TCG Buddy

Design Document

Group 12

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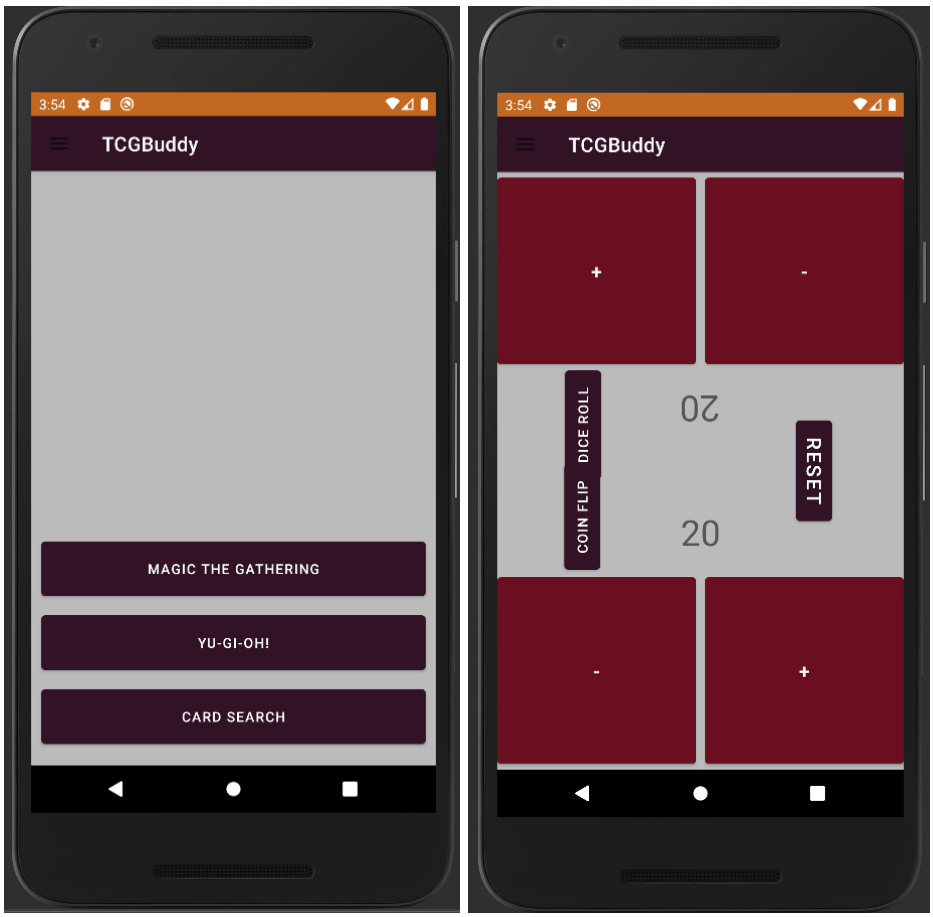
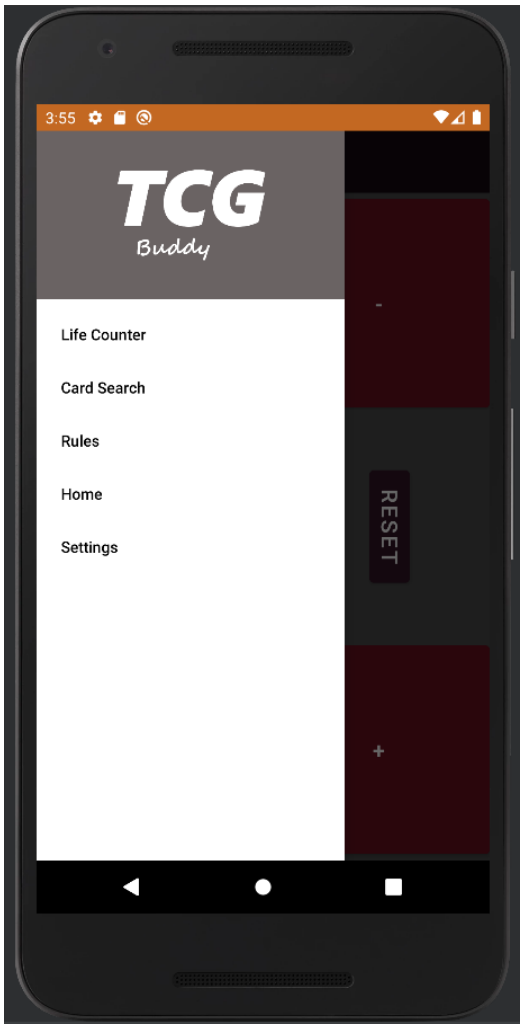
1 Project Overview

1.1 Screen Captures

1.1.1 Sprint 1

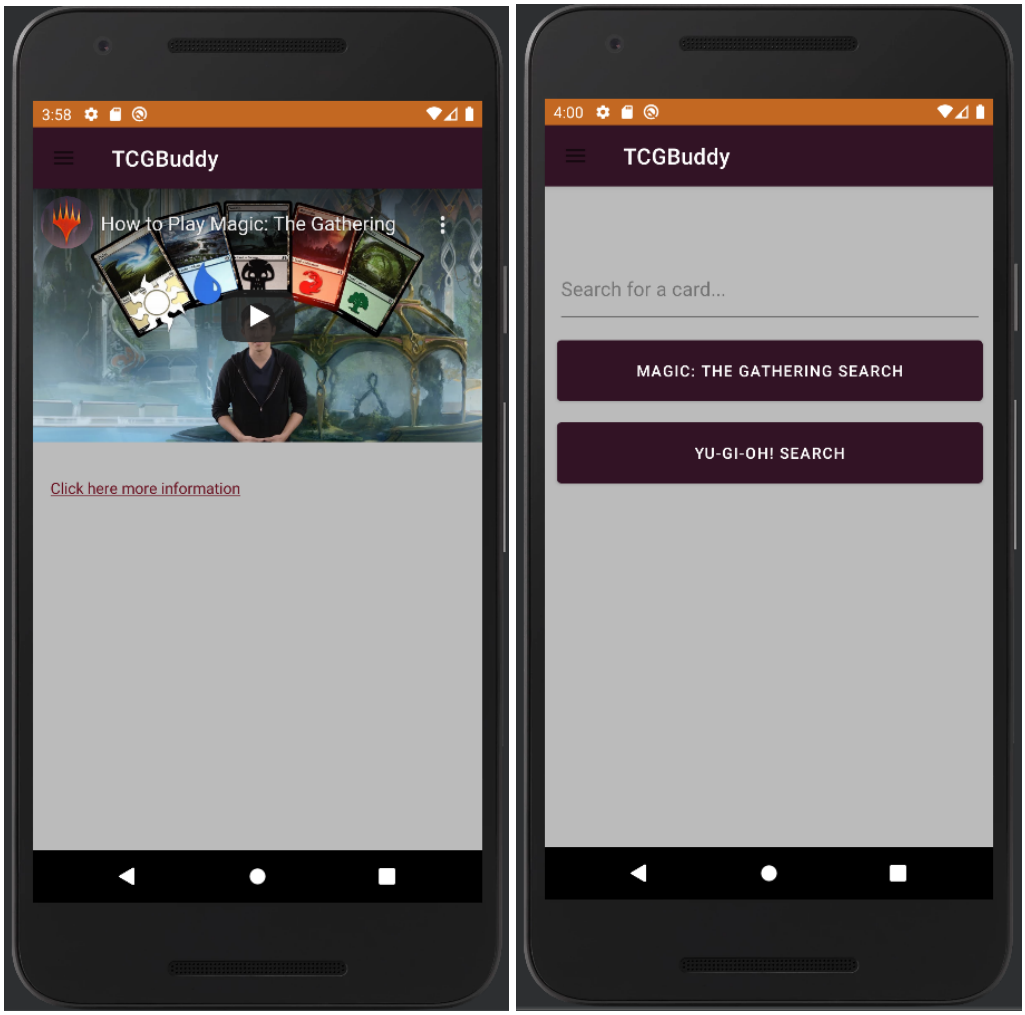
Main menu, life counter, and navigation menu all present and functioning within the app.

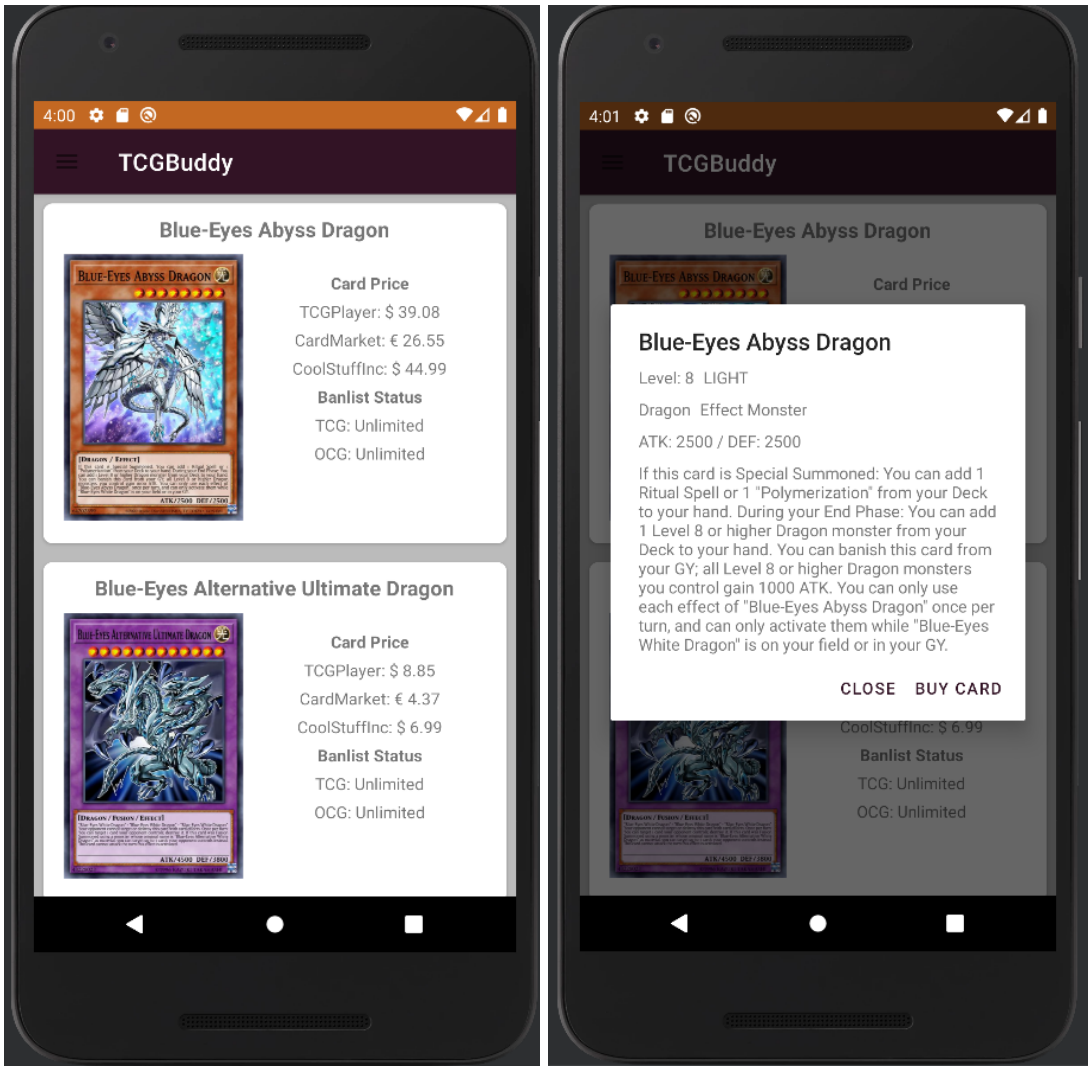



3:55
TCG
Buddy
Life Counter
Card Search
Rules
Home
Settings
-
RESET
+

1.1.2 Sprint 2

Card search and rules sections are now functioning.





1.1.3 User Stories

Story #	User Story	Acceptance Criteria	Sprint Number
ST-6	As a TCG collector I want to track the cost of cards from a variety of games So that I can keep track of how much my collection is worth	There should be a "Price Checker" alongside the universal search: That is, the universal search will either search for the text of a card, or the price of a card. Whichever the user specifies.	2
ST-8	As an application user I want to have a profile that saves my settings So that I do not need to fiddle with settings every time I open the app	The app should save if I mainly play MTG, Yu-Gi-Oh, search card prices, etc. so that a user's most acccessed page is the first thing they see upon opening the app.	2

ST-11	As a TCG Player I want to search cards for the game I play so that I easily access the thousands of cards in each game	Inside the requested card game section of the app the user should be able to utilize a search bar in order to query for a certain card	2
ST-12	As a user of the app, I want to select what game I want to play so that I do not get different games mixed up	The app should toggle between MTG, Yu-Gi-Oh, etc. modes and have game specific defaults (life total is 20 for MTG, for example) for each game.	2
ST-14	As A MTG/YuGiOh player I want a way to track life totals for all players so that I can see how close each player is too losing	Inside the respected sections to each card game there will be a section in which users can use a lifebar feature in order to track lives in the given card game.	2
ST-2	As a game store employee I want to be able to lookup card prices for multiple TCGs in one app so that I can help customers, regardless of what TCG they may be inquiring about	There should be a "Universal Search" from the homepage that take an input card name and searches the database of each card game the app supports	3
ST-3	As a game store owner I want my employees to have one app where they can check the prices of cards for different TCGs so that my employees can help customers as effectively and efficiently as possible	There should be a "Search MTG/Yi-Gi-Oh/etc. Cards" dropdown under the universal search that allows the user to manually choose which card game to search.	3
ST-5	As an application admin I want to make sure every one can play the game with the life-point tracking system So that eveyone who plays with the selected category can have a great time.	Inside the lifepoint tracking section of the app there should be options to add and subtract players so everyone can play	3
ST-9	As a newer TCG Player I want to have quick access to rulings So that I can learn more about the game and make playing the game easier	The app should have a "Getting Started" section for each game it supports to give the players a brief tutorial of how each game works.	3
ST-15	As a TCG card collector and a fan of the game I would like to be able to find the current price of cards from the app, along with a price history.	When searching for the price of a card, the result will return both the current price, as well as trends for the price of that card over a period of time selected by the user (1 week, 1 month, 3 months, 6 months, 1 year, etc.)	3
ST-1	As an MTG player I want to be able to lookup cards in the same app where I track my life total so that the game can continue uninterrupted as fast as	There should be a "Search MTG Cards" button from the life tracking screen when playing MTG	4

	possible		
ST-4	As a YuGiOh player I want to be able to look up the monster, spell, and traps where I can track life points and spell counters so that the game can flow as continuously as possible.	There should be a "Search Yu-Gi-Oh Cards" button from the life tracking screen when playing Yu-Gi-Oh.	4
ST-7	As a TCG Player I want to be able to be able to tell if a card is fake So that I can ensure that the game is being played fairly	There should be a "Common Counterfeits" (or equivalent) section in the app where users can see the top things to check to determine if a card is genuine or counterfeit.	4
ST-10	As an MTG/YuGiOh player I want to see if a card in banned in a selected format at a glance So I can ensure that neither my opponent or I are playing with banned cards	When playing a game, the player should select the format they are playing. WIth a format selected, searching for a card (like in ST-1 or ST-4) should highlight that card red in the search results if it is banned.	4
ST-13	As a MTG/YuGiOh player I want to see what formats are availablle so that I can know the official way to play	After selecting MTG, Yu-Gi-Oh, etc. the app should prompt the user to choose the format they will be playing, and present them with a list of formats for the selected game (Modern, Legacy, Standard, Commander, for example for MTG)	4

2 Architectural Design

Overview

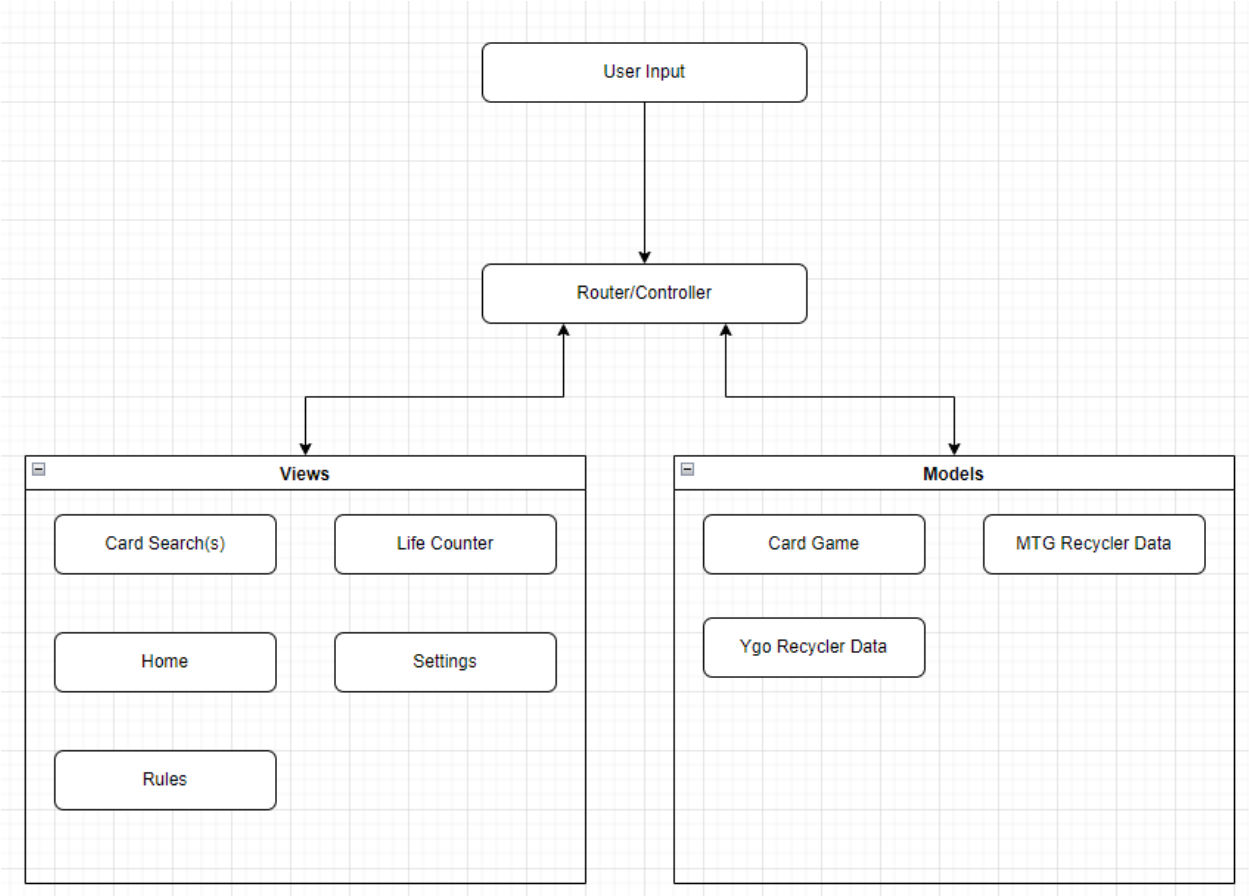
For TCGBuddy it was decided that we would be going with a Model-view-controller (MVC) design for the project. No one in the group had any previous experience with this specific architecture so the MVC style is loosely found but is very apparent in the design of the application itself. Upon the creation of the project, we started with the idea of a more layered application, but with how Android Studio

works we decided to go with MVC. The reason we decided on the MVC pattern going forward was because our application is a bunch of different views that are operated by a controller which displays these things on the screen. Every page is separate and operated by the main activity within the application, which handles global variables that are used and manipulated throughout the app. Since we had no knowledge of MVC before, there are a few inconsistencies such as the separation of a controller and a router. Basically, the controller operates the different views and puts them on screen and the app continues from each of these views and does their own functions locally in their views. Our application also has several models which are responsible for controlling the life counter and handling data received from the card search.

2.1 Subsystem Architecture

With the exception of user preferences, TCGBuddy does not store any type of data in the application. Instead, functions are performed on the local device, be it mathematical functions like adding or subtracting life points, or HTTPS API calls with regards to the card search screen.

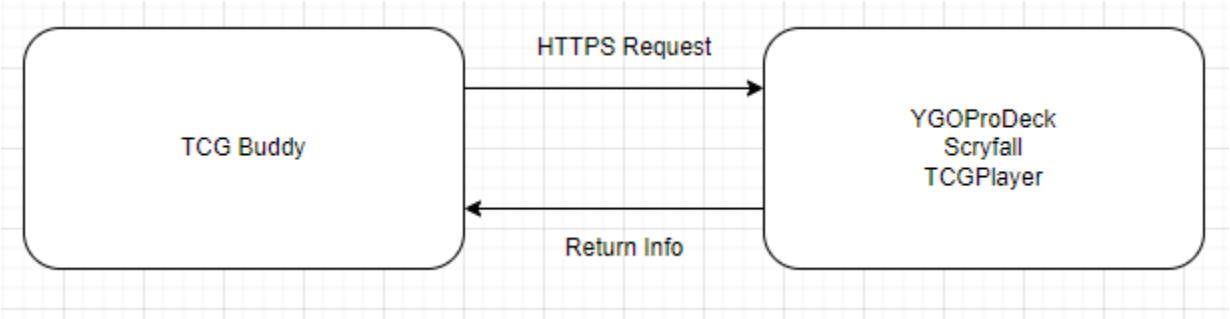
2.2 Dependency Diagram



2.3 Deployment Architecture

This application is designed to be run locally on the user's device with internet connectivity, where it can then communicate with the appropriate web APIs in order to

search for cards.



2.4 Persistent Data Storage

TCGBuddy utilizes persistent data storage for tracking what the user has designated as their favorite game, either *Magic: The Gathering* or *Yu-Gi-Oh!*. Due to the lightweight nature of the data being stored, permissions do not need to be asked of the user.

2.5 Global Control Flow

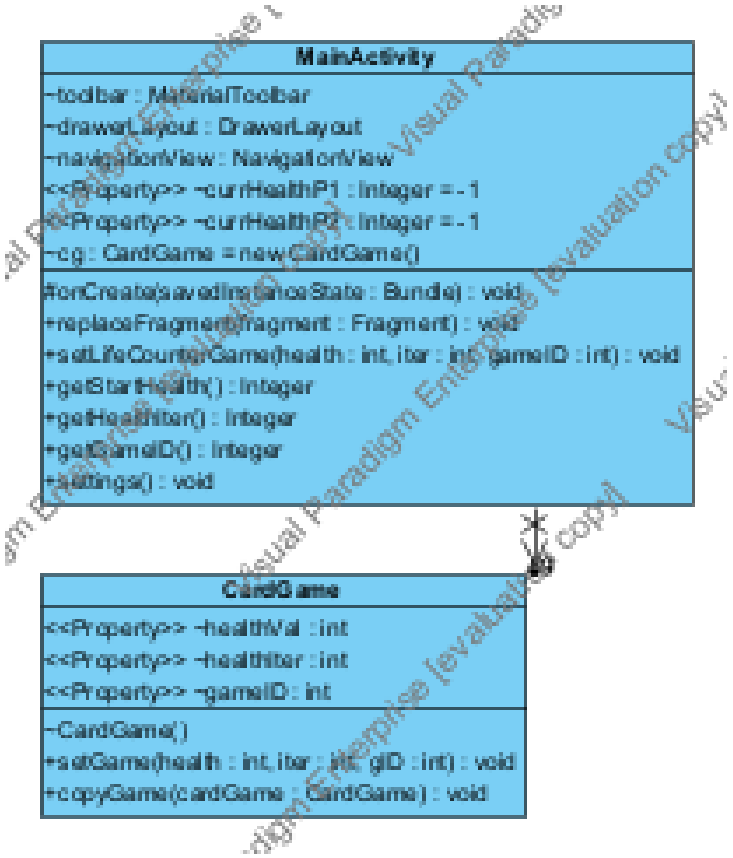
TCGBuddy is a procedurally driven application, meaning that control flows based on the user's input. For example, if a user were to select "Magic: The Gathering" on the home screen, then the application would make the proper steps to display the game screen for *Magic: The Gathering*. The same is true for the game screen of *Yu-Gi-Oh!*, the card search interface, and any other screen that a user may wish to navigate to.

Though an MVC design was adopted for TCGBuddy, the control flow of the application is similar to that of a layered architecture pattern, in the sense that methods are executed sequentially in order to display the result to the user. Due to this, time dependency and concurrency are not concerns for TCGBuddy: Instead, TCGBuddy acts as a single-threaded application.

3 System Design

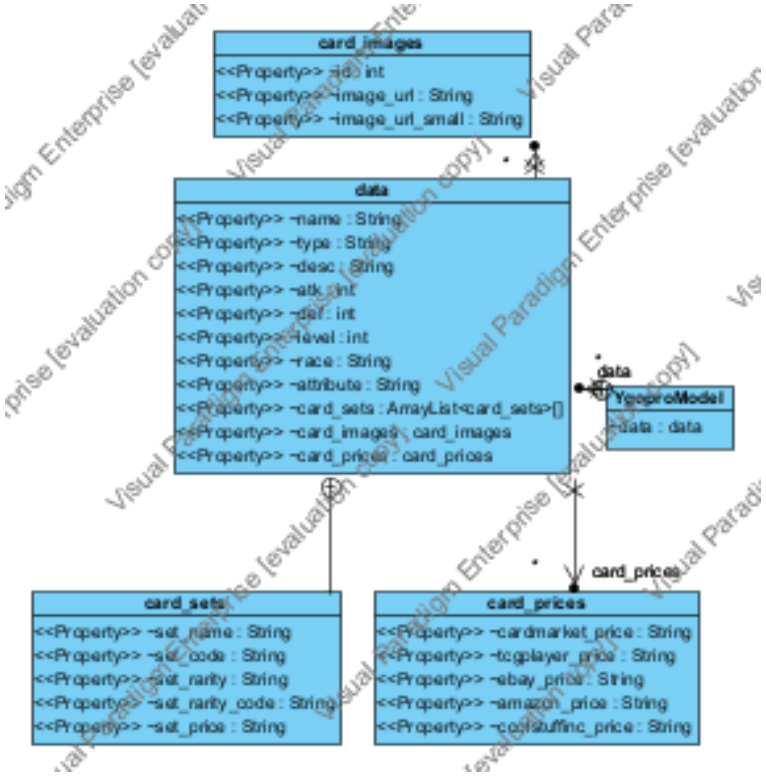
3.1 Static View

3.1.1 Main Activity Class Diagram

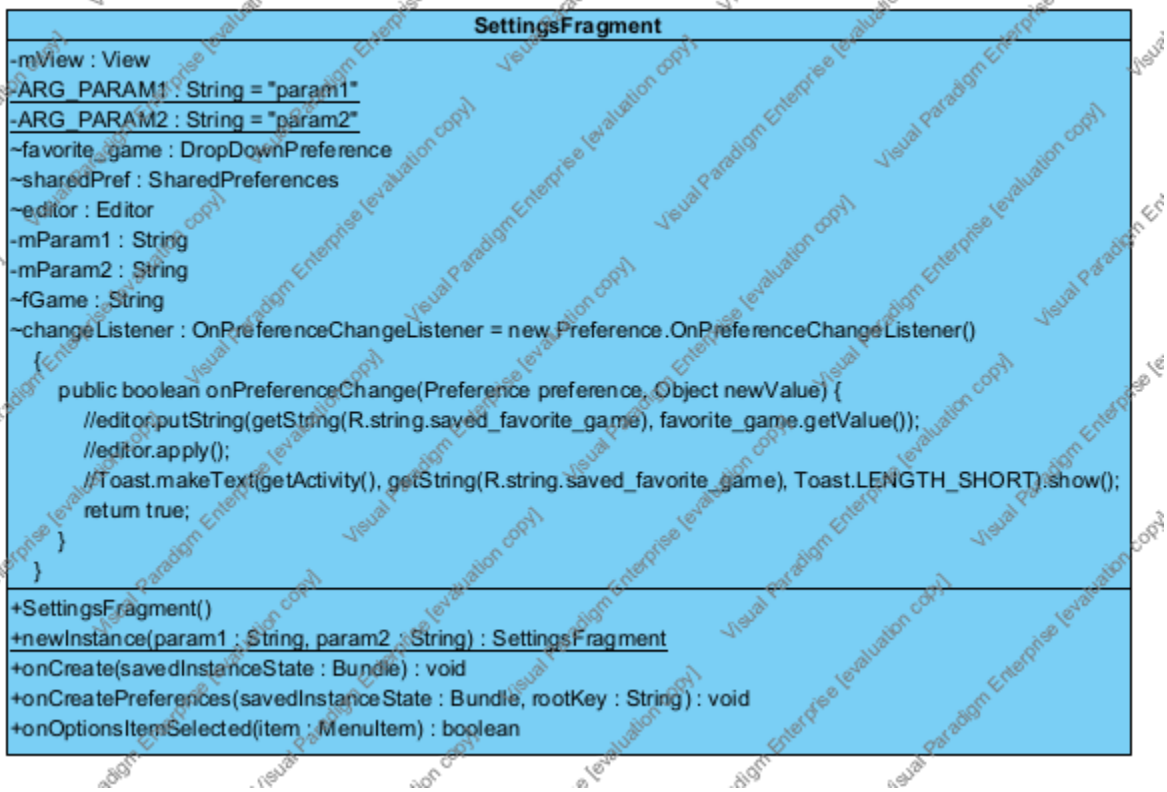


3.1.2 Game Fragment Class Diagram

3.1.3 Card Data Class Diagram



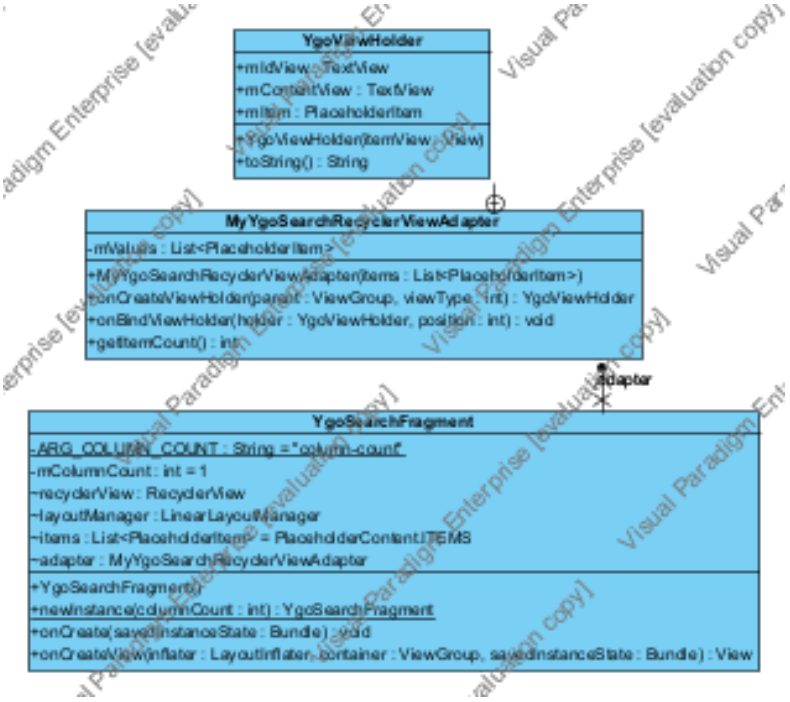
3.1.4 Settings Class Diagram



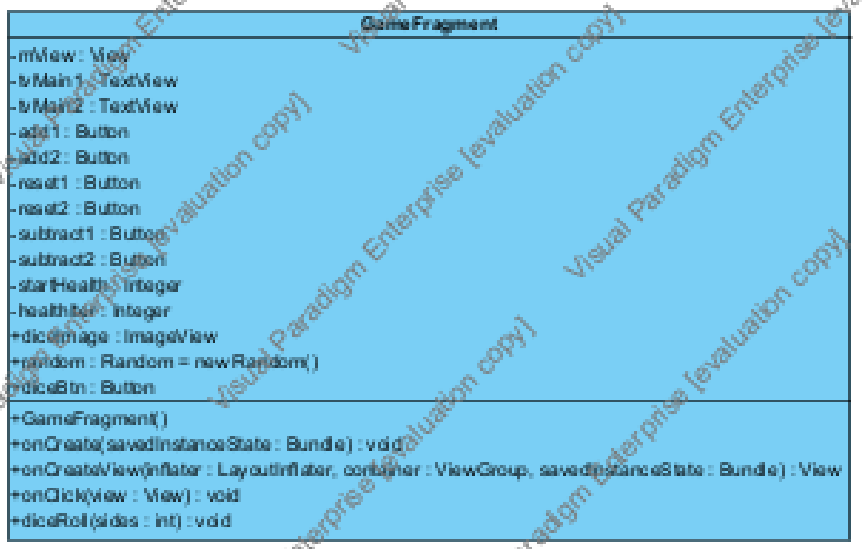
3.1.5 Rules Class Diagram

3.1.6 *Magic: The Gathering* Search Class Diagram

3.1.7 *Yu-Gi-Oh!* Search Class Diagram



3.1.8 GameFragment Class Diagram



3.2 Dynamic View

3.2.1 Semantics

For each sequence diagram we went back and double checked to make sure that the major parts and components are represented in the correct sequences as well as they are understandable and easy to follow. We have decided that each one is comprehensible and easy to explain to someone unfamiliar with the app or project. We also ensured that the diagrams showed meaningful interactions that the user can take advantage of in the app or that is integral to the design of our system.

3.2.2 Syntax

We were able to successfully represent sequence diagrams in the correct syntactical way. Upon closer inspection of the diagrams we had to go back and edit a few arrows to make

sure they were used properly for asynchronous/synchronous calls. Execution boxes were used the right way for the diagrams made. We also ended up having to double check messages to make sure that they were all correct for static views.