

Statement of Work (SOW) — AssetTracker MVP

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1) Project Goal

Create a web app that allows a user to easily and securely monitor and track their finances across **bank accounts, credit cards, and investment accounts**, with low monthly cloud cost and a resume-ready architecture.

2) Objectives & Success Criteria

Objectives

- Ship an MVP that supports account linking, transaction sync, categorization, budgets, and simple analytics (balances, net worth).
- Keep cost minimal (target \leq **\$5/month**) using serverless and free tiers where possible.
- Use a modern, employable stack: **Angular + .NET + AWS** (DynamoDB, API Gateway, Lambda, Cognito, CloudFront).

Success Criteria

- Users can sign up/sign in, connect an institution, view balances and the last 90 days of transactions, categorize them, and see spend vs budget.
- 99% of API requests at light traffic complete $<$ **500 ms**; error rate $<$ **1%**.
- CI/CD pipeline builds, tests, and deploys automatically on **main**.

- Monitoring + alarms exist for API 5xx, latency, and DynamoDB throttles.
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3) Personas (MVP)

- **Individual user:** wants a simple dashboard to see balances, spending by category, and net worth.
 - **Power user (future):** wants CSV export, custom rules, and multiple institutions.
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4) Scope of Work

In Scope (MVP)

- **Frontend:** Angular app with **Angular Material** (use Bootstrap utility classes sparingly to avoid style conflicts).
- **Backend:** C# .NET 8 (ASP.NET Core Minimal APIs) deployed on **AWS Lambda** behind **API Gateway (HTTP API)**; packaged as a **container image** in **ECR**.
- **Auth:** **Amazon Cognito** (Hosted UI + PKCE), JWT checked at API Gateway.
- **Data:** **DynamoDB** (single-table design, on-demand).
- **Infra:** **CloudFront + S3 (OAC)** for Angular hosting; CloudWatch logs/alarms; IaC via **Terraform** or **AWS SAM**.
- **Banking integration:** **Plaid API** (Link flow + token exchange). **Do not store credentials**; use OAuth/token exchange.

Out of Scope (MVP)

- ECS/Fargate, RDS/DocumentDB, WAF, private VPC networking/NAT.
- Tax reporting, real-time market data, multi-currency FX.
- Mobile apps; advanced analytics/ML.

5) Tech Stack

Frontend

- **Angular** (v17+), **Angular Material**, RxJS, ngx-charts (simple charts), Route guards.
- Styling: Material theme; optional Bootstrap utilities (spacing/grid) if needed.

Backend

- **.NET 8** minimal APIs; DTO validation (FluentValidation); JWT middleware (if needed server-side); Serilog for structured logs.
- Deployed as **Lambda container** via ECR; API front door = **API Gateway HTTP API**.

AWS Services

- **S3 + CloudFront (OAC)** for SPA hosting.
- **API Gateway (HTTP)** → **Lambda (.NET)** → **DynamoDB**.
- **Cognito** for auth; **CloudWatch** for logs/metrics/alarms; **Secrets Manager/SSM** for Plaid API keys; **EventBridge** for scheduled sync.

Why Angular (not AngularJS): Use modern **Angular** (not legacy AngularJS). Angular Material integrates cleanly; mixing Material and Bootstrap components is discouraged—prefer one design system (Material) and keep Bootstrap to utilities only.

6) High-Level Architecture

- **Route 53** → **CloudFront** (ACM cert in us-east-1) → two origins:
 - **S3** (default `/`) for Angular (private bucket with OAC; SPA 404 → index.html)
 - **API Gateway** for `/api/*` requests (low-latency HTTP API)

- **API Gateway** JWT authorizer (Cognito) → **Lambda (.NET container)** → **DynamoDB**
 - **EventBridge** rules (cron) trigger nightly/weekly sync Lambdas
 - **S3 events** (optional) for CSV import → Lambda → DynamoDB
 - **CloudWatch**: logs, metrics, alarms
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7) Epics & User Stories (MVP)

Auth & Profile

- As a user, I can register, verify email, sign in/out (Cognito Hosted UI).
- As a user, I can view/update my profile and delete my account (GDPR-style delete).

Institution Linking

- As a user, I can securely connect my bank/credit card/investment accounts via an aggregator OAuth flow.
- As a user, I can see linked institutions and disconnect them.

Balances & Transactions

- As a user, I can view current balances per account and total net worth.
- As a user, I can see transactions for each linked account
- As a user, I can search/filter transactions by category, merchant, amount, and date.

Budgets & Categories

- As a user, I can define monthly budgets per category.
- As a user, I can see spend vs budget progress for the current month.

Notifications (MVP-light)

- As a user, I can opt-in to email alerts for various criteria ex. Investment portfolio hits \$X amount, net worth drops below \$X amount, Purchase made above \$X amount

Insights & Analytics

- As a user, see various trends on a month by month basis