AI All-Outbound Automation Dashboard - Product Requirements Document (PRD)

Project: AI All-Outbound Client Dashboard
Client: Ajwad Imtaar
Timeline: 24 hours
Tech Stack: Next.js 15.3, React 19, TypeScript, Langchain/Langgraph TS SDK, OpenAI GPT-4.1, HubSpot API

1. Project Overview

Build a comprehensive Next.js dashboard that enables the client to:

- Upload leads via CSV
- Automatically qualify leads using AI
- Sync qualified leads to HubSpot CRM
- Monitor real-time campaign analytics

2. Technical Architecture

Frontend Stack

- **Framework:** Next.js 15.3 with App Router (latest stable release with Turbopack support)
- **React Version:** React 19 (stable with Next.js 15.3)
- **Language:** TypeScript
- **Styling:** Tailwind CSS v4.0 (latest stable with enhanced performance)
- **UI Components:** shadcn/ui with Tailwind v4 compatibility
- **Charts/Analytics:** Recharts (React 19 compatible)
- **File Handling:** react-dropzone for CSV uploads
- **State Management:** React 19 built-in hooks (useActionState, useFormStatus, useOptimistic)

Backend/API Stack

- **API Routes:** Next.js 15.3 API routes with enhanced performance
- **AI Agent:** Langchain/Langgraph TypeScript SDK v0.2+ (latest with enhanced streaming)
- **LLM:** OpenAI GPT-4.1 mini ($0.40/1M input, $1.60/1M output tokens - optimal cost/performance)
- **Web Search:** Serper API ($0.30/1K queries - fastest and most cost-effective)
- **CRM Integration:** HubSpot API v3/v4 (latest stable endpoints)
- **CSV Processing:** Papaparse with React 19 optimizations
- **HTTP Client:** Native fetch API (enhanced in React 19)

Third-Party Integrations

- OpenAI GPT-4.1 mini for lead qualification (optimal balance of cost and performance)
- HubSpot CRM API v3/v4 for contact management and analytics
- Serper API for company research and validation
- Modern CSV parsing with React 19's enhanced async handling

3. Core Features & Components

3.1 Lead Upload Module

Component: `LeadUploadForm`

Requirements:

- Drag-and-drop CSV upload interface using react-dropzone
- CSV validation and preview with enhanced error handling
- Support for standard lead fields:

  ```typescript
  interface Lead {
    firstName: string;
    lastName: string;
    email: string;
    company: string;
    title: string;
    phone?: string;
    website?: string;
    industry?: string;
    companySize?: string;
    location?: string;
  }
  ```

- Real-time upload progress with React 19's useFormStatus
- Advanced error handling using React 19's enhanced error boundaries
- Batch processing capability (up to 1000 leads per upload)
- Form validation using React 19's useActionState

API Endpoint: `POST /api/leads/upload`

3.2 Lead Qualification Agent (LQA)

Component: `LeadQualificationAgent`

Requirements:

- Built using Langchain/Langgraph TypeScript SDK v0.2+
- Integration with OpenAI GPT-4.1 mini for optimal cost/performance
- Serper API integration for fast company research ($0.30/1K queries)
- Enhanced streaming capabilities with Langchain v0.2 features
- Scoring criteria (1-10 scale):
  - Company size and growth indicators (20%)
  - Industry relevance (20%)
  - Job title/decision-making authority (25%)
  - Company technology stack/needs (20%)
  - Recent company activities/funding (15%)

Qualification Process:

1. Extract lead information using enhanced TypeScript parsing
2. Perform web search via Serper API for company intelligence
3. Analyze company website/recent news using GPT-4.1 mini
4. Score based on predefined criteria with improved accuracy
5. Generate qualification reasoning with detailed insights
6. Return structured result with enhanced metadata

API Endpoint: `POST /api/leads/qualify`

Enhanced Data Structure:

```typescript
interface QualifiedLead extends Lead {
  qualificationScore: number; // 1-10
  qualificationReason: string;
  confidenceLevel: number; // 0-1
  companyIntelligence: {
    recentNews?: string[];
    techStack?: string[];
    companySize?: string;
    fundingStatus?: string;
    growthIndicators?: string[];
    competitorAnalysis?: string[];
  };
  qualifiedAt: Date;
  processingTime: number; // milliseconds
}
```

3.3 HubSpot CRM Integration

Component: `HubSpotIntegration`

Requirements:

- Automatic contact creation for qualified leads (score ≥ 7)
- Batch contact creation with enhanced error handling
- Contact property mapping with v3/v4 API compatibility
- Campaign enrollment automation using latest workflows API
- Duplicate detection and intelligent merging
- Real-time sync status tracking

API Endpoints:

- `POST /api/hubspot/contacts` - Create contacts (v3/v4 compatible)
- `GET /api/hubspot/campaigns` - Fetch campaign data (latest API)
- `GET /api/hubspot/analytics` - Fetch enhanced analytics
- `GET /api/hubspot/workflows` - Campaign workflow status

Enhanced HubSpot Contact Properties:

```typescript
interface HubSpotContact {
  email: string;
  firstname: string;
  lastname: string;
  company: string;
  jobtitle: string;
  phone?: string;
  website?: string;
  industry?: string;
  lead_qualification_score?: number;
  qualification_reason?: string;
  lead_source?: string;
  created_by_automation?: boolean;
  last_qualification_date?: string;
  company_intelligence?: string; // JSON stringified
}
```

Workflow Integration:

- Automatic enrollment in email sequences
- Lead scoring property updates
- Campaign attribution tracking
- Custom property synchronization

3.4 Analytics Dashboard

Component: `AnalyticsDashboard`

Requirements:

- Real-time campaign metrics using HubSpot's latest analytics API
- Enhanced performance tracking with React 19's concurrent features
- Interactive charts using Recharts with modern React patterns
- Key metrics tracking:
  - Email delivery rates
  - Open rates and click-through rates
  - Response rates and engagement
  - Lead qualification success rates
  - Campaign ROI and conversion metrics
  - Lead progression through sales funnel

Dashboard Sections:

1. **Overview Cards** - Key performance indicators
2. **Lead Quality Metrics** - Qualification score distribution
3. **Campaign Performance** - Email metrics and engagement
4. **Conversion Funnel** - Lead progression tracking
5. **Time-based Analytics** - Trend analysis and forecasting

Real-time Updates:

- WebSocket integration for live metrics
- Auto-refresh capabilities using React 19's concurrent rendering
- Optimistic updates for immediate feedback