

# CS4760 App Description

**Team name** Risk Generators

## **App Description:**

Our app will be used to assess construction risks and costs. We will use past construction projects to predict potential risks based on cost, size, location, and the type of project. This will enable construction managers to learn about the possible factors that have affected other projects while building their projects.

Users for the app will include public officials and contractors who are going to plan out a construction project. They will answer a quick questionnaire and then risks associated with previous construction projects similar to their current one, will be generated and displayed to them. We expect them to be middle aged and have some basic knowledge about technology.

**The** major workflow for our app will be pretty similar across all cases. The broad flow will be the user fills out a questionnaire, and gets a result. The ways that this could differ would be the type of result produced. These differences will be a complex and simple view, a differing number of results, comparing the results, and the user's choice of downloading the results, displaying them on screen, or a combination of the two.

The data used will mostly be from a provided database which can be outputted as a .csv file.

The database contains previous construction projects and the factors that affected them.

**The** challenges we expect to face on the implementation side of the app are figuring out how to make the results comparable, downloading and or viewing the csv files, options on the questionnaire based on how many results they want, making the website compatible with all different processing systems, and implementing the Excel sheet into the app. On the user end, we have to display the results in a user-friendly way, possibly saving previous searches, and downloading the different results in whatever ways possible.

## Post-Interview notes:

- Overall app description:
  - Planning projects and identifying potential risks(Price changes, seasonal work issues, etc.)
  - The app will be used to help prevent delays and unexpected issues
  - The app will be linked to an Excel spreadsheet connected to a database containing similar projects and issues they encountered.
  - Comparing how different variables affect the project and having options between downloading the csv or viewing within the app is the goal.
  - App will have customizations asking the user to choose how they want the data displayed to them throughout each process.
  - Our project will have a mobile friendly website to input user data with an easy to use form.
  - The app will clearly display the results from the input form and will have the ability to compare different inputs.
- Database information:
  - Major Project DataBase: The past projects that were documented and what we will be using to show the risks.
  - Database has ~6000 documented issues/risks to check over. We will get the database shared with us since it's online privately
  - Database also contains many attributes pertaining to each project to use for relevance searching.
  - Link to scientific article that explains the database in greater detail:  
<https://www.sciencedirect.com/science/article/pii/S0926580522001741?via%3Dihub>
- App technical requirements:
  - App needs to take in natural language and process it into a template.
  - We will be given Python code (with NLP?) on how the database works.
- How the app displays information:

- We need the option to choose which “category” of project type to submit.  
Types(bridge, building, etc), size/cost, location. Option for location to be flexible with user submission by giving a region or specific location
- Cost impact and schedule impact are important results that should be shown to the user.
- Client mainly wants the final list of most frequent risks and the cost impacts of the results relating to their project.
- Audience and background information relevant to project:
  - The audience is state department of transportation
  - Publicly funded projects so the goal is to detect possible dangers so there are precautions taken.
  - Delivery methods for construction projects are one of the categories the app will sort by.
    - Design->bid->build - A company designs the plans of the project. -> A bidding occurs and the contractor with the lowest cost of building gets the project. -> The project is built.
    - Design->build - happens when the same company designs and builds the project.
    - Public Private Partnership PPP: non-government company that is investing/ signing a contract with the government where they get the benefit of the project for building the project, ex: a toll.
- App platform:
  - Working on multiple operating systems with a preferable focus on mobile devices. A website would also likely work
  - Scientist is fine with the project becoming a phone application or a website (Sounded like his preference was application).
  - The app should have the option to download a pdf version of the “feed” but the user should also be able to view it without needing to download anything.