CP317 Assignment 2
Chess317

Project ID: CP317-TP19

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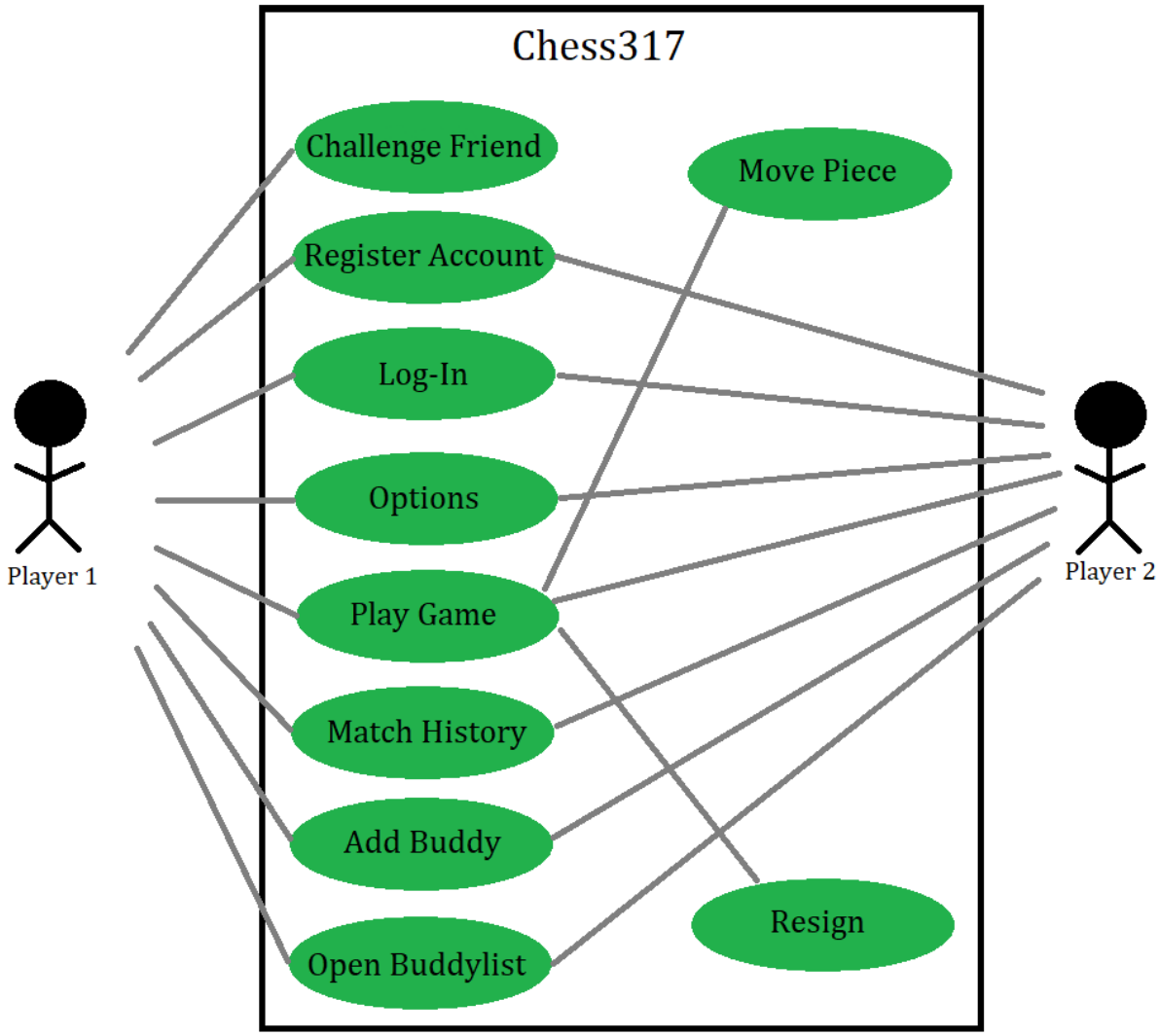
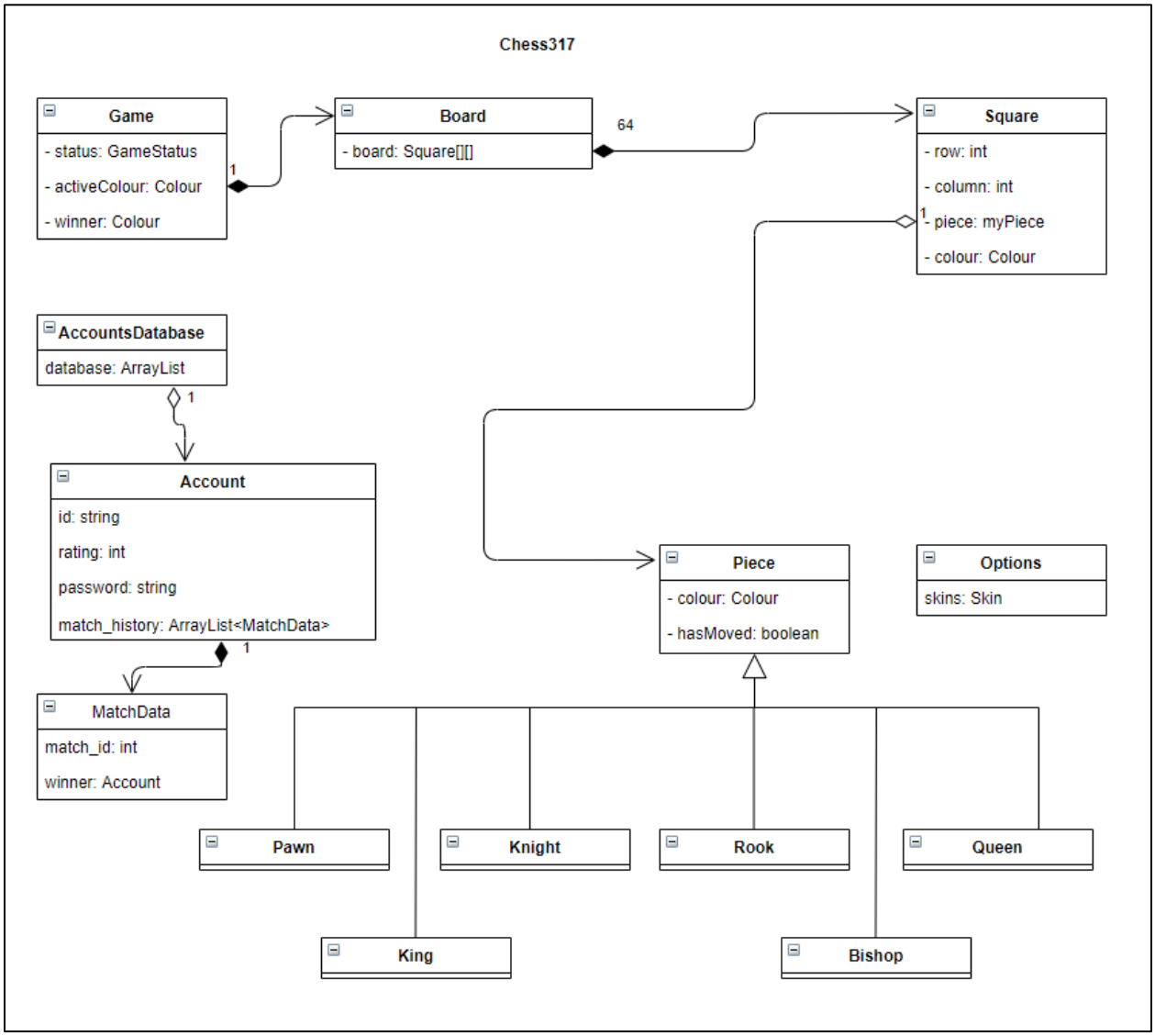
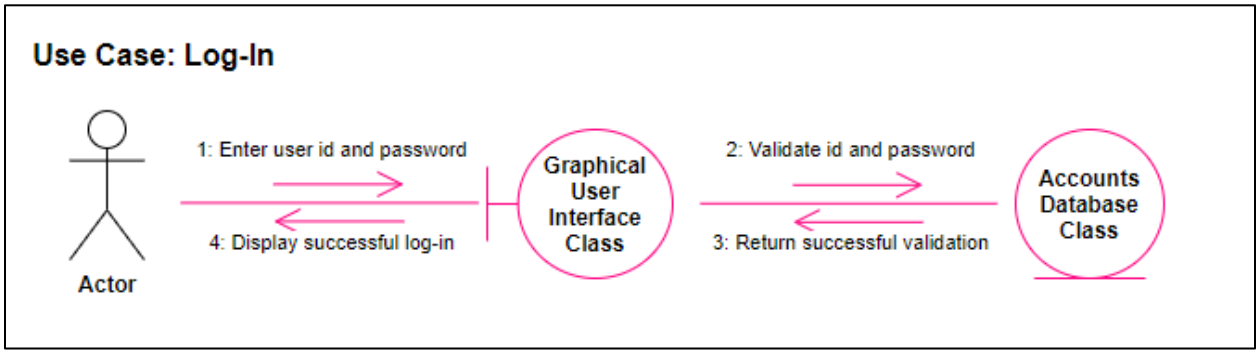
1. Use-case Models

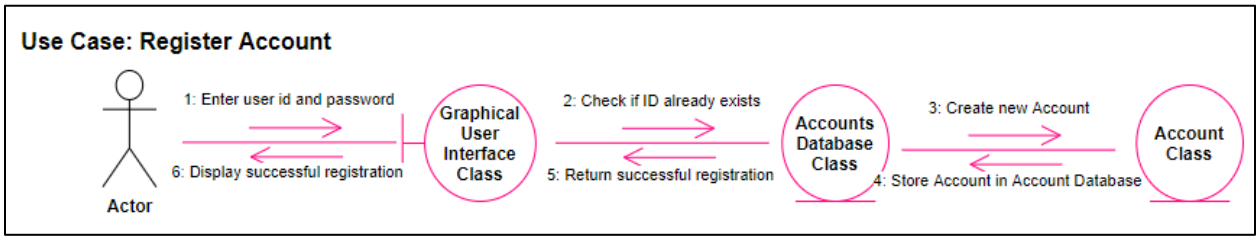


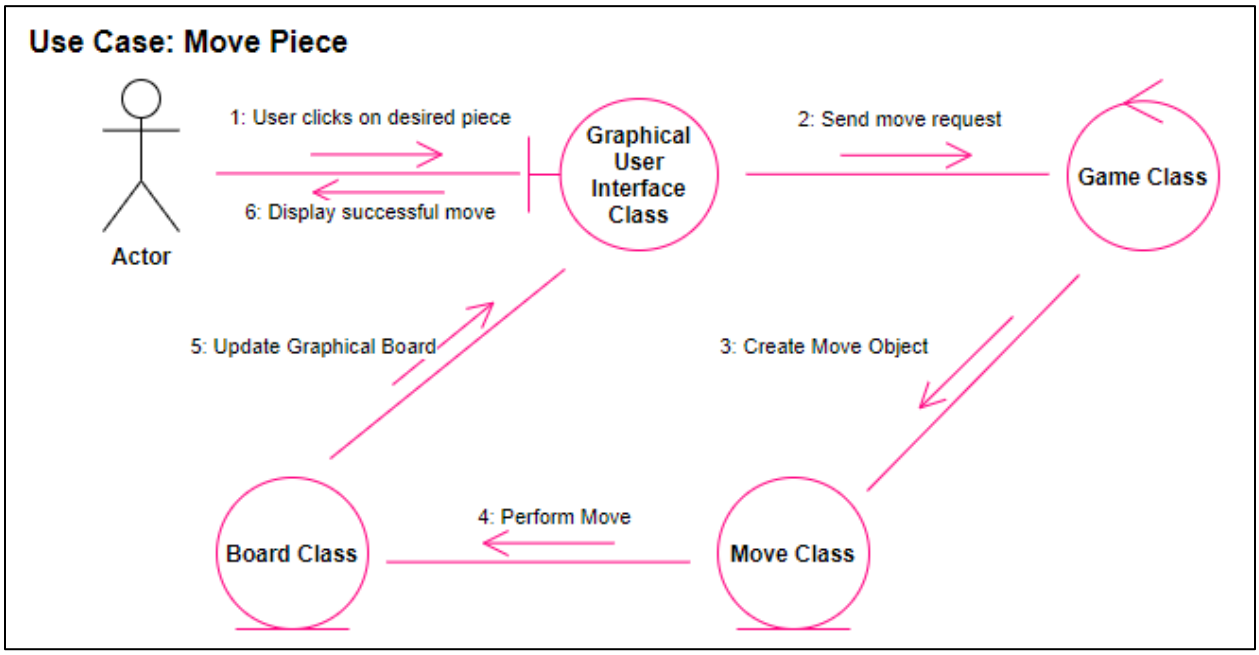
2. Class Diagrams



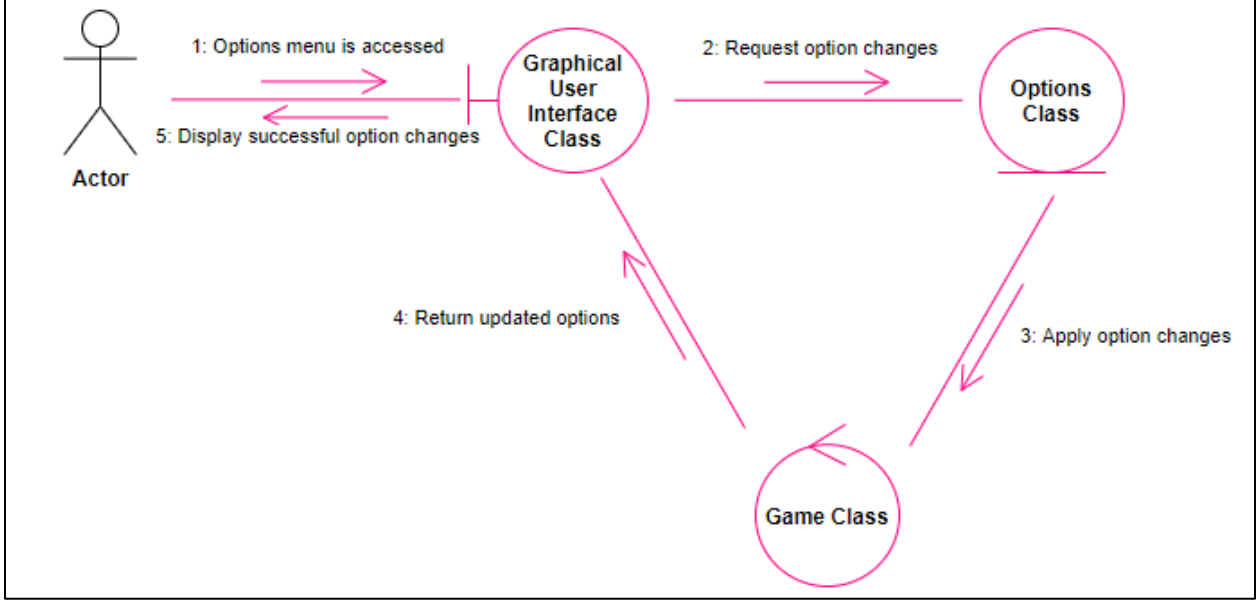
3. Communication Diagrams



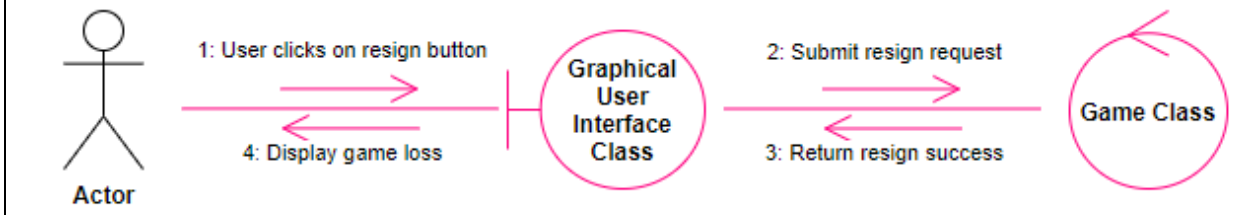


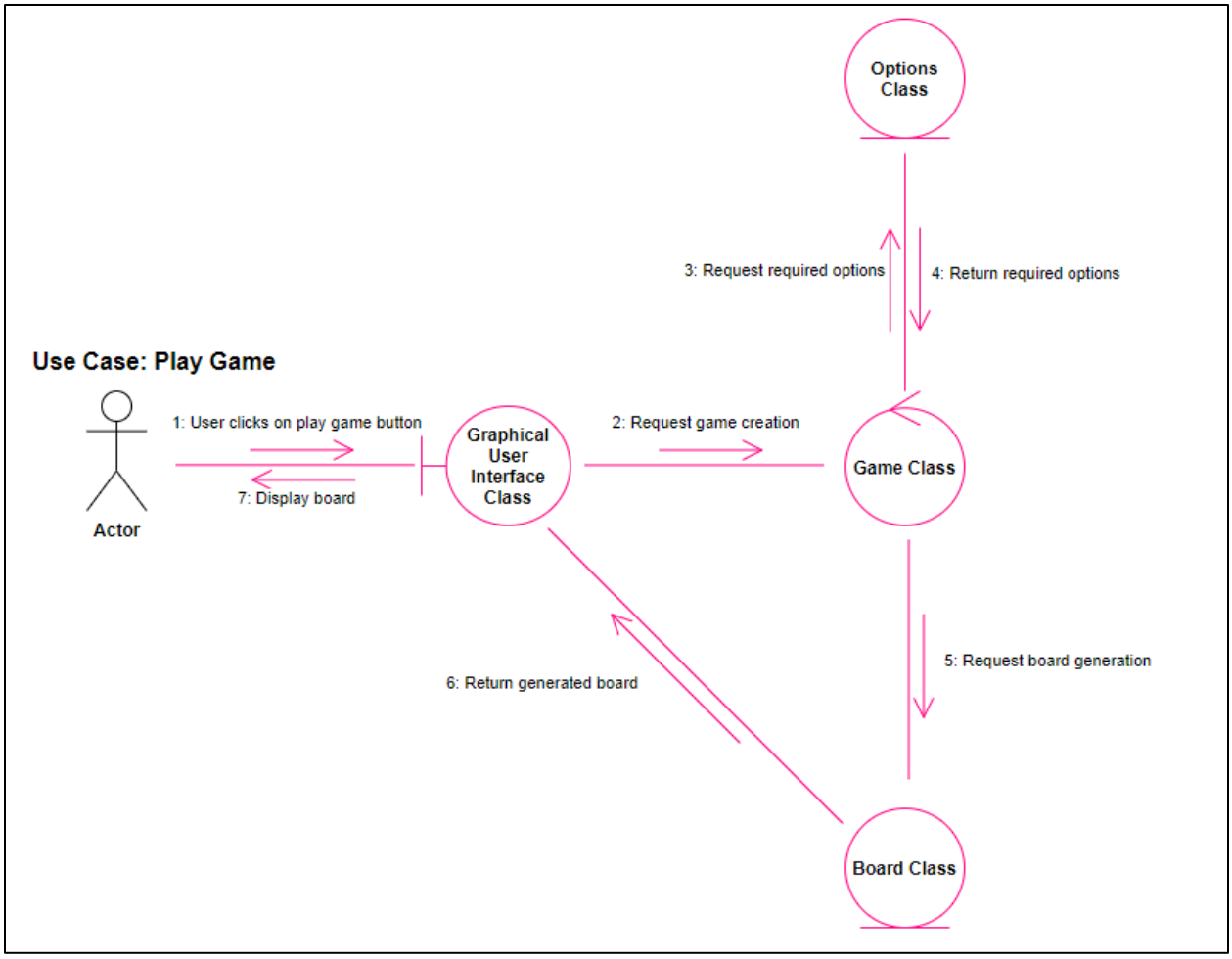


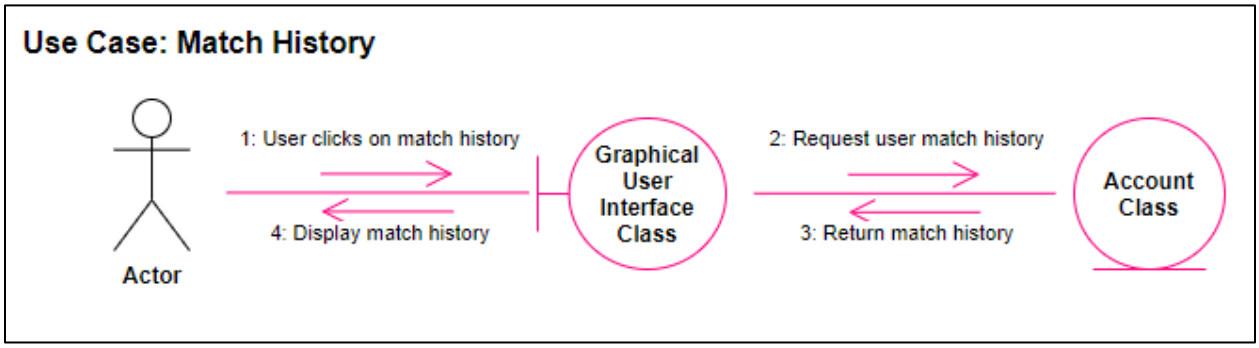
Use Case: Options



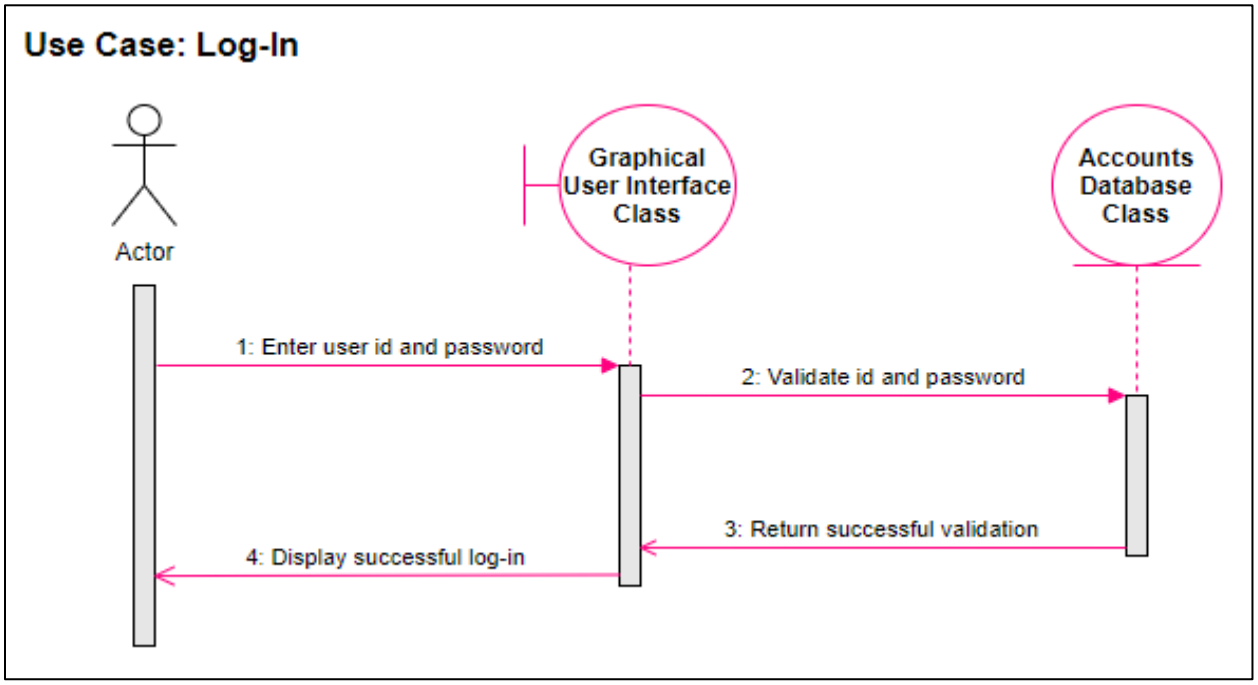
Use Case: Resign

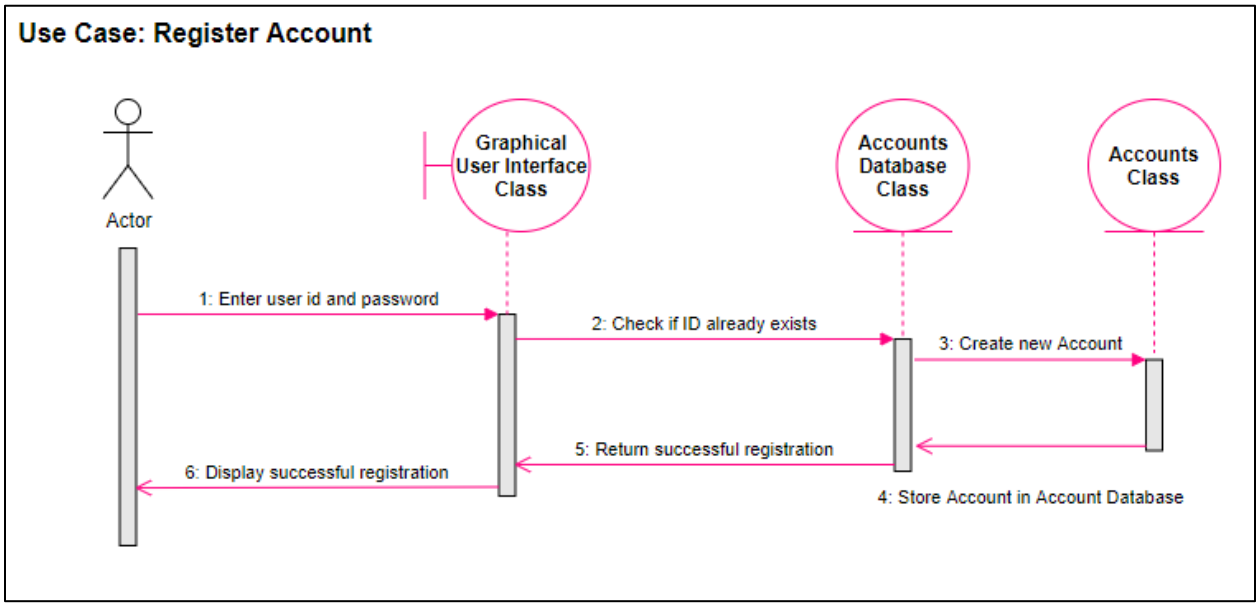


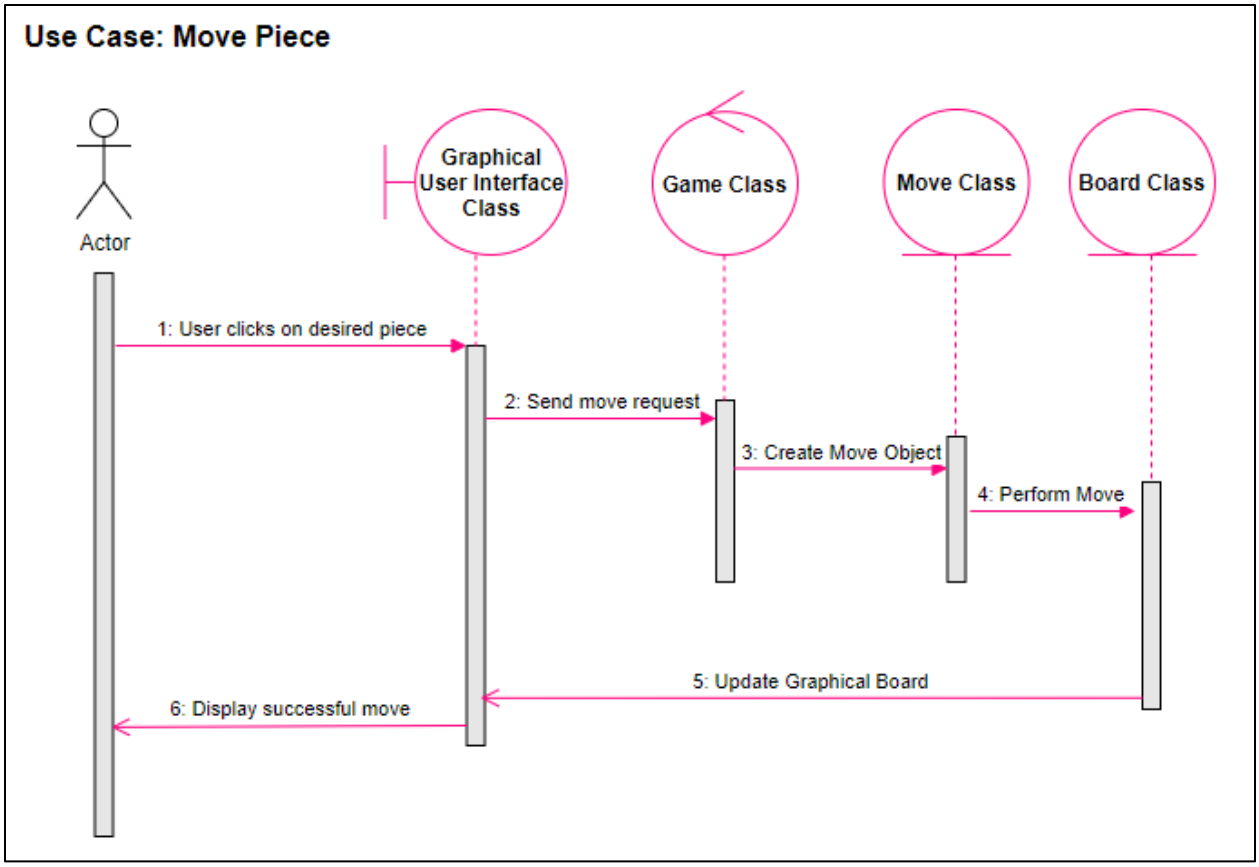

Options Class
3: Request required options
4: Return required options
Use Case: Play Game
Actor
1: User clicks on play game button
7: Display board
Graphical User Interface Class
2: Request game creation
Game Class
5: Request board generation
6: Return generated board
Board Class

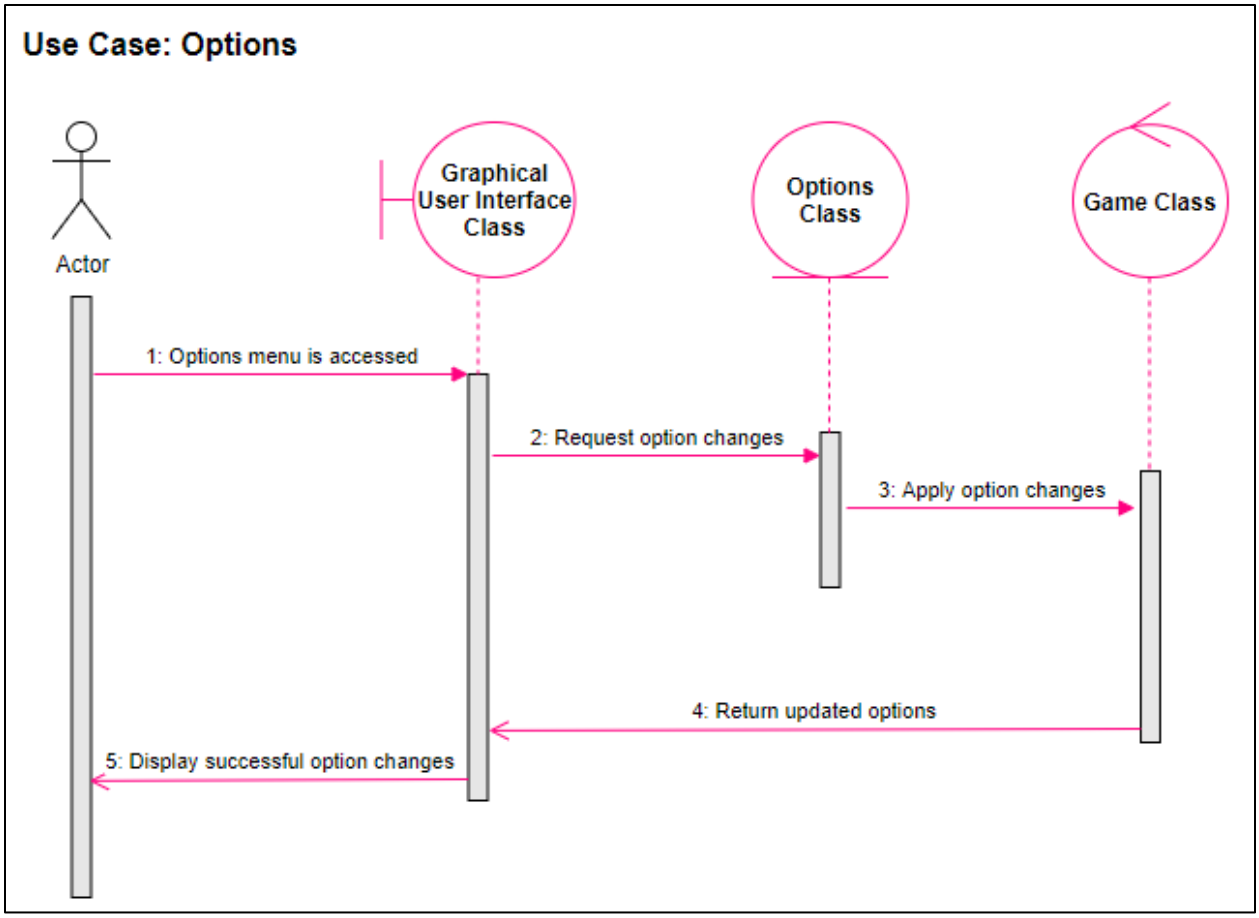

Use Case: Match History
Actor
1: User clicks on match history
4: Display match history
Graphical User Interface Class
2: Request user match history
3: Return match history
Account Class

4. Sequence Diagrams

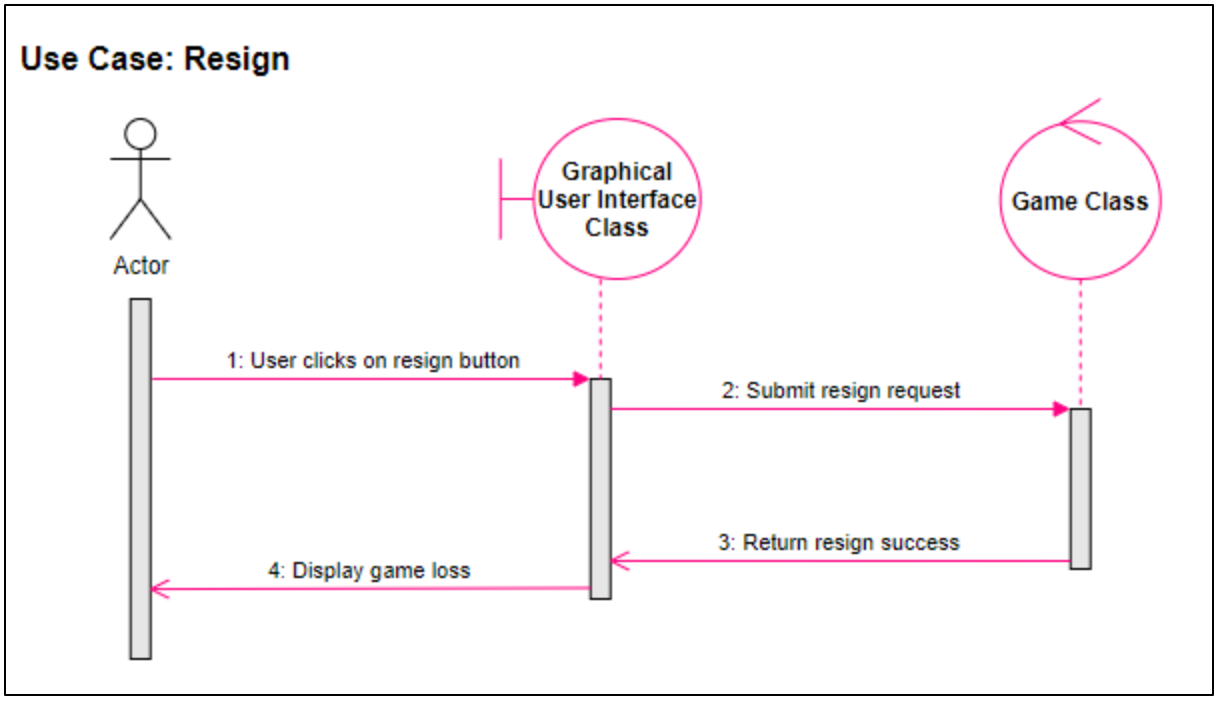




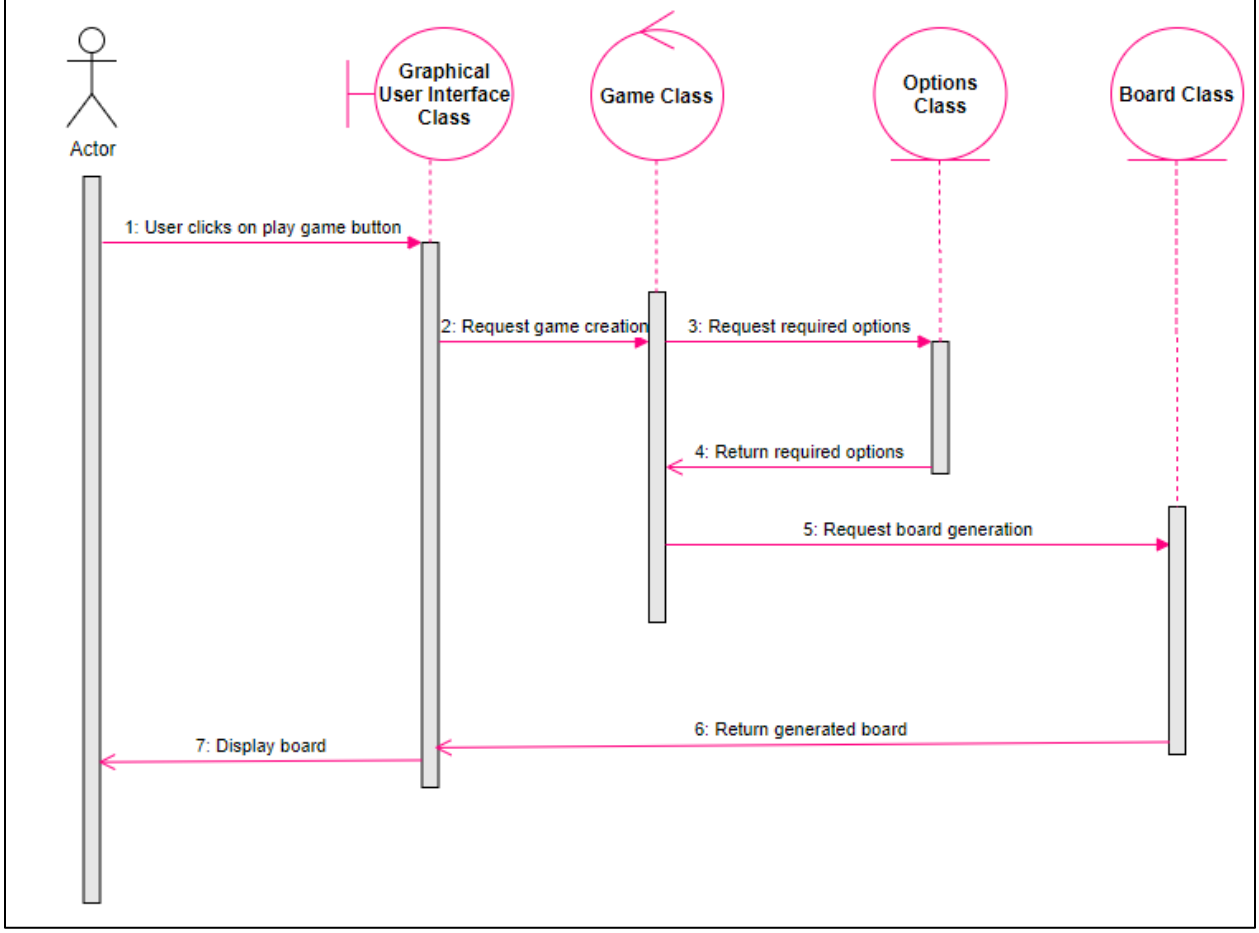

Use Case: Move Piece
Actor
Graphical User Interface Class
Game Class
Move Class
Board Class
1: User clicks on desired piece
2: Send move request
3: Create Move Object
4: Perform Move
5: Update Graphical Board
6: Display successful move


Use Case: Options
Actor
Graphical User Interface Class
Options Class
Game Class
1: Options menu is accessed
2: Request option changes
3: Apply option changes
4: Return updated options
5: Display successful option changes

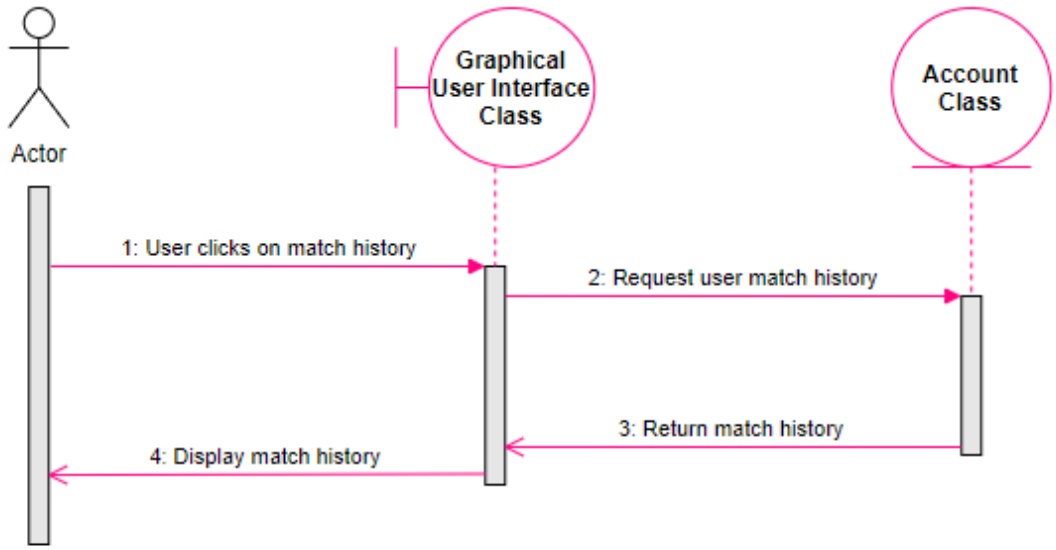
Use Case: Resign



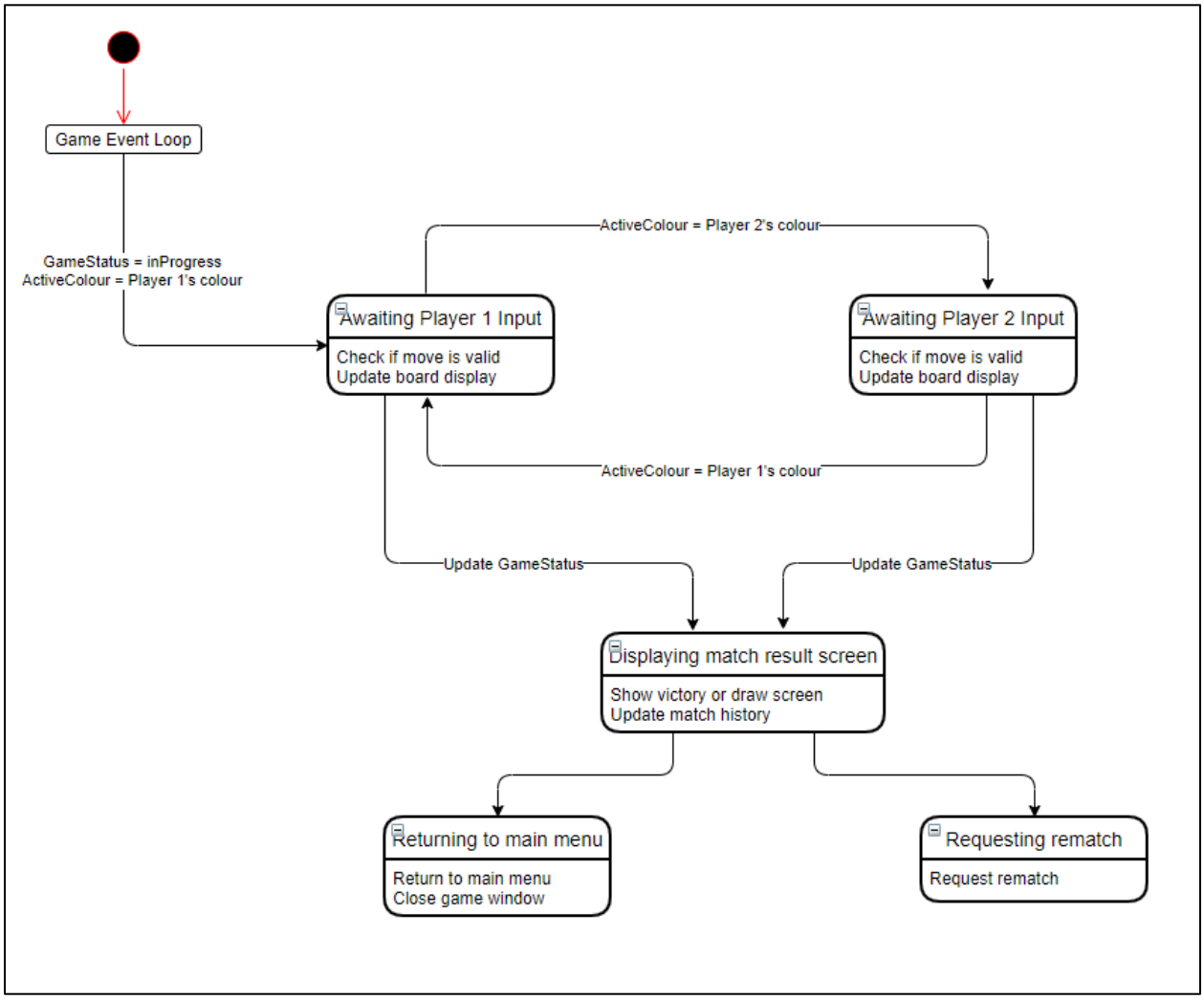
Use Case: Play Game



Use Case: Match History



5. Statechart



The Game class is the only controller class in the program, so this Statechart will reflect all the important states involved in the gameplay process.

6. Analysis Metrics

6.1 Size Analysis Metric

There are 16 figures (1 Use-case diagram, 7 Communication diagrams, 7 Sequence diagrams, 1 Statechart).

6.2 Duration and Effort Analysis Metric

FP = 4 * **Inputs** + 5 * **Output** + 4 * **Inquiries** + 10 * **Master Files** + 7 * **Interface**

Inputs: 5
Outputs: 5
Inquiries: 1
Master Files: 16
Interface: 5

UFP (Unadjusted Function Points) **=** 4***5 +** 5***5 +** 4***1 +** 10***1 +** 7***5 = 94**

Factor	**Weighting**
Data communication	3
Distributed data processing	2
Performance critera	3
Heavily utilized software	1
High transaction rates	0
Online data entry	0
End-user efficiency	1
Online updating	0
Complex computations	5
Reusability	3
Ease of installation	1
Ease of operation	3
Portability	0
Maintainability	5
Total:	27

DI (Degree of Influence) = 27

TCF = 0.65 + 0.01 * **DI**
= 17.82

FP = **UFP** * **TCF**

= 94 * 0.92

= 86.48

7. Appendix

Element/Value Display Name	Description	Data Type	Acceptable Values	Required?	Accepts null value?
Username	Username for log-in	String	Alphanumeric	Yes	No
Password	Password for log-in	String	Alphanumeric	Yes	No
Rating	User skill rating	float	Numeric > 0	No	Yes