The official design document for Better Curve; the best deck building tool ever built.

Better Curve

Final Submission

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CS 240 – Android Apps

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# Revision History

|  |  |
| --- | --- |
| 1/5/16 | * Documentation   + Created Document   + Added Cover Sheet   + Added Table of Contents   + Added section for Revision History |
| 1/9/16 | * Documentation   + Added Use Case #1   + Added Document Description   + Added Introduction |
| 1/14/16 | * Documentation   + Revised Use Case #1     - Added Additional Screens to chart     - Extended Explanations of steps   + Updated Revisions history |
| 1/15/16 | * Documentation   + Updated Revision History * Coding   + Created Android Studio Project – Better Curve   + Added screens for Main Screen, Deck Stats, and Add Cards   + Connected screens for Main Screen, Deck Stats, and Add Cards |
| 1/16/16 | * Documentation   + Updated Revision History   + Added design and implementation sections   + Added class instantiable class diagram and screenshots subsections * Coding   + Added additional buttons to layout of Add Cards Screen   + Added Card Details screen |
| 1/17/16 | * Documentation   + Updated Revision History   + Added use case 3a     - Added to design     - Added to Implementation * Coding   + Added additional buttons to layout of Add Cards Screen   + Added Card Details screen |

|  |  |
| --- | --- |
| 1/21/16 | * Documentation   + Updated Revision History   + Corrected error in the Table of Contents (was showing an image)   + Re-aligned use case to match both design and user-centric views   + Updated project layout for increased number of activities * Coding   + Corrected screen creation to use intent system instead of a single layout   + Improved Deck Class in preparation of becoming larger data storage unit |
| 1/24/16 | * Documentation   + Updated Revision History   + Changed footer to denote page numbers   + Updated Table of Contents for altered number of pages   + Added additional, albeit temporary, files to the project layout * Coding   + Minor tweaks to layout in preparation for procedural layout generation   + Creation of InterfaceComponents object to handle layout Generation   + New methods for future required features added to Deck object |
| 1/26/16 | * Documentation   + Increased size of Revisions History for 1/31 submission   + Updated Revision History   + Corrected Use Case Diagram based on feedback * Coding   + Added Improved Listener   + Added additional layout factors and logic for deck building |
| 1/27/16 | * Documentation   + Updated Revision History   + Updated project layout * Coding   + Added a Test Class     - Unfinished due to time constraints |
| 2/4/16 | * Documentation   + Updated Revision History * Coding   + Expanded Test Cases     - Have an inheritance error   + Added add/removeCard()   + Added starting nomenclature for onPause() and onResume() |

|  |  |
| --- | --- |
| 2/6/16 | * Documentation   + Updated Revision History * Coding   + Tweaked addCard() to allow for ints rather than strings   + Built a saveDeck() function   + Corrected implementation of DeckList to persist onPause() and onResume()   + Added onPause(), onResume() and clearDeck() functions   + Constructed a function to build a layout when a deck is passed in |
| 2/7/16 | * Documentation   + Updated Revision History   + Updated Table of Contents * Coding   + Fixed a bug in clearDeck() causing it to crash   + Tweaked removeCard() to be more user-friendly |
| 2/9/16 | * Documentation   + Updated Revision History   + Added Use Case 1b     - Added prototype     - Added String resources   + Updated Table of Contents * Coding   + Cleaned some outdated code/formatting   + Added comment to Deck denoting it as a DataManager class |
| 2/11/16 | * Documentation   + Updated Revision History   + Added screenshot of Use Case 1b   + Corrected page break induced spacing errors   + Updated Table of Contents * Coding   + Cleaned some outdated code/formatting   + Added srlDeckList to Main\_Screen.xml |
| 2/12/16 | * Documentation   + Updated Revision History   + Updated Project Structure for new activities and screens * Coding   + Began building a CardsListActivity   + Started Early implementation of COMPLETELY revamped DataManager |
| 2/13/16 | * Documentation   + Updated Revision History * Coding   + Cleaned Warnings     - Added button names to the Strings.xml     - Replaced hard coded strings with references to the Strings.xml     - Corrected reference location for layout to matching activities     - Note: Still some warnings due to “overlap”   + Removed build\_screen.xml in favor of a newer version |

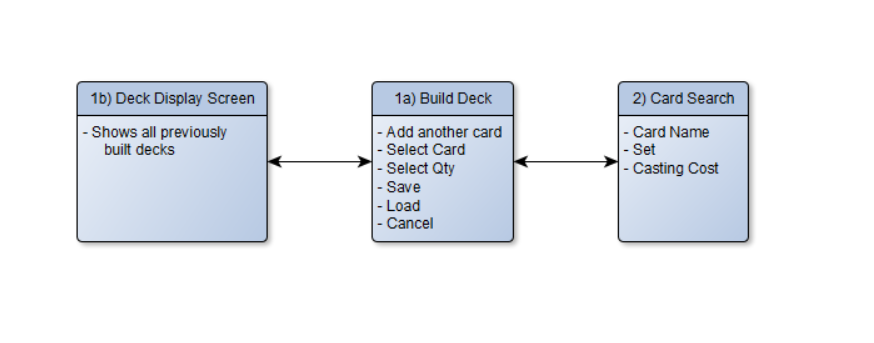
|  |  |
| --- | --- |
| 2/14/16 | * Documentation   + Updated Revision History   + Updated Table of Contents   + Updated Hierarchy * Coding   + Base DataManger object added     - Added constructor     - Added singleton instantiation     - Added a few basic get() functions   + Added fillList() to mainActivity |
| 2/18/16 | * Documentation   + Updated Revision History   + Designed ERD     - Designed in external program     - Added to Document   + Updated Table of Contents * Coding   + Searched for cause of crash error |
| 2/19/16 | * Documentation   + Updated Revision History * Coding   + Continued hunting flaw causing crash     - Cleared defective layout     - Rebuilt form |
| 2/20/16 | * Documentation   + Updated Revision History   + Added Testing section     - Added diagram placeholders for DataManager, DeckTest, CardTest     - Currently empty, pending code improvements to support Data * Coding   + Continued Bug Hunt     - Removed entire section for string array     - Replaced with Arraylist to no avail |
| 2/21/16 | * Documentation   + Updated Revision History   + Updated Table of Contents * Coding   + Continued searching for cause of crash   + Reaching out for assistance on cause |
| 2/23/16 | * Documentation   + Updated Revision History   + Updated ERD     - Removed outdated references to deleted Rules column * Coding   + Located cause of Crash     - Load cycle hid an array-out-of-bounds     - Set array to remain in-bounds |
| 2/26/16 | * Documentation   + Updated Revision History   + Updated Table of Contents   + Moved ERD to proper Section * Coding   + Created Base implementation of DataHelper |
| 3/1/16 | * Documentation   + Updated Revision History   + Edited ERD to match requirements of the system     - Removed “Game” table and references * Coding   + Added additional methods to DataManager to call DataHelper   + Installed Singleton structure to DataManager   + Removed singleton instancing from Deck |
| 3/3/16 | * Documentation   + Updated Revision History   + Updated Hierarchy for DataHelper addition   + Edited ERD for missing columns in Card table * Coding   + Restructured deck build calls   + Restructured Card build calls |
| 3/4/16 | * Documentation   + Updated Revision History * Coding   + Added additional calls to Data Helper   + Restructured Card data storage types to match SQLite storage abilities |
| 3/5/16 | * Documentation   + Updated Revision History * Coding   + Revamped several DataHelper calls   + Corrected various methods parameters for changes to Datamanger calls   + Commented out sections not critical to current stat     - Specifically targeted sections non-functional as a result of changes |
| 3/6/16 | * Documentation   + Updated Revision History   + Added Screen Design for Use Case 2   + Cleared “Test Section” in light of entirely redesigned data storage classes   + Tweaked Use Cases in light of limited time   + Updated Table of Contents * Coding   + Corrected various bugs based on changed call parameters |
| 3/8/16  - 3/14/16 | * Documentation   + Updated Revision History * Coding   + Attempted to add fragments and finalize database connections     - Unsuccessfully |

# Introduction

Better Curve is a powerful, all-in-one tool for building decks for various TCGs. With pre-loaded games, the user can simply build their deck obeying the rules of the game. For one not yet added, the user can simply define a few quick rules and from there construct the deck. Afterwards, this powerful app calculates percentages for drawing cards based on the turn the resources to use them becomes available, allowing players to fine tune decks right from the builder.

# Analysis

## Prioritized use cases



1b) The home screen, shows user created decks (saved in a file) and provides options for creating new decks, modifying/removing existing decks, or viewing stats.

1a) The user can add to or remove cards from their deck.

2) The user will be able to select a card from the included database for that game (or enter some basic info for a custom game)

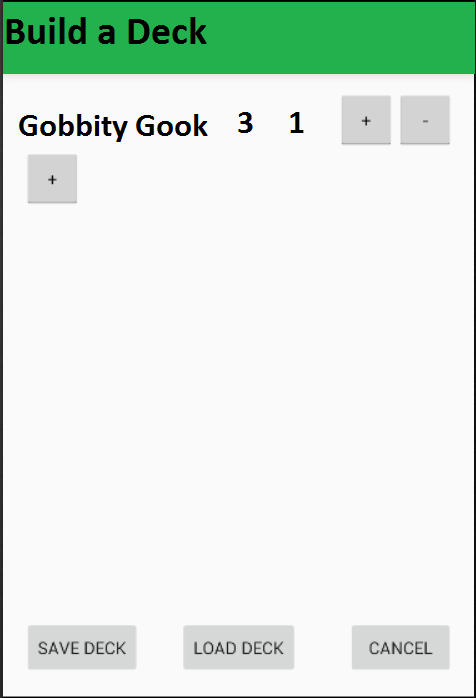
1a) The user will be able to save the current deck, being prompted to name it.

1a) The user can also choose to cancel, without saving, at any time.

# Design

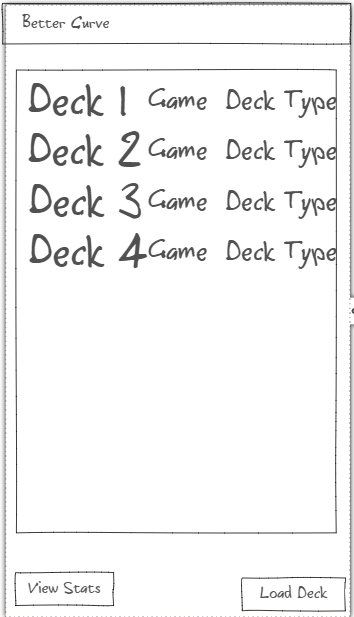
### Use Case 1a

|  |  |
| --- | --- |
| **Name** | **Value** |
| txtName |  |
| txtCost |  |
| txtQty |  |
| btnRaise | + |
| btnLower | - |
| btnAddCard | + |
| btnSave | Save Deck |
| btnLoad | Load Deck |
| btnCancel | Cancel |



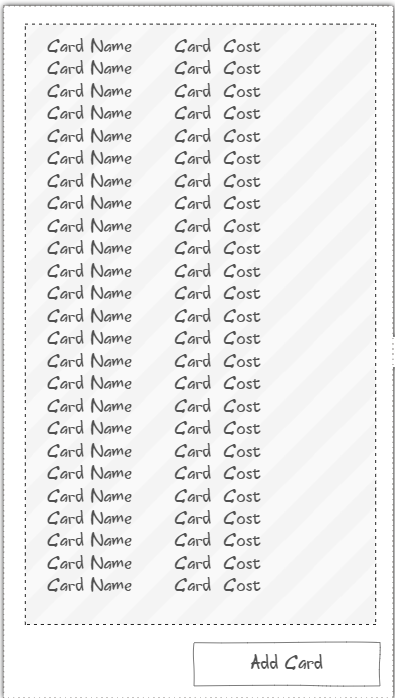
### Use Case 1b

|  |  |
| --- | --- |
| **Name** | **Value** |
| srlDeckList |  |
| txtDeckName |  |
| txtGameName |  |
| txtDeckType |  |
| btnStatsScreen | View Stats |
| btnBuildScreen | Load Deck |



### Use Case 2

|  |  |
| --- | --- |
| **Name** | **Value** |
| srlCard List |  |
| lblCardName |  |
| lblCard Cost |  |
| btnAddCard | Add Card |



### Instantiable Class Diagram:

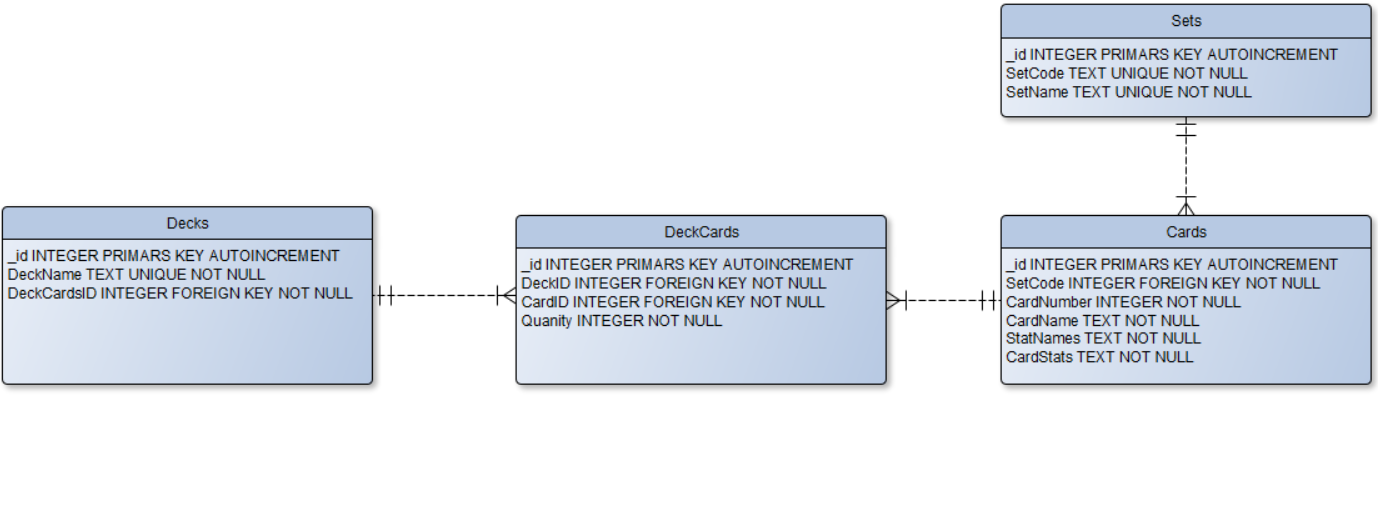
|  |
| --- |
| Manningk.bettercurve::Card |
| -game: String  -set: String  -set number: int  -name: String  -cost: int  -ability: String  -flavor: String  -stats: int[] |
| + public Card()  + public Card(String m\_strGame, String m\_strSet, int m\_intSetNumberSetNumber, String m\_strName,  int m\_intCost, String m\_strAbility, String m\_strFlavor, int[] m\_intStats)  + String getM\_strGame()  + void setM\_strGame(String m\_strGame)  + String getM\_strSet() + void setM\_strSet(String m\_strSet) + int getM\_intSetNumber() + void setM\_intSetNumber(short m\_intSetNumber) + String getM\_strName() + void setM\_strName(String m\_strName)  + int getM\_intCost() + void setM\_intCost(short m\_intCost + String getM\_strAbility() + void setM\_strAbility(String m\_strAbility)  + String getM\_strFlavor() + void setM\_strFlavor(String m\_strFlavor)  + int[] getM\_shtStats() + void setM\_shtStats(short[] m\_shtStats) |

## Data Classes

|  |
| --- |
| Manningk.bettercurve::Deck |
| -deck:Deck  -deckList:ArrayList<Card>  -quantities:ArrayList<String>  -nextCardID:int |
| + private Deck(Context context)  + public static Deck getDeck(Context context)  + public List<Card> getDeckList()  + public Card getCard(int id)  + public int getQty(int id)  + public void addCard(Card card)  + public void addCard(Card card, int qty) + public void removeCard(Card card)  + public void removeCard(int index)  + public int uniques()  + public int getDeckSize() |

## Database Design

### ERD



# Implementation

## Screen Shots

### Use Case 1a



### Use Case 1b



## Current Project Structure

The following diagram depicts the Better Curve project structure, leading to the files that have been added or modified to date:

* Better Curve
  + app
    - src
      * main
        + java

manningk.betterCurve

BuildDeckActivity

Card

CardListActivty

DataHelper

DataManager

Deck

DeckStatsActivity

DetailsScreenActivity

ImprovedListener

InterfaceComponents

MainScreen

Manningk.betterCurve (androidTest)

DeckTest

* + - * res
        + layout

activity\_add\_screen.xml

activity\_build\_test\_screen.xml

activity\_card\_details\_screen.xml

activity\_custom\_screen.xml

activity\_main\_screen.xml

activity\_make\_screen.xml

activity\_stats\_screen.xml

# Testing

## Test Class Diagrams

[Editor’s Note: Section is currently cleared back out due to massive restructuring in all data-storage, managing, and access classes. Reconstructing of test plan is underway.]

|  |
| --- |
| Manningk.bettercurve::DataManagerTest |
|  |
|  |

|  |
| --- |
| Manningk.bettercurve::DeckTest |
|  |
|  |

|  |
| --- |
| Manningk.bettercurve::CardTest |
|  |
|  |

## Test Verifications

[Editor’s Note: See above]