Senior Design Idea

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What end product will look like:

* Be a website like what the old group had, it will have entry spots at the top to input some forms of data to use. Under the boxes will be the map.
* Possible data fields:
  + Rainfall rate
  + Time delta wanted
  + Map selection
  + How long for the simulation to run
* Map will be a default map, can make a few and let the user pick if they want.
* After the user enters all of the information the map will start changing to show the flow and buildup of water.
* Can have a “snapshot” of each time delta and upload for each time.
* Possibility: Save each time delta “snapshot” in an array so the user can go back to fully see what is happening at their pace.
* A reset button.

What the code will look like:

* Pixel class:
  + Pixel Object:
    - Area type
    - Absorption rate (Forgot word for it)
    - Color
    - Elevation
    - Current water held
  + colorCalculation()
    - Function for calculating how blue the pixel will turn.
  + waterCalculation()
    - Function to calculate what the pixel will hold in the next snapshot
    - Unsure if this is how we will implement this part yet.
  + Typical getters and setters
* Map class:
  + Map object:
    - It will be a 2d array of pixel objects
    - Possibility: Could also hold the directions
    - Possibility: Could also hold the previous snapshots array
  + directionCalculator()
    - This function will calculate beforehand which pixel’s water will flow into the next pixel.
    - Could call this function at the beginning and hold an extra 2d array that holds the information of where the water will flow.
    - Possibility: Likely will need to calculate a slope as well to know the rate the water will flow, will need another function for that.
  + update()
    - This function will calculate what all the pixels of the map will look like for the next iteration.
    - Possibility: Can save the last iteration of the map and put in the snapshot array.
    - Possibility: Likely set the new 2d map on the map object after calculation.
  + printMap()
    - Will print the map to the screen, this function might go somewhere else.
* Code to run:
  + Will setup the website.
  + Will create default map object. (Data for default maps already made)
  + Will print default map and show data entry locations.
  + When user clicks run the data values will be saved and then go into a while loop for how long it is supposed to run.
  + while(count<timeLength)
    - Calculate what the next iteration will look like
    - Print it to the screen
    - Increment count
  + Once finished there will be buttons to go back and forth for the snapshots
  + Button to reset back to the default map or change to a different map