Problem Statement

Ø Invoke the free to use public REST API from United States Geological Survey (USGS) to retrieve the Earthquake information for a specific period. And display the Earthquake info on the screen.

Ø Create a Webservice Layer to invoke the USGS API.

Ø Create a User Interface to invoke the Webservice Layer and to display the results.

API:

Sample URL 1: https://earthquake.usgs.gov/fdsnws/event/1/query?format=geojson&starttime=2020-01-01&endtime=2020-01-02

API Params:

format: "geojson"

starttime: Start date in YYYY-MM-DD, Sample: 2020-01-01

endtime: End date in YYYY-MM-DD, Sample: 2020-01-02

Technology Stack

MERN stack  
  
Features/Requirements

Feature/Requirement and Description with Business rules and design constraints

Webservice Layer   
· Create a Webservice Layer to get inputs from the UI and use the same inputs to call the USGS REST API to collect the earthquake information.   
· The service can be of REST nature with either GET or POST method.   
· Use the API URL and params provided in the problem statement to build the required webservice client.   
· Use the "geojson" format while invoking the USGS API. And send the same JSON back to the UI.

User Interface   
· Create a UI to collect below inputs   
· Call the REST webservice created (mentioned above) to get the earthquake info.   
· Display the earthquake information from the response JSON on the screen in a table format.

UI Validations   
format: geojson starttime: Start date in YYYY-MM-DD, Sample: 2020-01-01   
endtime: End date in YYYY-MM-DD, Sample: 2020-01-02

Key points API Endpoints

Method: GET / POST   
Endpoint: http://localhost:8080/api/earthquake   
Description: This API must collect the required information from UI to invoke the USGS REST service.   
· The service can be of REST nature with either GET or POST method.   
· Use the API URL and params provided in the problem statement to build the required webservice client.   
· Use the "geojson" format while invoking the USGS API. And send the same JSON back to the UI

Input Screen:  
Start Day: select the start date  
End Day: select the end date here   
 (List Earthquakes) button  
  
Output Screen:  
Ø Attached is the sample response from USGS API.

Ø Display the earthquake information from the response JSON on the screen in a table format.

Ø Each Earthquake recorded will be inside the Json key ‘properties’, and its content must be displayed in a table in UI.

Ø The number of columns for the display table can be decided by the participant, but the key earthquake information must be tabulated.

Ø Prompt Engineering techniques can be explored to convert the json data into a html table from the Gen-AI tool.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | | Earthquake Info | | | | | |
| Start  Time | | | 2024-04-01 |  | End Time | 2024-04-02 | |
| Mag | Place | | Time | | Updated | URL | Detail |
| 1.1 | 17 km SSE of Denali National Park, Alaska | | Monday, April 1, 2024 7:52:43.978 AM | | Thursday, April 25, 2024 6:28:52.597 PM | https://earthquake.usgs.gov/earthquakes/eventpage/ak024489x7ar | https://earthquake.usgs.gov/fdsnws/event/1/query?eventid=ak024489x7ar&format=geojson |

Example JSON:

"properties": {

"mag": 1.1,

"place": "17 km SSE of Denali National Park, Alaska",

"time": 1711957963978,

"updated": 1714069732597,

"tz": null,

"url": "https://earthquake.usgs.gov/earthquakes/eventpage/ak024489x7ar",

"detail": "https://earthquake.usgs.gov/fdsnws/event/1/query?eventid=ak024489x7ar&format=geojson",

"felt": null,

"cdi": null,

"mmi": null,

"alert": null,

"status": "reviewed",

"tsunami": 0,

"sig": 19,

"net": "ak",

"code": "024489x7ar",

"ids": ",ak024489x7ar,",

"sources": ",ak,",

"types": ",origin,phase-data,",

"nst": null,

"dmin": null,

"rms": 0.77,

"gap": null,

"magType": "ml",

"type": "earthquake",

"title": "M 1.1 - 17 km SSE of Denali National Park, Alaska"

},