authentication errors. Other types of errors aren't typically found in web applications as the manipulation of underlying data takes place only through an authenticated API.

Our application will handle these errors by having the API return an appropriate status code for the call, which enables the frontend to dynamically handle the returned error and display the correct message to the user.