

## Problem Statement

This project aims to develop a predictive model that forecasts weekly NFL fantasy points by combining detailed play-by-play data with aggregated fantasy statistics. By integrating both granular in-game context and broader historical trends, the model seeks to improve prediction accuracy and interpretability. The outcome will serve as the foundation for an AI-powered fantasy football assistant capable of providing real-time, data-driven insights.

## Description of Data Set

NFL Fantasy Data (1970–2024) — [Link](#)

NFL Play-by-Play Data (2009–2016) — [Link](#)

- **Content:** Player-level fantasy point data merged with per-play performance metrics, including play type, down, yardage, and game situation.
- **Usage:** After aligning player IDs and seasons, aggregated in-game stats (e.g., targets, red-zone opportunities) will be merged with fantasy trends to predict upcoming weekly performance.

## Implementation Plan

Phase 1 (Weeks 1–2): Align datasets by player and week; resolve naming mismatches. Engineer features combining historical averages and recent play patterns.

Phase 2 (Weeks 3–4): Train regression models (Random Forest, Gradient Boosting, or Neural Network) to predict weekly fantasy scores. Compare single-dataset vs combined-dataset performance.

Phase 3 (Week 5): Evaluate with cross-validation and visualize predictions vs actuals by position.

Phase 4 (Week 6): Build dashboard to visualize player forecasts and feature contributions.

## Team Members & Task Allocation

Steven: Data integration, merging, and feature generation.

Nick: Model training, comparison analysis, and performance evaluation.

Liam: Visualization, documentation, and presentation design.