University of Glasgow

VIA VERITAS VITA

MSc IT+ Team Project

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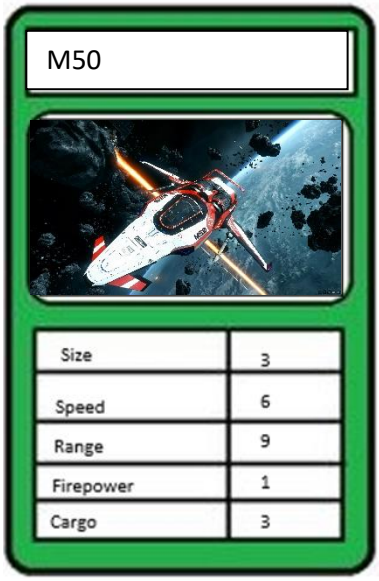

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Introduction

This report provides an in-depth look into the development of the Top Trumps team project, which focussed on the use of Java, JavaScript and HTML to connect the back-end product to an online game.

The preliminary stages consisted of analysing the requirements needed to complete the project and by assigning members tasks based on their skill set. Planning development consisted of a Scrum and Sprint process for both the Online mode and Command Line, a methodology which was followed for the lifespan of the project.

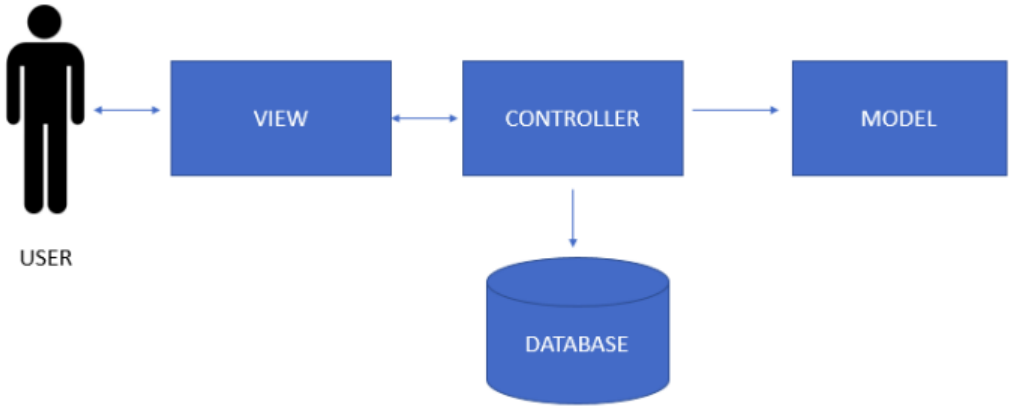
The project was initially broken down into anticipated user stories. However, as the game developed more stories were added to complete all necessary tasks. This is reflected within burndown charts which demonstrates the estimated time and actual time spent on each aspect.

The report continues with the assumptions presented for the program specification, and a section that details the testing methodology (with examples) that were used to ensure the program functioned as specified.

Nonetheless, the program was not produced without issues and errors which are analysed within the deficiencies section. The report includes a section dedicated to reflection where these issues were reviewed, and the team underpinned the main lessons learned throughout the process of the creation of the program.

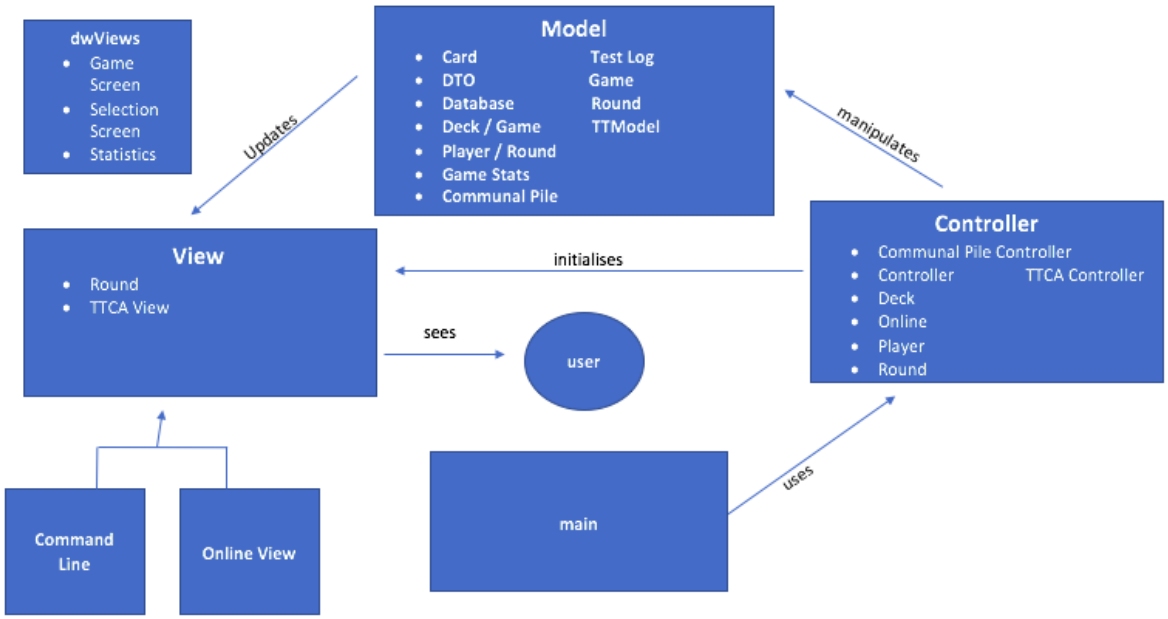
Design Structure and MVC Diagram

Fig 1.



The program followed the Model-View-Controller method when developing the system. The team understood that the components of the model needed to include an online approach, a java program and be connected to the database therefore, the team followed the above architect structure. The below model goes into more depth into the aspects of each component and where each class is stored within the game.

Fig 2.



Story Cards

Sprint 1

Card 1

Card Name	Start Game from Command Line
Description	As a user, I want to choose to start the game or view the statistics.
Priority	5
Cost	3
Status	Completed

Test: In the start of the game once TopTrump argument is run, the user is asked if they want to start the game or see statistics.

Card 2

Card Name	Create Deck, Shuffle and Allocate cards
Description	As a developer, I want the deck to be shuffled and distributed.
Priority	5
Cost	5
Status	Completed

Test: The deck is created by reading the text file. It is then shuffled as tested by the test log. All CLI players have correct cards based on number of players playing.

Card 3

Card Name	First Round Player
Description	The first round player should be chosen on random, from second round its based on who won previous round
Priority	3
Cost	1
Status	Completed

Test: The first round player is chosen in random fashion. Once a draw is present the winner of previous round chooses again.

Card 4

Card Name	Player Category Selection
Description	As a user, I want to select a category from my card so that it can be played. The AI player then selects their best category.
Priority	4
Cost	10
Status	Completed

Test: In CLI the user is able to choose whatever category they want to chose and the AI can be seen to select their best attribute of their card in the test log.

Card 5

Card Name	Player Game Loss
Description	Once the player has no cards left the game should make sure the user no longer is able to participate until the game is finished.
Priority	4
Cost	4
Status	Completed

Test: Once player has no cards left the IA finish game in seconds.

Card 6

Card Name	Play Again function
Description	The option to start a new game after a game is ended.
Priority	3
Cost	8
Status	Completed

Test: The user is asked at the end of the game whether they want to start a new game or see statistics and even after the statistics are shown it asks if the person wants to start a game again.

Card 7

Card Name	Show Statistics
Description	System to show which players turn it is and show user cards.
Priority	5
Cost	10
Status	Completed

Test: The player can see the statistics before they start a game or after a game has ended.

Card 9

Card Name	Test Log
Description	As a developer, a test log to ensure specifications of project brief is met
Priority	4
Cost	11
Status	Completed

Test: Screenshots of test log in appendix.

Card 10

Card Name	Command Line version of game runs to Completion
Description	Command Line works smoothly fulfils the requirements of a Top Trumps game.
Priority	5
Cost	20
Status	Completed

Test: The Command line runs with all the design specifications.

Sprint 2

Card 1

Card Name	HTML Selection Page
Description	In online mode create HTML for Selection Page with new game button with number of players selection and view stats button.
Priority	5
Cost	10
Status	Completed

Test: Online version displays HTML selection page as required.

Card 2

Card Name	HTML Game Screen Page
Description	In online mode create HTML for Game Screen. Game screen contains players cards, Active Player, next round button and category selection buttons.
Priority	5
Cost	10
Status	Completed

Test: Online version displays HTML game screen button as required.

Card 3

Card Name	HTML Stats page
Description	In online mode create HTML for Stats Page. Displays game Statistics.
Priority	5
Cost	10
Status	Completed

Test: Online Version displays HTML stats screen as required.

Card 4

Card Name	Select Amount of AI Players Online
Description	As a user, in online mode, want to select a number of players via player input and send user to Game Screen Page.
Priority	5
Cost	10
Status	Completed

Test: Online Version displays options for number of players to a game and creates

Card 5

Card Name	Online version of game runs each round Separately
Description	User should be able to launch online mode, start a game and view each round of game individually.
Priority	5
Cost	16
Status	Incomplete

Card 6

Card Name	Initialise Game
Description	Game begins upon number of players button request.
Priority	5
Cost	20
Status	Complete.

Test: Online Version initiates game based on number of players.

Card 7

Card Name	Category Selection
Description	In online mode, player should be able to select an attribute to compare.
Priority	5
Cost	10
Status	Incomplete

Card 8

Card Name	Pictures
Description	There should be a picture on every top trump card in online mode.
Priority	1
Cost	3
Status	Incomplete

Card 9

Card Name	Online statistics
Description	Button to show statistics when in online mode
Priority	4
Cost	6
Status	Incomplete

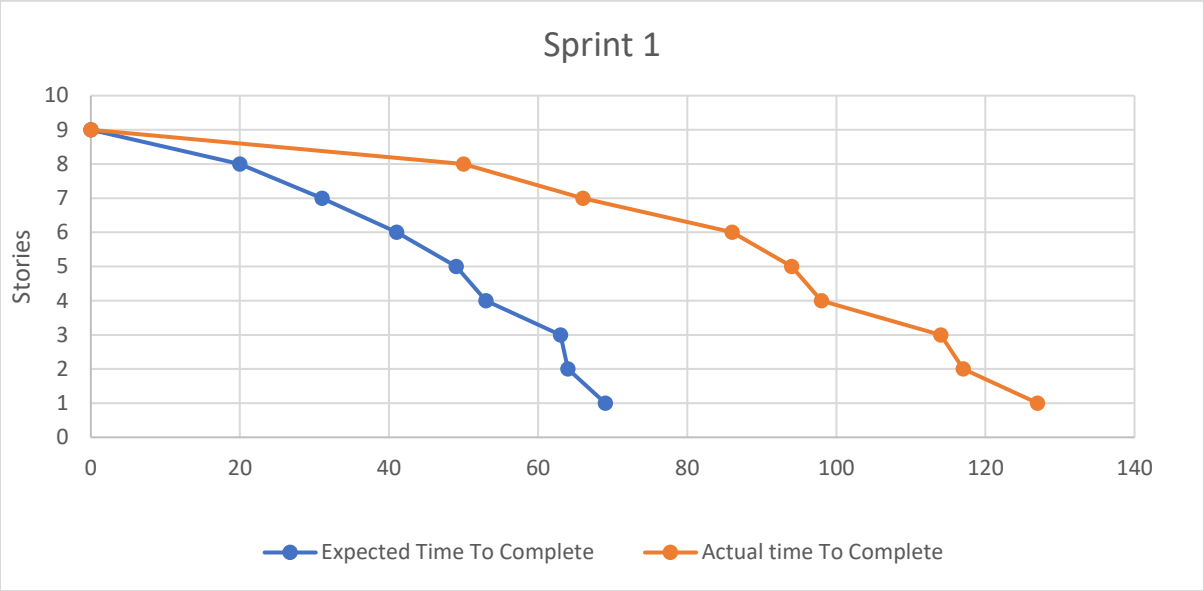
Card 10

Card Name	Multiple games
Description	In Online mode run multiple games at once
Priority	2
Cost	3
Status	Incomplete

Card 11

Card Name	Quit Game
Description	As a user, in Online mode, I should have a button to quit in the middle of the game
Priority	3
Cost	2
Status	Incomplete

Sprint One

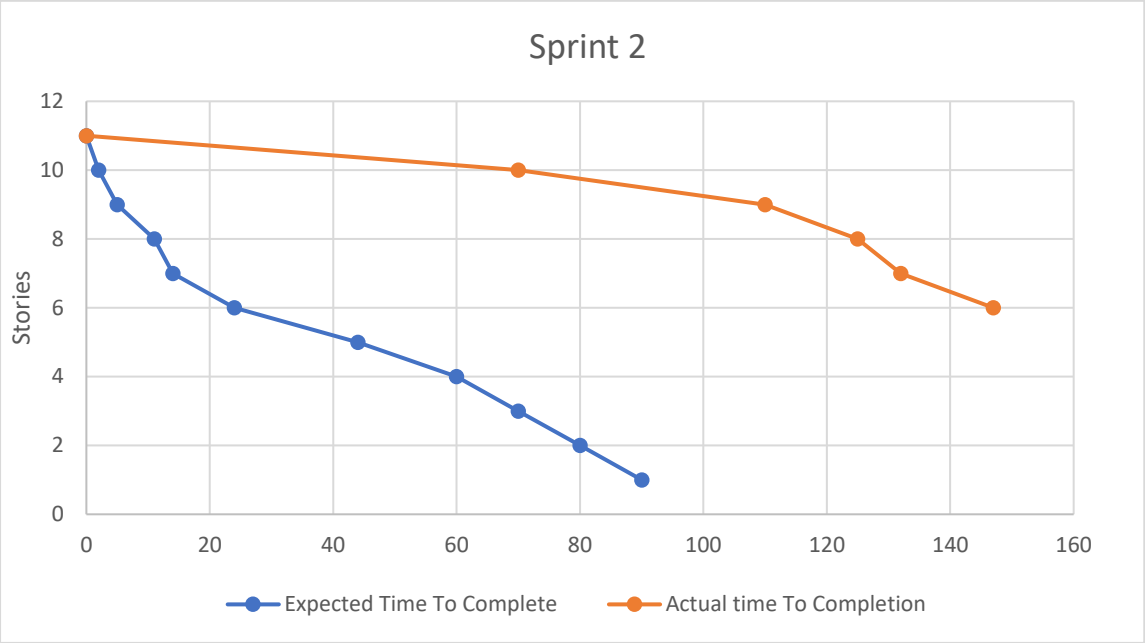


With the time given for the project, the group decided to allot two weeks for each sprint. The first sprint primarily concentrated on the development of the command line. The first meeting was designed to consider the user stories and go through the template game to consider everything that was going to be necessary to complete the command and online version. During the week prior to starting the project, it was each member's responsibility to individually download the template packages and understand all the software required to complete the game as many of the resources provided were new to the group.

The group met three times a week, however with conflicting schedules not all group members could be present for all meetings. Based on the template and the initial assumptions the estimated time needed for the project was a lot less than the actual time spent and represented in the above table. The group discovered issues with the card deck as it was shuffling the deck and the card category attributes. However, the group found it difficult to understand why this was occurring which resulted in a delay in implementation of the method.

The complexity of the command line took more time to complete than originally considered. Also, the initial command line version created did not follow the model-view-controller structure. As a result, the team realised it was necessary to change the command line version of the programme to consider online functionality therefore the command line adjustments fell into the second sprint.

Sprint Two



The second sprint was supposed to be primarily focused on the online version of the game, however due to changes in the command line this delayed starting the planned second part of the project and therefore effected our expected time line. As mentioned in the previous sprint, the command line did not initially follow the model-view-controller function which was crucial for the functionality within the online view. Therefore, once amended the online section could begin.

The first step the group undertook was creating the HTML with help of analysation of online resources. This took longer than anticipated due to a lack of experience with HTML and CSS. The next step focused on the research of JavaScript to bring functionality to the game and connect the back end to the HTML. This took a lot longer than anticipated and the group considerably struggled to implement these functions, however understood the process through practice tests. Nevertheless, when trying to implement the methods in the command line, the program would not respond as anticipated.

We initially did not want to start the online function until the command line was complete, however upon reflection the group agreed that it would have been more productive to begin the online view while the command line was almost developed as alterations to methods would have been easy to complete.

Assumptions

Following a review of the project specification, the project team made several assumptions with regards to the implementation of the program.

1. As detailed in the specification, we have assumed that the draw will not continue if all cards end up in the communal pile. Therefore, the program does not take this possible eventuality in to account, so should it occur, bugs may ensue.
2. We have assumed that the AI will always select the highest value category for their card in any given round. This assumes that a human player would do the same, however, we acknowledge that in a real-life scenario this would not necessarily always be the case.
3. We have assumed that the winner of the following round should receive the cards in the communal pile at the time of winning.
4. We have assumed that in the case of a draw, the winner of the previous round should play the round following the draw.
5. We have assumed that if a player has one card left in their hand and they draw, they will lose their card to the communal pile. Therefore, the player will lose in this scenario.
6. It is assumed that cards given to the winner are sent to the bottom of their hand.

Testing

The team recognised the importance of carrying out constant testing throughout the development cycle of the project. The story cards defined by the project team were used to test the program with a structured approach. Due to the quantity of cards written, specific stories have been selected to demonstrate testing.

As the command line version of the program was the first part of the project to be written, this was tested first.

Command Line User Stories

Card Name – Create Deck, Shuffle and Allocate cards

The most effective way to demonstrate that the functionality required to complete this card is present is to review the Test Log. The unshuffled deck can be clearly seen, followed by the shuffled deck within the log.

The cards from the shuffle deck are then handed out to the players, and each players hand is shown in the test log following the cards being dealt.

Card Name – All Players Select Category

The purpose of this card is to allow for players to select their card category for comparison against other players. In the user scenario, they can enter a value between 1 and 5 to select from one of 5 buttons. Each attribute of a card is represented by one of these values, selection of the attribute decides the attribute which will be compared against all players in the round.

The AI player logic causes them to select the best attribute in their card, which is then compared against all other player attributes.

As the human user, selection of a value outside of 1 through 5 causes the system to prompt the user with a message asking them to select a value within the specified parameters. Selection of an example value, such as 1 for “Size”, causes for that attribute to be compared with the other player cards “Size” attribute. The value inputs match with their designated attributes as can be seen in the test log.

Reviewing the test log will demonstrate that the AI attribute selection logic works correctly. The log shows the card in the hand of the AI, and shows which attribute was selected. This is always the best attribute of the card that the robot is using in that round.

Card Name – Show Statistics

The objective of this story is to allow the user to choose to see a pre-determined set of statistics regarding past games. These statistics are stored in a database which the game then accesses, allowing for stats for all past games to be stored persistently. This can be accessed either at the start of the program before the game is initialised by entering the value “2”, or at the end of a game using the same method.

The statistics are displayed upon entry, and their accuracy can be verified by accessing the database which stores this information. The test log also displays these statistics.

Online User Stories

As detailed in other sections of this report, the online version of the game was not completed. Therefore, two story cards which can be demonstrated with the limited functionality available have been selected for testing.

Card Name – View Website

The purpose of this card is to demonstrate the user's ability to access the game website. The website displays the information required for the player to understand the game, such as active cards, round number and current active player. It also contains buttons to start a game, show statistics, select card attributes, and proceed through the stages of a round.

The website consists of three pages, "Selection Screen", "Game", and "Stats". Each page can be visited by following their relevant URL, and each page can be seen to display the required information sections and buttons that would be used to interact with the game.

Card Name – Select Number of Players

The user needs to be able to select the number of players that take part in a game. This can range from 2 to 5 players, with one player being human and all other players being AI.

Upon pressing the new game button, it can be seen that the option is presented for the user to select their desired number of players from one of four buttons, with each button corresponding to a set number of players. Once selected, the game proceeds to initialisation. Proof that the buttons generate the desired number of players can be seen in the website activity log, which shows the which player will go first once the game begins.

Deficiencies

The primary deficiency identified by the project team was a lack of planning and time management. In the initial project stages, not enough time was allocated to planning the implementation of the program, resulting in issues further down the development path which caused substantial delays. The team also significantly underestimated the time required to implement certain functions of the program, which is detailed in the Sprint section of this report.

Further issues arose with the usage of GitHub. Files were added to incorrect directories, resulting in a lack of version control. This caused confusion and resulted in lost time. The primary cause of this was due to a misuse of the GitHub platform, where the web interface was used to upload project updates to the GitHub repository rather than either the command line or desktop application. After this was identified, a new repository was created. Unfortunately, a user error resulted in further issues with this second repository file directory. Rather than spend time attempting to recover the second repository, a third and final GitHub repository was created that contains the submitted project.

The team underestimated the amount of research that would be required to understand how to implement certain functions of the game. Specific reference can be made to work involving the use of JavaScript. As the team did not have any members with JavaScript experience, it was clear that time would need to be dedicated to develop an understanding of how it would work within the context of the project. Unfortunately, the combination of this and other issues in the project meant that the team was unable to devote sufficient time to understanding JavaScript, valuable time was lost from the actual development of online functionality. Within the REST API, the team were able to successfully apply functionality to a new game button, which allowed the team to select a desired number of players and initialised the game. However, the team was unable to implement functionality to the online version beyond this.

Lessons Learned

There is a consensus in the team that the project could have ben approached in a more considered and sensible fashion. However, the team believes that several valuable lessons have been learned through this process.

A key lesson learned is the importance of version control during a project such of this. A great deal of time would have been saved in the long run had some time been dedicated to researching the functionality and proper use of Git and GitHub. This would have helped when committing changes to the project, and it would have eliminated the need to create new repositories, resulting in a loss of commit history.

The team agrees that more time should have been spent on understanding the online view and functionality, especially in relation to JavaScript. The team also agrees that more planning should have went in to the implementation of the online mode, both before project kick-off and during the project.

Further to this, the team acknowledges that the command line mode should have been developed with more consideration to what would be required for the online version of the program. Failing to do so resulted in some areas of the command line code needing to be refactored, which meant that time was lost.

Conclusion

As has been detailed within this report, evaluation of the processes undertaken during this project have revealed that there were clear problems with the approach from the early stages. It is clear that had there been greater group foresight of what would be needed for this project, it would have reduced confusion and the unnecessary expenditure of time.

There were several lessons learned during this project; the importance of effective planning both for timescales and effective development, use of proper version control, and keeping the full scope of a project in mind throughout the entire process.

With regards to the project objectives, a fully functional command line version of the game, along with the ability to create a test log, were produced. The online version of the game has a web interface and allows the player to both initialise a game and select the number of players that are required for a round.

To conclude, the project was not without its difficulties, and while the team openly acknowledges that some important objectives of the specification were missed, they have learned several valuable lessons over the course of the development cycle.

Appendix

Test Log

Feb 17, 2020 7:02:31 AM model.TestLog logDeck
INFO: Deck of Cards (Unshuffled):

	Size	Speed	Range	FirePower	Cargo
350r	1	9	2	3	0
Avenger	2	5	4	3	2
Carrack	6	2	10	4	6
Constellation	4	5	7	3	4
Hawk	1	3	2	4	0
Hornet	2	5	3	4	1
Hurricane	2	5	3	5	0
Idris	8	2	7	10	6
m50	1	10	2	2	0
Merchantman	7	3	5	6	8
Orion	10	1	6	2	9
Sabre	2	7	2	5	0
Vanguard	3	4	5	5	2
350r	1	9	2	3	0
Avenger	2	5	4	3	2
Carrack	6	2	10	4	6
Constellation	4	5	7	3	4
Hawk	1	3	2	4	0
Hornet	2	5	3	4	1
Hurricane	2	5	3	5	0
Idris	8	2	7	10	6
m50	1	10	2	2	0
Merchantman	7	3	5	6	8
Orion	10	1	6	2	9
Sabre	2	7	2	5	0
Vanguard	3	4	5	5	2
350r	1	9	2	3	0
Avenger	2	5	4	3	2
Carrack	6	2	10	4	6
Constellation	4	5	7	3	4
Hawk	1	3	2	4	0
Hornet	2	5	3	4	1
Hurricane	2	5	3	5	0
Idris	8	2	7	10	6
m50	1	10	2	2	0
Merchantman	7	3	5	6	8
Orion	10	1	6	2	9
Sabre	2	7	2	5	0
Vanguard	3	4	5	5	2
Avenger	2	5	4	3	2

Feb 17, 2020 7:02:31 AM model.TestLog logShuffledDeck
INFO: Shuffled Deck:

	Size	Speed	Range	FirePower	Cargo
Orion	10	1	6	2	9
Orion	10	1	6	2	9
Idris	8	2	7	10	6
Vanguard	3	4	5	5	2
Carrack	6	2	10	4	6
m50	1	10	2	2	0
Hornet	2	5	3	4	1
Hawk	1	3	2	4	0
Carrack	6	2	10	4	6
Merchantman	7	3	5	6	8
Constellation	4	5	7	3	4
Avenger	2	5	4	3	2
Hurricane	2	5	3	5	0
Avenger	2	5	4	3	2
m50	1	10	2	2	0
Constellation	4	5	7	3	4
Avenger	2	5	4	3	2
350r	1	9	2	3	0
Hawk	1	3	2	4	0
Merchantman	7	3	5	6	8
Sabre	2	7	2	5	0
Orion	10	1	6	2	9
Vanguard	3	4	5	5	2
350r	1	9	2	3	0
Constellation	4	5	7	3	4
350r	1	9	2	3	0
Idris	8	2	7	10	6
Sabre	2	7	2	5	0
m50	1	10	2	2	0
Carrack	6	2	10	4	6
Hurricane	2	5	3	5	0
Hornet	2	5	3	4	1
Sabre	2	7	2	5	0
Hurricane	2	5	3	5	0
Hornet	2	5	3	4	1
Avenger	2	5	4	3	2
Vanguard	3	4	5	5	2
Idris	8	2	7	10	6
Merchantman	7	3	5	6	8
Hawk	1	3	2	4	0

```
Player hands post-round:


Cards in hand belonging to: Human
   Size Speed Range FirePower Cargo
Orion   10   1   6   2   9
m50   1   10   2   2   0
Constellation   4   5   7   3   4
Constellation   4   5   7   3   4
Sabre   2   7   2   5   0
350r   1   9   2   3   0
Hurricane   2   5   3   5   0
Avenger   2   5   4   3   2


Cards in hand belonging to: BotOne
   Size Speed Range FirePower Cargo
Orion   10   1   6   2   9
Hornet   2   5   3   4   1
Avenger   2   5   4   3   2
Avenger   2   5   4   3   2
Orion   10   1   6   2   9
Idris   8   2   7   10   6
Hornet   2   5   3   4   1
Vanguard   3   4   5   5   2


Cards in hand belonging to: BotTwo
   Size Speed Range FirePower Cargo
Idris   8   2   7   10   6
Hawk   1   3   2   4   0
Hurricane   2   5   3   5   0
350r   1   9   2   3   0
Vanguard   3   4   5   5   2
Sabre   2   7   2   5   0
Sabre   2   7   2   5   0
Idris   8   2   7   10   6


Cards in hand belonging to: BotThree
   Size Speed Range FirePower Cargo
Vanguard   3   4   5   5   2
Carrack   6   2   10   4   6
Avenger   2   5   4   3   2
Hawk   1   3   2   4   0
350r   1   9   2   3   0
m50   1   10   2   2   0
Hurricane   2   5   3   5   0
Merchantman   7   3   5   6   8


Cards in hand belonging to: BotFour
   Size Speed Range FirePower Cargo
Carrack   6   2   10   4   6
Merchantman   7   3   5   6   8
m50   1   10   2   2   0
Merchantman   7   3   5   6   8
Constellation   4   5   7   3   4
Carrack   6   2   10   4   6
Hornet   2   5   3   4   1
Hawk   1   3   2   4   0
 ---------------------------------
```

```
Feb 17, 2020 7:02:31 AM model.TestLog logWinner
INFO: Player Winnner/Loser Notification:


This round was a draw.


Feb 17, 2020 7:02:31 AM model.TestLog logcurrentCardsInPlay
INFO: Current Cards in play:
                              Size           Speed           Range       FirePower           Cargo
               Orion            10               1               6               2               9
               Orion            10               1               6               2               9
               Idris             8               2               7              10               6
            Vanguard             3               4               5               5               2
             Carrack             6               2              10               4               6
 ---------------------------------
Feb 17, 2020 7:02:31 AM model.TestLog logCategorySelected
INFO: Category Selection:
Category selected: Range
Values:
Human: 6
BotOne: 6
BotTwo: 7
BotThree: 5
BotFour: 10
 ---------------------------------
Feb 17, 2020 7:02:31 AM model.TestLog logCommonPile
INFO: Common Pile :
 ---------------------------------
Feb 17, 2020 7:02:31 AM model.TestLog logWinner
INFO: Player Winnner/Loser Notification:


Feb 17, 2020 7:02:31 AM model.TestLog logCommonPile
INFO: Common Pile :
 ---------------------------------
Feb 17, 2020 7:02:31 AM model.TestLog logWinner
INFO: Player Winnner/Loser Notification:
Game over, the winner is BotFour


BotFour won the previous round
```

Command Line

```
Please press 1 to play a new game or 2 if you want to see the statistics
1
Current card: Orion
Size: 10   Speed: 1   Range: 6   FirePower: 2   Cargo: 9

Round: 0
BotTwo
--------------------------
Category selected: Speed
Values:
Human: 1
BotOne: 3
BotTwo: 9
BotThree: 7
BotFour: 2



Current player turn: BotTwo

Card in communal pile: 0



BotTwo won the previous round

Cards left in hand: 7
Current card: Idris
Size: 8   Speed: 2   Range: 7   FirePower: 10   Cargo: 6


Bot 1 Cards left in hand:
7
Bot 2 Cards left in hand:
12
Bot 3 Cards left in hand:
7
Bot 4 Cards left in hand:
7
```

```
Round: 1
BotTwo
--------------------------
Category selected: Speed
Values:
Human: 2
BotOne: 3
BotTwo: 7
BotThree: 5
BotFour: 4



Current player turn: BotTwo

Card in communal pile: 0



BotTwo won the previous round

Cards left in hand: 6
Current card: 350r
Size: 1   Speed: 9   Range: 2   FirePower: 3   Cargo: 0


Bot 1 Cards left in hand:
6
Bot 2 Cards left in hand:
16
Bot 3 Cards left in hand:
6
Bot 4 Cards left in hand:
6
```

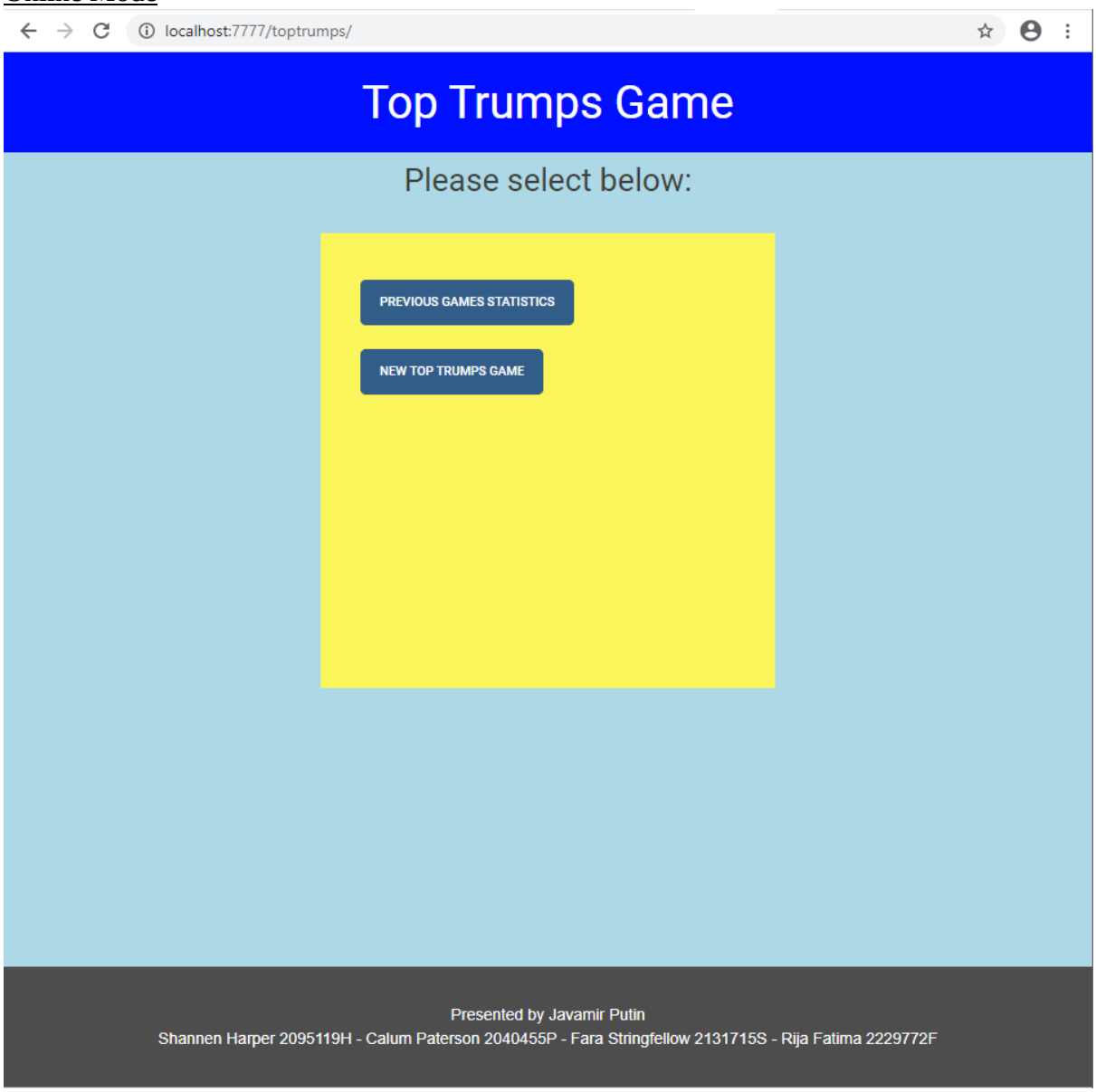
```
Round: 4
BotThree
--------------------------
Category selected: Range
Values:
Human: 7
BotOne: 6
BotTwo: 6
BotThree: 7
BotFour: 2




--------------------------
Current player turn: BotThree

Card in communal pile: 5



This round was a draw.

Cards left in hand: 3
Current card: Carrack
Size: 6   Speed: 2   Range: 10   FirePower: 4   Cargo: 6


Bot 1 Cards left in hand:
3
Bot 2 Cards left in hand:
13
Bot 3 Cards left in hand:
13
Bot 4 Cards left in hand:
3
```

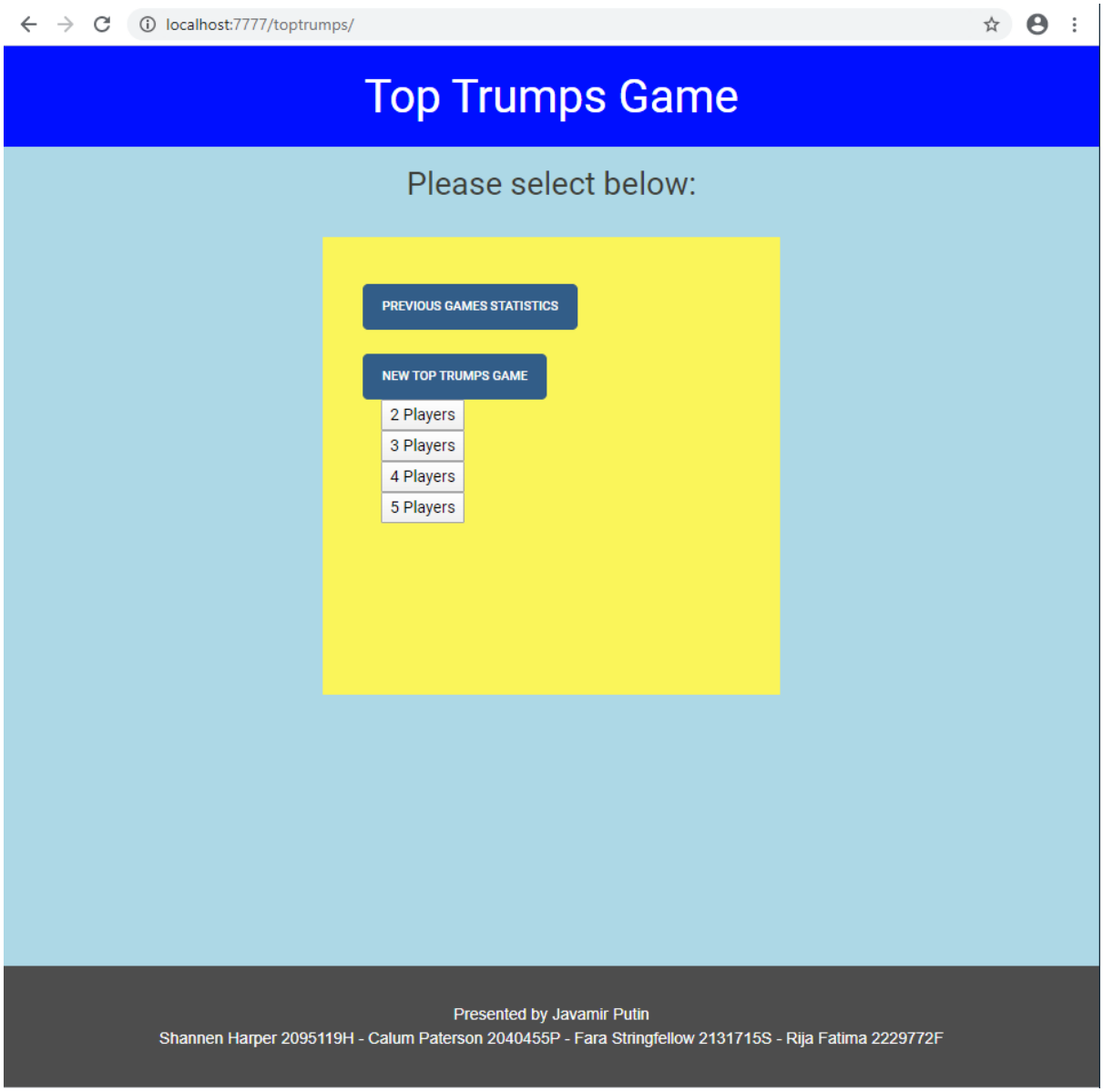
```
Round: 31
BotThree
--------------------------
Category selected: Range
Values:
BotThree: 7
Human has no cards left.
BotOne has no cards left.
BotFour has no cards left.

Current player turn: BotThree

Card in communal pile: 0



BotThree won the previous round

Cards left in hand: 0
Current card: Human have no cards left.


Bot 1 Cards left in hand:
0
Bot 2 Cards left in hand:
0
Bot 3 Cards left in hand:
40
Bot 4 Cards left in hand:
0

Game over, the winner is BotThree
If you want to play again please press 1. If you want to show the statistics of the game please press 2.

Database connection successful
Average number of draws = 7
Number of rounds in longest game = 365
Total Human Wins = 0
Total Bot Wins = 23
Total number of Games = 34
```

Database

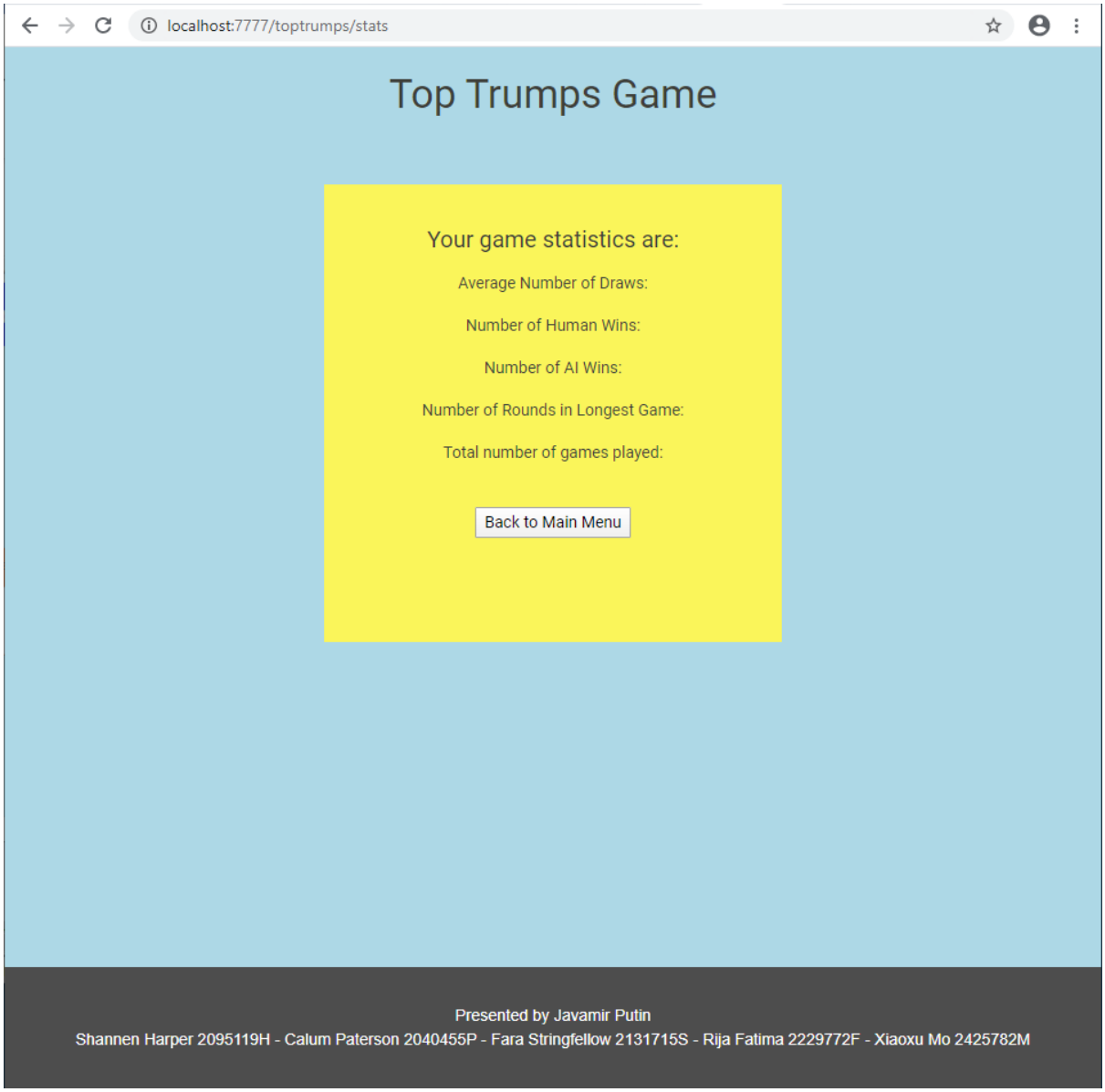
	totalgames integer	totaldraws integer	totalrounds integer	totalhumanwins integer	totalbot1wins integer	totalbot2wins integer	totalbot3wins integer	totalbot4wins integer
12	1	11	89	0	0	0	0	1
13	1	2	9	0	0	1	0	0
14	1	3	29	0	0	0	0	1
15	1	12	59	0	0	0	1	0
16	1	49	365	0	1	0	0	0
17	1	6	39	0	0	0	1	0
18	1	20	127	0	0	0	0	1
19	1	7	31	0	0	0	1	0
20	1	7	74	0	1	0	0	0
21	1	7	52	0	0	0	0	1
22	1	8	42	0	0	1	0	0
23	1	18	148	0	1	0	0	0
24	1	13	61	0	0	0	0	1
25	1	3	29	0	1	0	0	0
26	1	21	164	0	1	0	0	0
27	1	13	53	0	0	1	0	0
28	1	5	9	0	0	1	0	0
29	1	17	126	0	0	1	0	0
30	1	7	33	0	0	0	1	0
31	1	9	44	0	1	0	0	0
32	1	10	27	0	0	0	1	0
33	1	3	17	0	0	1	0	0
34	1	3	32	0	0	0	1	0

Online Mode


localhost:7777/toptrumps/
Top Trumps Game
Please select below:
PREVIOUS GAMES STATISTICS
NEW TOP TRUMPS GAME
Presented by Javamir Putin
Shannen Harper 2095119H - Calum Paterson 2040455P - Fara Stringfellow 2131715S - Rija Fatima 2229772F


localhost:7777/toptrumps/
Top Trumps Game
Please select below:
PREVIOUS GAMES STATISTICS
NEW TOP TRUMPS GAME
2 Players
3 Players
4 Players
5 Players
Presented by Javamir Putin
Shannen Harper 2095119H - Calum Paterson 2040455P - Fara Stringfellow 2131715S - Rija Fatima 2229772F


localhost:7777/toptrumps/game/
Top Trumps Game
Size
Speed
Range
Firepower
Cargo
Player Info
Player 1: Human
Player 2
Player 3
Player 4
Player 5
NEXT ROUND
Presented by Javamir Putin
Shannen Harper 2095119H - Calum Paterson 2040455P - Fara Stringfellow 2131715S - Rija Fatima 2229772F - Xiaoxu Mo 2425782M


localhost:7777/toptrumps/stats
Top Trumps Game
Your game statistics are:
Average Number of Draws:
Number of Human Wins:
Number of AI Wins:
Number of Rounds in Longest Game:
Total number of games played:
Back to Main Menu
Presented by Javamir Putin
Shannen Harper 2095119H - Calum Paterson 2040455P - Fara Stringfellow 2131715S - Rija Fatima 2229772F - Xiaoxu Mo 2425782M