

# **CS414: Object-Oriented Design - Fall 2018**

## **Project 2:** Banqi Game Domain Model

### **Team:**

ByteMe

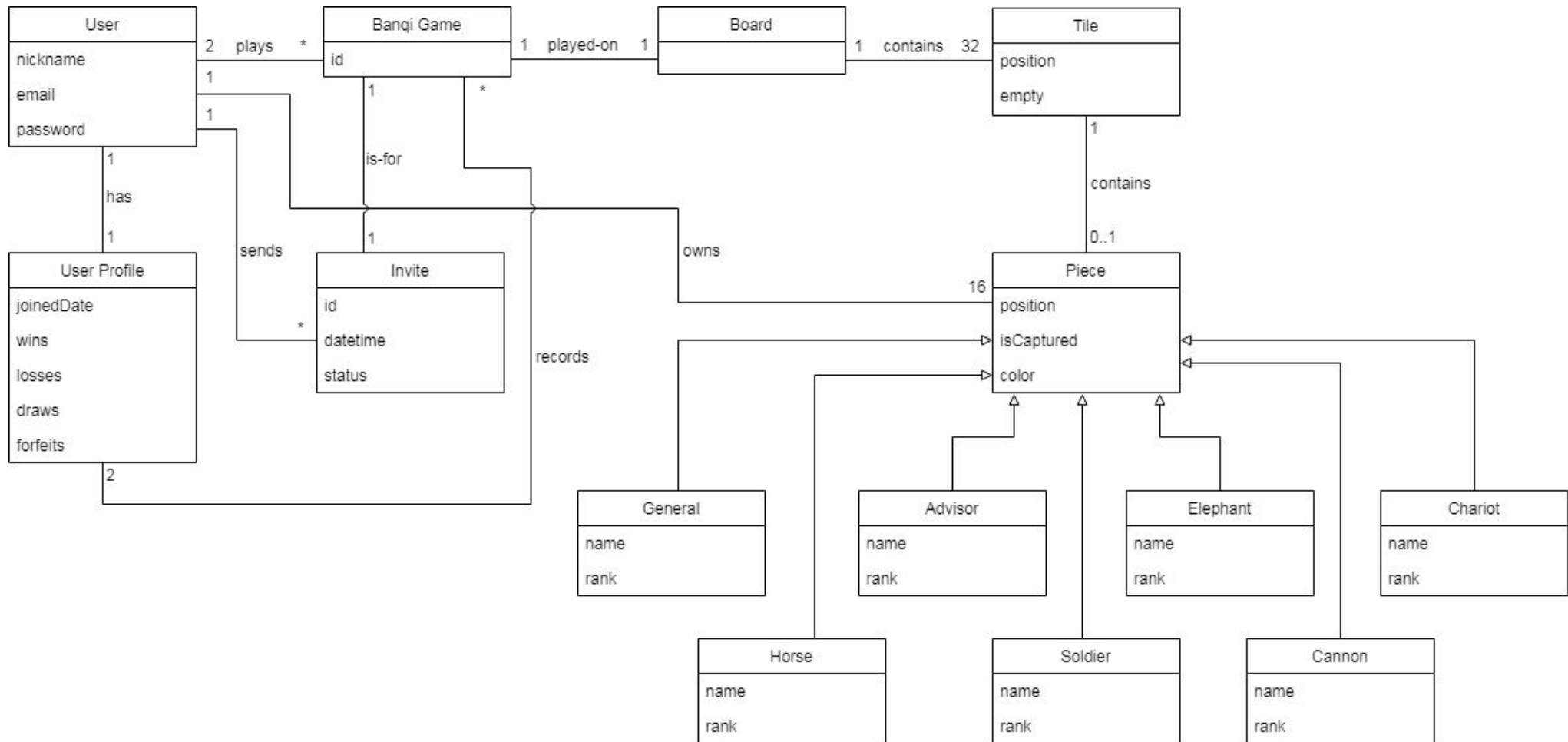
### **Members:**

Brian Martin

Stephen Porsche

Evan Salzman

## Banqi Game: Domain Model



## Banqi Game: Domain Model Glossary

CONCEPT	DESCRIPTION
<b>Advisor</b>	<p><b>Definition:</b> a type of Piece in the Banqi Game with the fifth highest ranking among the Pieces in terms of the moves/captures it can make; there are two per User and four per Banqi Game</p> <p><b>Associations:</b></p> <ul style="list-style-type: none"><li>• An Advisor is-A Piece in the Banqi Game</li></ul> <p><b>Attributes:</b></p> <ul style="list-style-type: none"><li>• <u>name</u>: the type of Piece, which is Advisor in this case</li><li>• <u>rank</u>: the precedence of the Advisor in the Banqi Game (fifth)</li></ul>
<b>Banqi Game</b>	<p><b>Definition:</b> the type of game being played; a variation of chess with ties to Hong Kong with an associated Board, 32 Pieces and 32 Tiles and 2 Users with respective User Profiles</p> <p><b>Associations:</b></p> <ul style="list-style-type: none"><li>• The results of a Banqi Game are recorded on the User Profiles of both of the playing Users</li><li>• A Banqi Game is played by two Users</li><li>• Every Banqi Game is played on a 4x8 Tile Board</li><li>• Banqi Games can have multiple Users invited, but only one can actually join the game</li></ul> <p><b>Attributes:</b></p> <ul style="list-style-type: none"><li>• <u>id</u>: a unique, non-repeating identifying code assigned to each Banqi Game that is created in the system</li></ul>
<b>Board</b>	<p><b>Definition:</b> the conceptual representation of the state of the Banqi Game for two Users, maintaining the positions of up to 32 Pieces, on 32 equally-sized Tiles arranged in a 4 x 8 pattern</p>

	<p><b>Associations:</b></p> <ul style="list-style-type: none"> <li>• A Board has 32 Tiles</li> <li>• A single Board is used for each Banqi Game</li> </ul> <p><b>Attributes:</b></p> <ul style="list-style-type: none"> <li>• No Board-specific attributes</li> </ul>
<b>Cannon</b>	<p><b>Definition:</b> a type of Piece in the Banqi Game with the fourth highest ranking among the Pieces in terms of the moves/captures it can make; there are two per User and four per Banqi Game</p> <p><b>Associations:</b></p> <ul style="list-style-type: none"> <li>• A Cannon is-A Piece in the Banqi Game</li> </ul> <p><b>Attributes:</b></p> <ul style="list-style-type: none"> <li>• <u>name</u>: the type of Piece, which is Cannon in this case</li> <li>• <u>rank</u>: the precedence of the Cannon in the Banqi Game (fourth)</li> </ul>
<b>Chariot</b>	<p><b>Definition:</b> a type of Piece in the Banqi Game that has the second highest rank among the Pieces in terms of the moves/captures it can make; there are two per User</p> <p><b>Associations:</b></p> <ul style="list-style-type: none"> <li>• A Chariot is-A Piece in the Banqi Game</li> </ul> <p><b>Attributes:</b></p> <ul style="list-style-type: none"> <li>• <u>name</u>: the type of Piece, which is Chariot in this case</li> <li>• <u>rank</u>: the precedence of the Chariot in the Banqi Game (second)</li> </ul>
<b>Elephant</b>	<p><b>Definition:</b> a type of Piece in the Banqi Game with the sixth highest ranking in terms of the moves/captures it can make; there are two per User and four per Banqi Game</p>

	<p><b>Associations:</b></p> <ul style="list-style-type: none"> <li>• An Elephant is-A Piece in the Banqi Game</li> </ul> <p><b>Attributes:</b></p> <ul style="list-style-type: none"> <li>• <u>name</u>: the type of Piece, which is Elephant in this case</li> <li>• <u>rank</u>: the precedence of the Elephant in the Banqi Game (sixth)</li> </ul>
<b>General</b>	<p><b>Definition:</b> a type of Piece in the Banqi Game that has the highest rank and can capture any Piece in the game, except for a Soldier; there is one per User and two per Banqi Game</p> <p><b>Associations:</b></p> <ul style="list-style-type: none"> <li>• A General is-A Piece in the Banqi Game</li> </ul> <p><b>Attributes:</b></p> <ul style="list-style-type: none"> <li>• <u>name</u>: the type of Piece, which is General in this case</li> <li>• <u>rank</u>: the precedence of the General in the Banqi Game (first)</li> </ul>
<b>Horse</b>	<p><b>Definition:</b> a type of Piece in the Banqi Game with the third highest ranking in terms of the moves/captures it can make; there are two per User and four in the Banqi Game</p> <p><b>Associations:</b></p> <ul style="list-style-type: none"> <li>• A Horse is-A Piece in the Banqi Game</li> </ul> <p><b>Attributes:</b></p> <ul style="list-style-type: none"> <li>• <u>name</u>: the type of Piece, which is Horse in this case</li> <li>• <u>rank</u>: the precedence of the Horse in the Banqi Game (third)</li> </ul>
<b>Invite</b>	<p><b>Definition:</b> the request that that is sent to a User to inform them that another User has asked for them to join a Banqi Game</p>

	<p><b>Associations:</b></p> <ul style="list-style-type: none"> <li>• Many invites can be sent out by a User</li> <li>• Invites are sent to join a particular Banqi Game</li> <li>• An Invite is for a single Banqi Game</li> </ul> <p><b>Attributes:</b></p> <ul style="list-style-type: none"> <li>• <u>id</u>: a unique, non-repeating identifying code assigned to each request sent out by a User when creating a new Banqi Game on the system</li> <li>• <u>dateTime</u>: the time in which the Invite was sent out/last updated</li> <li>• <u>status</u>: whether the invite has been accepted, rejected or is still pending</li> </ul>
<b>Piece</b>	<p><b>Definition:</b> any of the 32 (16 per User) moveable items within the Banqi Game with a name, color, ability/abilities and an associated User</p> <p><b>Associations:</b></p> <ul style="list-style-type: none"> <li>• 16 Pieces are owned by both Users in a Banqi Game</li> <li>• A single Piece can occupy any of the 32 Tiles on the Banqi Game Board</li> </ul> <p><b>Attributes:</b></p> <ul style="list-style-type: none"> <li>• <u>position</u>: the current position of the piece on the Board of the Banqi Game</li> <li>• <u>isCaptured</u>: a true or false condition for whether the piece is captured or not by the opposing User</li> <li>• <u>color</u>: either red or black to identify the team it is associated with</li> </ul>
<b>Soldier</b>	<p><b>Definition:</b> a type of Piece in the Banqi Game with the lowest rank, but can capture the General of the opposing User; there are five per User and ten in the Banqi Game</p> <p><b>Associations:</b></p> <ul style="list-style-type: none"> <li>• A Soldier is-A Piece in the Banqi Game</li> </ul>

	<p><b>Attributes:</b></p> <ul style="list-style-type: none"> <li>• <u>name</u>: the type of Piece, which is Soldier in this case</li> <li>• <u>rank</u>: the precedence of the Soldier in the Banqi Game (seventh)</li> </ul>
<b>Tile</b>	<p><b>Definition:</b> one of the 32 spots of the Board of the Banqi Game that can hold 0 or 1 pieces from either User at any given time during a Banqi Game</p> <p><b>Associations:</b></p> <ul style="list-style-type: none"> <li>• Each game Board has 32 Tiles</li> <li>• A Tile may be empty of have a Piece on it during a Banqi Game</li> </ul> <p><b>Attributes:</b></p> <ul style="list-style-type: none"> <li>• <u>position</u>: the location of the specific Tile in relation to all of the Tiles on the 4x8 Board of the Banqi Game</li> <li>• <u>empty</u>: a true or false condition for whether the Tile has a Piece on it (false) or does not have a piece on it (true)</li> </ul>
<b>User</b>	<p><b>Definition:</b> an individual with a registered account/profile on the system, who can play any number of Banqi Games</p> <p><b>Associations:</b></p> <ul style="list-style-type: none"> <li>• A User plays many Banqi Games</li> <li>• A User owns 16 pieces per Banqi Game</li> <li>• A User has a User Profile</li> <li>• A User can send Invites to Banqi Games they created</li> </ul> <p><b>Attributes:</b></p> <ul style="list-style-type: none"> <li>• <u>nickName</u>: a unique name that shows up on the Banqi Game system on a User's Profile and in all aspects of their engagement/games on the system</li> <li>• <u>email</u>: the electronic mailing address used to uniquely identify a User in the system when creating and logging into their registered account</li> <li>• <u>password</u>: an additional measure of authentication associated with a User's profile in the system</li> </ul>

<b>User Profile</b>	<p><b>Definition:</b> the visual structure, which shows the User's wins, losses, draws and information about the current Banqi Games they're playing</p> <p><b>Associations:</b></p> <ul style="list-style-type: none"><li>• Each User has a User Profile</li><li>• The User Profile holds a record of the data for all of a it's User's Banqi Games</li></ul> <p><b>Attributes:</b></p> <ul style="list-style-type: none"><li>• <u>joinedDate</u>: the date in which the User created/registered their account on the system</li><li>• <u>wins</u>: the number of Banqi Game wins associated with the User</li><li>• <u>losses</u>: the number of Banqi Game losses associated with the User</li><li>• <u>draws</u>: the number of Banqi Game draws associated with the User</li><li>• <u>forfeits</u>: the number of Banqi Games, which the User has forfeited</li></ul>
---------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------