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CPLN680 Capstone

Mid-Point

March 3rd, 2022

**Introduction and Motivation:**

Although it was named River of the Year for 2020 and serves fifteen million people for drinking, fishing, kayaking, and other recreation, there is still a 27-mile stretch of the river between Philadelphia, PA, Camden, NJ, and Chester, PA that needs improvement. This stretch is considered safe for only secondary contact recreation for all time, which means immersion and ingestion, and any high degree of body contact with the water might be dangerous for people. Many projects are currently working on this improvement. They are trying to detect the pollution source, finding the relations between CSOs, precipitation, and water quality. This project is trying to find the potential for waterfront recreation under the current situation and help adjacent communities be informed on the fairest opportunities to access recreational activities for each resident in the safest possible way.

**Question:**

Which waterfront recreation site should people go to, and what activities are available and safe depending on weather conditions and water quality?

**Literature Review:**

River Network brings people and communities together to protect and restore rivers and other bodies of water that sustain all life. Gayle Killam and Ellen Kohler wrote Recreational uses in the Delaware River - Laying the Foundation in 2006. Besides normal bacteria such as E.coli and Enterococci, they also mentioned that additional pollutants, such as nitrogen and phosphorus loads that encourage nuisance or harmful algae outbreaks, and various toxic chemicals present in the Delaware River Basin due to industrial activity and agricultural practices, must be addressed in order to support swimming and boating completely.

In 2021, Francisco Duran Vian and the team elaborate classification of riverfront parks and walks based on two criteria: the position of the open space within the river corridor and the access possibilities from the open space to the water. They also indicate how necessary it is to assume and respect the presence of the river in development processes when planning riverfronts.

Waterfronts really influence how people choose recreational sites. So including water qualities and weather conditions that have effects on waterfronts is essential information for people to take in pocket.

**Initial Analysis/Technical Implementation:**

score: score might be not objective, overlaying layers to show relatively better sites for users to choose

unvarying variable in blue color

varying variable(depend on different things) in red color

still finding map platform (google map/ArcGIS Online or export and embed )

* location(distance from user to the waterfront recreation sites)
  + will include bus, subway, Indego, parking
  + provide route
* Water quality
  + categories of recreation sites: most immersive, moderately immersive, least immersive
  + find the relation of CSO, precipitation, and bacteria (based on work in Water Center at Penn)
  + showing a water quality result based on available real-time CSO data
  + <https://water.phila.gov/maps/csocast/>
* Weather
  + rain, snow: grey those sites only have outdoor activities
  + forecast temperature, real feel, wind, humidity, air quality (show details but also recommend activities)

Graphical user interface, text, application, email

Description automatically generated

Calendar

Description automatically generated with low confidence

Table

Description automatically generated

Map

Description automatically generatedMap

Description automatically generated

Driving route, bus route, walking route, subway route, bicycle route