



# Early PangeAI Engineering Exploration: Build the World, one Map at a Time

## How to approach this page

- 💡 This is *not* a test with a clear expected outcome. It's an invitation to play: a real exploration into the kind of challenges we tackle at PangeAI every day. Think of it as an exploration rather than an exam: build, map, break, debug, and discover.  
We're much more interested in *how you think* than in perfect outputs.  
It is also an open invitation for interaction - we want to see how we would work together, so as you explore and play below, do reach out and share findings in your process, or any questions that pop up along the way



# The Task

You'll be working with our starter repo:



hiring-task-starter

PangeAI-Inc • Updated 2 months ago

Your mission:

1. **Run the boilerplate code** from the repo — get the base map running locally.
2. **Choose a city, country, or region of interest.**

(Anywhere on Earth — your hometown, a place you've always wanted to visit, or something geospatially wild.)

3. **Find at least three datasets** about that region:

- Each should have **different geometries or formats** — e.g. points, polygons, grid squares, or rasters.

(Think: EV chargers ●, flood zones ●, and air quality tiles ●.)

4. **Visualize all three layers** together on the map using the provided framework.
5. **Add a simple AI agent or prompt-based interaction.**

For instance:

“Where do both X (from dataset 1) and Y (from dataset 2) occur?”

The goal is to integrate a lightweight reasoning step — whether that's spatial intersection, summarization, or conversational insight.

6. **Document your experience.**

- What worked smoothly?
- What challenges did you overcome?
- What surprised you?
- Did you enjoy it? (We hope yes!)



## Example Output: Japan Seismic Risk Map

Here's an example from one of our internal prototypes — visualizing the **probability of seismic shaking in Tokyo** using open JMA data and geospatial layers. This is a more complex use case, so take this as exceeding what is expected:

The screenshot shows a video player interface. At the top, it says "Geospatial Agent for Insurance Insights" with a globe icon, and "114 views". To the right are icons for sharing, messaging, and a comment count of 0. Below this, a comment from "Johanna" reads "Thank you, Johanna! 🙏". A "Comment" button is located to the right of the comment area. Below the video player are several emoji reactions: a red heart, a thumbs up, a fire, a clapping hands emoji, a surprised face emoji, and a face with rolling eyes emoji. At the bottom, there is a "Watch again" button with a circular arrow icon, and a dark gray bar with a smiley face and a plus sign icon.

## 🤔 Architecture Extension (optional)

- One of the biggest limitations of current GIS systems is the awkwardness of working across several layers, where usually the entirety of all datasets is being loaded in the background. Any change then is leading to frustrating recalculations which break workflows and lead to memes like this:



- Try to propose a globally-valid geodata representation that:
  - Dynamically resizes based on the size of examined area (continent vs country vs city vs street level)
  - Allows for ingestion of embeddings across different dataset types and granularities, ie satellite imagery, county level (shapefile), raster (ie, square km)
  - Combining the above, is able to carve out the area of interest from any dataset ingested and combine different layers to produce new ones (example: overall insurance risk is flooding risk + crime risk + seismic risk + crime risk)

## ⌚ Timeline

- It is recommended to take about **two weeks** to play, explore, and build - but you should let us know a timeline that suits you.
- Once you feel ready, **let us know when to reconnect** - we'll schedule a short chat to discuss your results, what you learned, and where you'd like to go next.

## 💬 What We're Looking For

- **Curiosity and initiative:** exploring new data sources or APIs
  - **Technical flexibility:** being able to connect the dots between datasets, formats, and tools
  - **A touch of creativity:** whether in visualization, prompts, or storytelling
  - **Clarity in communication:** your write-up and reasoning matter as much as your code
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## Tips

- Use open datasets (OpenStreetMap, Copernicus, UN, government portals, etc.)
  - Keep any repo clean and readable: commit often, comment your code
  - Bonus points for deploying your map (fly.io, railway.com,...)
  - Even more bonus points for visual flair 
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## Why We're Doing This

PangeAI builds **AI agents that understand the physical world**; turning raw geospatial data into decisions that shape how we build, charge, move, and live.

This challenge mirrors the kind of real-world, open-ended problems our team tackles every week.

If you enjoy this kind of exploration, you'll fit right in. 