Hyper-Targeted Local Ad Optimizer

Goals

- Build an AI-powered platform that analyzes local events and weather patterns to automatically optimize advertising spend for small businesses, ensuring ads run only when conditions maximize customer conversion potential.

Background and strategic fit

Small businesses waste money on continuous advertising that ignores key factors like local events and weather. Our Hyper-Targeted Local Ad Optimizer analyzes these conditions to activate map-based ads only when customers are most likely to respond. Using Model Context Protocol servers, I provide small businesses with intelligent marketing that precisely times promotions—filling the gap between expensive enterprise platforms and basic advertising approaches with a simple, secure interface.

Assumptions

- I use AWS Lambda with EventBridge for scheduled event data collection from Eventbrite.
- The system focuses on local events and will primarily analyze data at the postal code level.
- PostgreSQL database is used for storing event data with a simplified schema focused on key event attributes.
- The system will collect data daily during off-peak hours (1 AM) to ensure freshness for advertising decisions.
- Weather data will be collected from separate MCP servers and paired with event data for contextual analysis.
- Data collection is limited to publicly available events and does not access private or restricted event information.
- The initial implementation targets US locations with potential expansion to Canada and Mexico.

Requirements

ID	Title	User Story	Notes
1	Daily Event Data Collection	As a small business owner, I want the system to automatically gather local events data daily, so I have current information to make advertising decisions.	The system uses AWS Lambda to collect events from Eventbrite for specific postal codes at 1 AM daily. Results include event name, location, date, and venue details.
2	Weather and Event Correlation	As a business advertiser, I want the system to analyze both events and weather data together so I can target ads during optimal conditions.	System pairs weather data with event information to identify high-traffic potential days. Analysis considers factors like event size, outdoor/indoor status, and weather patterns.
3	Simple Notification Interface	As a busy shop owner, I want clear recommendations on when to advertise without needing to understand complex data analysis.	The system provides clear yes/no recommendations for daily advertising with a simple explanation of reasoning (e.g., "Advertise today: Large outdoor event nearby with favorable weather").
4	Location-Specific Targeting	As a local business, I want advertising recommendations specific to my neighborhood, so I don't waste the budget on irrelevant areas.	The system filters events by postal code relevance and proximity to business location. Considers event attendance potential and geographic draw.
5	Data Privacy Protection	As a system user, I want my business data and advertising strategy to be kept private from other users.	Each business account is isolated with separate secure storage. Analysis data is not shared across accounts or used to inform recommendations for competitors.

Not Doing

I will likely do some/most of these things in the future, but they are not in scope for *this* document:

- Direct integration with advertising platforms' APIs for automatic ad placement
- Visual analytics dashboards and trend reports showing historical performance
- Multi-language support for international markets beyond the US
- Mobile application interface (web interface only in initial version)
- Customer behavior prediction based on historical advertising performance
- Integration with social media event data sources beyond Eventbrite