# ETF Analytics & Tracking Platform - Project Plan

## 1. Project Overview

This project plan outlines the development phases and key milestones for building the **ETF Analytics & Tracking Platform**. The estimated timeline for the project is **8 weeks (2 months)**, divided into distinct phases for planning, development, testing, deployment, and post-launch support.

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## 2. Development Phases & Timeline

### Phase 1: Planning & Architecture (1 week)

#### Milestones:

* Define system requirements and finalize the tech stack.
* Research financial data providers (Yahoo Finance, Alpha Vantage, IEX Cloud, etc.).
* Design high-level system architecture (microservices, API structure, database schema).
* Set up project repositories and development environments (GitHub, Docker, CloudPanel).
* Define security policies and compliance strategies (GDPR, SOC 2, API rate limiting).

### Phase 2: Backend Development (1 - 2 Weeks )

#### Milestones:

* Implement **user authentication & role-based access control (RBAC)** with Laravel Sanctum.
* Develop the **ETF data aggregation service**:
  + Connect to financial data APIs.
  + Store real-time and historical ETF data in MySQL.
  + Implement WebSockets for live updates.
* Create API endpoints for:
  + User account management (registration, login, OAuth, JWT authentication).
  + Portfolio creation, watchlists, and backtesting.
  + ETF comparison engine.
* Set up **Redis caching** for performance optimization.
* Develop unit tests for critical backend functionality.

### Phase 3: Frontend Development (Weeks 1-2)

#### Milestones:

* Build **Next.js** UI with **Tailwind CSS & ShadCN** for a responsive design.
* Implement:
  + **ETF search & filtering** with autocomplete.
  + **Watchlists & portfolio management** UI.
  + **ETF comparison dashboard** with interactive charts (Recharts/D3.js).
* Develop **real-time updates** for price changes and alerts using WebSockets.
* Implement **dark mode & mobile responsiveness**.
* Integrate frontend with the backend API.
* Conduct UI/UX testing and collect feedback.

### Phase 4: AI & Data Processing (Weeks 1-2)

#### Milestones:

* Implement **AI-driven ETF recommendations** based on market trends and user preferences.
* Develop **sentiment analysis** for ETFs using financial news data.
* Fine-tune **backtesting algorithms** to simulate ETF performance.
* Optimize **data visualization tools** for AI insights.
* Validate AI predictions against real market data.

### Phase 5: Testing & Optimization (3-4days)

#### Milestones:

* Perform **unit tests & integration tests** for APIs and backend services.
* Conduct **frontend UI/UX testing** using Cypress.
* Implement **security testing** (OAuth, API rate limiting, RBAC enforcement).
* Optimize **database queries & response times**.
* Final performance and load testing to ensure scalability.
* Conduct beta testing with select users.

### Phase 6: Deployment & Launch (2-3days)

#### Milestones:

* Deploy backend on **CloudPanel with Nginx & Docker**.
* Set up domain and DNS configuration for production.
* Implement CI/CD pipeline for automated deployments.
* Configure real-time monitoring & error tracking tools.
* Conduct final security audits & compliance checks.
* Officially launch the platform.

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## 3. Post-Launch Support & Maintenance

### Ongoing Support (After Week 1)

| **Support Type** | **Frequency** |
| --- | --- |
| Bug Fixes & Security Patches | As needed |
| API Updates & Maintenance | As needed |
| New Feature Rollouts | As needed |
| User Support & Documentation | As needed |

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## 4. Success Metrics & KPIs

| Metric | Goal |
| --- | --- |
| **System Uptime** | 99.9% uptime with auto-scaling |
| **API Response Time** | Under 200ms |
| **ETF Data Accuracy** | 95%+ accuracy |
| **AI Recommendation Accuracy** | 80%+ alignment with user goals |