

MentorMatchAI Development Workshop

Welcome to the MentorMatchAI Development Workshop! This 4-day intensive program is designed to transform you into a proficient R Shiny developer, with a focus on building a real-world, AI-powered application. You will work in a simulated startup environment, collaborating with a new dev team (your fellow students) to enhance a mentor-matching application for deployment.

Workshop Goal

The primary goal of this workshop is to equip you with practical skills in full-stack R Shiny development, including UI/UX design, backend database management, and the integration of machine learning models for intelligent features. By the end of this workshop, you will have contributed to a fully functional AI-powered mentorship matching platform.

Scenario: Startup Founder & Your New Dev Team

Imagine you are a newly hired developer at a burgeoning startup. Your founder (the instructor) has tasked your team with fleshing out their existing `MentorMatchAI` application for an upcoming launch. The `app_enhanced.R` file serves as your starting template. Your daily tasks will be presented as 'tickets,' mimicking real-world agile development.

How the Workshop Works

Each day will follow a structured format:

1. **10-Minute Stand-up:** Every morning, your team will participate in a brief stand-up meeting. This is your chance to discuss:
 - What you worked on yesterday.
 - What you plan to work on today.
 - Any blockers or challenges you are facing.

2. **Team-Based Challenges (Tickets):** You will be divided into three specialized teams:
 - **Frontend Development:** Focuses on the user interface, user experience, and visual design of the application.
 - **Backend Development:** Handles database interactions, server-side logic, and data processing.
 - **AI Development:** Works on the machine learning models, natural language processing, and recommendation algorithms.
3. **Resources & Support:** For each challenge, you will be provided with relevant code snippets, guidance, and a curated list of resources, including video tutorials and documentation, to help you complete the tasks. **Assume you do not know how to code or build a Shiny app at the start.** These resources are designed to guide you step-by-step.
4. **Daily Submissions:** At the end of each class, your team will submit your completed scripts and relevant files via Google Drive (simulated). This ensures continuous progress tracking and provides an opportunity for feedback.

Key Technologies You Will Learn

- **R Shiny:** Building interactive web applications with R.
- **bslib** : Modern UI theming and responsive design for Shiny apps.
- **SQLite:** Lightweight, file-based database management.
- **DBI & RSQLite** : R packages for database interaction.
- **text2vec** : R package for text processing and vectorization (TF-IDF).
- **HTML/CSS:** Fundamentals for customizing web application appearance.
- **Basic NLP Concepts:** Text preprocessing, semantic similarity, recommendation systems.

Workshop Materials

This workshop package includes:

- `app_enhanced.R` : The starting template for your MentorMatchAI application.
- `MENTORMATCH_WORKSHOP_GUIDE.txt` : The original breakdown of workshop challenges.
- `workshop_lesson_plan.md` : Detailed daily lesson plans and learning objectives.
- `tickets.md` : Comprehensive list of daily challenges (tickets) with descriptions, requirements, code snippets, and resources.
- `setup_instructions.md` : Step-by-step guide to set up your development environment.
- `submission_guidelines.md` : Instructions for daily and final project submissions.
- `resources.md` : A consolidated list of all recommended learning resources.

We are excited to embark on this learning journey with you! Get ready to build something amazing.