Prepared by: Roger R. Madjos, 2012-7001

**GotG**

Abstract

GotG, an abbreviation of “Game of the Generals”, is a mobile application adaptation of the two player board game invented by Sofronio H. Pasola, Jr. in 1970. The game needs the use of logic in order to win against the opponent. It simulates armies at war trying to outflank and outmaneuver each other. Each player has 21 pieces (see Table 1) with different ranks which correspond to its ability to eliminate a particular opponent piece. The ranks of the opponent pieces are hidden but the player will have the idea of its ranks as the game progresses. For example, an opponent piece which eliminated a 4-star general can only be a 5-star general or a spy.

The game is played on a board with 9x8 plain squares with pieces placed in various locations in the first three rows of each player's home side. Unlike chess or its variants, there is no predetermined layout for the pieces, allowing each player to place the pieces to his advantage. Each player can only move one piece per turn. All pieces have the same move: one space forward, backward, or sideways. The player who eliminated the opponent’s flag will be determined as the winner. Additionally, if a flag reaches the opposite end of the board, the opponent has one turn left to move. After the turn, the player reveals the flag. If the flag was not challenged, the player wins the game.

GotG allows players from around the word to play Game of the Generals in real time. Each player has a point metric which determines his/her performance in GotG. By defeating more opponents, a player gains more points. A player loses points if defeated or has left an ongoing game without proper notice (quitter). All players have an initial point of 100.

|  |  |  |
| --- | --- | --- |
| Pieces | No. of Pieces | Function |
| Five-star General | 1 | Eliminates any lower ranking officer, the private, and the flag. |
| Four-star General | 1 | Eliminates any lower ranking officer, the private, and the flag. |
| Lieutenant General | 1 | Eliminates any lower ranking officer, the private, and the flag. |
| Major General | 1 | Eliminates any lower ranking officer, the private, and the flag. |
| Brigadier General | 1 | Eliminates any lower ranking officer, the private, and the flag. |
| [Colonel](http://en.wikipedia.org/wiki/Colonel) | 1 | Eliminates any lower ranking officer, the private, and the flag. |
| [Lt. Colonel](http://en.wikipedia.org/wiki/Lt._Colonel) | 1 | Eliminates any lower ranking officer, the private, and the flag. |
| [Major](http://en.wikipedia.org/wiki/Major) | 1 | Eliminates any lower ranking officer, the private, and the flag. |
| [Captain](http://en.wikipedia.org/wiki/Captain_(land_and_air)) | 1 | Eliminates any lower ranking officer, the private, and the flag. |
| [1st Lieutenant](http://en.wikipedia.org/wiki/1st_Lieutenant) | 1 | Eliminates any lower ranking officer, the private, and the flag. |
| [2nd Lieutenant](http://en.wikipedia.org/wiki/2nd_Lieutenant) | 1 | Eliminates the sergeant, the private, and the flag. |
| [Sergeant](http://en.wikipedia.org/wiki/Sergeant) | 1 | Eliminates the private, and the flag. |
| [Private](http://en.wikipedia.org/wiki/Private_(rank)) | 6 | Eliminates the spy, and the flag. |
| [Spy](http://en.wikipedia.org/wiki/Spy) | 2 | Eliminates all officers from the rank of Sergeant up to 5-Star General & the flag. |
| [Flag](http://en.wikipedia.org/wiki/Flag) | 1 | Eliminates the opposing flag as long as it takes the aggressive action against the enemy flag. |

Table 1 Piece ranks.

Figure 1 Points update function.

(R is the number of times the player wins with the current opponent)

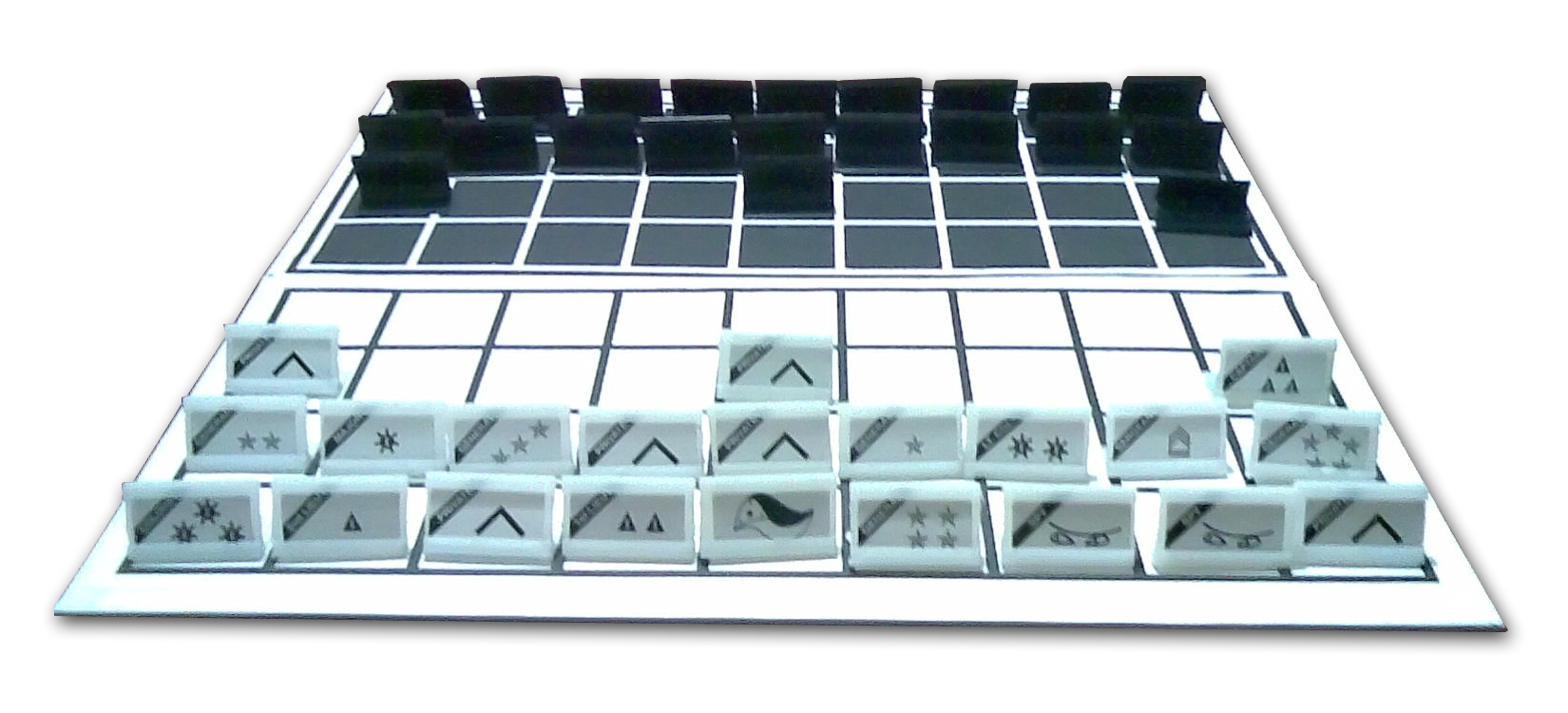


Figure 2 Game of the Generals Game Board.

**Use Cases**

|  |  |
| --- | --- |
| **Name** | **Login** |
| **Actor** | Player |
| **Description** | Player logs in to GotG server. |
| **Preconditions** | Player starts GotG application. |
| **Postconditions** | Players has logged in |
| **Priority** | Low |
| **Normal Course** | Player opens the GotG application and sees the login page. Player enters username and password. Authentication is verified and player is tagged as online. Player enters the GotG lobby. |
| **Alternate Courses** | * Player has logged in in previous session. Authentication is automatically started. * Authentication fails. Player sees a notification to reenter username and password. Player is also notified to sign up for new account. * Authentication fails five times. Player will not be able to log in until after 24 hours. |

|  |  |
| --- | --- |
| **Name** | **Signup** |
| **Actor** | Player |
| **Description** | Player signs up for new account. |
| **Preconditions** | Player starts GotG application. |
| **Postconditions** | Player has new account. |
| **Priority** | Low |
| **Normal Course** | Player chooses signup option and sees the signup page. Player enters information: username, password, email address, and clicks signup button. Player is asked to verify email address by clicking a link in an email sent by GotG. Player reopens GotG and authentication is automatically started. Player is given initial points of 100. |
| **Alternate Courses** | * Username already exists. Player is required to enter new username and password. * Password is weak or not valid. Sign up does not proceed. * Email is not valid. Sign up does not proceed. |

|  |  |
| --- | --- |
| **Name** | **Post** |
| **Actor** | Player |
| **Description** | Player posts a Duel Invitation to all players. |
| **Preconditions** | Player is in GotG lobby. |
| **Postconditions** | Player is added in “Duel Invitation Posts” list. |
| **Priority** | Medium |
| **Normal Course** | Player chooses “post Duel Invitation”. Post is verified and player is added in “Duel Invitations” list. Other players see player’s username and points. Player sees a list of interested duelers and selects one. Start confirmation option is shown. Both players confirm the start and the duel commences. |
| **Alternate Courses** | * No internet connection. Duel invitation cancelled. * Start is not confirmed by both players. Duel does not start. |

|  |  |
| --- | --- |
| **Name** | **Accept** |
| **Actor** | Player |
| **Description** | Player responds to a Duel Invitation post with “accept” |
| **Preconditions** | Player is in GotG lobby. |
| **Postconditions** | Game is started. |
| **Priority** | Medium |
| **Normal Course** | Player selects a “Duel Invitation Post” and chooses “accept” option. Player is added to the other player’s list of interested duelers. Player is selected as opponent by the other player and start confirmation is shown. Both players confirm the start and the duel commences. |
| **Alternate Courses** | * No internet connection. Cannot accept duel invitation. * Start is not confirmed by both players. Duel does not start. * Duel started by other players. “Duel Invitation Accept” deleted. |

|  |  |
| --- | --- |
| **Name** | **Set Start Configuration** |
| **Actor** | Player |
| **Description** | Player responds to a Duel Invitation post with “accept” |
| **Preconditions** | Player is logged in. |
| **Postconditions** | Start configuration is set |
| **Priority** | Medium |
| **Normal Course** | Player selects “set start configuration”. Player sees a list of start configurations including the “random start configuration”. Player chooses “new start configuration” option. Player places all the 21 the pieces to a 9x3 board and saves it with a specified name. The new start configuration is added to the “start configurations” list. The new start configuration is selected. |
| **Alternate Courses** | * Player does not choose a “new start configuration”. Instead, the player selects an existing “start configuration”. |

|  |  |
| --- | --- |
| **Name** | **Start** |
| **Actor** | Player |
| **Description** | Duel starts. |
| **Preconditions** | Player is logged in and not in any ongoing duels. |
| **Postconditions** | A player is selected for first move. |
| **Priority** | Medium |
| **Normal Course** | Duel is started. The Pieces are arranged depending on the selected start configuration. The first player to move is selected randomly. |
| **Alternate Courses** | * No start configuration is set. Pieces are placed randomly. * Connection times out for 30 seconds. Game session is cancelled. |

|  |  |
| --- | --- |
| **Name** | **Move** |
| **Actor** | Player |
| **Description** | Player moves one of his pieces. |
| **Preconditions** | Player is in game session. |
| **Postconditions** | Player has moved a piece and brought the game to a new state. The opponent will perform the next move. |
| **Priority** | High |
| **Normal Course** | Player selects a piece and moves it one step to a valid location. The piece encounters no opponent piece. The other player will perform the next move. |
| **Alternate Courses** | * The piece encounters an opponent piece. The player piece can eliminate opponent piece: therefore, opponent piece is eliminated. * The piece encounters an opponent piece. The player piece can be eliminated by opponent piece; therefore, player piece is eliminated. * The piece encounters an opponent piece. Both pieces have the same rank but not both flags; therefore, both pieces are eliminated. * The piece encounters an opponent piece. The opponent piece is a flag: therefore, player wins the game. Player points are updated. * The piece is a flag and reaches the opposite end. The other player makes the move. The flag is not challenged: therefore, player wins the game. Player points are updated. * Connection times out for 60 seconds. Game session is cancelled. * Player leaves the game without notice. Player points is decreased accordingly. |

|  |  |
| --- | --- |
| **Name** | **Leave** |
| **Actor** | Player |
| **Description** | Player wants to leave form game session. |
| **Preconditions** | Player is in game session. |
| **Postconditions** | Player leaves the game. |
| **Priority** | Medium |
| **Normal Course** | Player chooses “leave game” option. The other player receives a notification and sees a confirmation option. Other player confirms and the player leaves the game. No points is deducted. |
| **Alternate Courses** | * Player leaves the game without notice. Points is deducted accordingly. * Other player does not confirm the “leave” option. Player chooses “leave anyway” and points is deducted. * Connection times out for 60 seconds. Game session is cancelled. |

|  |  |
| --- | --- |
| **Name** | **Log out** |
| **Actor** | Player |
| **Description** | Player logs out from GotG server. |
| **Preconditions** | Player is logged in. |
| **Postconditions** | Player is not online. |
| **Priority** | Low |
| **Normal Course** | Player selects “log out” option. Player sees confirmation option and confirms the “log out” action. Player is already not online. |
| **Alternate Courses** |  |

**Test Cases**

|  |  |
| --- | --- |
| **Name** | **Log in (Case 1)** |
| **Given** | Player has account with username = “botmind” and password=”gotgplayer143”. |
| **Action** | Player starts GotG. Player enters username = “botmind” and password=”gotgplayer143” in the log in page and chooses “log in” option. |
| **Results** | Player has logged in and enters the GotG lobby. Authentication information is stored in local memory. |

|  |  |
| --- | --- |
| **Name** | **Log in (Case 2)** |
| **Given** | Player has account with username = “botmind” and password=”gotgplayer143”. |
| **Action** | Player starts GotG. Player enters username = “botmind” and password=”gotgplayer136” in the log in page and chooses “log in” option. |
| **Results** | Player is not logged in. |

|  |  |
| --- | --- |
| **Name** | **Log in (Case 3)** |
| **Given** | Player has account with username = “botmind” and password=”gotgplayer143”. Player tried to log in with username = “botmind” and fails five times because of wrong password. |
| **Action** | Player tries to log in with username = “botmind” and password=”gotgplayer143”. |
| **Results** | Player is not logged in. Player with username=”botmind” will not be able to log in again until after 24 hours. |

|  |  |
| --- | --- |
| **Name** | **Log in (Case 4)** |
| **Given** | Player closed the GotG application without logging out. Local memory contains valid authentication information: username = “botmind” and password=”gotgplayer143”. |
| **Action** | Player starts GotG. |
| **Results** | Player has logged in and enters the GotG lobby. |

|  |  |
| --- | --- |
| **Name** | **Sign up (Case 1)** |
| **Given** | No player with email=”roger.madjos@gmail.com” and username=”botmind” is stored in database. |
| **Action** | Player signs up with username=”botmind”, password=”gotgplayer143”, and email=”roger.madjos@gmail.com” and completes verification process. |
| **Results** | New entry in database is added with username=”botmind”, password=”gotgplayer143”, and email=”roger.madjos@gmail.com” |

|  |  |
| --- | --- |
| **Name** | **Sign up (Case 2)** |
| **Given** | A player with email=”roger.madjos@gmail.com” and username=”botmind” exists in database. |
| **Action** | Player signs up with username=”kenjam”, password=”gotgplayer143”, and email=”roger.madjos@gmail.com”. |
| **Results** | Sign up is not accepted. No two players with the same email address must exist. |

|  |  |
| --- | --- |
| **Name** | **Sign up (Case 3)** |
| **Given** | A player with email=”roger.madjos@gmail.com” and username=”botmind” exists in database. |
| **Action** | Player signs up with username=”botmind”, password=”gotgplayer143”, and email=”roger.madjos.gwaponalang@gmail.com”. |
| **Results** | Sign up is not accepted. No two players with the same username must exist. |

|  |  |
| --- | --- |
| **Name** | **Post** |
| **Given** | Player has logged in. |
| **Action** | Player chooses “post Duel Invitation” option. |
| **Results** | Player information is added in “Duel Invitations” list which all other players see. |

|  |  |
| --- | --- |
| **Name** | **Accept (Case 1)** |
| **Given** | A player with username=”botmind” is in “Duel Invitations” list. Another player with username=”kenjam” is logged in. |
| **Action** | Player “kenjam” selects player “botmind” from “Duel Invitations” list and sends “accept” action. |
| **Results** | Player “botmind” sees player “kenjam” in his “Duelers” list. |

|  |  |
| --- | --- |
| **Name** | **Accept (Case 2)** |
| **Given** | Player “botmind” sees player “kenjam” in his “Duelers” list. |
| **Action** | Player “botmind” selects player “kenjam” from “Duelers” list and sends “start” action. |
| **Results** | Game is started. |

|  |  |
| --- | --- |
| **Name** | **Start Configuration (Case 1)** |
| **Given** | No start configuration with name=”blitz” is in “Start Configurations” list. |
| **Action** | Player creates new start configuration with name=”blitz”. |
| **Results** | Start configuration with name=”blitz” is saved in local memory. |

|  |  |
| --- | --- |
| **Name** | **Start Configuration (Case 2)** |
| **Given** | Start configuration with name=”blitz” exists in “Start Configurations” list. |
| **Action** | Player sets startconfig=”blitz” and starts a game session. |
| **Results** | Pieces are arranged as defined in startconfig=”blitz”. |

**Note:** X coordinates = a,b,c,d,e,f,g,h,I (left to right); Y coordinates = 1,2,3,4,5,6,7,8 (bottom to top)

|  |  |
| --- | --- |
| **Name** | **Move (Case 1)** |
| **Given** | Player piece with rank=”colonel” is in b4 and opponent piece with rank=”major” is in c4 |
| **Action** | Player moves piece to left |
| **Results** | No piece is eliminated |

|  |  |
| --- | --- |
| **Name** | **Move (Case 2)** |
| **Given** | Player piece with rank=”colonel” is in b4 and opponent piece with rank=”major” is in c4 |
| **Action** | Player moves piece to right |
| **Results** | Opponent piece is eliminated |

|  |  |
| --- | --- |
| **Name** | **Move (Case 3)** |
| **Given** | Player piece with rank=”major” is in b4 and opponent piece with rank=”colonel” is in c4 |
| **Action** | Player moves piece to right |
| **Results** | Player piece is eliminated |

|  |  |
| --- | --- |
| **Name** | **Move (Case 4)** |
| **Given** | Player piece with rank=”major” is in b4 and opponent piece with rank=”major” is in c4 |
| **Action** | Player moves piece to right |
| **Results** | Both pieces are eliminated |

|  |  |
| --- | --- |
| **Name** | **Move (Case 5)** |
| **Given** | Player piece with rank=”spy” is in b4 and opponent piece with rank=”five-star general” is in c4 |
| **Action** | Player moves piece to right |
| **Results** | Opponent piece is eliminated |

|  |  |
| --- | --- |
| **Name** | **Move (Case 6)** |
| **Given** | Player piece with rank=”spy” is in b4 and opponent piece with rank=”private” is in c4 |
| **Action** | Player moves piece to right |
| **Results** | Player piece is eliminated |

|  |  |
| --- | --- |
| **Name** | **Move (Case 7)** |
| **Given** | Player piece with rank=”private” is in b4 and opponent piece with rank=”flag” is in c4 |
| **Action** | Player moves piece to right |
| **Results** | Player wins the game |

|  |  |
| --- | --- |
| **Name** | **Move (Case 8)** |
| **Given** | Player piece with rank=”flag” is in b4 and opponent piece with rank=”flag” is in c4 |
| **Action** | Player moves piece to right |
| **Results** | Player wins the game |

|  |  |
| --- | --- |
| **Name** | **Move (Case 9)** |
| **Given** | Player piece with rank=”flag” is in b9 and opponent piece with rank=”private” is in c9 |
| **Action** | Opponent moves piece to left. |
| **Results** | Player loses the game |

|  |  |
| --- | --- |
| **Name** | **Move (Case 10)** |
| **Given** | Player piece with rank=”flag” is in b9 and opponent piece with rank=”private” is in c9 |
| **Action** | Opponent moves piece to right. |
| **Results** | Player wins the game |

|  |  |
| --- | --- |
| **Name** | **Logout** |
| **Given** | Player has logged in and authentication information is stored in local memory |
| **Action** | Player selects “log out” option |
| **Results** | Authentication information in local memory is deleted. Player is tagged “ofline”. |

Figure 3 Progress Gantt Chart