Takuzu

Assignment 3: Grid Management Functions

The objective of this assignment is to develop utility functions that will help in grid solving.

For this assignment you will work by groups on two again (for the last time).

1. Basic Grid Management Functions

1. Create the files `src/grid.c` and `include/grid.h` in the project hierarchy and modify the Makefile in order to compile it as a module. Use `#ifdef/#define/#endif GRID_H` as in the first assignment to manage multiple inclusions of the file.
2. Implement a function that performs a (deep) copy of an existing grid:
   `void grid_copy(t_grid *gs, t_grid *gd);`
3. Implements functions to get and set the contents of a given cell in the grid. The functions will check grid bounds and contents validity (the character stored in the grid should be a significant character). The functions will have the following signatures:
   `void set_cell(int i, int j, t_grid *g, char v);`
   `char get_cell(int i, int j, t_grid *g);`

2. Grid validity control

1. Implement a function that returns true if a grid is consistent, i.e. meets the constraints of the Takuzu game:
   a. no identical lines/colums
   b. no more than two consecutive zeros and ones in rows and columns.
   This function should work even if the grid is not fully filled. The function will return `false` if the grid is not consistent, and `true` otherwise. The signature will be as follows:
   `bool is_consistent(t_grid *g);`
2. Implement a function that returns true if a grid is full (no empty cells) and meets all the constraints of the Takuzu:
   `bool is_valid(t_grid *g);`

Intermediate functions can be developed for this assignment to work on individual lines/columns.