**No changes have been made from TP0 to the design plan.**

* **Project Proposal Components** [15 pts]  
  Write up a proposal file (in the file proposal.txt, or .docx, or .pdf) which should include the following components:  
    
  + **Project Description** [2.5 pts]: The name of the term project and a short description of what it will be.

Name: Multi-level carrom

Description:

the idea: Carrom, but with complete user control over direction, spin, friction; multiple boards of increasing level, possibly different shapes; goal of attaining queen piece of highest board

functionality: multiplayer; each board is a mini carrom game (but boards become increasingly difficult: either the pieces themselves move, or the board becomes non-rectangular and itself changes shape); getting the queen stroke of 1 level causes promotion, gutter stroke causes demotion in level (if no more players left game switches to CPU; other players above may disrupt board for lower: these will be achieved through special cards issued out, or may be won in game as well (eg. through 1 stroke causing 3 carrom pieces to enter a gutter)); first player to get the queen (purple) piece of top board wins the game

* + **Similar projects** [2.5 pts]: A 1-2 paragraph analysis of similar projects you've seen online, and how your project will be similar or different to those.

Carrom is a game similar to 8-ball pool, and has a similar component (that of handling the physics of collisions and friction). However, my game shall include additional special modifications:

* + - 1. Ability to control friction level
      2. Ability to apply a specific amount of force and/or spin
      3. Presence of magic strikers: strikers guaranteed to win the player X number of pegs
      4. Board disruption maneuvers: players may shift the shape of the board/make the pieces move for the other player so that scoring becomes difficult
      5. The fact that the game is multi-level, yet disruptions can be called from any level
  + **Structural Plan** [2.5 pts]: A structural plan for how the finalized project will be organized in different functions, files and/or classes.

* + **Algorithmic Plan** [2.5 pts]: A plan for how you will approach the trickiest part of the project. Be sure to clearly highlight which part(s) of your project are algorithmically most difficult, and include some details of how you expect to implement these features.

Tricky Parts:

* + - 1. Striker and peg physics: Spin can be handled by inducing a lateral velocity on the striker whose effect steadily reduces with time; peg motion can be controlled using conservation of momentum, and their velocity will be determined by the friction level of the board for the turn set by the player with the current turn
      2. Special Striker: current plan is to use backtracker to model each peg motion, however that may be too slow if the number of active pegs is large; am currently exploring/thinking of other possible algorithms
      3. Board Shapeshifting and disruptions: the board will be made by me; board shape may be changed by changing the pixel position in the required areas so that the board area remains the same
      4. Handling Game-state of each Board: mostly likely to be stored as a dictionary with each value being a 2d list of objects
  + **Timeline Plan** [2.5 pts]: A timeline for when you intend to complete the major features of the project.

By TP1: the Physics of the striker and peg, special striker, board shapeshifting, design of initial carrom board

By TP2: The remainder of the aforementioned features

By TP3: If MVP met by deadline, may consider additional features and complete them by TP 3

* + **Version Control Plan** [1.5 pts]: A short description **and image** demonstrating how you are using version control to back up your code. Notes:
    - **You must back up your code somehow!!!**
    - **Your backups must not be on your computer** (ideally, store them in the cloud)

I plan to back-up my code on Google Drive, as I am not too familiar with Git.

Logo, company name

Description automatically generated

* + **Module List** [1 pts]: A list of all external modules/hardware/technologies you are planning to use in your project. Note that any such modules must be approved by a tech demo. If you are not planning to use any additional modules, that's okay, just say so!

**None**

* **Storyboard** [5 pts]  
  Generate a storyboard that demonstrates how a user would interact with your finished project. A storyboard is just a series of sketches showing (roughly) what your project will look like. Your storyboard should have at least six panels, and at least three of those should demonstrate features within the project. You may scan or take a picture of your storyboard and include it in the directory as the file storyboard.png (other acceptable filetypes include .gif, .jpg, and .pdf).

Ref images in zip folder submitted