MICHIGAN STATE UNIVERSITY

Beta Presentation

Semantic Search for Code and Architecture Assets

The Capstone Experience

Team Amazon

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From Students…
…to Professionals

Project Overview

- Code snippet search
  - Natural language query
  - Most relevant results
- Centralizes code database
- Filter by various attributes
- Find subject matter experts

Team Member's Technical Tasks

Technical Tasks Assigned

- Zayd Abualfellat
  - File parsing for Python, JS, C++
  - Extract commit history by file
  - Create vector embedding system for searches
  - Chunk vector embeddings to improve search accuracy
- Sampan Chaudhuri
  - Initialized CDK project to provision AWS resources
  - Created API endpoints and Lambda handlers for various events
  - Integrate filtering results from backend to frontend
  - Add repository ingestion process by URL extraction
- Jerry Chen
  - Class to store admin page settings
  - Prompt to generate function docstring
  - File parsing for C# and Java
- Atharva Kirkole
  - Create and configure OpenSearch domain for searching
  - Extract services by file
  - Support for various LLM models for docstring generation
  - System to retrieve SMEs working on specific services
- Nicholas Li
  - Prototype frontend to facilitate integration with backend
  - Revamp frontend using Cloudscape framework
  - Utilize NLP and DynamoDb to retrieve popular searches
  - Deploy website to Amplify and configure Cognito authentication

Technical Tasks Completed

- Zayd Abualfellat
  - File parsing for Python, JS, C++
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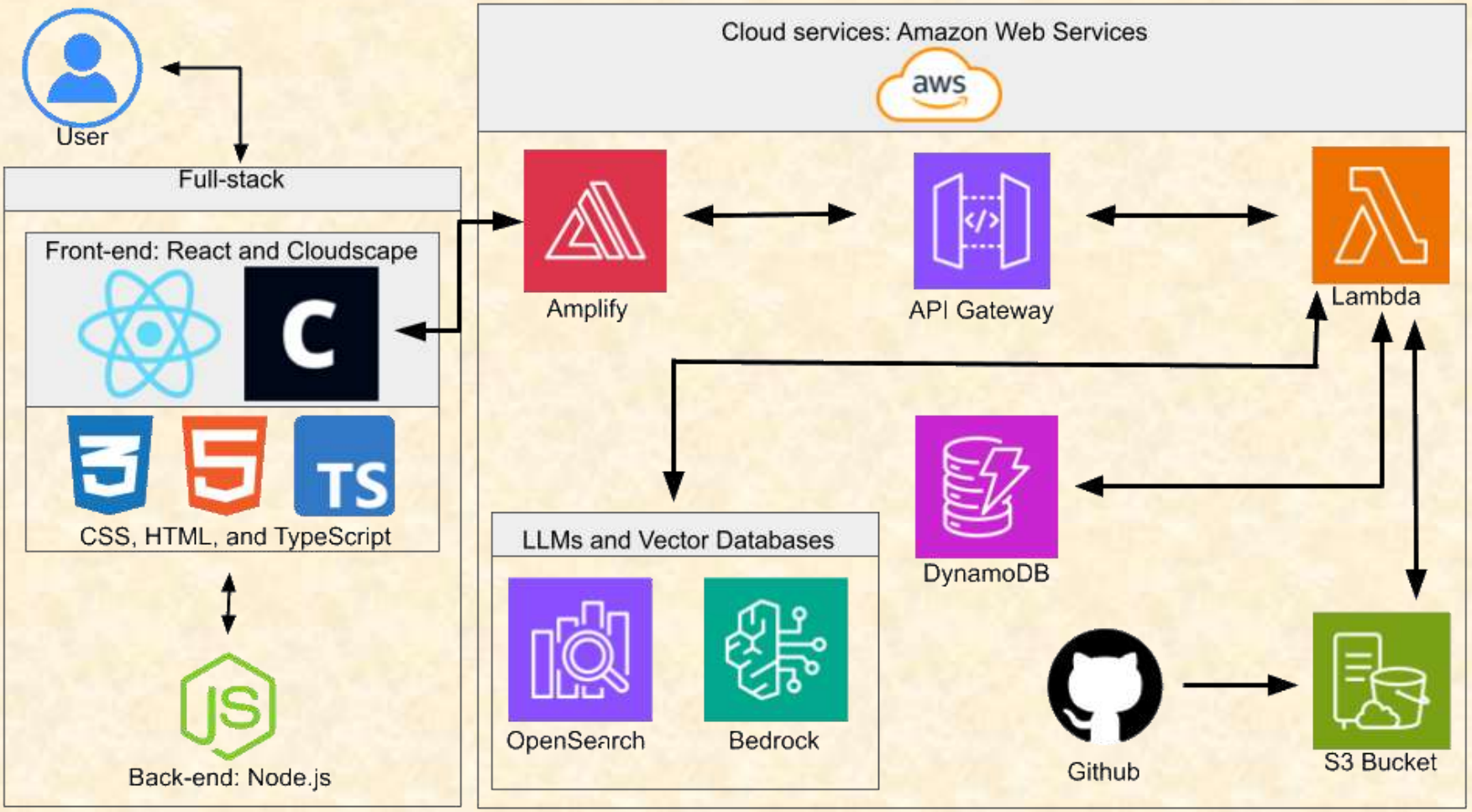
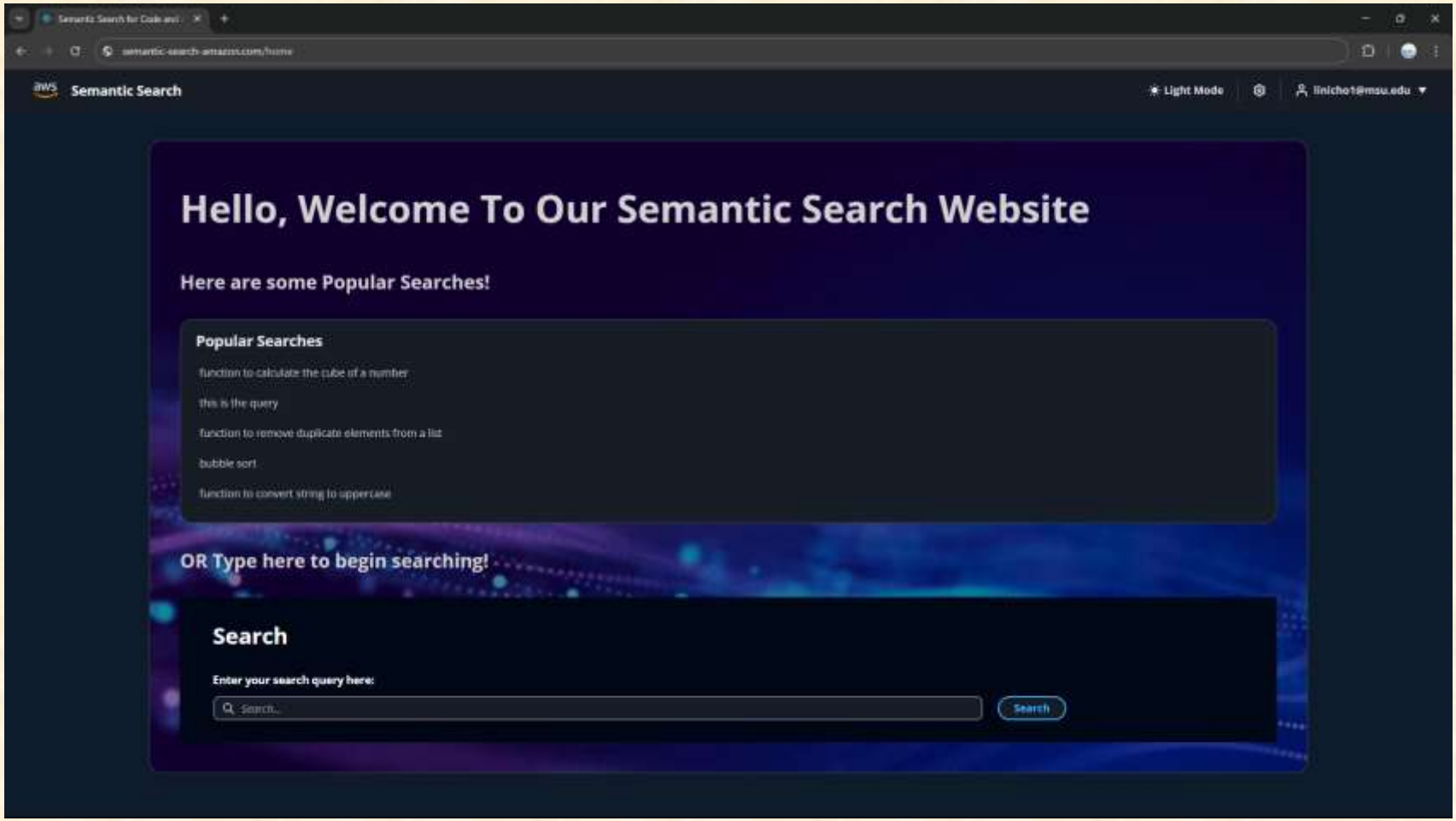
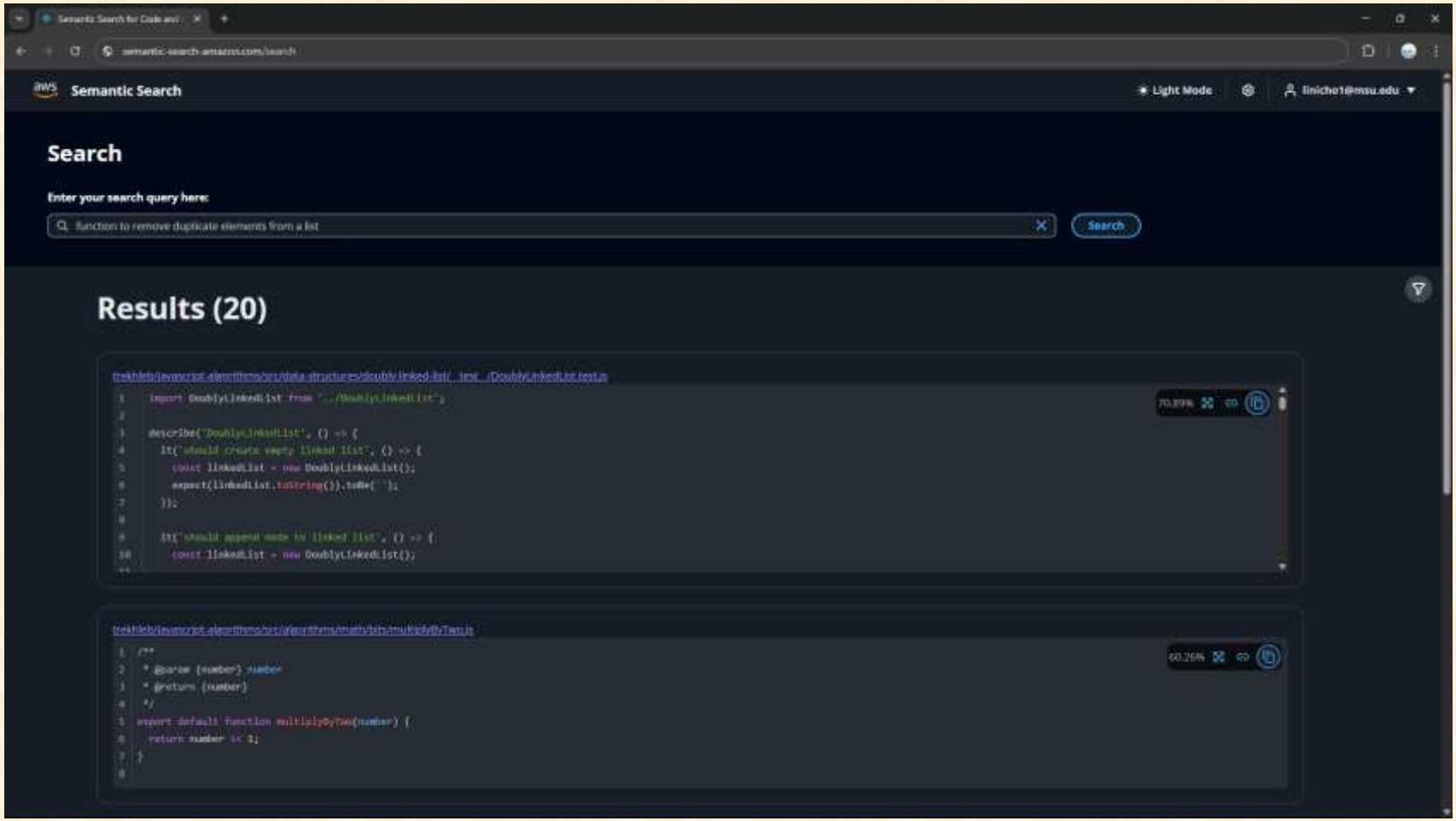
System Architecture



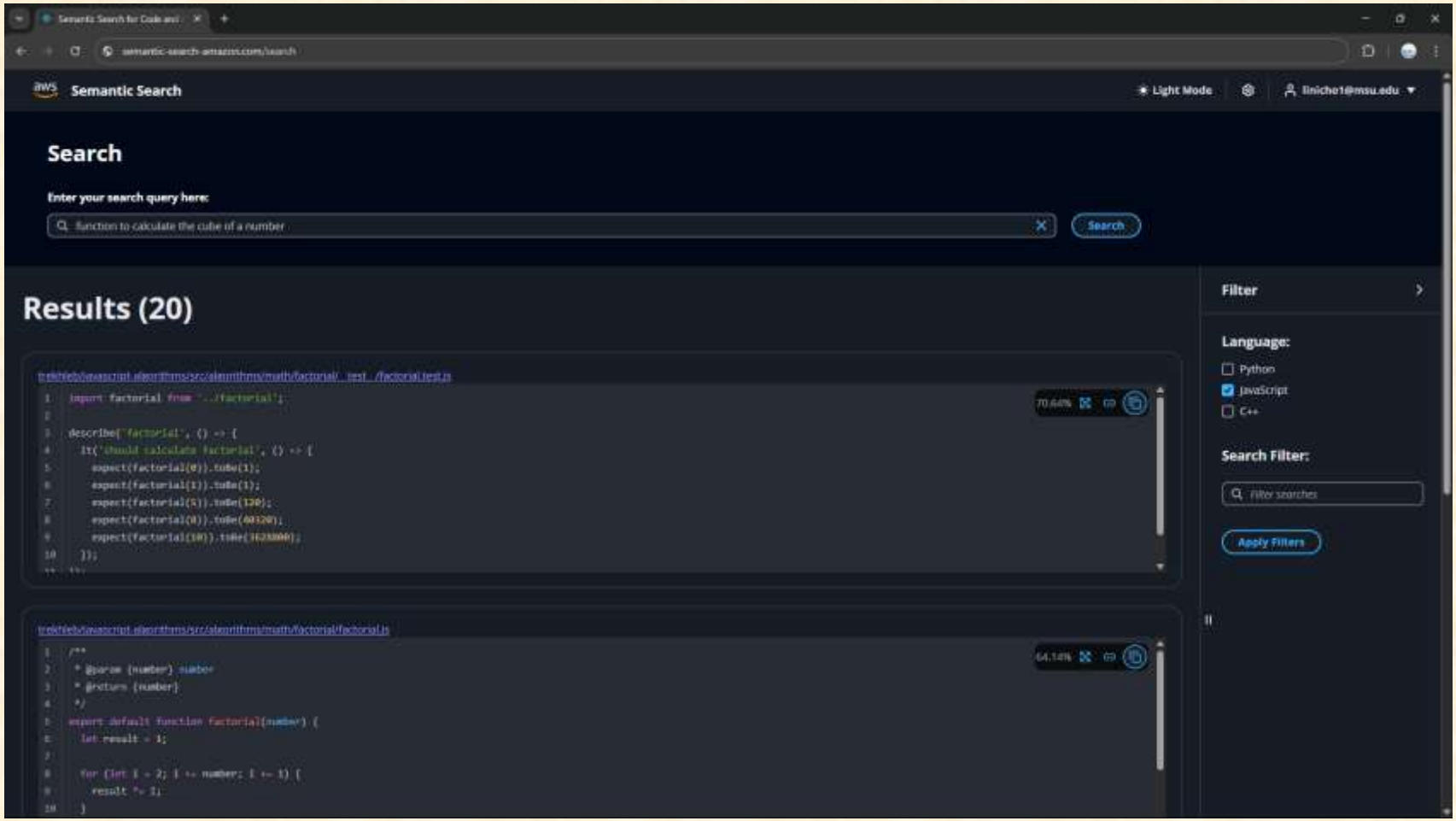
Home Page


Semantic Search
Light Mode
Hello, Welcome To Our Semantic Search Website
Here are some Popular Searches!
Popular Searches
function to calculate the cube of a number
this is the query
function to remove duplicate elements from a list
bubble sort
function to convert string to uppercase
OR Type here to begin searching!
Search
Enter your search query here:
Search...
Search

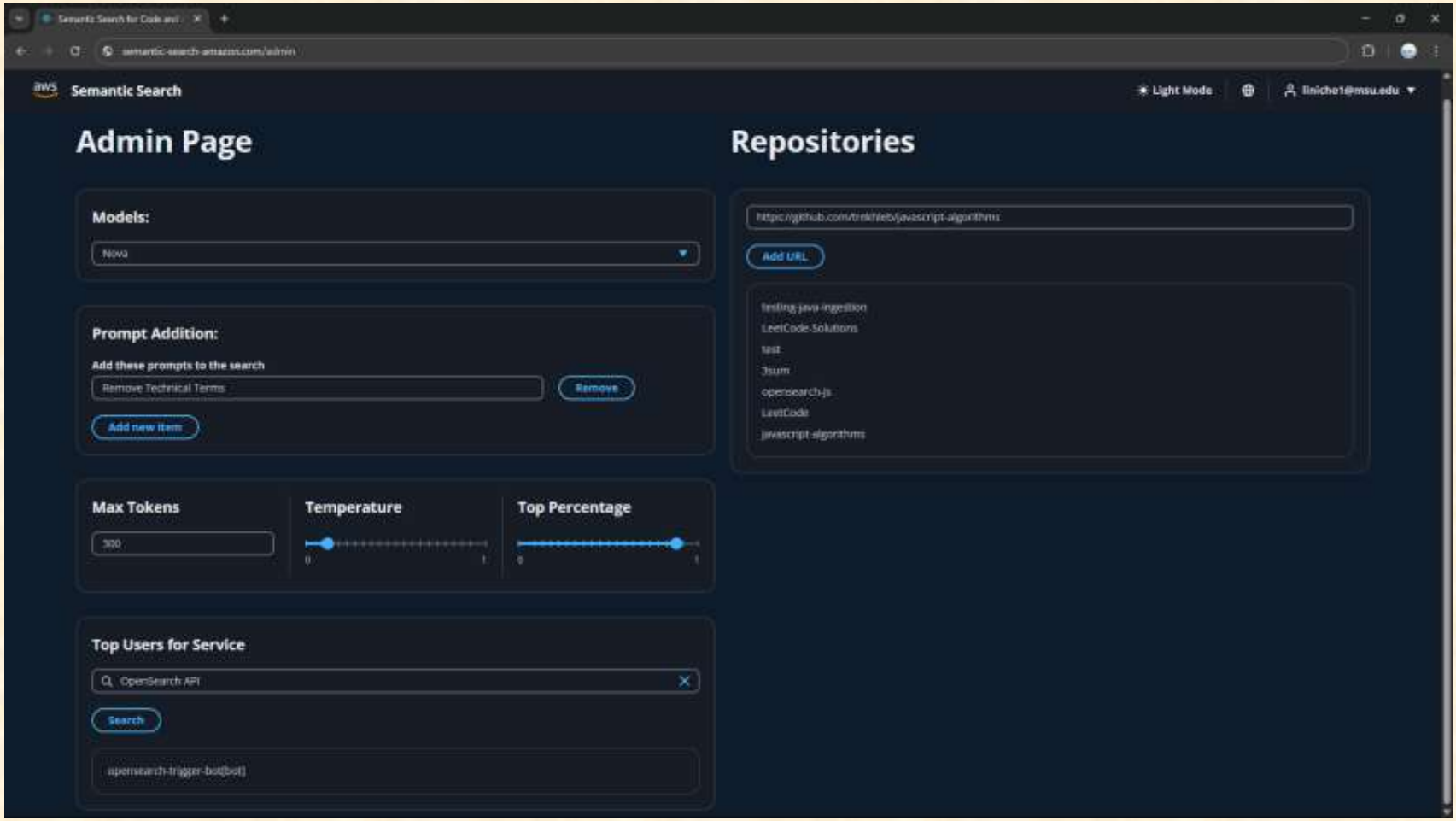
Results Page



Results with Filters Applied



Admin Page


Semantic Search
Light Mode
Admin Page
Repositories
Models:
Nova
Prompt Addition:
Add these prompts to the search
Remove Technical Terms
Remove
Add new item
Add URL
testing-java-ingestion
LeetCode-Solutions
test
3sum
opensearch-js
LeetCode
javascript-algorithms
Max Tokens
300
Temperature
Top Percentage
Top Users for Service
OpenSearch API
Search

What's left to do?

- Features
- Stretch Goals
  - Supporting more languages
  - Customized login page
  - Retrieving user attributes from Cognito
- Other Tasks
  - Code documentation
  - Clean up
  - Security and minor bug fixes

Questions?