

# Project Requirement 1 (PR1): Project Proposal

## Task

Submit the following:

- proposed project title,
- description,
- target user/s,
- and technology stack

## Project Proposal

### Author

Angela Denise Almazan

### Project Title

Linking Alzar Pipes

### Project Description

Linking Alzar Pipes is a web-based pipe puzzle game inspired by classic pipe-connection games (Figure 1), and the popular mobile game Where's My Water? (see Figure 2)



The game draws thematic inspiration from our family business, Alzar Water Refilling Station, influencing both the game name and potential visual design elements.

The gameplay centers around connecting pipe tiles to form a continuous network that allows water to flow seamlessly from start to end. Players must strategically rotate and position the available pipe pieces to create a fully connected pipeline, avoiding loops or dead ends.

Upon browsing for web-based pipe puzzle games, a certain github repository has been of interest in the development of Linking Alzar Pipes. Link to repository: [lwchkh/pipesgame](https://github.com/lwchkh/pipesgame). Upon examining the

reference repository, the following technical aspects were observed:

- The existing implementation primarily uses arrays as the main data structure.
- The generation of a fully connected pipe network employs a Prim-like algorithm to ensure solvability.

Since the CMSC 122 project requires modification of either the data structure or algorithm, Linking Alzar Pipes will tailor its gameplay logic accordingly.

### Core Gameplay Features

- A pre-arranged grid containing both fixed and empty pipe positions.
- A set of available pipe tiles that can be dragged or placed onto the grid.
- Rotatable pipe tiles for adjusting orientation to achieve correct connections.
- Alternative algorithms or data structures for generating and validating pipe networks—potentially improving upon the traditional JavaScript-based implementations found in similar web games.

### Target Users

- Fans of Where's My Water? and similar logic puzzle games
- Customers and followers of Aqua Alzar, who may enjoy a themed interactive game
- General puzzle enthusiasts seeking casual web-based entertainment
- Web users searching for browser-based pipe-connection games.

### Technology Stack

HTML, CSS, JavaScript