Sprint 3 Documentation

Summary Data

- **Team Number:** 13
- **Team Lead:** Chris
- **Sprint Start:** 17/02/2020
- **Sprint End:** 24/02/2020

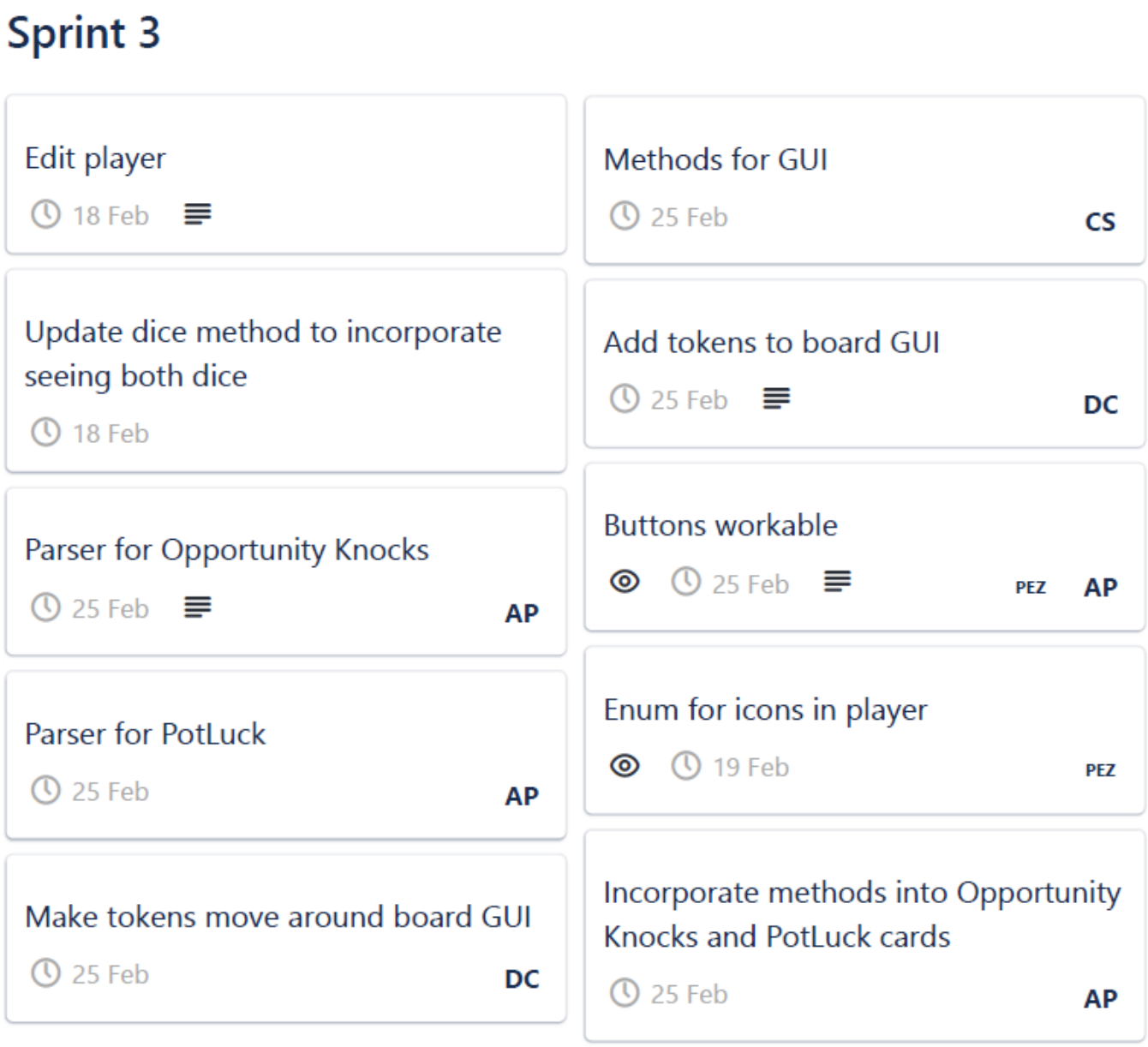
Individual Key Contributions

Team Member	Key Contributions
Aiden	Documentation & Implementation
Ankeet	Implementation
Chris	Organisation & Implementation
Duarte	Implementation

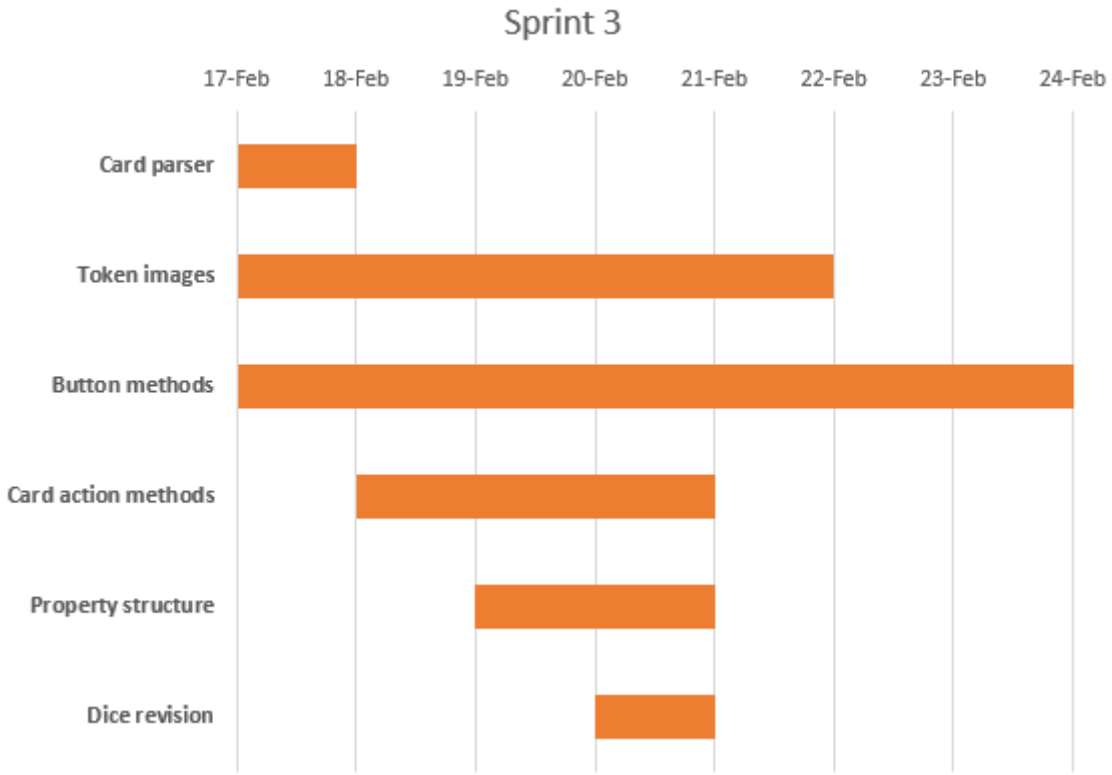
Task Cards

- Develop a parser to create Opportunity Knocks and Pot Luck cards
- Create methods to perform Opportunity Knocks and Pot Luck actions
- Revise tokens to include images of said tokens
- Revise property card structure
- Update dice to return both values instead of calling dice twice
- Develop methods to be assigned to buttons

The image below shows the tasks set out on Trello during our weekly meeting



Gantt Chart



Requirements Analysis

Functional Requirements

- F1
  - The software should have an automatic parser that scans an Excel file named `PropertyTycoonCardData` and create all Opportunity Knocks and Pot Luck cards. This file contains all the information to create each Opportunity Knocks and Pot Luck card as well as grouping each card together into a list.
- F2
  - The software shall have methods to properly perform the actions of any Opportunity Knocks or Pot Luck card if landed upon by a player.
- F3
  - The software shall have hand-made images of the proposed list of tokens including a boot, a cat, a goblet, a hatstand, a phone and a spoon. These images will be created as Portable Network Graphics (PNG) files or Scalable Vector Graphics (SVG) files.
- F4
  - Rolling the dice should return 2 values for the 2 dice rolled.
- F5
  - The software shall have buttons that shall have the appropriate actions performed when pressed.

Non-Functional Requirements

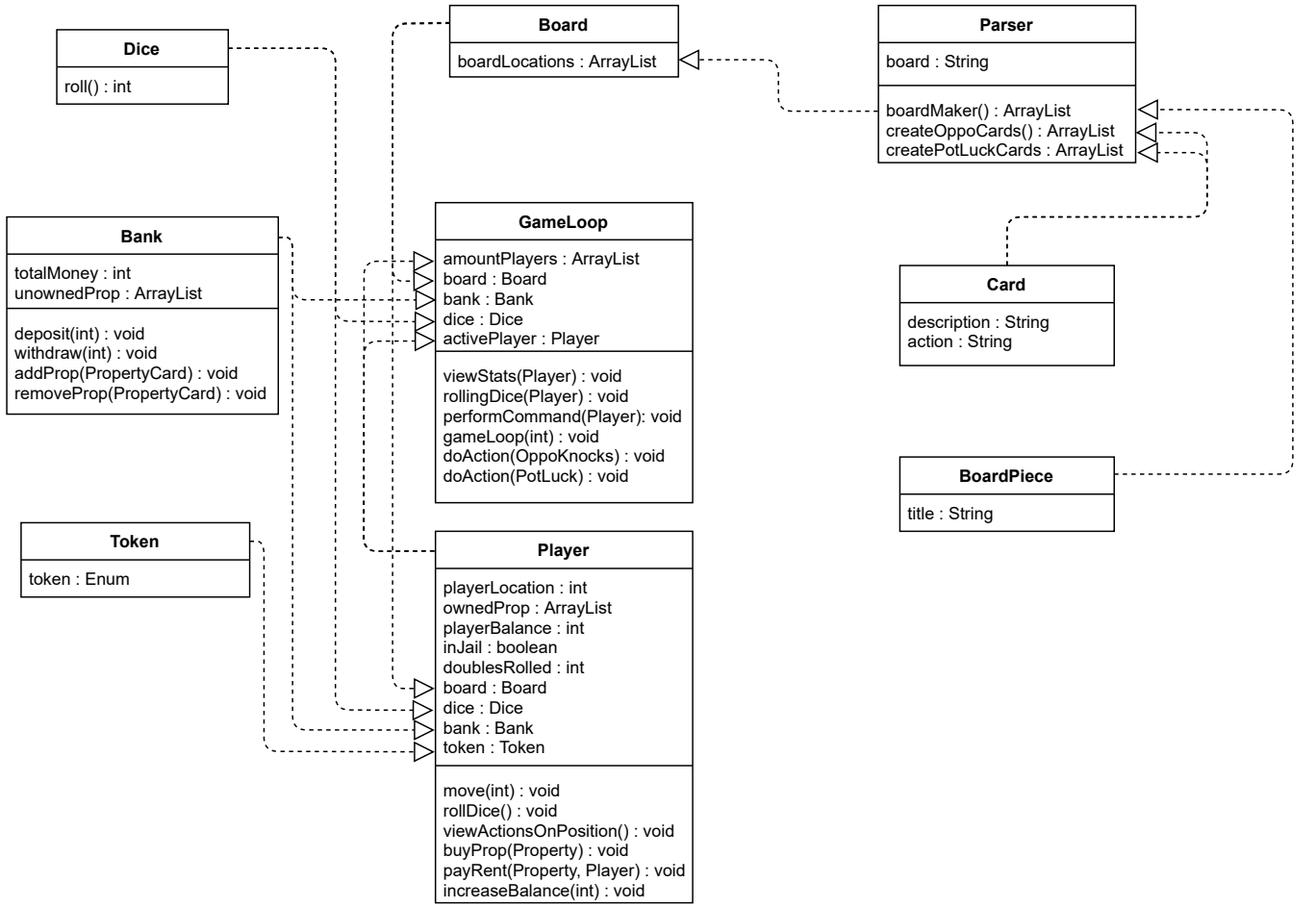
- NF1
  - The OO design of the `Card` class shall have 2 subclasses, `OpportunityKnocks` and `PotLuck`.
- NF2
  - The OO design of `BoardPiece` shall be the superclass of a variety of classes of which represent different properties with different behaviours. A diagram of the design of the new property cards are shown in the UML section.

Domain Requirements

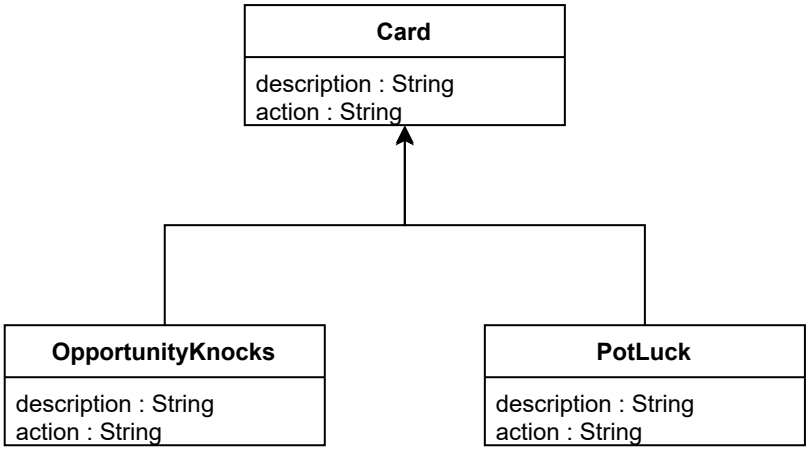
- D1
  - The team is unsure of how the mortgaging system will work. A question will be posed to the client in the next meeting.
- D2
  - It is unclear what happens after rolling a double. Does the player have the ability to move, possibly buy the property and roll again? The team hopes this question will be answered at a later meeting.

Design

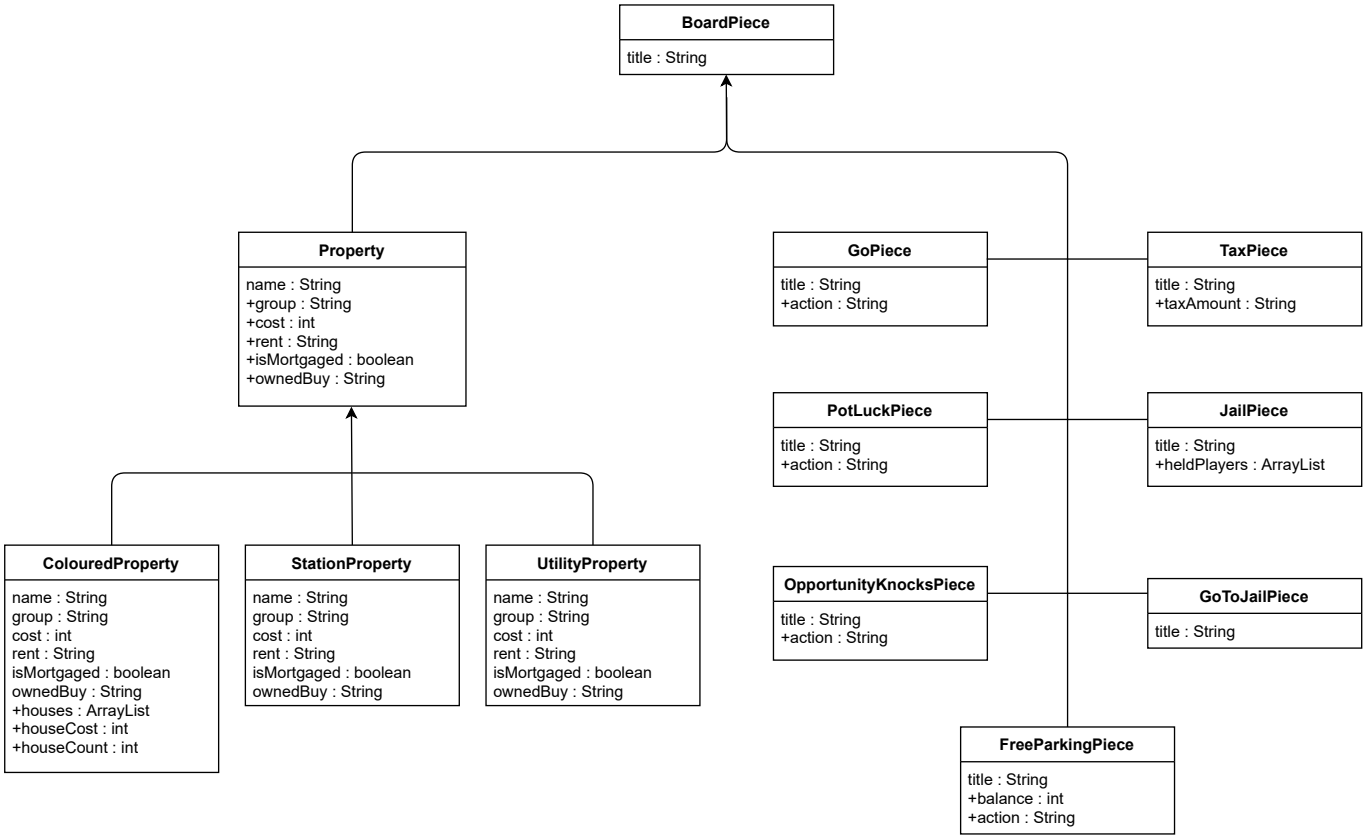
UML Diagram



The image below shows the design of how the OpportunityKnocks and PotLuck cards were created

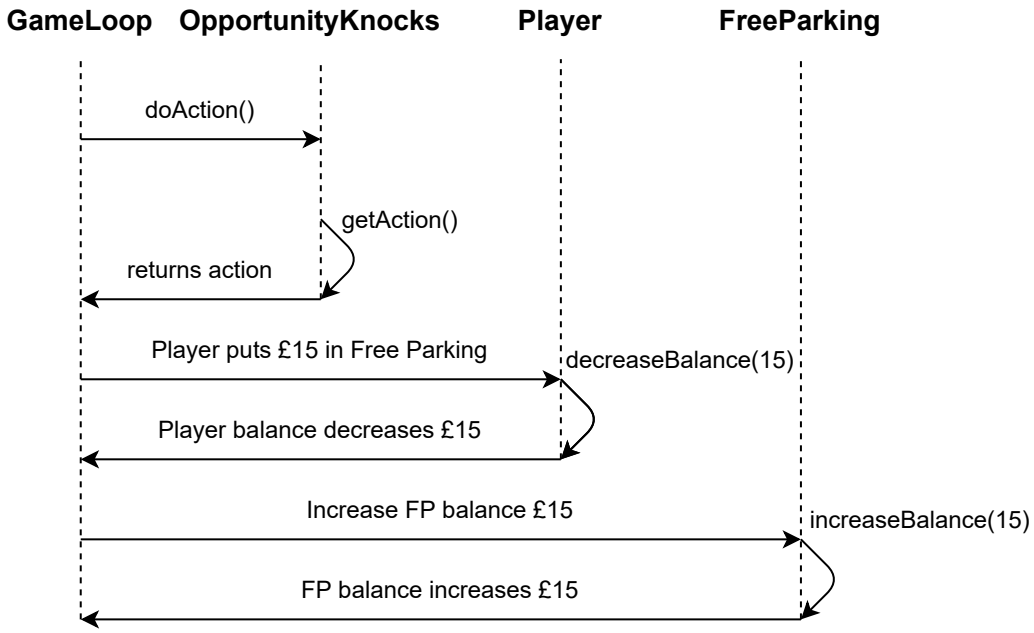


The image below shows the design of how the BoardPieces are structured

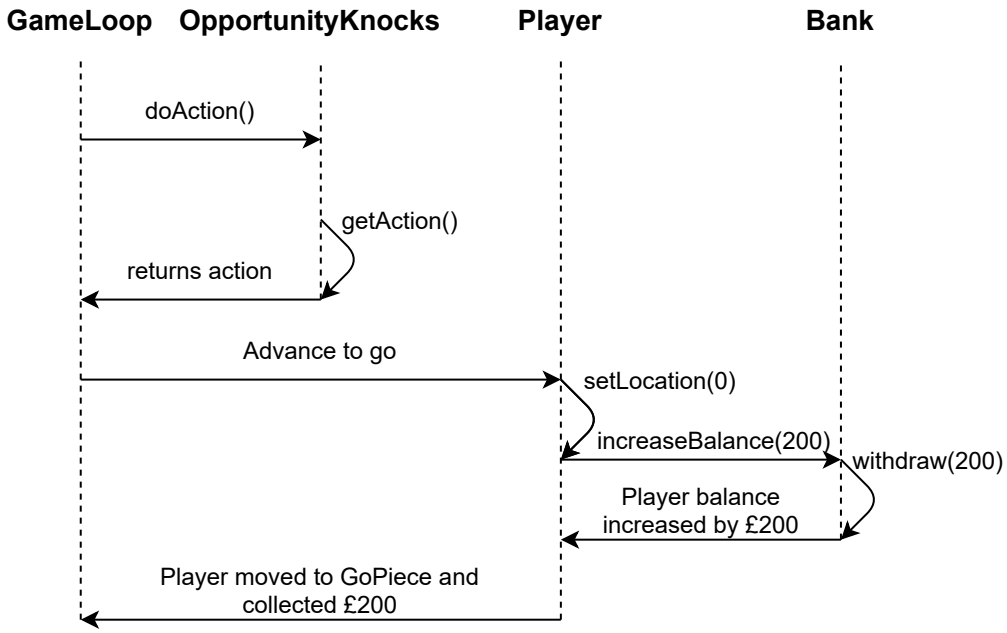


Sequence Diagrams

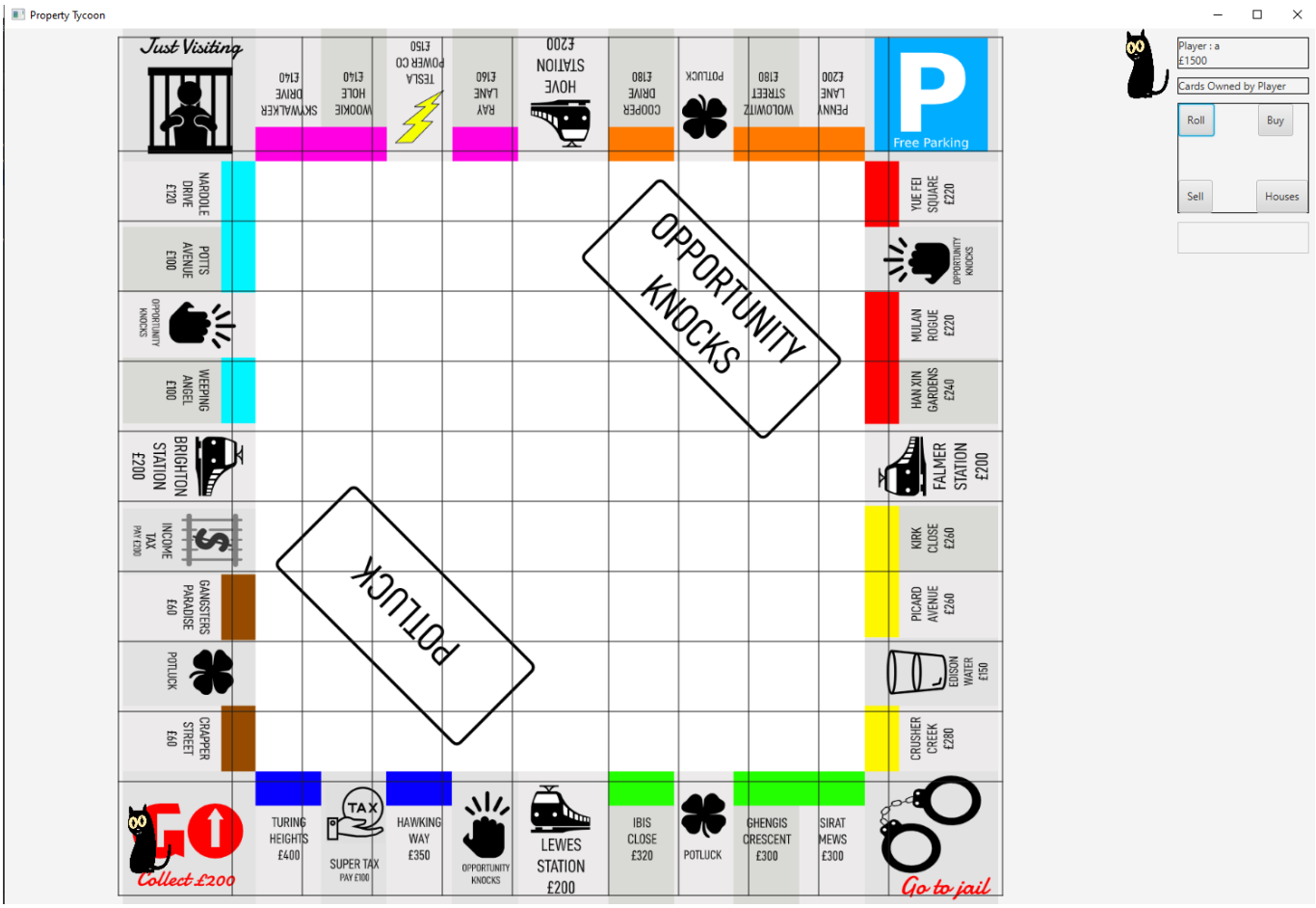
Player picks up OpportunityKnocks/PotLuck and must put £15 in FreeParking



Player picks up OpportunityKnocks/PotLuck, advances to Go and received £200



User Interface



We have developed an interface that will show the board in the middle of the screen. At this moment, the board is a single image with the names of the properties hard-coded in. On top of the board images, the tokens move around from board piece to board piece.

The black grid across the board has helped us with aligning each board piece so that in a later sprint, the board piece names and types are automatically printed on start up. At the time of the image taken, we have not yet aligned this grid properly.

On the top right of the screen, we have chosen to include:

1. the player's token
2. the player's name
3. the player's owned properties
4. the buttons of which we are planning on assigning methods in the future

Test Plan

With respect to the Graphical User Interface on the screen, the tests created in the last sprint were used as verification.

To ensure the correct objects were being created in regards to the Opportunity Knocks and the Pot Luck cards, the 2 images below highlight the validations done in the Parser test class.

```
/**
 * Tests Opportunity Knocks cards being made.
 */
@Test
public void testCreateOppoCards() {
    System.out.println("Opportunity Knocks Card Maker");
    ArrayList<String> expResult = new ArrayList<>();
    expResult.add("\"Bank pays you divided of £50\"");
    expResult.add("\"You have won a lip sync battle. Collect £100\"");
    expResult.add("\"Advance to Turing Heights\"");
    expResult.add("\"Advance to Han Xin Gardens. If you pass GO, collect £200\"");
    expResult.add("\"Fined £15 for speeding\"");
    expResult.add("\"Pay university fees of £150\"");
    expResult.add("\"Take a trip to Hove station. If you pass GO collect £200\"");
    expResult.add("\"Loan matures, collect £150\"");
    expResult.add("\"You are assessed for repairs, £40/house, £115/hotel\"");
    expResult.add("\"Advance to GO\"");
    expResult.add("\"You are assessed for repairs, £25/house, £100/hotel\"");
    expResult.add("\"Go back 3 spaces\"");
    expResult.add("\"Advance to Skywalker Drive. If you pass GO collect £200\"");
    expResult.add("\"Go to jail. Do not pass GO, do not collect £200\"");
    expResult.add("\"Drunk in charge of a skateboard. Fine £20\"");
    expResult.add("\"Get out of jail free\"");
    ArrayList<String> result = new ArrayList<>();
    for (OpportunityKnocks ok : oppo) {
        result.add(ok.getDescription());
    }
    for (int i = 0; i < result.size(); i++) {
        for (int j = 0; j < expResult.size(); j++) {
            if (result.get(i) == null ? expResult.get(j) == null : result.get(i).equals(expResult.get(j))) {
                expResult.remove(j);
            }
        }
    }
    if (expResult.isEmpty()) {
        assertTrue(true);
    } else {
        fail();
    }

}
```

```
/**
 * Tests PotLuck cards being made.
 */
@Test
public void testCreatePotLuckCards() {
    System.out.println("PotLuck Card Maker");
    ArrayList<String> expResult = new ArrayList<>();
    expResult.add("\"You inherit £100\"");
    expResult.add("\"You have won 2nd prize in a beauty contest, collect £20\"");
    expResult.add("\"Go back to Crapper Street\"");
    expResult.add("\"Student loan refund. Collect £20\"");
    expResult.add("\"Bank error in your favour. Collect £200\"");
    expResult.add("\"Pay bill for text books of £100\"");
    expResult.add("\"Mega late night taxi bill pay £50\"");
    expResult.add("\"Advance to go\"");
    expResult.add("\"From sale of Bitcoin you get £50\"");
    expResult.add("\"Pay a £10 fine or take opportunity knocks\"");
    expResult.add("\"Pay insurance fee of £50\"");
    expResult.add("\"Savings bond matures, collect £100");
    expResult.add("\"Go to jail. Do not pass GO, do not collect £200\"");
    expResult.add("\"Received interest on shares of £25\"");
    expResult.add("\"It's your birthday. Collect £10 from each player\"");
    expResult.add("\"Get out of jail free\"");
    ArrayList<String> result = new ArrayList<>();
    for (PotLuck ok : potluck) {
        result.add(ok.getDescription());
    }
    for (int i = 0; i < result.size(); i++) {
        for (int j = 0; j < expResult.size(); j++) {
            if (result.get(i) == null ? expResult.get(j) == null : result.get(i).equals(expResult.get(j))) {
                expResult.remove(j);
            }
        }
    }
    if (expResult.isEmpty()) {
        assertTrue(true);
    } else {
        fail();
    }
}
```

Summary of Sprint

In this sprint, the team focused on importing the given information about Opportunity Knocks and Pot Luck cards into the game as well as implementing methods for the actions given on a card. Given these 2 new game objects, this lead a discussion on representing them as 2 objects as identical twins: everything looks similar except for their names. This previous discusstion lead to the entire property structure being redesigned. In respect to the user interface, we mainly focused on correctly displaying the tokens on the board.

We collectively decided this current sprint was a failure based on the poor planning that ook place in sprint 2. With this, the backend system was a complete mess. A term created within our group was 'spaghetti code'. This is then on top of the classes all performing and being used for the GUI with no centralised system to manage the game. We should have spent more time talking about the execution of ideas and what parts of each idea need to go in each section. We should have communicated better in terms of what we stilled needed to do.