Project: Smart Travel Assistant

(for Izmir)

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INTRODUCTION

Even in today's world, where people can leverage the latest advancements in AI, trip planning often remains a manual and time-consuming task.

Problem:
Travelers must manually find, compare, and decide on destination options across many platforms based on their own preferences.

Goal:
To build a **Smart Travel Assistant** that simplifies travel planning for **Izmir** by using structured data, intelligent relationships, and AI-powered insights.
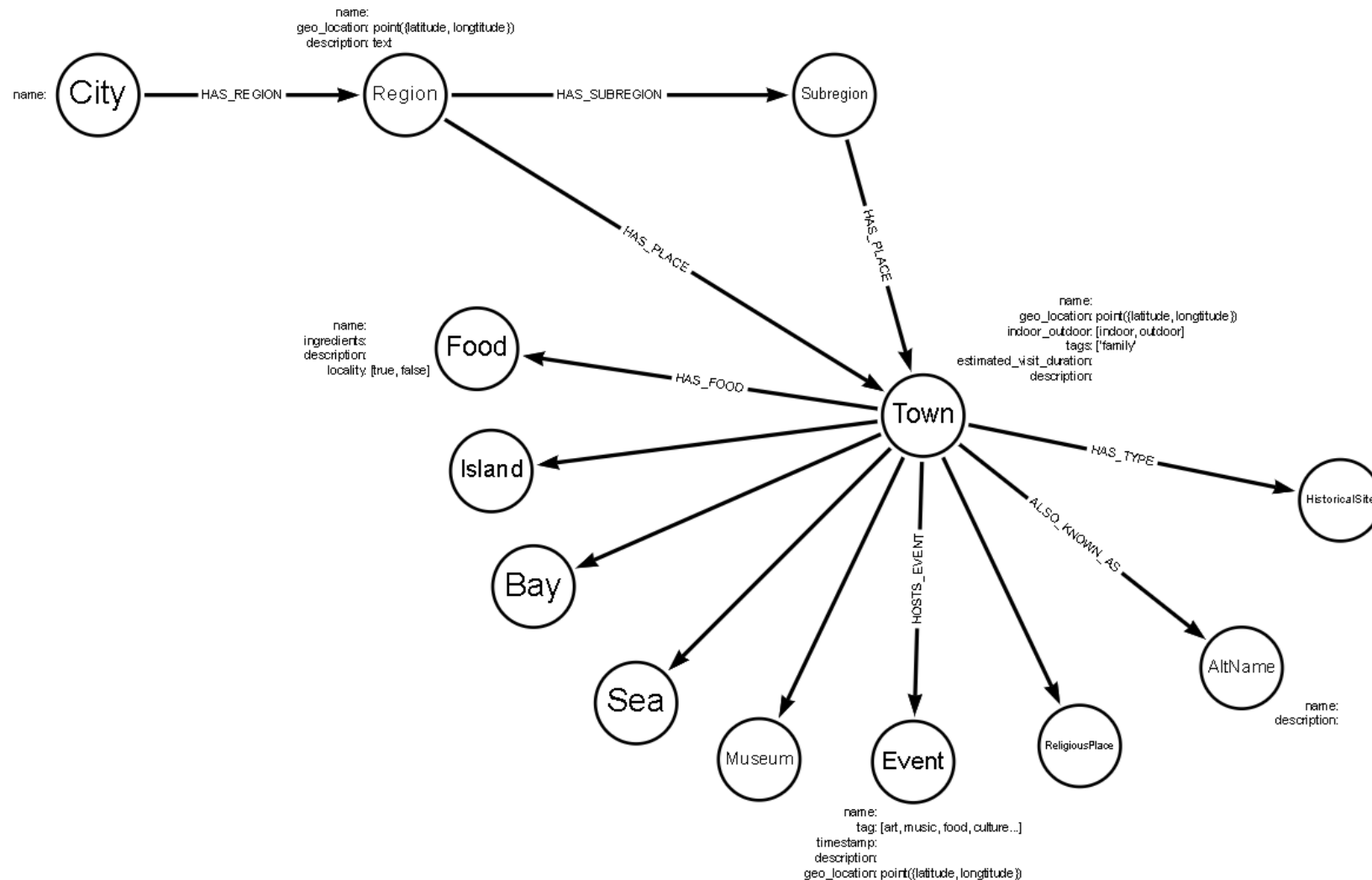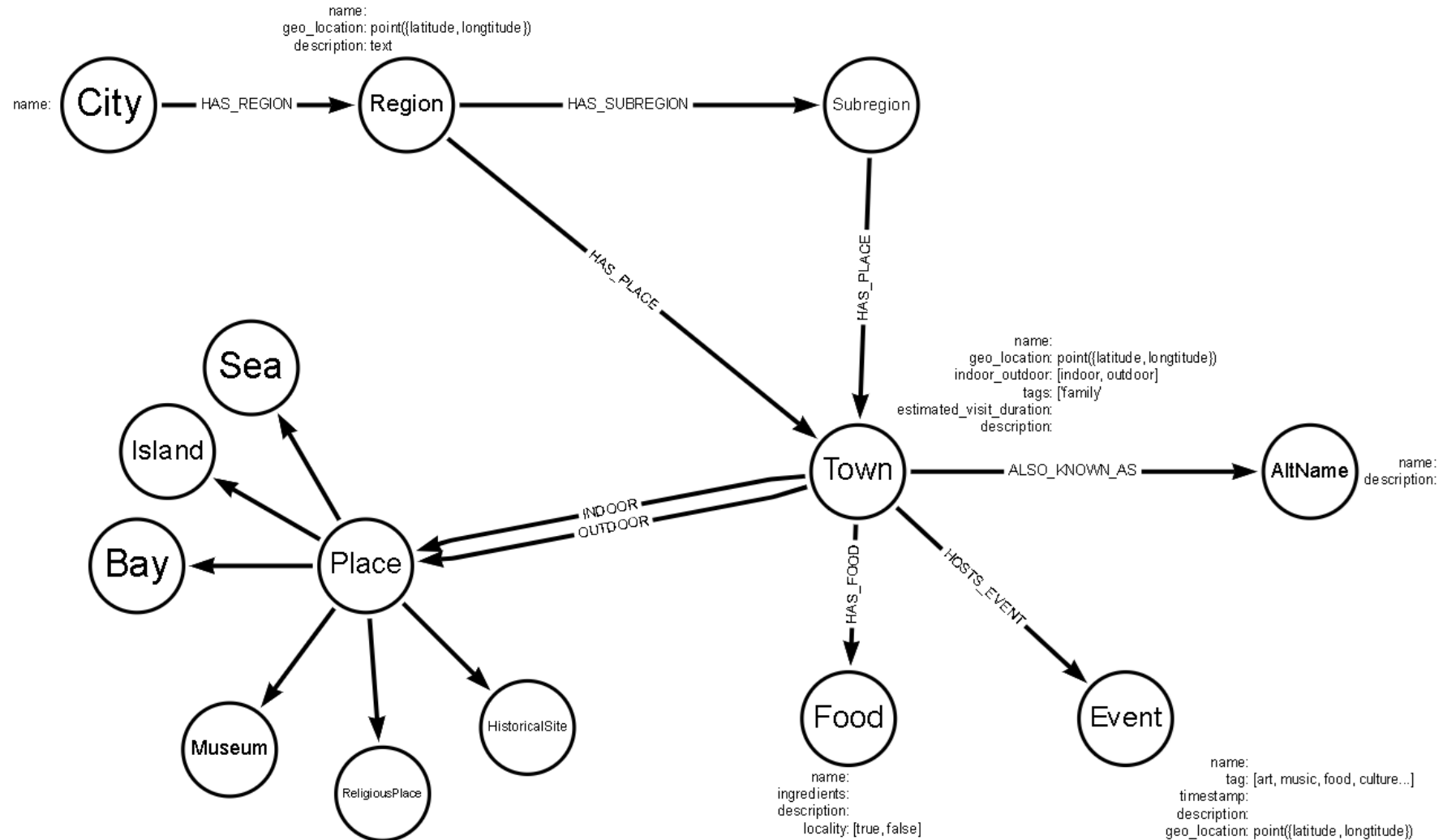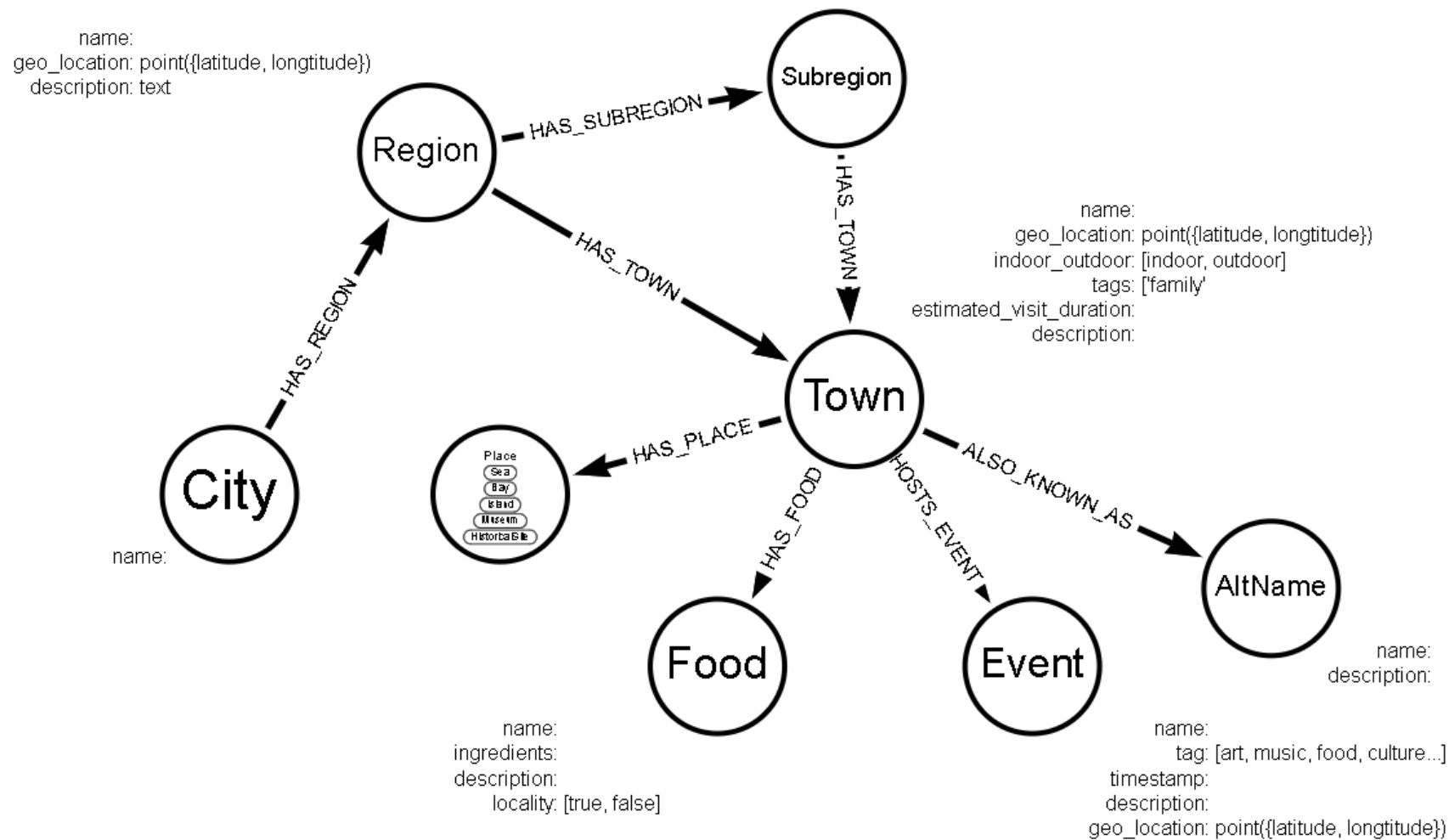
MOTIVATION

- **Time Consumption**: Travelers spend **over 5 hours on average** researching trips — according to [Expedia Group research](). They often need to search across multiple sources to gather details about **museums, historical sites, popular attractions, and local food**.

- **Information Overload**: Planning a trip involves navigating **too many disconnected sources** — blogs, maps, forums, and review sites — making it difficult to form a clear plan or make confident decisions.

- **No Traveler-Centric Design:** Many tools provide **generic suggestions**, without focusing on **what travelers truly want to experience, see, or explore** during their journey. They lack the ability to understand **individual intentions and trip goals**.

METHODOLOGY

Data Collection (API, Scrapping):
- Wikipedia
- Blog texts
- Other sources

Data Processing
- Entity Recognition (OpenAI, fine-tuned)
- Chunking & Normalization
- Creating a structured data

Knowledge Graph
- Nodes
- Relationships

Tools and APIs
- Agents (LangChain)
- APIs (Google Maps, TripAdvisor, Booking.com etc.)

LLM
- OpenAI;
- GPT-3.5
- GPT-4

KNOWLEDGE GRAPH DESIGN-1

KNOWLEDGE GRAPH DESIGN-2

KNOWLEDGE GRAPH DESIGN-3

POSSIBLE PROBLEMS

- Place name variations / duplications / Greek names
- Turkish characters
- Wrong named entity recognition
- Wrong geo location
- LLM limitation while making the data structure
- Lack of local APIs for museum, transportation etc.
- Incomplete fields (opening hours)
- Risk of misinformation process (website, hallucination)

CHATBOT FUNCTIONALITY

- **Place recommendation** by user preferences (museum, historical areas, beach, sea etc.).
- **Local food recommendation** based on user allergen list.
- **Weather checking** is done to make a proper plan any time of the year.

Briefly, planning the whole trip according to user preferences.

Might be implemented (free API):
- Flight finder
- Accommodation recommendation
- Showing the route
- Car rental, transportation

Thanks for Listening!