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Assignment 4 Report: Group 3
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https://neogeoweb.ca/group3/assignment4/

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i. Describe the purpose of your app.

The purpose of our app is to provide weather data and give appropriate fashion advice for residents of Iceland and tourists visiting the country. It tells the user what the temperature is going to be, how intense the rain or snow is going to be and the total wind speed which is the wind speed and gust combined. Since Iceland is generally a cold country, with different levels of cold in many cities, we wanted to provide the best fashion advice as possible for the user based on their chosen location.

ii. Justify the style choices and map options you chose. Justify your choice of location.

As group 3, we chose to focus our weather app on the country of Iceland. Not only does this country have very seasonally variable weather conditions, but is also a hotspot for tourists year round. Therefore, plenty of people will be searching for near-future weather forecasts when travelling around the island. Major cities of Iceland are all located on the island exterior, with no major metropolitan areas in the interior. Therefore, the cities on the coast will all have variable weather conditions due to their placement on different sides of the highlands (which disrupts continuous weather patterns and drives variable conditions). Furthermore, the *Ring Road* (Route 1) spans approximately 1350 km and serves as a national highway that circles the entire island of Iceland. It is a route used by many tourists and it connects almost all major cities. Therefore, knowing the weather conditions along this route will be very useful for tourists and locals alike who plan on traveling along this road. Since the ring road takes on average approximately 10 days to complete, we decided to forecast weather for 3 days into the future (to help travellers plan ahead). Additionally, we chose to display rain intensity rather than snowfall intensity as the autumn months are the wettest in Iceland. Therefore, once autumn is over (past December), and the temperatures drop more consistently, we can switch this for snow intensity.

We chose to format our website around two main sections: the interactive map of Iceland, and the weather conditions report box. Once the user clicks a point on the map, a box stating the closest city point and a button to generate the weather report appears in the top right corner of the page. Upon clicking, the weather chart appears. Additionally, a static box in the top left corner called "today's fashion wizard advice" is populated with our clothing recommendations along with a cute little avatar graphic depicting our suggestions. Since the map and weather report are the central theme of the app, these sections are the largest.

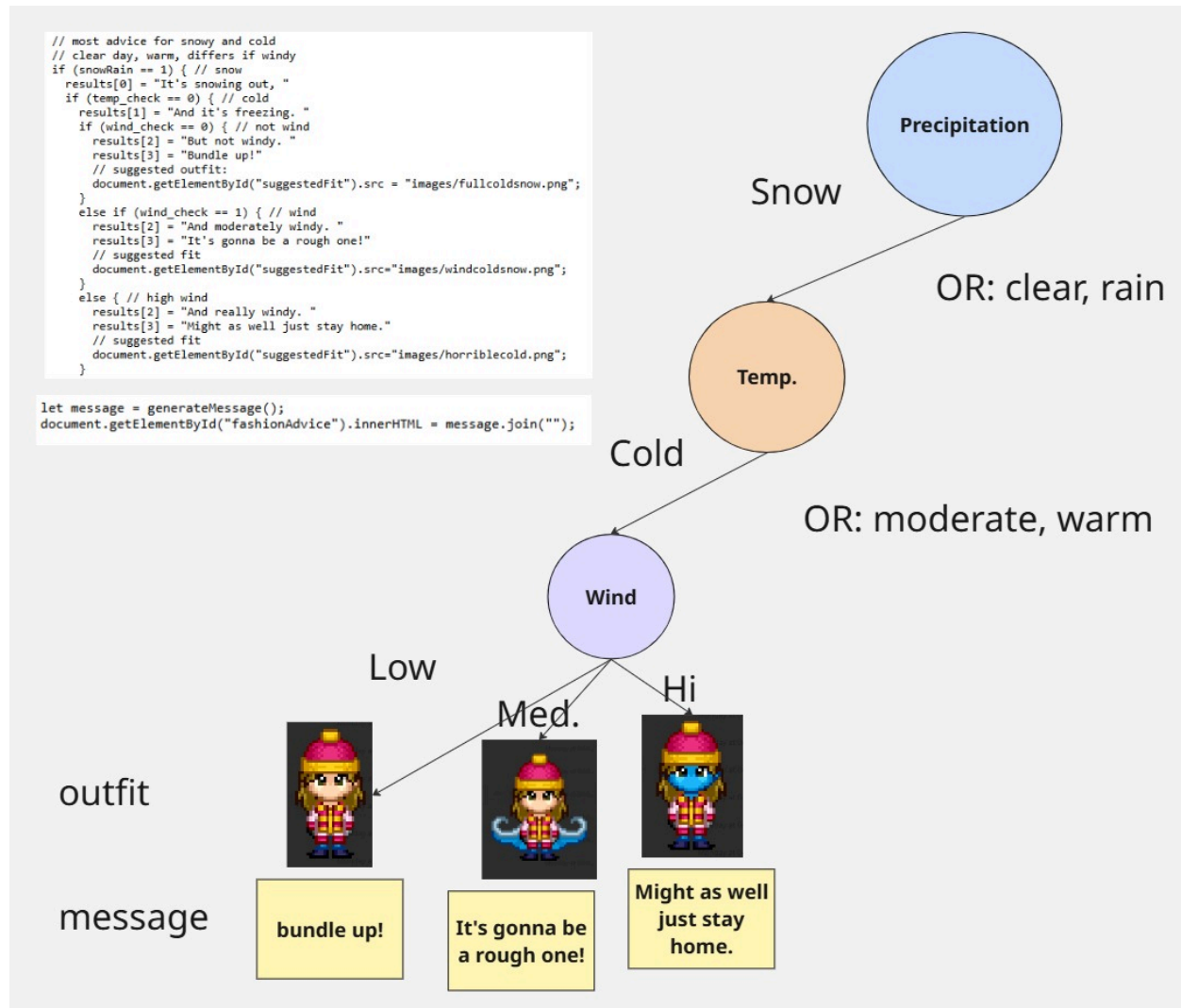**iii. Document the structure of your app.**

Our app shows the user a map with points as stars representing cities in Iceland. The user selects a point which gets the coordinates of the location selected. Using this information, the data is sent to the [tomorrow.io](#) API, which gets weather data from that location. More specifically, it retrieves the temperature, rain intensity, snow intensity, wind speed, and the wind gust from that location.

Using the data retrieved, it makes a decision for the user on fashion advice based on the weather for instance, if it was colder, it would suggest to the user to wear a coat. If it's raining, it would suggest to wear a raincoat or bring an umbrella. If it's windy, it might suggest to the user to wear a scarf or to cover up from the wind.

Finally, after going through the process of determining which fashion is best suited for the weather, it will output a line graph that shows the total wind speed, temperature, and rain or snow intensity over the next 5 days. It will also output in text, appropriate fashion advice for the user, suggesting what to wear at the selected location with an avatar of a person wearing the suggested clothing. It also outputs the closest city to the location selected based on our GeoJSON file of cities in Iceland.

iv. Build a decision tree model (think of it as a cartographic model) to explain the step-by-step logic of your app. Explain how the various weather observations at the specified x,y,t translate into qualitative actions (i.e., the fashion advice for any particular observation)

See image below to reference my step-by-step logic. Since the conditional statements filter to output exactly 18 unique responses, a decision tree with the full logic would have been far too lengthy so instead I have shown one branch out of the many options. It's like a "choose your own adventure" game! First, the if / else if / else statement runs through three options: Snow, Rain or Clear. From each of those branches, nested logic follows in a branch-like formation (mimicking fibonacci-sequence), with unique factoring logic for temperature - if / else if / else for cold, moderate, or warm. Finally, the conditional statements run through an if / else / else statement for wind: low, moderate or high and for each of *these* options, an output fashion advice is generated (results[4]: "Throw on some sunnies" for example) and a unique image is written to the screen through a div (document.getElementById("suggestedFit").src="images/windcoldsnow.png";). I created these images using [Avatars In Pixels](#), a build your own character tool. It's a very fun website, and the avatar is supposed to be myself. What I credit myself most for in this section of the assignment and what I think is the coolest about my conditional statements is my use of the JavaScript array. For each conditional statement passed, a statement is added through the use of the array[position] functionality to a predefined local variable, and at the end all four "mini phrases" are concatenated into the message to the user using the .join() function. Using this logic, I am able to combine many sentences together using complex logic and it really gives the output message that video-game feel. I did not use a GPT for this section, and all the conditional statement and function logic came from my ideas. I love fashion!

```
// most advice for snowy and cold
// clear day, warm, differs if windy
if (snowRain == 1) { // snow
  results[0] = "It's snowing out, "
  if (temp_check == 0) { // cold
    results[1] = "And it's freezing. "
    if (wind_check == 0) { // not wind
      results[2] = "But not windy. "
      results[3] = "Bundle up!"
      // suggested outfit:
      document.getElementById("suggestedFit").src = "images/fullcoldsnow.png";
    }
    else if (wind_check == 1) { // wind
      results[2] = "And moderately windy. "
      results[3] = "It's gonna be a rough one!"
      // suggested fit
      document.getElementById("suggestedFit").src="images/windcoldsnow.png";
    }
    else { // high wind
      results[2] = "And really windy. "
      results[3] = "Might as well just stay home."
      // suggested fit
      document.getElementById("suggestedFit").src="images/horriblecold.png";
    }
```

```
let message = generateMessage();
document.getElementById("fashionAdvice").innerHTML = message.join("");
```

Precipitation

Snow

OR: clear, rain

Temp.

Cold

OR: moderate, warm

Wind

Low

Med.

Hi

outfit

message

bundle up!

It's gonna be a rough one!

Might as well just stay home.

v. Talk about why you picked the chart you did, how does it serve to illustrate the data

Our app utilizes an area chart within the weather conditions report. Not only is this chart style aesthetically pleasing, but it also provides enough space to visualize both negative and positive values in a clear way. We chose to express rain intensity (mm/hr), temperature (°C), and wind speed (m/s), which all share relatively common value magnitudes. Therefore, we were able to use one axis to represent all three variables, even though their units vary (as expressed through the variable name at the top of the chart). The user may also click the title of each variable to remove the data from the chart if they wish to only visualize specific weather conditions.

For each of you in the team, reflect on the assignment (approximately one page each):

Ben's Reflection:

i. Find two-three short articles or posts on streaming data (cite as well). What are their main points? Anything we missed in class? Coordinate with others in class so you're not relying on the same posts.

The first article that I found interesting discusses the advancements in the field of streaming JSON data (*Streaming Data with REST APIs*, 2025). The website goes on to explain that where CSV files are relatively straightforward to stream, JSON data presents difficulties as syntax errors appear frequently due to mismatch in { and [brackets during the streaming process. They explain that JSON streaming fixes this syntax issue by using text sequence techniques that send one valid JSON object per line (useful for when you are dealing with a massive JSON file). The article also describes topics we did not cover in class such as the difference between pagination and streaming, where the former is more useful for browsing data without obtaining the entire dataset.

The second article that I found on streaming data was released by IBM and discusses the types, uses and applications of streaming data (*What Is Streaming Data?*, 2024). What drew my attention in this article was the section about streaming data use cases. The authors describe the common applications of streaming, including financial services that stream data to detect fraud and flag real-time unusual or suspicious activity. Even instruments in the healthcare sector rely on data streaming to monitor patients and alert medical staff to concerning conditions. This article helped broaden my view of data streaming applications and the interdisciplinary fields that they may be used in.

ii. What information sources did you use to complete your portion of the assignment? For example, did you view any Youtube videos? Which ones? Did you utilize stackoverflow? How?

For this assignment, my primary responsibilities were split into two categories: app design/aesthetics, and using interval weather data to plot using chart.js. For the visualization of the app, I took inspiration from the Icelandic Meteorological Office (IMO) website (Link). Under their weather observations tab, they have an embedded map with weather conditions to different regions on the island. I noticed that the IMO mainly monitors wind, temperature, and precipitations as default outputs on the website, and therefore, I decided to display the same variables on our website (as they are likely the most relevant). Furthermore, I like how the map and weather report were structured in relationship to each other, and drew inspiration for our own app structuring. I also used Mapbox's very own Location Helper (Link) to help identify the

spatial frame that I wanted for the embedded map. W3schools was used extensively (as always) for styling inspiration. Data points for the Icelandic cities were obtained from the Iceland Cities Database on SimpleMaps ([Link](#)). For the second task involving chart.js, I referenced a very useful youtube video titled "How to Create Charts Using ChartJS - Getting Started With Chart.js - Chart.js Introduction" ([link](#)). This video helped me understand the library better and structure the code for the area chart.

iii. Did you use a GPT? For what purpose?

For my portions of the assignment, I used ChatGPT to help clear previous weather data every time the button is clicked to avoid data concatenation. I also used it to help me get the colour codes to make the background of the area chart variables transparent, and to "destroy" the previous chart for each subsequent button click. I was also having troubles with the [tomorrow.io](#) data forecast requests, as each time I clicked the button for the weather report, our code was sending 4 requests (one for each day) to the weather API (quickly maxing out our hourly request limit). I used ChatGPT to help fix the for loop to avoid calling [tomorrow.io](#) for each day of the forecast, and to just request all the data at once.

Sources:

Streaming Data with REST APIs. (2025, September 12). APIs You Won't Hate.
https://apisyouwonthate.com/blog/streaming-data-with-rest-apis/

What is Streaming Data? | IBM. (2024, December 30).
https://www.ibm.com/think/topics/streaming-data

Jacks's Reflection:

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i. Find two-three short articles or posts on streaming data (cite as well). What are their main points? Anything we missed in class? Coordinate with others in class so you're not relying on the same posts.

In a Washington Post article written by Shira Ovide (2025), the main point on data streaming is how streaming struggles with live events compared to traditional television. Similarly to the stock market activity we did in class, this article explains how for streaming services, there are often computers which manage the traffic being routed to people's devices and sometimes, companies underestimate how many people end up watching an event. This can lead to the computers being overloaded, causing delays which is like causing lag for some. Even though live TV and live streaming are both forms of live entertainment, a channel is the same for everybody no matter where they are watching it with some exceptions so it's easier for TV

companies to simply provide one program at a time compared to streaming which has to juggle around tons of different demands. It's like a restaurant trying to please everybody with hundreds of dishes on its menu vs another keeping it simple and having better quality food.

In Chandni Sinha's article on IBM on why AI needs real-time data (2025), the main point of this article is about how AI constantly needs new data, often from streaming in order to function properly. They mention how constant data streaming allows AI to provide the most up to date info and make the best decisions for us. Without data streaming, even only having data a week old, the author mentions that this can lead AI to make inappropriate decisions based on current data. One such example is with the current rapidly evolving market, with the needs of the population changing constantly, providing responses that are based on outdated data can be detrimental to many companies seeking to win over customers.

ii. What information sources did you use to complete your portion of the assignment? For example, did you view any Youtube videos? Which ones? Did you utilize stackoverflow? How?

One of the main stackoverflow sources I used was the one provided in the assignment 4 document (Link). I used this to help avoid falling into the trap of thinking that declaring a variable straight away with getJSON was exactly the same as declaring variables generally. I also used this one to help me understand the process of accessing the data from tomorrow.io and how I can organize my code accordingly so that it's easier for me to understand what words are extracting what data.

iii. Did you use a GPT? For what purpose?

I used a GPT to help me figure out how to extract data from the GeoJSON from tomorrow.io. I noticed that my previous attempts weren't working and with the use of a GPT, it helped me figure out what the problem was. Similarly, I used it to help find typos in my code as often, I found myself being sloppy sometimes and misspelling a variable for instance which causes everything to break. Often, these typos are one incorrect letter in a variable. Moreover, some of the answers I was looking for when working with getJSON and trying to figure out how it worked was extremely hard or impossible for me to find with a simple Google search. This is where ChatGPT helped explain to me some of these things for instance, why is it not the best if I write my code like this and it's better to write it like that. I also used it to help me understand better what the report was asking for as one of the points (Document the structure of the app) wasn't fully clear to me so I had it explain what it was asking me to do without actually writing the whole thing for me.

Sources:

Ovide, S. (2025, March 4). Why streaming still struggles with live events like the Oscars on Hulu - The Washington Post. The Washington Post.

https://www.washingtonpost.com/technology/2025/03/04/streaming-live-hulu-oscars-cut-off/

Sinha, C. (n.d.). Why AI needs real-time data. IBM.
https://www.ibm.com/new/product-blog/ai-real-time-data

Kyras's Reflection:

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i. Find two-three short articles or posts on streaming data (cite as well). What are their main points? Anything we missed in class? Coordinate with others in class so you're not relying on the same posts.

My first article is from an AI company called Windward so it's generally a promotional piece, but it gives a good informative overview of a type of live "streaming" data called AIS Ship Tracking. We discussed this in class, but the most famous case and most probable reference of the AIS (Automatic Identification System) is Marine Traffic, which shows a beautiful live representation of all registered boats across the world, colour coded for utility. The three main points of the article are, first, the tracking system is radio based and used by the maritime industry to monitor and track vessel movements in real time. Second, the AIS transmits two types of data through its streaming, static information and dynamic information with no set intervals. Finally, the article emphasizes the significance of AIS for the maritime industry, stating it was the most significant development in navigation since the introduction of radar.

My second article is from SportsNet and discusses an infamous case of streaming data failure during the Blue Jays game 7 (final game) of the World Series this year. I was watching the game (along with thousands of other Canadians) when this happened and remarked on my strong discontent for the service after this happened - why pay for a subscription if you can't watch the most important game of the season, the year, or potentially your life? In the Reddit chain linked in my sources, one user says, "Missed the entirety of the 4 run seventh inning desperately trying to find another feed somewhere. And the bull**** error message that made it sound like it was the user's fault and not theirs...." which I think is particularly apt to the responsibility levels of such enterprises. The three main points of the article: 1) Many users experienced the outage 2) It happened during the most critical point of the game 3) The streaming service crashed and froze and spit out a "Code 22" error message for an error detected on [the user's] network. I do think we overlooked this aspect of live television errors in streaming data in class up to this point.

ii. What information sources did you use to complete your portion of the assignment? For example, did you view any Youtube videos? Which ones? Did you utilize stackoverflow? How?

To complete my portion of the assignment I did not use too many external resources to be honest, apart from the [Avatars in Pixels](#) site I mentioned earlier and [W3 schools](#) which I used quite liberally. Other than that, I looked at my team's previous assignments, I used the typical resources ([CyberDuck](#), [geojson.io](#), [MapBox](#)). I also used [Png Egg](#) for downloading PNGs of my photos. Sometimes I would try to guess the URLs of other groups to check in on their progress.

iii. Did you use a GPT? For what purpose?

I used a GPT to help me debug and correct errors in my quiz code. When I initially wrote the quiz, I had several syntax issues and logical errors that prevented it from functioning properly, but I wasn't able to identify exactly what was wrong. By asking the GPT to review my code, it helped me spot multiple problems including incorrect array syntax where I had used commas instead of proper array brackets, extra parentheses in my prompt function calls, and variable naming inconsistencies like using *weight* instead of *weights*. The GPT also identified scope issues with my variables, such as how I was trying to use my *answers* array for both storing correct answers and student responses, which was causing conflicts. Additionally, it caught that I hadn't initialized one of my variables to zero, which would have caused undefined behavior. In general, I would run my code and if it wasn't working and I couldn't figure out why, I would ask it and it would normally return a syntax error I'd confused with Python, or hadn't understood - like I kept on messing up on the variable scope front when placing code within brackets. These were the types of small but critical errors that are difficult to spot on your own, especially when you're testing code and multiple things aren't working at once. The GPT's fastness in systematically reviewing my entire code, plus explaining each fix, helped me understand not just what I got wrong but *why,* which will help me avoid similar mistakes in future assignments.

Sources:

Windward. n.d. *AIS Ship Tracking.* Retrieved on Wednesday, November 26 from https://windward.ai/glossary/what-is-automatic-identification-system-ais-ship-tracking/.

The Canadian Press. November 2, 2025. *Blue Jays fans lose feed as Sportsnet+ crashes again during Game 7.* CTV News. Retrieved on Wednesday, November 26 from https://www.ctvnews.ca/sports/article/blue-jays-fans-lose-feed-as-sportsnet-crashes-again-during-game-7/

And a Reddit post full of said outraged fans, posted the same day on r/baseball: https://www.reddit.com/r/baseball/comments/1oj2x09/blue_jays_fans_outraged_by_sportsnet_outage/