

Alaska Department of Snow

AI-Powered Weather & Snow Assistant

Overview

The Alaska Department of Snow is a cloud-based AI assistant that answers snow and weather-related questions using Retrieval Augmented Generation (RAG) and real-time weather data from the National Weather Service API.

The system is built with a FastAPI backend, containerized using Docker, and deployed on Google Cloud Run.

Architecture

User (Browser)

Frontend (HTML, CSS, JavaScript)

FastAPI Backend (Cloud Run)

RAG Knowledge Base (Google Cloud Storage FAQ Files)

National Weather Service API

Logging & Evaluation

Components

Frontend

- Chat-based UI
- Sends user queries to backend
- Displays AI responses

Backend

- FastAPI application
- Performs RAG search
- Calls real-time Weather API
- Logs interactions
- Dockerized and deployed to Cloud Run

RAG

- Loads FAQ documents from Cloud Storage
 - Retrieves relevant content to improve response accuracy
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Deployment

Backend deployed using:

```
gcloud run deploy ads-api --source backend --region us-central1 --allow-unauthenticated
```

Features

- AI-powered snow and weather assistant
- Real-time forecast integration
- Cloud-native architecture
- Logging and evaluation support
- Full-stack implementation