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Design for Long Project #8

To start, it is hard to “come up with” a plan when by the time Short 8 became Long 8 I had already finished the project. But I will explain the logic in my choices of Class and Method construction.

The project has a total of two additional classes aside from the Pipe class. The First class is the Room class. Much the same way the Room class worked in the previous project, the construction has attributes about one “room”. This class will be called Cell. It will contain the NESW directions, the special “pool” condition and the State condition. To begin the constructor of the Cell class contains all the attributes(NESW, Special Condition, and Fill State) set to False. All the attributes are public. The Pipe class will call build_grid method in the Cell class to build a list of objects. Each object is a cell object with the NESW, special condition and fill state attributes. When build_grid method is called all the attributes will be the same for every cell object in the list. The specific attributes for a specific cell are determined by the “grid” that is taken in as a parameter in the Pipe class. It will read through the grid and based on the string will assign the links(pipe directions) with the Cell.link_cells method. Based on the string that is read that represents each cell, if a “link” in a specific direction exists the corresponding attribute will be set to True. It will return a list of list each inner list will have six boolean elements that contain the information about cell and its “links”.

The second class that is used is called SquareDrawing. This class will create square graphics object that represent each cell in the Pipe grid. The class will take four parameters (gui,width, row, col). Gui is the large graphics canvas that all the cells will be “drawn” on. An attribute named main will be assigned the gui parameter. Width is the size of the cell, it will be assigned to the size attribute. Row and col are values that are used to determine where in the gui object the cell is “drawn”. The container attribute of the SquareDrawing class is assigned a graphics object at position row, col with decisions of width*width. The class also have NESW

and special condition attributes that are default set to None. All the attributes of the class are public. There will be six methods in the SquareDrawing class. Five of the methods will be methods that assign a graphics object to the corresponding attribute. The “draw” methods will take three parameters (row, col, state). Row and col correspond to which cell is being “built” and can be viewed as x,y cords. The orientation of the xy plane is 0 on top left, positive values only. The State parameters is boolean that designates if the “pipe” connectors are filled or not. The final method in the SquareDrawing class is called pipe_layout and it takes three parameters (cell_info, row, col). Cell_info is a list of six booleans that is looped through each index of the list corresponds to a specific attribute in the square drawing. Indexs 0-3 correspond to NESW “links” index 4 is the special condition and index 5 is the fill state. Row and col corresponds to xy cords, which specifies the which cell is being built.

The pipe class will call the Cell.build_grid in its constructor, when it makes a list of rooms/cells. The SquareDrawing class will be called by the Pipe class in the Pipe.draw method. In-order to get a specific cell, either to print the cells information or do a rotate action, an additional method in the Pipe class is used. The list_cell_info method will take x,y parameters that represent coordinates in a xy plane with 0 on top left. The list_cell_method will be used to call create a list of 6 booleans. Indexs 0-3 correspond to NESW “links” index 4 is the special condition and index 5 is the fill state. When a rotate method calls list _cell_info it read the list of booleans and will assign the rotated attributes (NESW “pipe” directions) to the cell at x,y.