

# Therapy Desk - Technical Documentation

## 1. Project Overview

### Purpose

The purpose of this project is to create a mental health web application that facilitates user engagement through secure login, profile creation, and future modules for connecting users with mental health experts. For the start, users will have a "do it yourself" module to better their mental health, similar to Duolingo. The application aims to provide a supportive environment for users seeking mental health advice and resources.

## 2. Features

### Current Features

### User Interaction

- **User Registration:** Users can create an account by providing their name, email, and password. An email verification process is in place to confirm user identity.
- **Email Verification:** Upon registration, users will receive a verification email to activate their account.
- **Resend Verification API:** Users can request to resend the verification email if not received.
- **Status Tracking:**
  - Processing (before Email verification)
  - Not Verified
  - Verified/Active

### Authentication & Security

- **JWT Authentication:** Implements JSON Web Tokens for secure user authentication and session management
- **Email Verification:** Two-step verification process to verify user
- **Password Security:** Secure password hashing and storage

### Future Features

- **User Modules:** Development of personalized modules for logged-in users to enhance their experience.
- **Expert Connection:** A feature that connects users with mental health professionals for guidance and support.

### 3. User Configuration & Data Model

#### User Profile

- **Basic Information:**
  - First Name and Last Name
  - Email (unique identifier)
  - Phone Number
  - Current Status
- **Location Details:**
  - Address (two lines)
  - City
  - Country
  - ZIP Code
- **Professional Information:**
  - Designation
  - Organizations
  - Roles

#### Organization Structure

- **Types of Organizations:**
  - Professional Organizations (e.g., Mental Health Clinics)
  - Educational Institutions
  - Sports Organizations
- **Organization Attributes:**
  - Unique Name
  - Organization Type
  - Associated Roles

#### Role Management

- **Role Categories:**
  - Professional Roles (Therapist, Counselor)
  - Educational Roles (Student, Teacher)
  - Athletic Roles (Athlete, Coach)
- **Role Properties:**
  - Role Name

- Status
- Type
- Associated Organization

## User-Organization-Role Relationship

- A user can belong to a specific organization
- Each organization can have multiple roles

## 4. User Password Management

- **Reset Password:** Users can request a password reset by providing their registered email address.
- **Password Reset Limits:** Users can attempt to reset their password a maximum of three times in a day to prevent abuse.
- **Secure Reset Flow:** Implements time-limited reset tokens and secure email delivery

## 5. Technical Stack

### Backend Infrastructure

- **Primary Framework:** Loopback (NodeJS Framework), Typescript Language
- **Additional Backend Services:** Python-based AWS Lambda functions
- **Database:** PostgreSQL hosted on AWS RDS
- **ORM:** SQLAlchemy for Python services
- **Email Service:** Amazon Simple Email Service (SES) for sending verification and password reset emails.
- **AWS Lambda:**
  - Serverless email processing
  - User verification workflows
  - Password reset handlers

## 6. Email Service Architecture

User Action → Lambda Function → SES → User Email

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PostgreSQL

## 7. Authentication Flow

User Login → JWT Generation → Token Validation → Protected Resources

## 8. Database Design

### Core Tables

- **Users:** Central user information storage
- **User Credentials:** Separate secure password storage
- **Organizations:** Organization information
- **Roles:** User roles within organizations
- **Tokens:** Authentication token management

### Key Features

- **Audit Trail:**
  - Creation timestamps
  - Modification tracking
  - Soft delete capability
- **Data Integrity:**
  - Email uniqueness
  - Case-insensitive text handling
  - Referential integrity
- **Security:**
  - Separated credential storage
  - Token management
  - Reset attempt tracking

## 9. Code Ownership

- All code provided in this project is authored by me. If any third-party libraries or code snippets are used, they will be explicitly cited in the documentation.