UDLAP®

LAB 08

Professor : Julio Noe Hernandez Torres

Course:

LIS4012-1

Abraham Yair Silva Figueroa 173089

Luis Julian Alvarez Armenta 163247

Luis Mario Ayala Castellanos 174902

Emilio Ortiz Jaquim 172360

Project Progress 27.03.2025

Project Contributions

Abraham Yair Silva Figueroa

- Full-Stack Development: Built both front-end (UI/UX) and back-end (server logic) for the app.
- Screen Design & Implementation: Created all app screens, ensuring responsive and intuitive navigation.
- Cloud Database Integration: Connected the app to Appwrite for real-time data storage/retrieval.
- Authentication System: Implemented Google OAuth login for secure user access.
- API Development: Designed RESTful APIs for smooth front-end ↔ back-end ↔ database communication.
- Data Handling:
    - Enabled fetching and displaying dynamic data (therapy records, user profiles).
    - Developed data upload functions (patient reports, therapist notes).
- Debugging & Optimization: Resolved performance bottlenecks and improved app stability.
- Cross-Team Collaboration: Worked with Emilio on database logic and Luis on therapy-screen requirements.

Emilio Jaquim

- Back-End Architecture: Developed server-side logic for user requests and database operations.
- Appwrite Database Management:
    - Structured NoSQL collections/queries for efficient data storage.
    - Optimized CRUD operations (Create, Read, Update, Delete) for app components.
- Data Processing: Transformed raw database data into front-end-compatible formats (JSON).
- Security: Implemented role-based access control (doctors vs. patients).
- API Integration: Assisted Abraham in connecting front-end components to back-end endpoints.

- Error Handling: Logged and resolved database connection/query issues.
- Testing: Conducted stress tests to ensure scalability.

Luis Julián

- UI/UX Research: Analyzed medical workflows to design doctor/therapist-friendly screens.
- Therapy Data System:
    - Built forms for therapists to upload patient session data (progress, prescriptions).
    - Added validation to ensure accurate medical record submissions.
- Respiratory Therapy Guide:
    - Researched clinical guidelines to create an in-app reference tool.
    - Included step-by-step instructions for common therapies.
- User Feedback: Collaborated with Abraham to refine screens based on tester input.
- Documentation: Wrote a user manual for healthcare providers using the app.
- Compliance: Ensured designs adhered to health data privacy standards (HIPAA-like rules).

Luis Ayala Castellanos

- AI Disease Prediction Model:
    - Developed a machine learning model to analyze user therapy data and predict potential respiratory diseases.
    - Trained the model using historical patient data (symptoms, therapy results, medical history).
    - Integrated Python-based ML libraries (TensorFlow, Scikit-learn) into the app's back end.
- Data Pipeline:
    - Worked with Emilio to preprocess and structure real-time therapy data for model input.
    - Ensured seamless data flow from Appwrite → model → prediction results.
- Risk Assessment Features:
    - Designed an alert system to flag high-risk cases for doctors.

    - Added probability scores for different conditions (COPD, asthma exacerbation).
- Performance Optimization:
    - Fine-tuned the model for accuracy and speed (near-instant predictions).
    - Reduced false positives through cross-validation techniques.