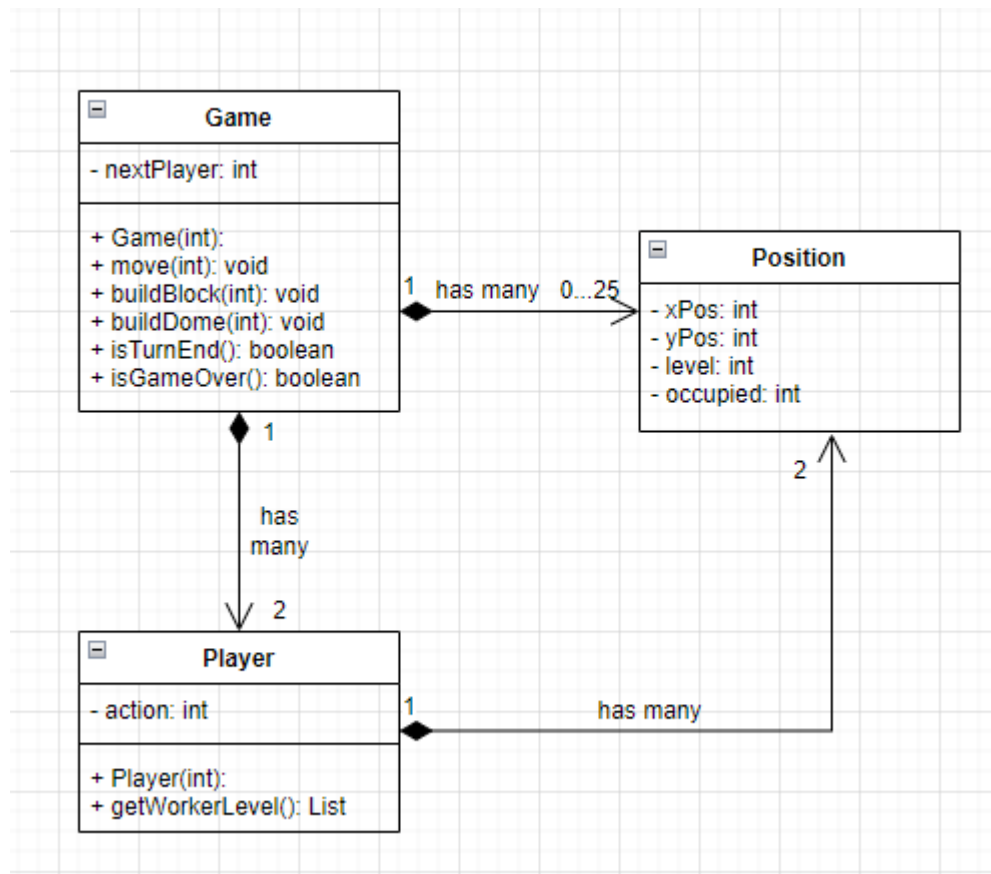


## Justification

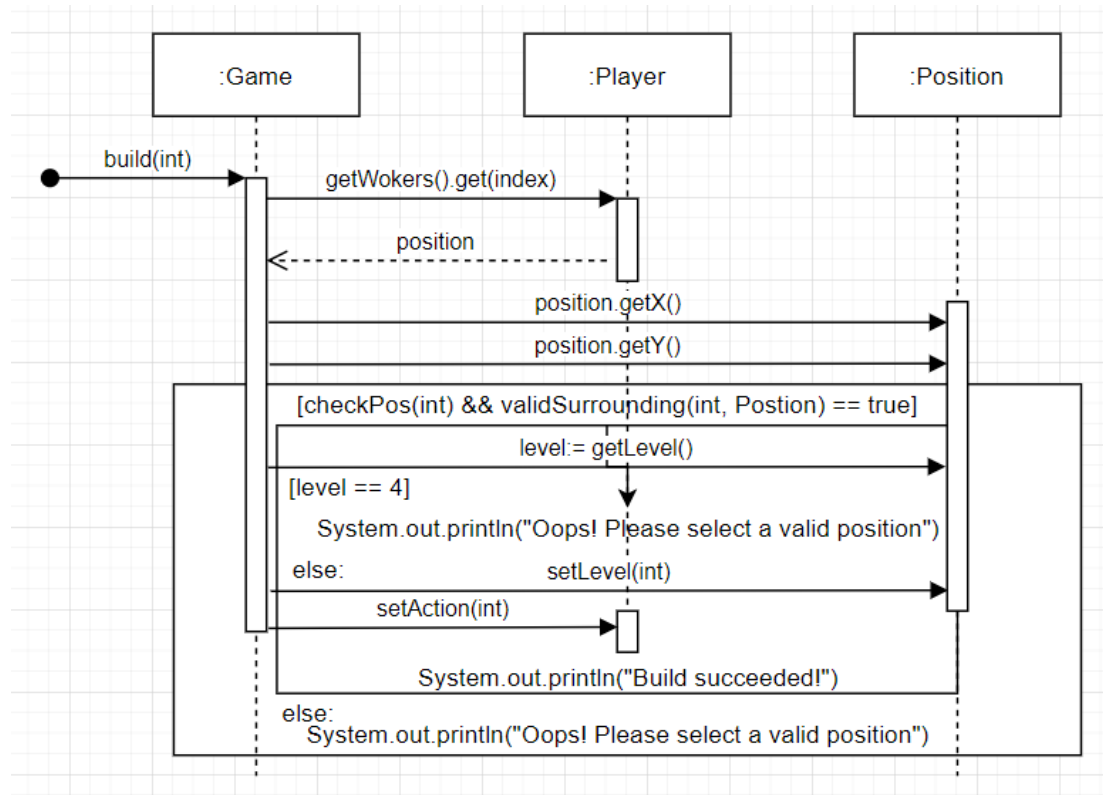
1. A player can interact with the game by entering the initial positions to initiate the game and doing possible actions like moving a worker and building around that worker. As the object model shows, the player can call move and build block or dome methods in the Game class by passing the coordinate values, the player's index and the worker's index, which can both be either 0 or 1.



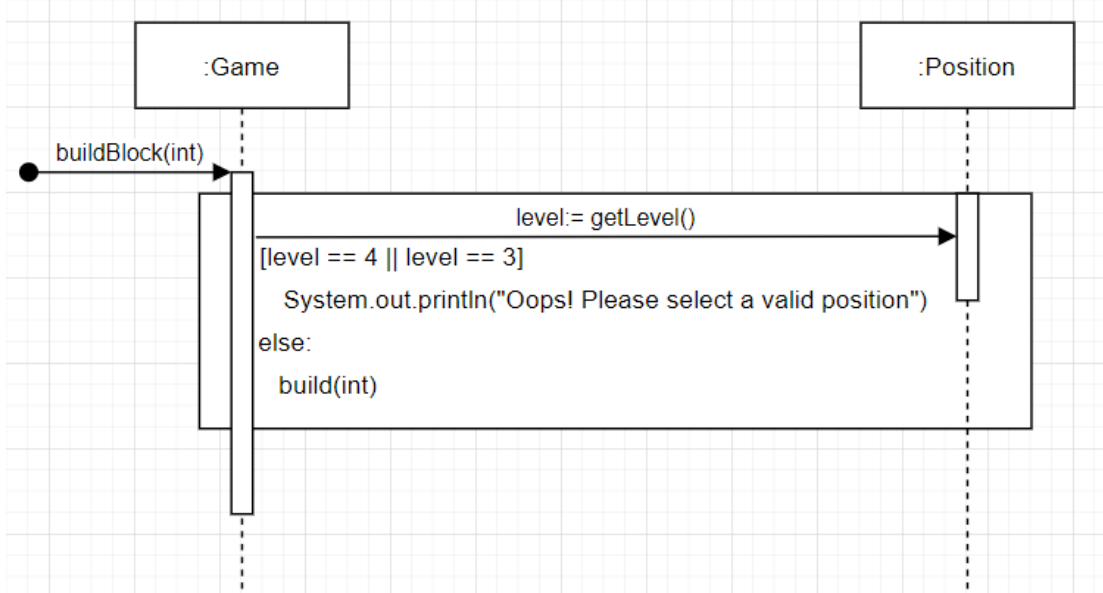
**Figure 1.** Object Model (some methods for validation, setter and getters are omitted)

2. The game needs to store a state indicating which player is taking the turn and a state indicating if the player has finished all the actions. As the object model shows, the first state should be stored in the Game class, which is an integer called `nextPlayer` indicating who's the next player. It will change

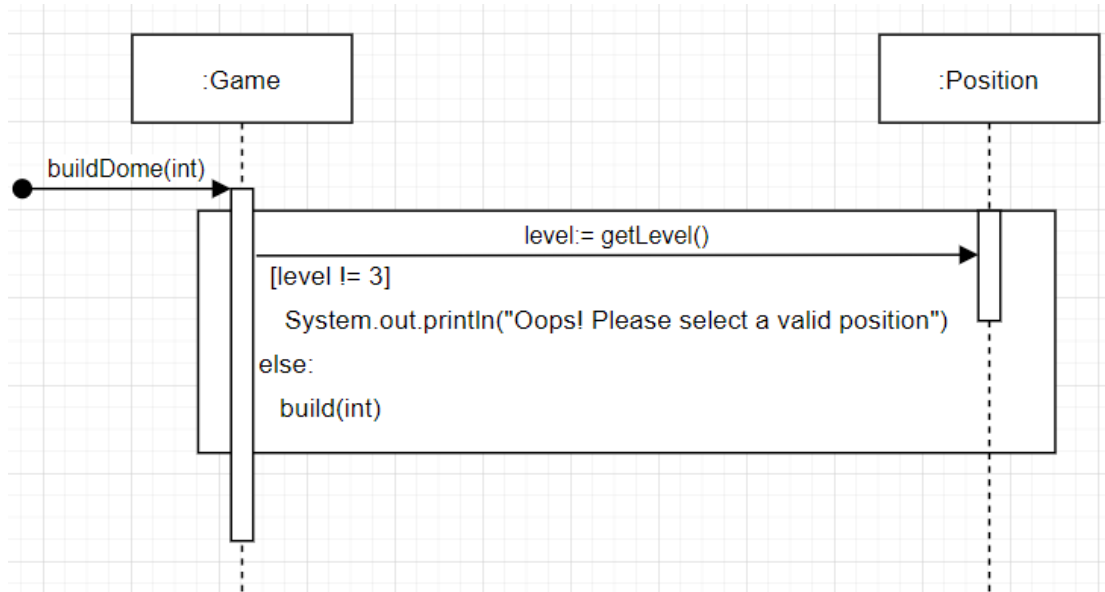
to 1 – nextPlayer to take turns between 0 and 1. The second state should be stored in the Player class, which is an integer called action indicating if the player has finished one action, two actions or zero action.



**Figure 2.** Interaction Diagram for a general build



**Figure 3.** Interaction Diagram for build a block



**Figure 4.** Interaction Diagram for build a dome

3. The game determines if a build is valid or not by checking various requirements. It will check if the given position to build is inside the board and around the selected worker by calling `checkPos` and `validSurrounding` method. It will also check if the given position to build is buildable or not, which means whether the position has a dome or has three blocks. When performing the build, we can either call `buildDome` method to build a dome or `buildBlock` method to build a block, as illustrated in the Game class and interaction diagram. Both of the methods will first call a private method `build`, which takes in the x and y values, the player index, the worker index and the build level. It will get the selected worker's position and validate the given position as mentioned in the beginning and build the input level at the given position, basically, setting the level field of the position to the input level. Then the player's action will be set to indicate a complete action. For dome, the build level will be 4 and for block, it will be 1 plus

the level at the given position.