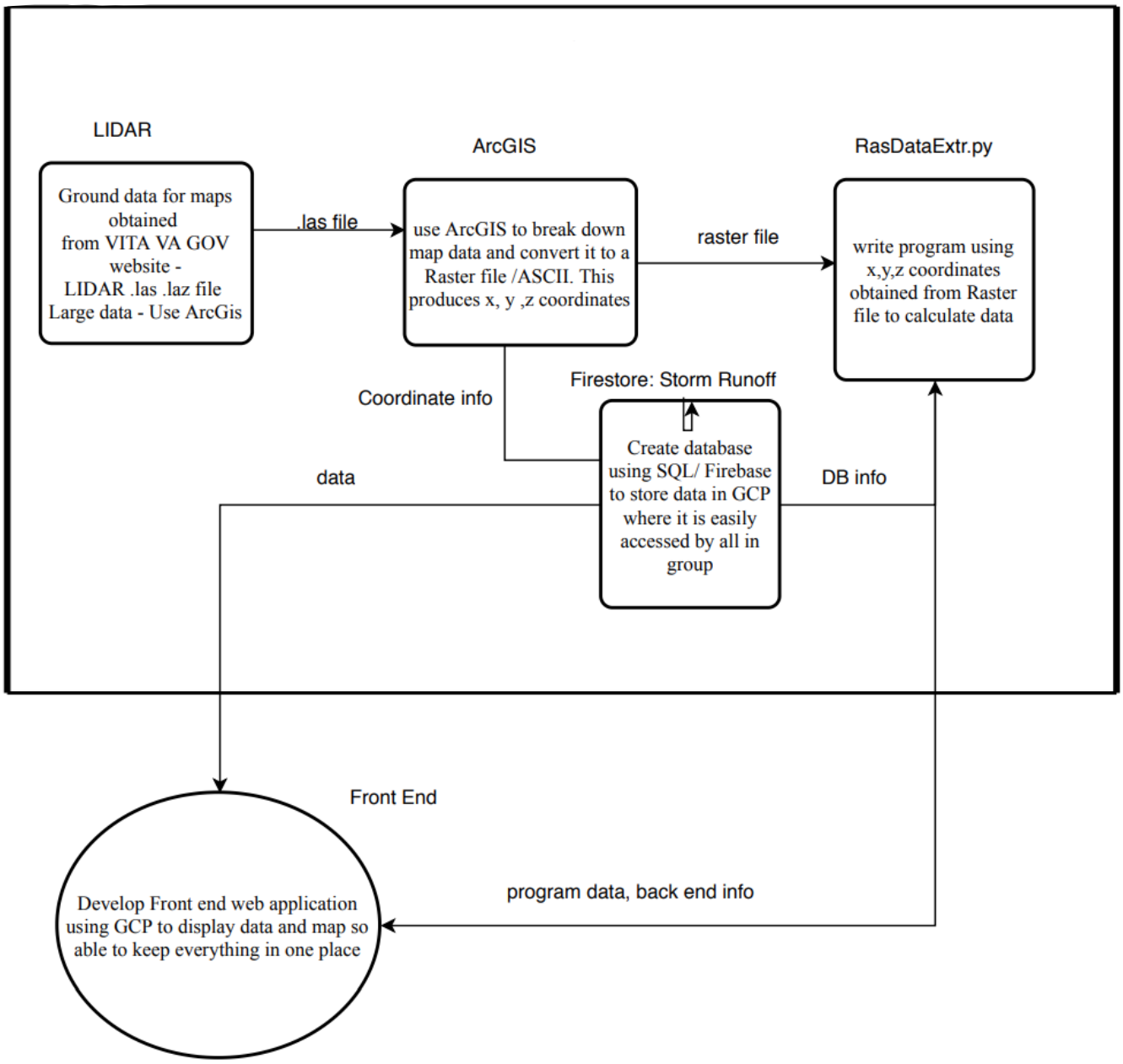
Rain Run Off Design Documentation

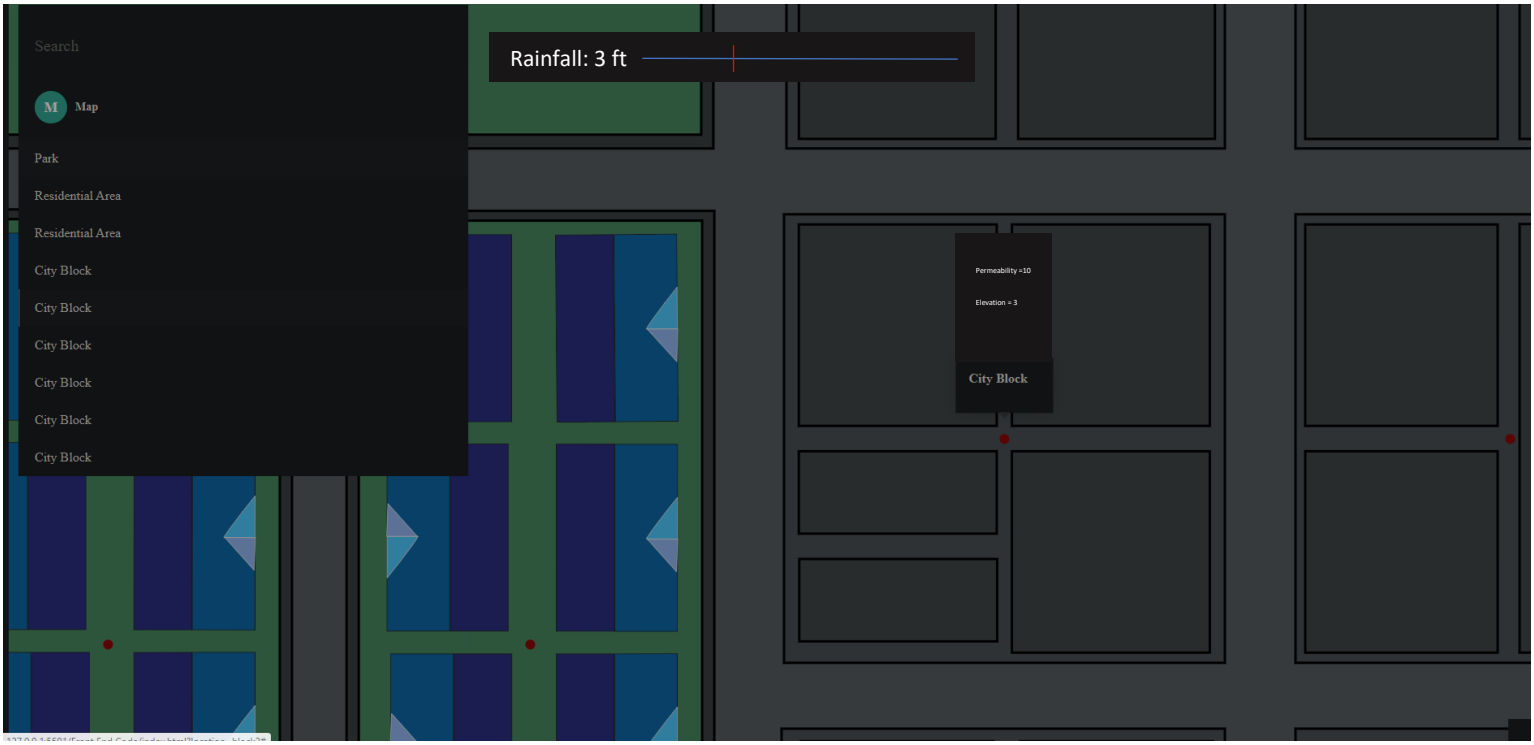
As per the original system designed by the previous semester's team, the back end is:



However, instead of Firestore, it is more likely that we will switch to Amazon RDS since students are given tokens and access to free tier servers. However, the connection between the back end ArcGIS map parsing was never established. Instead, we will be focusing on using Mapplic to set up maps and run simulations that will show the results of flooding by reading in data off the sample maps and checking how flooded and area would be after

comparing several variables. As of now, we will focus on confirming that Mapplic can be used to simulate and show the results of rainfall via overlays and completely random test data and values.

A mockup would be like so, where clicking a specific area of the map would display the necessary values to compute how resistant that area is to flooding, such as the permeability of the land, any drainage points, and the elevation causing natural run off. The meter will allow the user to set how much rainfall is present on the map, and the maps will be swappable to test the effects of the rainfall on different terrains.



After the rainfall value is set, the amount of saturation will be calculated via the back end and an overlay will be set over the map to represent how wet an area gets. Here is an example of what the webapp may look like after running the simulation on a local area.

The darker blue areas representing areas that have more floodings, (more inches of rainfall.) and the values for how flooded each area is after running the map through Python scripts.