

Practice Platform - System Specification v1.1

1. Introduction & Purpose

A modern practice platform designed for interview preparation and skill building across technologies. It enables progress tracking, personalized feedback, and continuous learning.

2. Tech Stack

Backend: Laravel 12 (PHP 8.2+)

Database: MySQL 8.0+

Frontend: Blade/Inertia + React 18 + TailwindCSS

Authentication: Laravel Socialite, Sanctum, optional Fortify

Deployment: GitHub repo, Docker ready

3. Core Features (Base Release)

- User registration/login via SSO (Google, Microsoft, GitHub)
- Progress tracking & dashboard
- Personalized recommendations
- Notifications & alerts
- Role-based access control
- Organization mapping (via email domain)
- Modern UI/UX (responsive)

4. SSO Design

Protocols: OIDC/OAuth2 (Google/Microsoft/GitHub), SAML 2.0 (future)

Packages: Socialite + Sanctum, laravel-saml2

Flow: Redirect → IdP → Callback → Map attributes → User creation/login

Attributes: email, name, avatar, org_id, roles

Security: state/nonce validation, signed assertions, HTTPS-only cookies, 2FA (optional)

Admin Settings: allowed providers, default roles, org mapping

5. Database Schema (Minimal)

users(id, name, email, email_verified_at, password, avatar_url, org_id, ...)

user_providers(id, user_id, provider, provider_user_id)

roles & permissions (via spatie/laravel-permission)

organizations(id, name, slug, email_domain, settings)

6. Release Plan

Sprint 1 (Base): OIDC SSO (Google, Microsoft, GitHub), progress tracking, notifications, roles

Sprint 2: SAML, 2FA enforcement, audit logs, SCIM-lite import

Sprint 3: Advanced role rules, IdP metadata UI, profile enrichment

7. Non-functional Requirements

- Security: Encrypted storage, secure sessions
- Performance: Scalable to 10k concurrent users
- Availability: 99.9% uptime target
- Extensibility: Modular service-oriented architecture
- Compliance: GDPR-ready, audit logs for enterprise