Week 1 Summary – Portfolio Optimization Web App

# ✅ MVP Overview

This document summarizes Week 1 planning for the Portfolio Optimization Web App MVP.

## 1. Core Features (MVP Scope)

- Dual Input Mode:  
 • CSV Upload: Ticker, Weight format  
 • Manual Dynamic Input: Editable form with tickers and weights  
 • Preloaded Portfolios: Sample templates users can run and customize  
- Portfolio Optimization Engine:  
 • Max Sharpe Ratio  
 • Min Variance  
 • Constraints: Sum(weights)=1, no shorting (weights ≥ 0)  
- Return and Risk Calculations:  
 • Daily returns, cumulative return  
 • Mean return, volatility, covariance matrix  
- Visual Output:  
 • Pie chart of weights  
 • Return vs optimized return line plot  
 • Sharpe ratio and risk metrics  
- Optional Export:  
 • CSV export of weights  
 • PNG/PDF of performance chart

## 2. UX Flow

1. Choose Input Method (CSV / Manual / Preloaded)  
2. Load or Enter Portfolio  
3. Select Optimization Goal  
4. Apply Constraints  
5. Run Optimization  
6. View Charts and Metrics  
7. Export Results (optional)

## 3. Tech Stack

- Frontend: Streamlit  
- Backend: Python (scipy.optimize, yfinance, pandas, numpy)  
- Charts: matplotlib, plotly  
- Hosting: Streamlit Cloud or Render  
- Storage: Local (for MVP), SQLite (if needed)

## 4. Target Users

- Smart Retail Investors: Professionals managing their own portfolios  
- Finance Students & Junior Analysts: Use for practice and learning  
- Independent Advisors (Post-MVP): Use for client-facing optimization

## 5. Testing & Feedback Plan

- Private Testing: Weeks 6–7 (5–15 users)  
- Public Beta: Weeks 8–10 (Open to early adopters)  
- Monetization Start: Week 11–12