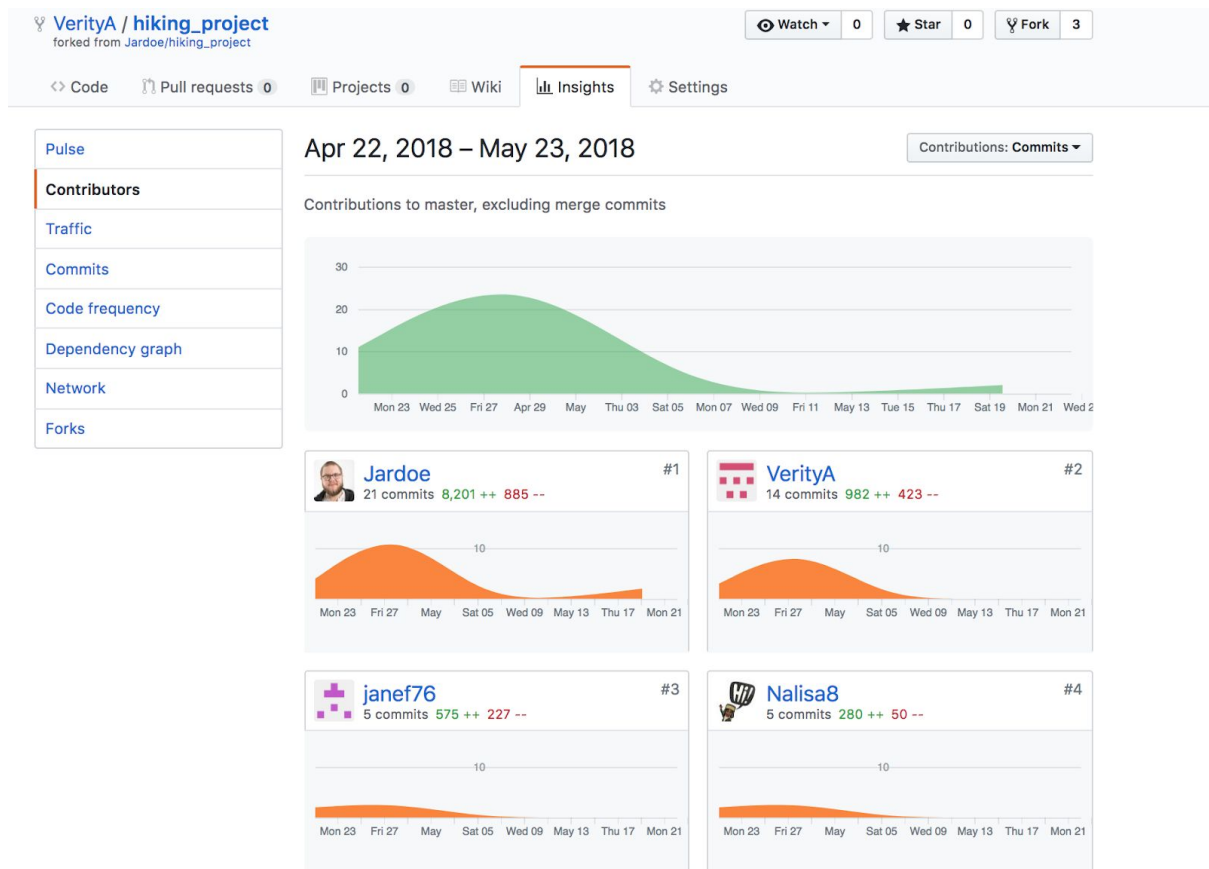


PDA Evidence for Project Unit

Verity Ashforth

E19

P1 Github Contributors Page



P2 Project Brief

Route Planner

Visit Scotland are looking for ways to encourage people to walk and cycle. Your task is to create an app that allows users to search for cycling and hiking routes, view routes on a map, save routes to a wishlist and mark a route done.

You could use GoogleMaps Directions API:

- <https://developers.google.com/maps/documentation/directions/>

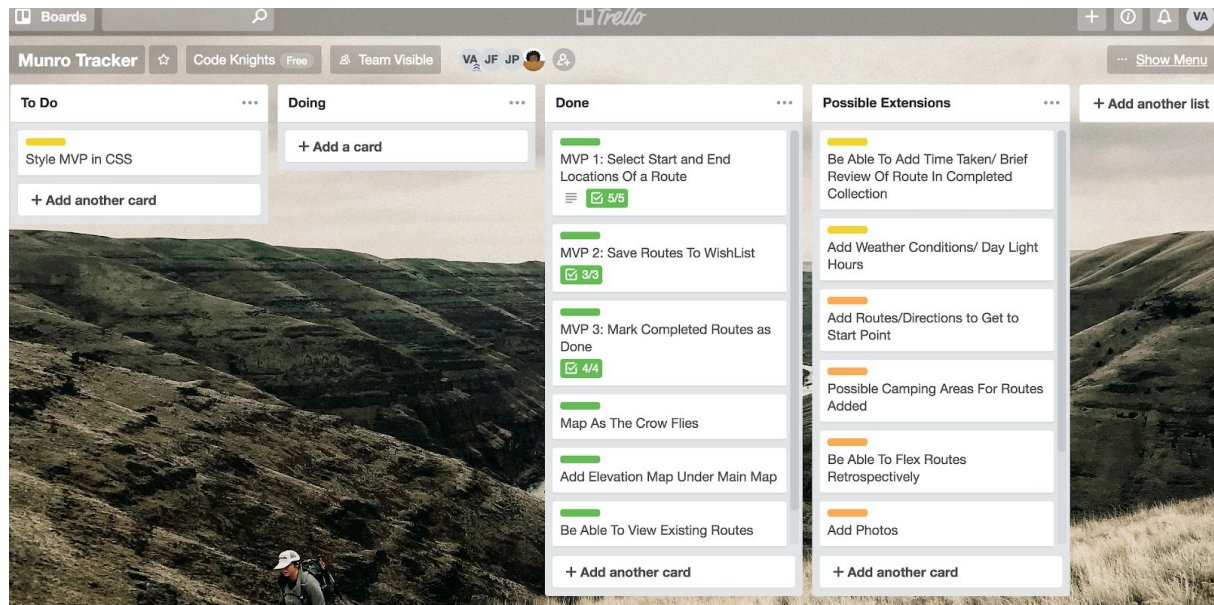
MVP

Users should be able to:

- Select start and finish locations for their route
- Save routes to a wishlist
- Mark completed routes as 'done'

P3 Use of Trello

This is a screenshot of our trello board come the end of the project:

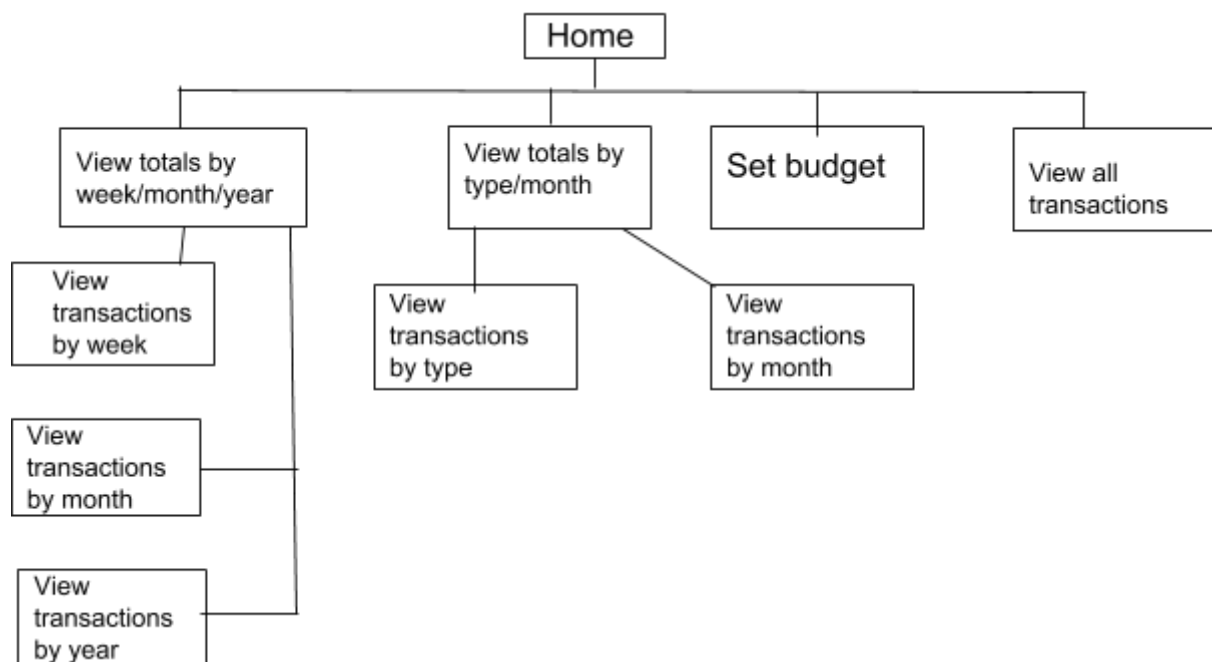


P4 Acceptance Criteria

Acceptance Criteria	Expected Result	Pass/Fail?
On opening application user should see map of Scotland and a list of saved 'wishlist' routes and completed routes.	On loading, map is displayed on right-hand corner of screen, centered on Scotland. Two tables of routes split into wishlist and completed are shown below (both empty if none have been saved in the database).	Pass
User should be able to click on map to create a route and see key route statistics, including elevation.	Waypoints appear on the map where mouse is clicked. Attributes of the route, e.g. coordinates, distance and expected time to complete route populate beside the map. An elevation chart populates below the map.	Pass
User should be able to name the route.	Name can be typed into form below route stats.	Pass
User should be able to save routes to their Wishlist.	Once name form is populated, clicking save button results in population of the Wishlist routes table with the stats of the route displayed on map.	Pass

	Map is then cleared of all waypoints.	
User should be able to mark wishlist routes as completed.	User can press on the 'completed' button beside the appropriate route, which will move the route from the Wishlist table into the Completed table below.	Pass
User should be able to view the saved route on the map retrospectively.	User can press on the 'view route' button beside the appropriate route. This populates the previously empty map with the waypoints of the saved route.	Pass
User should be able to delete routes from either Wishlist or Completed	User can press on the 'delete' button beside the appropriate route, which will remove the route from whichever table the route was currently saved in.	Pass

P5 User Sitemap



P6 Wireframes Design

Big App Title

Header image

Nav bar...

Link: Home

Link:Group totals

Link: Set Budget

Link: View all transactions

Your week spend:

£XX

Budget: £XX

Button: View transactions

Your month spend:

£XX

Budget: £XX

Button: View transactions

Your year spend:

£XX

Budget: £XX

Button: View transactions

Big App Title

Header image

Form...

Label: Input here...

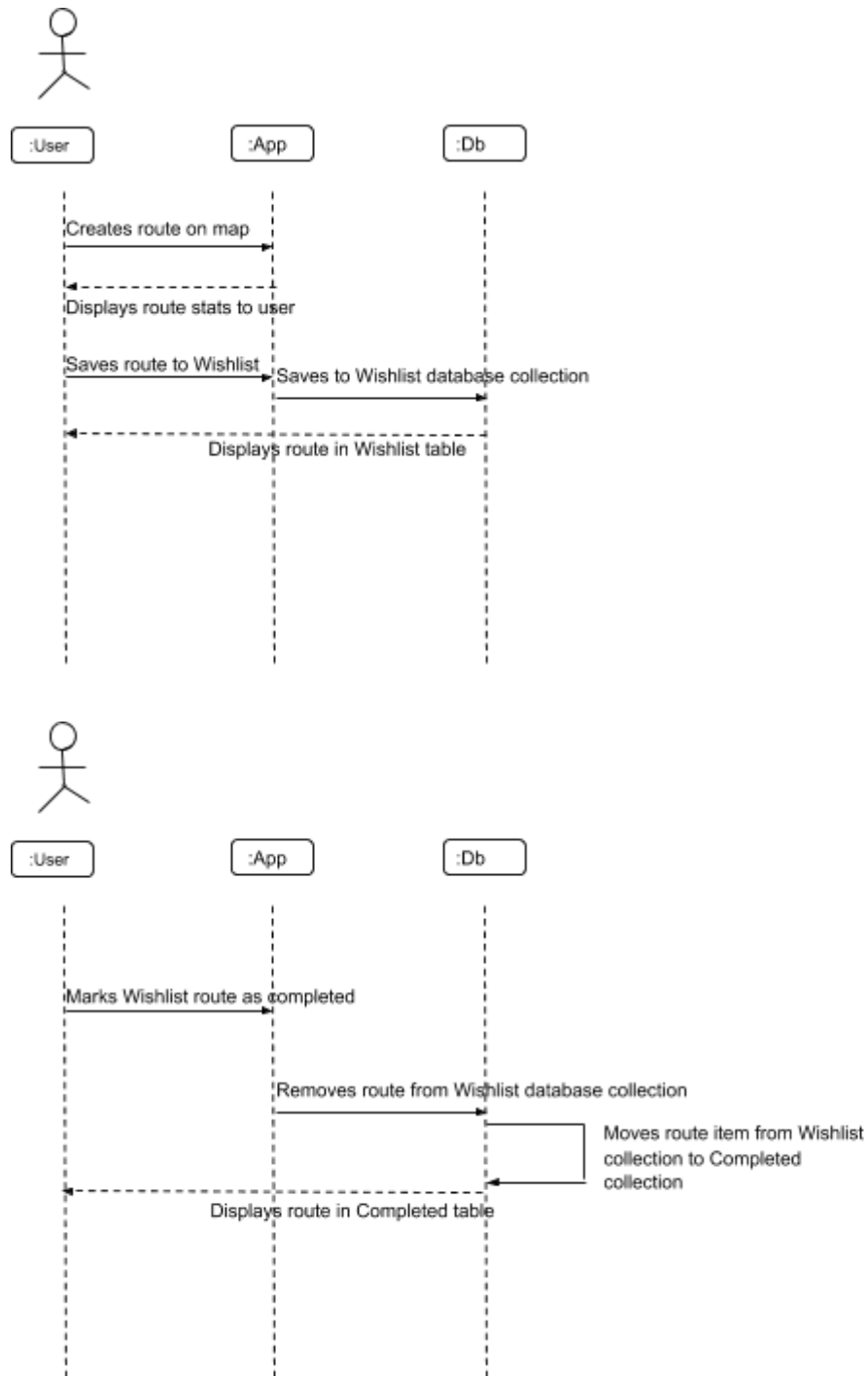
Label: Input here...

Label: Input here...

Add new transaction button

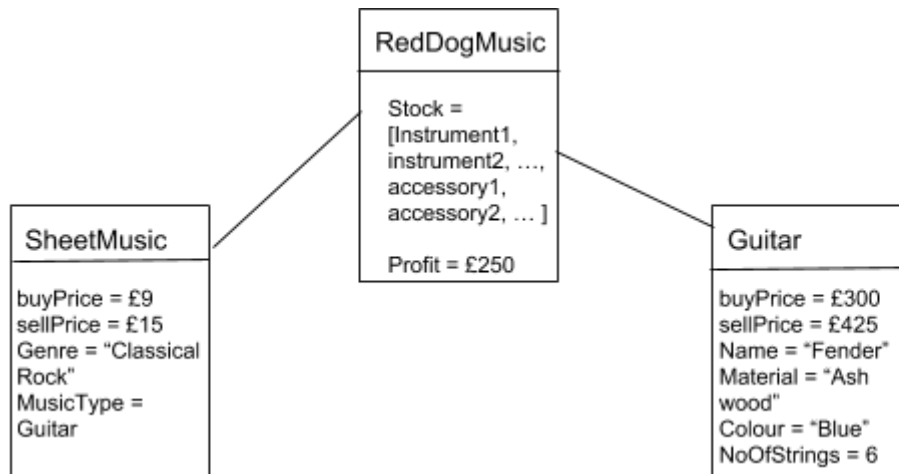
Table...	Merchant	Type	Amount	Edit buttons	Delete buttons

P7 System Interactions Diagram

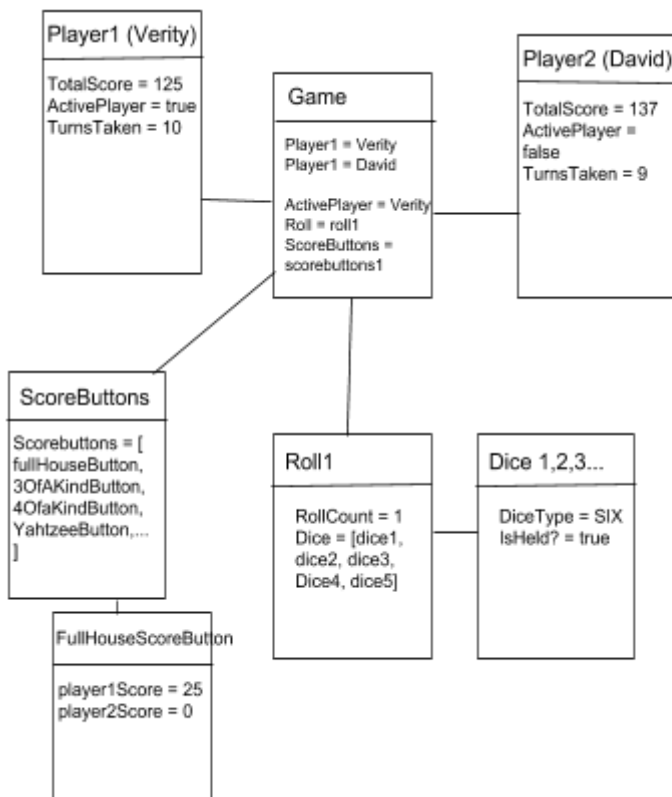


P8 Two Object Diagrams

Music Shop:



Yahtzee Game:



P9 Choice of Two Algorithms

```
public boolean doesContainMultipleOfAnyDieValue(int multiple) {  
    ArrayList<Integer> frequenciesArray = new ArrayList<>();  
    for (int i = 1; i < 7; i++) {  
        int frequency = 0;  
        frequency += frequencyOfDieValue(i);  
        frequenciesArray.add(frequency);  
    }  
  
    int meetsMultiple = 0;  
    for (int i = 0; i < 6; i++) {  
        if (frequenciesArray.get(i) >= multiple) {  
            meetsMultiple += 1;  
        }  
    }  
    if (meetsMultiple > 0) {  
        return true;  
    }  
    return false;  
}
```

This algorithm looks to see if there were any multiples in the roll of five dice, e.g. calling `doesContainMultipleOfAnyDieValue(3)` looks to see if there is a three of a kind present in the dice roll.

```
@Override  
public Integer calculateScore(Roll roll) {  
    if (roll.doesContainMultipleOfAnyDieValue(getStrategyType().getValue())) {  
        if (getStrategyType().getValue() == 5) {  
            return 50;  
        }  
        return roll.sumOfAllDiceValues();  
    }  
    return 0;  
}
```

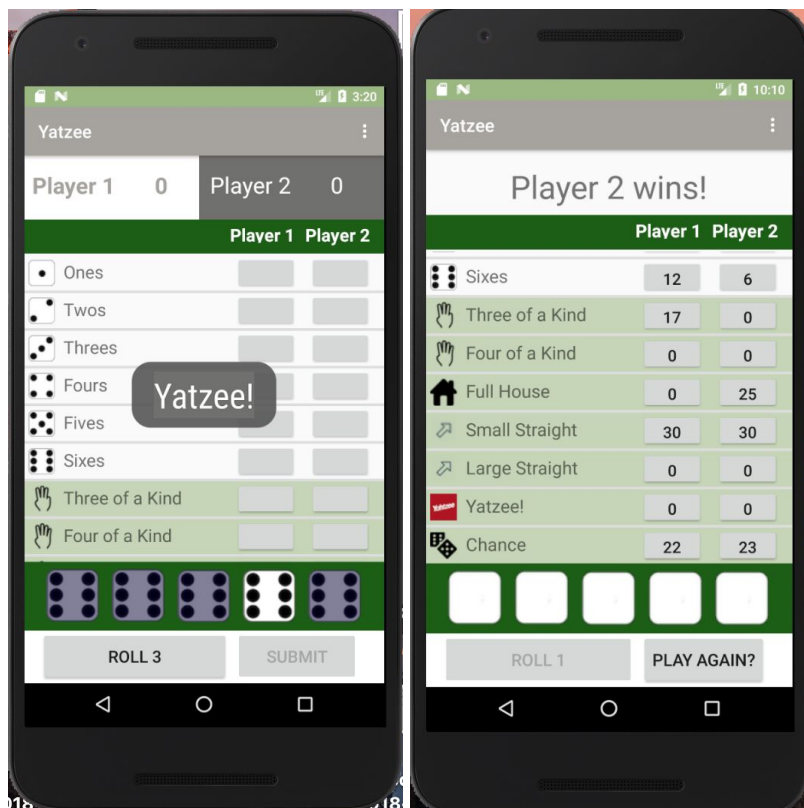
This algorithm calculates the relevant score for a given XOfAKind score button.

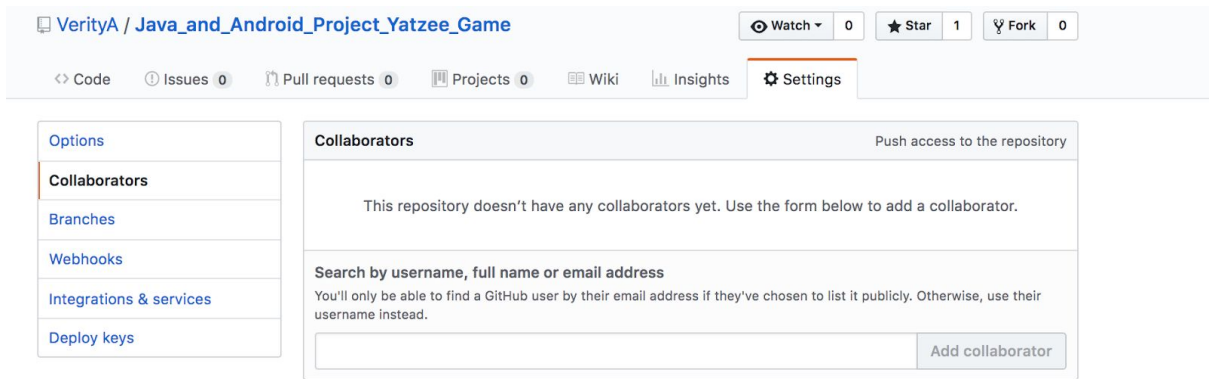
P10 Example of Pseudocode

```
27 # pseudocode:
28
29 # def order_transactions_by_amount
30 #   the method should accept an array of transactions and a direction to order by
31 #   for example the array could be all transactions from the month of May
32 #   for example the direction could be ascending order
33 #   the transactions should be ordered by the transaction amount in ascending order as default
34 #   if the direction specified is descending then the sorted array should be reversed
35 #   the method should return the array
36 # end
```

P11 Github Link to a Project

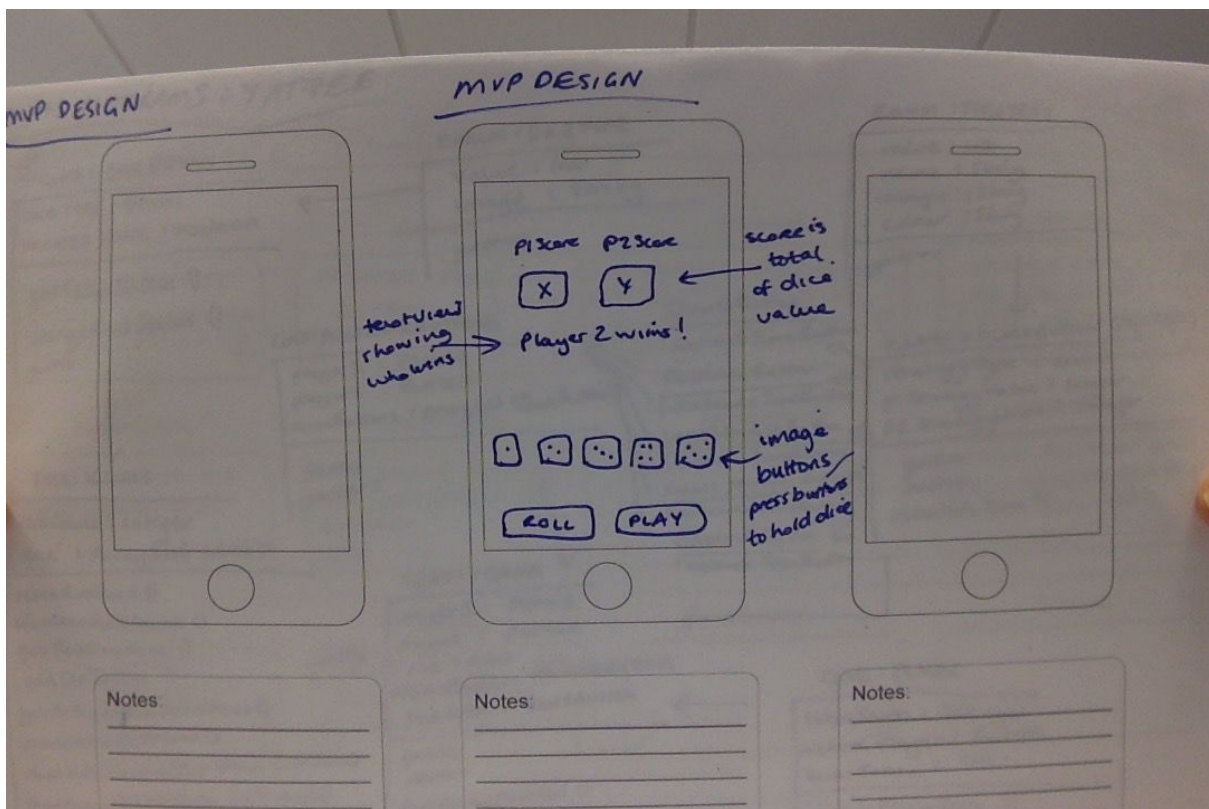
Screenshots of individual Yahtzee project:



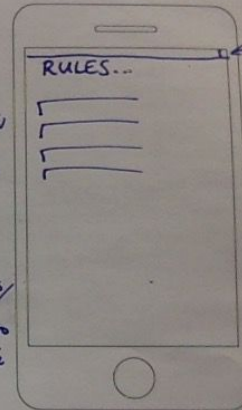
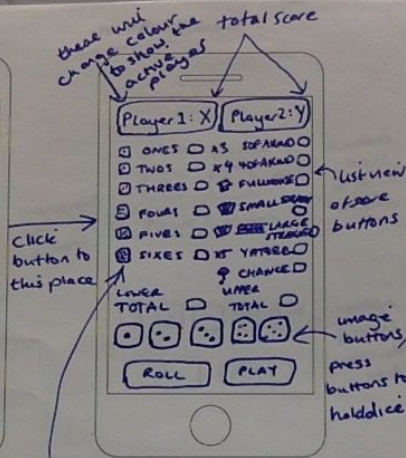


Link to project: https://github.com/VerityA/Java_and_Android_Project_Yatzee_Game

P12 Screenshot of Planning and the Different Stages of Development to Show Changes



FULL GAME DESIGN



Notes:

Notes:

TOAST SHOULD POPUP FOR YATZEE
LISTVIEW OR GRIDVIEW?
DICE WILL BE OBJECTS WITH ENUM TYPES
image of dice / textview of dice category / textview or button for ROLL

Notes:

User journey
Your name

YATZEE GAME

Date



User action

PRESSES 'LET'S PLAY' BUTTON ON WELCOME PAGE
1 Start

System response

TAKES USER TO THE MAIN GAME PAGE

User action

PRESSES ROLL BUTTON
2

System response

DICE IMAGE BUTTONS ARE POPULATED AT RANDOM.

User action

PLAYER PRESSES ON DICE BUTTONS TO HOLD THE DICE
3

System response

DICE IMAGE BUTTONS TURN GREY TO SHOW USER THEY HAVE HELD THEM.

User action

PLAYER CAN RE ROLL / HOLD DICE UP TO TWO MORE TIMES
4

System response

AFTER ALL ROLLS HAVE BEEN TAKEN THE ROLL BUTTON WILL BE DISABLED

User action

PLAYER SELECTS SCORE CATEGORY TO PLAY FOR THE CURRENT TURN
5

System response

SCORE BUTTON WILL POPULATE WITH THE SCORE FOR THE GIVEN ROLL

User action

PLAYER PRESSES THE PLAY BUTTON TO SUBMIT THEIR TURN
6

System response

PLAYERS SCORE WILL BE UPDATED
TOTAL
GAME MOVES TO THE NEXT PLAYER

User action

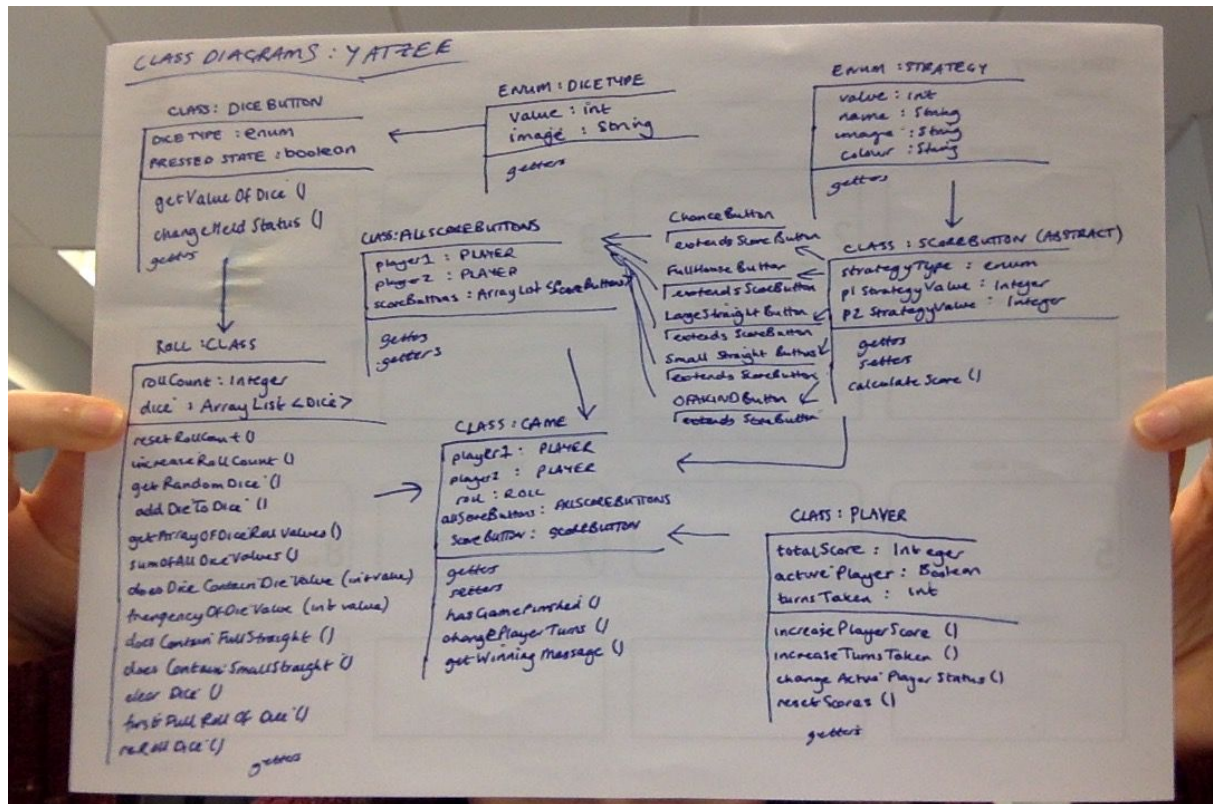
7

System response

User action

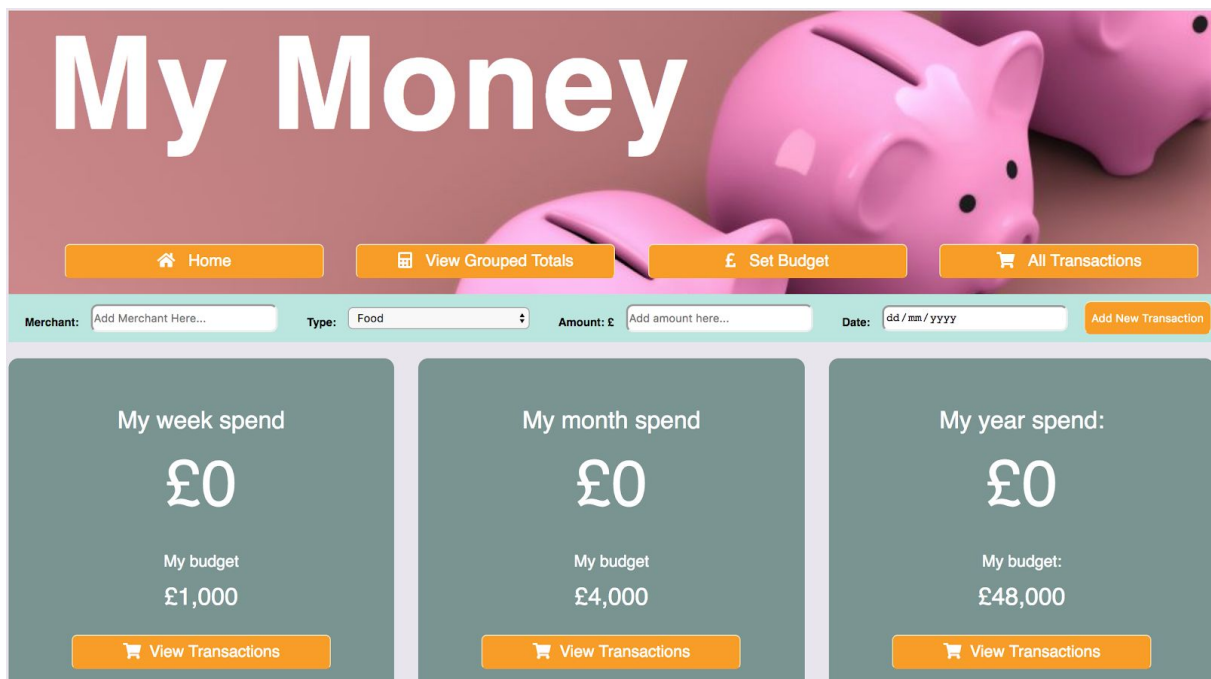
8 End

System response



P13 User Input

Below is a screenshot of the homepage of my My Money budgeting app. The weekly, monthly and yearly budgets are currently set to be £1000, £4000 and £48,000 respectively.



The user can input new weekly, monthly and yearly budgets as shown in the highlighted boxes. The user can then press on the 'Set New Budget' button to apply the new budgets.

The screenshot shows the 'My Money' app interface. At the top, there's a header with the title 'My Money' and a background image of pink piggy banks. Below the header is a navigation bar with four buttons: 'Home', 'View Grouped Totals', '£ Set Budget', and 'All Transactions'. Underneath the navigation bar, there are three input fields for budgets: 'Weekly: £' with a value of '500', 'Monthly: £' with a value of '2000', and 'Yearly: £' with a value of '24000'. Each input field is highlighted with a yellow box. To the right of these fields is a button labeled 'Set New Budget', which is also highlighted with a yellow box and has a black arrow pointing to it from below.

Below is a snapshot of the homepage with the changed budgets.

The screenshot shows the 'My Money' app interface after the budget changes. The top header and navigation bar are the same. Below the navigation bar, there's a form for adding a new transaction with fields for 'Merchant', 'Type' (set to 'Food'), 'Amount', and 'Date'. Below this form, there are three large cards displaying the current spend and budget for each period: 'My week spend', 'My month spend', and 'My year spend:'. Each card shows a current spend of '£0' and a budget of '£500', '£2,000', and '£24,000' respectively. The budget values are highlighted with yellow boxes. Each card also has a 'View Transactions' button at the bottom.

P14 Interaction with Data Persistence

This is the 'All Transactions' page. Currently there are no transactions.

My Money

Home View Grouped Totals £ Set Budget All Transactions

Merchant: Add Merchant Here... Type: Food Amount: £ Add amount here... Date: dd/mm/yyyy Add New Transaction

Transaction Type	Merchant	Amount	Date	Edit	Delete All
Total Spend		£0.00			

I can add a new transaction by inputting a merchant name, a transaction type, a transaction amount and the transaction date. Here we are inputting Tesco, Food, £12.50 and 12/03/2018.

My Money

Home View Grouped Totals £ Set Budget All Transactions

Merchant: Tesco Type: Food Amount: £12.50 Date: 12/03/2018 Add New Transaction

Transaction Type	Merchant	Amount	Date	Edit	Delete All
Total Spend		£0.00			

Below is the All Transaction page with the new transaction listed.

My Money

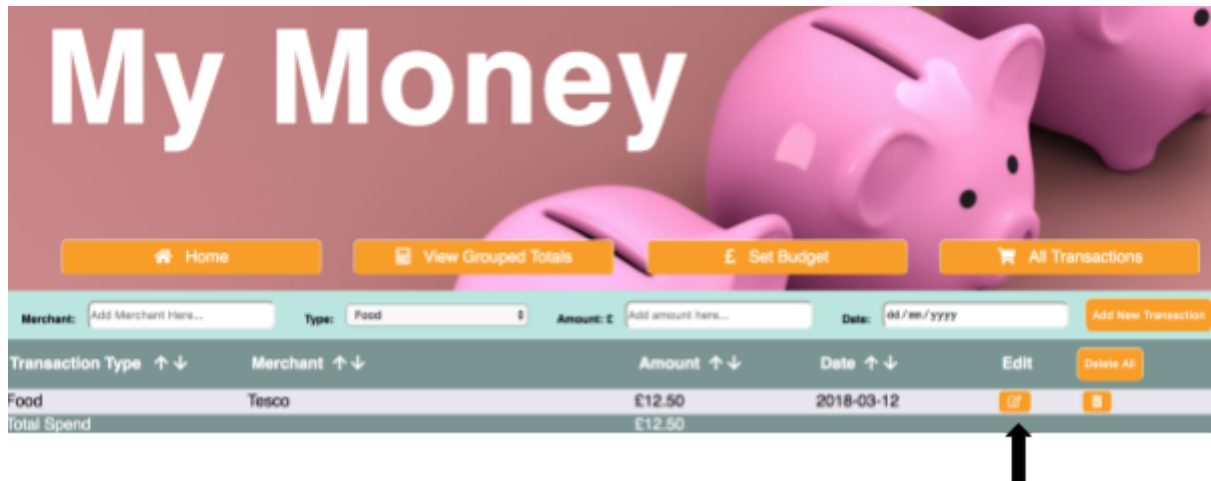
Home View Grouped Totals £ Set Budget All Transactions

Merchant: Add Merchant Here... Type: Food Amount: Add amount here... Date: dd/mm/yyyy Add New Transaction

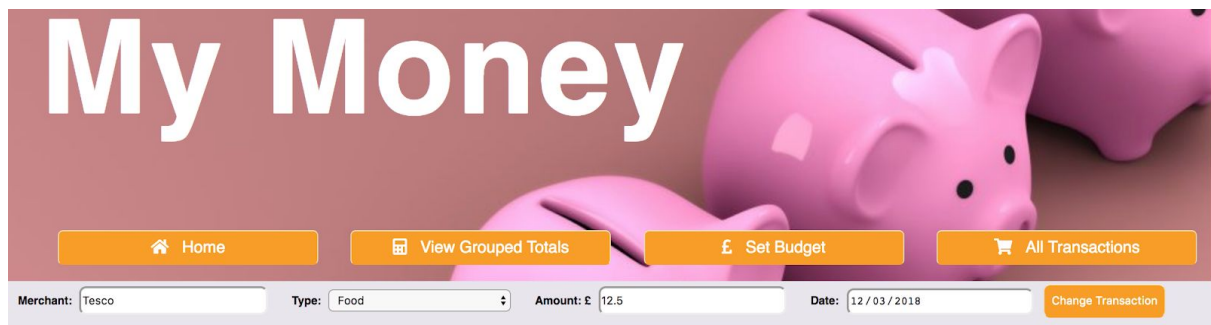
Transaction Type	Merchant	Amount	Date	Edit	Delete All
Food	Tesco	£12.50	2018-03-12		
Total Spend		£12.50			

P15 User Output Result

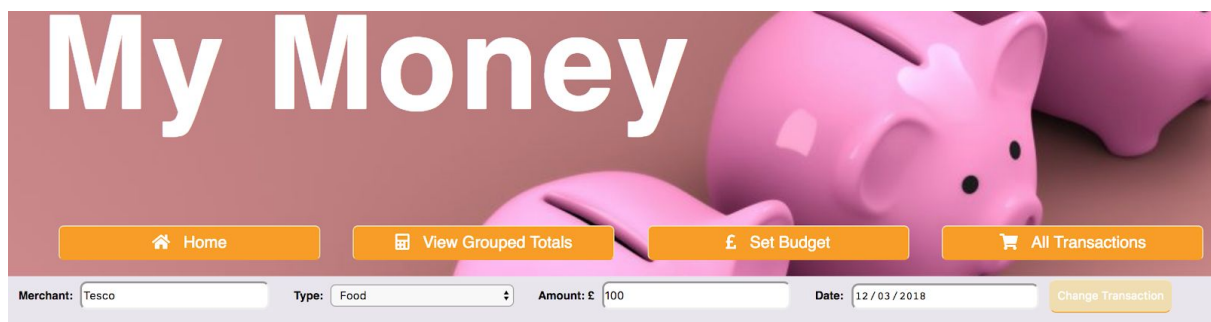
If you put the new transaction in wrongly you can edit the transaction by pressing the Edit button, pointed below.



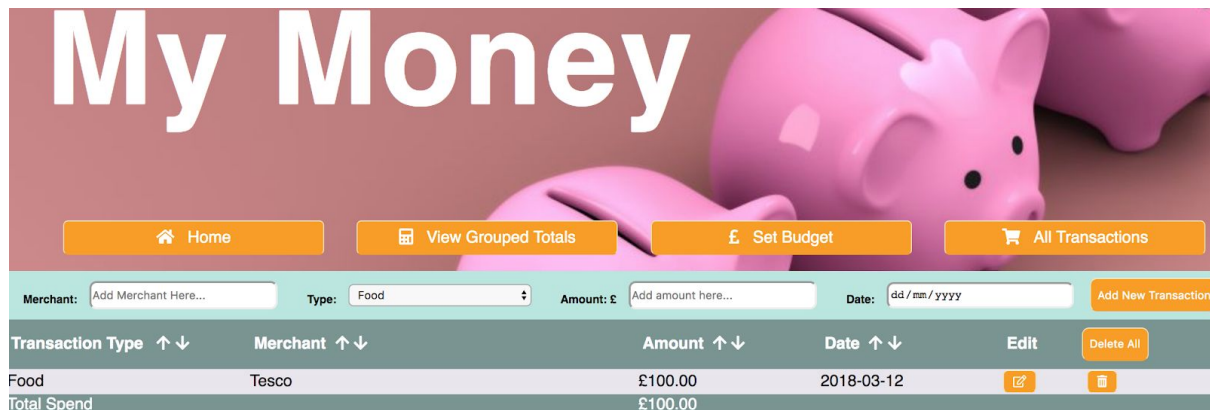
The transaction details will be pre-populated ready to be edited.



We can change any of the values. Here we will change the transaction amount to £100 and press the Change Transaction button:



The page then re-directs to the All Transactions page where we can see the amount has changed to £100 as expected.



P16 Show An API Being Used In Your Program

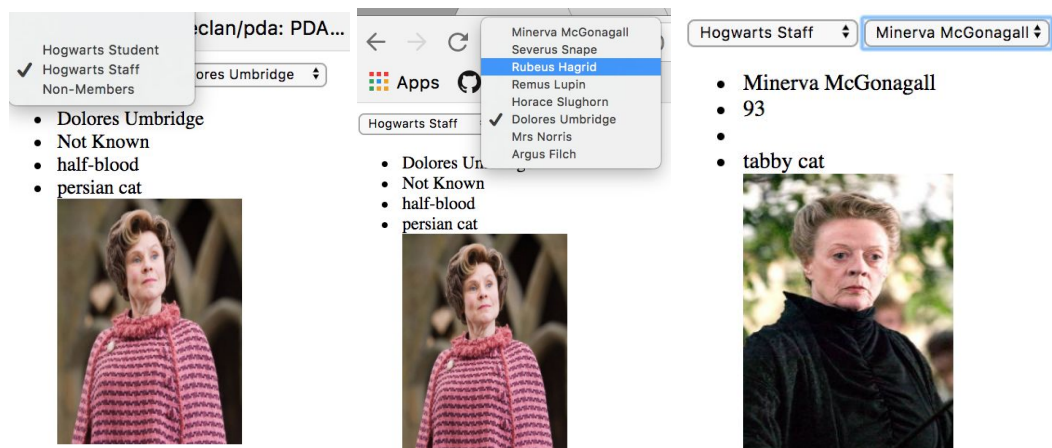
Below is a code snippet accessing the Harry Potter characters API.

```

3
4  const makeRequest = function (url, callback) {
5      const request = new XMLHttpRequest();
6      request.open('GET', url);
7      request.send();
8      request.addEventListener('load', callback);
9  };
10
11  const requestComplete = function () {
12      if (this.status !== 200) return;
13      const jsonString = this.responseText;
14      allCharacters = JSON.parse(jsonString);
15      const array = getStudents(allCharacters);
16  };
17
18  document.addEventListener('DOMContentLoaded', () => {
19      url="http://hp-api.herokuapp.com/api/characters";
20      makeRequest(url, requestComplete);
21
22      const typeSelect = document.querySelector('#character-type-dropdown');
23      typeSelect.addEventListener('change', handleTypeChangeRequest);
24
25      const characterSelect = document.querySelector('#character-dropdown');
26      characterSelect.addEventListener('change', handleCharacterChangeRequest);
27  });
28

```

My program displays a drop-down of Harry Potter characters based on their Hogwarts status, and provides details of the character once clicked on.



P17 Bug Tracking Report Showing the Errors Diagnosed and Corrected

Requirement	Pass/Fail	Error Reason	Pass/Fail
Elevation chart should populate when route drawn on map	Fail	Elevation service method being called before Google chart API is loaded so empty chart is displayed	Rearranged code so that Google chart API is loaded first, then elevation service called. Passed
Map route should be deleted on button press for Wishlist and Completed routes	Fail	Routes transferred between Mongodb collections with IDs attached cannot be deleted from the new collection	Removed the Wishlist collection ID from the route object before transferring to the Completed collection. Route can then be deleted. Passed
Routes should be shown in order with most recently added at the top.	Fail	Routes going to the bottom of the table when added automatically	Called <code>.sort({_id:-1})</code> after extracting route data from MongoDB Passed
Format of distances and times should be displayed in a readable way	Fail	Routes coming through in the database format. Prettify methods not working as not been required in ListView model.	Required Utilities model containing the prettify methods. Passed
User should be able to add waypoints to	Fail	Googlemaps API allows only 10	Added a return statement to disable

create routes on map. Map should update as each waypoint added		waypoints to be added so routes weren't updating on the 11th+ waypoints.	the user from adding an 11th waypoint, improving UX. Passed
--	--	--	---

P18 Testing Your Program

Code being tested:

```

~
6  require_relative('card.rb')
7  class CardGame
8
9
10     def checkforAce(card)
11         if card.value == 1
12             return true
13         else
14             return false
15         end
16     end
17
18     def highest_card(card1 card2)
19         if card1.value > card2.value
20             return card.name
21         else
22             card2
23         end
24     end
25 end
26
27 def self.cards_total(cards)
28     total
29     for card in cards
30         total += card.value
31         return "You have a total of" + total
32     end
33 end

```

Ruby Dynamic Tests Tasks

First test for checking an ace will true and false:

```
task1.rb task2.rb

require('minitest/autorun')
require_relative('task2.rb')

class Task2Test < MiniTest::Test

  def setup
    @card1 = Card.new("ace", 1)
    @card2 = Card.new("jack", 11)
    @card_game = CardGame.new()
  end

  def test_check_for_ace_is_ace
    assert_equal(true, @card_game.checkforAce(@card1))
  end

  def test_check_for_ace_is_not_ace
    assert_equal(false, @card_game.checkforAce(@card2))
  end

end
```

Screenshot showing the tests can't run because the Cardgame class doesn't have the correct end statements at the end of the class, too many for the 'highest_card' method and also because def was misspelled ruby was not recognising when the functions started and ended.

```
→ Texting_Exercises git:(master) ✗ ruby task2_spec.rb
task2_spec.rb:2:in 'require_relative': /Users/user/codeclan_work/pda/Texting_Exercises/task2.rb:28: syntax error, unexpected end-of-input, expecting keyword_end (SyntaxError)
from task2_spec.rb:2:in '<main>'
```

Correcting the spelling of def and adding the right end statements has changed the error. Now the program can't run because the parameters of the 'highest_value' method are not separated by a comma.

```
→ Texting_Exercises git:(master) ✗ ruby task2_spec.rb
task2_spec.rb:2:in 'require_relative': /Users/user/codeclan_work/pda/Texting_Exercises/task2.rb:13: syntax error, unexpected tIDENTIFIER, expecting ')' (SyntaxError)
def highest_card(card1 card2)
^
/Users/user/codeclan_work/pda/Texting_Exercises/task2.rb:30: syntax error, unexpected keyword_end, expecting end-of-input
from task2_spec.rb:2:in '<main>'
```

The next error is appearing because a double equals sign (==) is required to test for equality.

```

2 runs, 0 assertions, 0 failures, 2 errors, 0 skips
→ Texting_Exercises git:(master) ✖ ruby task2_spec.rb
Run options: --seed 16705

# Running:

EE

Finished in 0.001047s, 1910.2198 runs/s, 0.0000 assertions/s.

  1) Error:
Task2Test#test_check_for_ace_is_not_ace:
NoMethodError: undefined method `value=' for #<Card:0x007fdb42a2ec0 @suit="jack", @value=11>
Did you mean?  value
               /Users/user/codeclan_work/pda/Texting_Exercises/task2.rb:6:in `checkforAce'
               task2_spec.rb:18:in `test_check_for_ace_is_not_ace'

  2) Error:
Task2Test#test_check_for_ace_is_ace:
NoMethodError: undefined method `value=' for #<Card:0x007fdb42a2858 @suit="ace", @value=1>
Did you mean?  value
               /Users/user/codeclan_work/pda/Texting_Exercises/task2.rb:6:in `checkforAce'
               task2_spec.rb:14:in `test_check_for_ace_is_ace'

2 runs, 0 assertions, 0 failures, 2 errors, 0 skips
→ Texting_Exercises git:(master) ✖ █

```

The tests run once this is fixed:

```

→ Texting_Exercises git:(master) ✖ ruby task2_spec.rb
Run options: --seed 45379

# Running:

..

Finished in 0.000917s, 2181.0251 runs/s, 2181.0251 assertions/s.

2 runs, 2 assertions, 0 failures, 0 errors, 0 skips
- - - - -

```

Second tests for finding the higher card:

```

def test_highest_card_returns_jack_correct
  assert_equal(@card2, @card_game.highest_card(@card1, @card2))
end

def test_highest_card_returns_jack_incorrect
  assert_equal(@card2, @card_game.highest_card(@card2, @card1))
end

```

The second is failing because the method refers to card when the parameters are card1 and card2. The first one is passing because the value of @card1 is not higher than the value of @card2 so it skips the statement with the error in it.

```

[→ Texting_Exercises git:(master) ✕ ruby task2_spec.rb
Run options: --seed 9323

# Running:

...E

Finished in 0.001062s, 3766.4786 runs/s, 2824.8589 assertions/s.

  1) Error:
Task2Test#test_highest_card_returns_jack_incorrect:
NameError: undefined local variable or method `card' for #<CardGame:0x007f911ca99c78>
Did you mean?  card2
               card1
               /Users/user/codeclan_work/pda/Texting_Exercises/task2.rb:15:in `highest_card'
               task2_spec.rb:26:in `test_highest_card_returns_jack_incorrect'

4 runs, 3 assertions, 0 failures, 1 errors, 0 skips

```

Once this is fixed there is a new failure message because .name is not a defined method.

```

→ Texting_Exercises git:(master) ✕ ruby task2_spec.rb
Run options: --seed 32199

# Running:

E...

Finished in 0.001049s, 3813.1555 runs/s, 2859.8667 assertions/s.

  1) Error:
Task2Test#test_highest_card_returns_jack_incorrect:
NoMethodError: undefined method `name' for #<Card:0x007f9ed2032d48 @suit="jack", @value=11>
   /Users/user/codeclan_work/pda/Texting_Exercises/task2.rb:15:in `highest_card'
   task2_spec.rb:26:in `test_highest_card_returns_jack_incorrect'

4 runs, 3 assertions, 0 failures, 1 errors, 0 skips

```

To fix this I've removed the .name so that it runs the card1 object. The tests now run:

```

▶ Texting_Exercises git:(master) ✕ ruby task2_spec.rb
Run options: --seed 44827

# Running:

...

Finished in 0.001004s, 3984.0634 runs/s, 3984.0634 assertions/s.

4 runs, 4 assertions, 0 failures, 0 errors, 0 skips

```

Third test for totalling all the card values:

```

def test_cards_total
  cards = [@card1, @card2]
  assert_equal("You have a total of 12", CardGame.cards_total(cards))
end

```

This test errors because the variable total has not been defined correctly. Needs corrected to total = 0.

```
→ Texting_Exercises git:(master) ✖ ruby task2_spec.rb
Run options: --seed 4935

# Running:

E....

Finished in 0.001356s, 3687.3154 runs/s, 2949.8523 assertions/s.

  1) Error:
Task2Test#test_cards_total:
NameError: undefined local variable or method `total' for CardGame:Class
    /Users/user/codeclan_work/pda/Texting_Exercises/task2.rb:23:in `cards_total'
    task2_spec.rb:31:in `test_cards_total'

5 runs, 4 assertions, 0 failures, 1 errors, 0 skips
```

Once fixed we get a new error due to trying to return an integer as a string.

```
→ Texting_Exercises git:(master) ✖ ruby task2_spec.rb
Run options: --seed 4935

# Running:

E....

Finished in 0.001356s, 3687.3154 runs/s, 2949.8523 assertions/s.

  1) Error:
Task2Test#test_cards_total:
NameError: undefined local variable or method `total' for CardGame:Class
    /Users/user/codeclan_work/pda/Texting_Exercises/task2.rb:23:in `cards_total'
    task2_spec.rb:31:in `test_cards_total'

5 runs, 4 assertions, 0 failures, 1 errors, 0 skips
```

The test is now failing for two reasons:

- 1) The string should have a space in before the closing “
- 2) The method is returning to early so is finishing after getting the value of the first card.
This needs to be moved to after the for loop

```
[→ Texting_Exercises git:(master) ✖ ruby task2_spec.rb  
Run options: --seed 21494
```

```
# Running:
```

```
F....
```

```
Finished in 0.001244s, 4019.2925 runs/s, 4019.2925 assertions/s.
```

```
1) Failure:  
Task2Test#test_cards_total [task2_spec.rb:31]:  
Expected: "You have a total of 12"  
Actual: "You have a total of 1"
```

```
5 runs, 5 assertions, 1 failures, 0 errors, 0 skips
```

Once fixed all the tests pass:

```
→ Texting_Exercises git:(master) ✖ ruby task2_spec.rb  
Run options: --seed 17525
```

```
# Running:
```

```
.....
```

```
Finished in 0.001122s, 4456.3278 runs/s, 4456.3278 assertions/s.
```

```
5 runs, 5 assertions, 0 failures, 0 errors, 0 skips
```

```
→ Texting_Exercises git:(master) ✖ █
```