

Horse Race Predictor MVP - Implementation Checklist

Core Features

Backend API

- Integrate Oracle Engine's prediction API pattern for model loading and inference
- Create Python wrapper for `rpscrape` to fetch live racecards (today/tomorrow)
- Create tRPC procedure to fetch available races
- Create tRPC procedure to fetch horses in a selected race
- Load trained LightGBM model (`ranking_model.pkl`) into server memory
- Create tRPC procedure to generate predictions (top 4 horses in order)
- Preprocess race data to match model input format (442 features)
- Return predictions with confidence scores
- Integrate data models from Android app for type safety

Frontend UI

- Create race selection interface (meet/track dropdown + race selector)
- Create prediction display showing 1st, 2nd, 3rd, 4th place horses
- Add loading states during prediction generation
- Display model confidence/probability for each prediction
- Add error handling for API failures

Data Integration

- Research and identify live data sources (`rpscrape`, Betfair API, or TAB NZ)
- Create data ingestion service to fetch live racecards
- Implement scheduled job to refresh race data every 30 minutes
- Set up `rpscrape` Python wrapper in Node.js backend (`child_process`)
- Cache racecards to avoid repeated scraping

- Validate scraped data before passing to model
- Integrate feature engineering from Oracle Engine
- Map racebase scraper output to model feature requirements

Deployment

- Test MVP with live data
- Expose public URL for user testing
- Document API endpoints and usage

Prediction Accuracy Tracking (NEW)

- Design prediction tracking schema
- Create database tables for predictions and results
- Build race results fetcher service
- Implement accuracy metrics calculation
- Create backend API endpoints for tracking
- Build performance analytics dashboard
- Integrate dashboard into MVP
- Test end-to-end tracking and analytics

Completed Tasks

- Initialized web-db-user project
- Trained LightGBM Ranker model (NDCG@3: 0.8579)
- Consolidated 396K+ horse racing records