```
                    ┌──────────────────┐
                    │ ▲                │
                    │    Game Loop     │
                    │                  │
                    └────────┬─────────┘
                             │
                             ▼
                    ┌──────────────────┐
         ┌──────────│    Computer      │──────────┐
         │          └────────┬─────────┘          │
         │                   │                    ▼
         │                   ▼            ┌──────────────────┐
         │          ┌──────────────────┐ │      Hand        │
         ▼          │      Board       │ └────────┬─────────┘
┌──────────────┐   └────────┬─────────┘          │
│  Dictionary  │            │                    │
└──────────────┘            ▼                    ▼
                    ┌──────────────┐     ┌──────────────┐
                    │    Spaces    │────▶│    Tiles     │
                    └──────────────┘     └──────────────┘
```

Scrabble solver design

- Game loop is the "Solver class" runs the program. It sets the tile values and loops reading in boards while tests are still fed in. It also fills the dictionary from file given in the command line arguments.

- The computer is where we solve the boards that are fed in. I used the paper "The World's Fastest Scrabble Program" and the video that was posted on the discussion board that followed the same paper but in python to create my algorithm for solving the board using backtracking recursion. The hand is represented by an ArrayList of tiles.

- The dictionary is a Trie structure using a HashMap for storing the possible next letters in a word. With a Boolean for a node that marks the end of a word.

Scrabble solver design

- Tiles are just a character and a score value

- Spaces are objects that have a Tile and a tile multiplier and a word multiplier and its position on the board

- The board is held as a 2D array of our Space objects. it is always square.
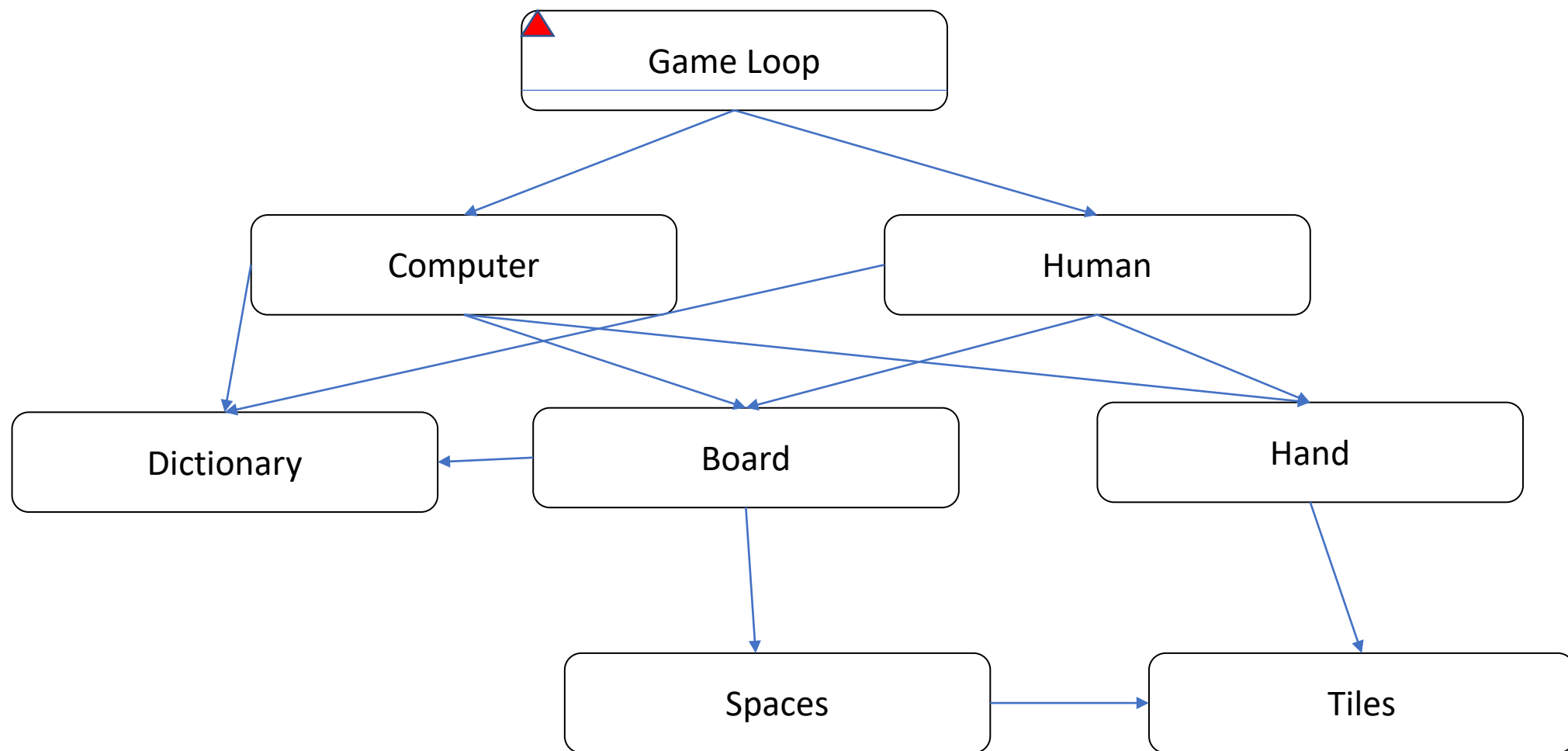
Scrabble game design

- The only differences in the game design is that it also has a human player and, the game loop loops over turns instead of looping over multiple test boards.

- I didn't get around to making the Gui game version.