1. **Overview**

Our plan is to implement a 2D game that takes a mouse and a keyboard as input, and outputs a VGA display. We choose *Huarong Dao*, a Chinese variation of *Klotski*, as a potential game logic. We might switch to other game logics, but we will stick to the overall logic:

\[
\text{Mouse/Keyboard input} \rightarrow \text{2D Game Logic} \rightarrow \text{VGA Display}
\]

![Klotski Layout and Huarong Dao](image)

2. **Hardware**

- **Mouse interface**
  - The mouse will allow users to interact with the game. For our game, e.g., clicking onto certain block to move the character, as well as other game-related functions (start, pause, and other options)

- **VGA display**
  - This display will be for the user to view the current game progress and interact with through the mouse actions.

- **Keyboard interface**
  - Addition to mouse interface, the keyboard can also use to select and move the characters. Also, keyboard actions can also allow users to input any necessary information the game needs.

- **Memory storage**
  - This hardware will be where the game logic is stored.

3. **Software**

- **Game logic implementation**
  - Game UI, puzzle layout libraries

- **Mouse/Keyboard interaction**
- Game score recorder
- AI algorithm to solve a puzzle (depending on specific games and time availability)