**Prototype 3 Report**

Upon completion of prototype 3, there are several strengths and weaknesses associated with its architecture.

The main strength of prototype 3 is that data is now being stored in the browser’s cache. This increases the speed and reduces load times when accessing data with prototype 3. This is because prototype 3 can load the data stored in the cache instead of the data from the database or API (if the data in the cache is recent enough).

The second strength relates to the communication between prototype 3 and the weather API/database. Due to the fact data is stored within the browser, prototype 3 no longer needs to constantly communicate with the mySQL database and the OpenWeatherApp API. This not only increases the speed, as previously mentioned, but it also reduces the cost of running prototype 3. The reason that this is the case is because, when paying to have an app/website on a server, the owner of the server usually charges based on the ‘clicks per minute’ as proven by the OpenWeatherApp API which does the same. Therefore, requiring less communication between prototype 3 and the server, costs less.

There are also weaknesses associated with prototype 3’s architecture. The first of which is that storing data in the browser, uses a small portion of storage on the user’s device. This means that data wouldn’t be able to be stored if the user’s device has no available space or if the user chooses to not allow prototype 3 to store any data.

The second weakness of prototype 3’s architecture is that older devices are unable to access browsers that allow browser caching. This weakness mostly applies to third world countries where users may still be using older phones (pre-2009). This means that users with these older devices, would need to constantly access the mySQL database and OpenWeatherApp API to display data in prototype 3.

A third weakness of prototype 3 is its overall cost. Servers are expensive to run/own, meaning keeping prototype 3 running on a server can cost quite a bit of money. Further to this, if the server was to fall victim to a cyber-attack/power outage, prototype 3 would become inaccessible and its data would be at risk.

In order to improve upon prototype 3’s architecture, it could include the addition of a secondary API to help prevent any long-term issues with data collection/availability. Another improvement could be to incorporate geolocation to the weather app, so that users are able to view weather data from their current location, and not just Nottingham, as prototype 3 currently displays.