# CS414: Object-Oriented Design - Fall 2018

## **Project 2:**

## Banqi Game Domain Model

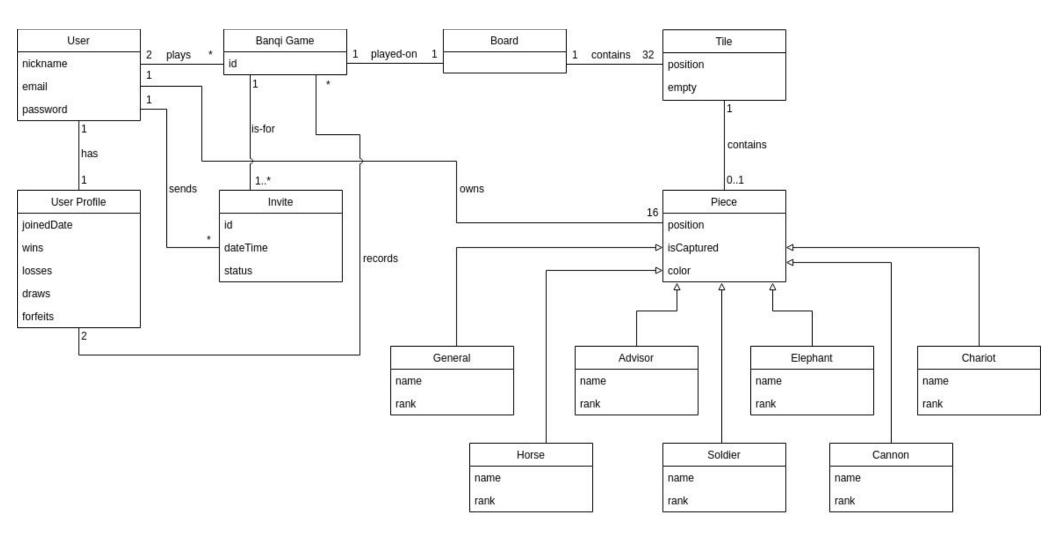
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## Banqi Game: Domain Model



Banqi Game: Domain Model Glossary

CONCEPT	DESCRIPTION
Advisor	<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
	Associations:  • An Advisor is-A Piece in the Banqi Game
	Attributes: <ul> <li>name: the type of Piece, which is Advisor in this case</li> <li>rank: the precedence of the Advisor in the Banqi Game (fifth)</li> </ul>
Banqi Game	<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
	<ul> <li>Associations:</li> <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>
	Attributes:  • id: a unique, non-repeating identifying code assigned to each Banqi Game that is created in the system
Board	<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

	Associations:
Cannon	Definition: 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  Associations:  A Cannon is-A Piece in the Banqi Game  Attributes:
Chariot	<ul> <li>name: the type of Piece, which is Cannon in this case</li> <li>rank: the precedence of the Cannon in the Banqi Game (fourth)</li> <li>Definition: 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</li> </ul>
	Associations:  • A Chariot is-A Piece in the Banqi Game  Attributes:  • name: the type of Piece, which is Chariot in this case  • rank: the precedence of the Chariot in the Banqi Game (second)
Elephant	<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

	Associations:  • An Elephant is-A Piece in the Banqi Game  Attributes:  • name: the type of Piece, which is Elephant in this case  • rank: the precedence of the Elephant in the Banqi Game (sixth)
General	<ul> <li>Definition: 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</li> <li>Associations: <ul> <li>A General is-A Piece in the Banqi Game</li> </ul> </li> </ul>
	Attributes: <ul> <li>name: the type of Piece, which is General in this case</li> <li>rank: the precedence of the General in the Banqi Game (first)</li> </ul>
Horse	Definition: 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  Associations:  A Horse is-A Piece in the Banqi Game
	<ul> <li>Attributes:</li> <li>name: the type of Piece, which is Horse in this case</li> <li>rank: the precedence of the Horse in the Banqi Game (third)</li> </ul>
Invite	<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

## Associations: • Many invites can be sent out by a User • One or more invites are sent to join a single Bangi Game Attributes: • <u>id</u>: a unique, non-repeating identifying code assigned to each request sent out by a User when creating a new Bangi Game on the system • dateTime: the time in which the Invite was sent out/last updated • status: whether the invite has been accepted, rejected or is still pending Piece **Definition:** any of the 32 (16 per User) moveable items within the Banqi Game with a name, color, ability/abilities and an associated User Associations: • 16 Pieces are owned by both Users in a Bangi Game • A single Piece can occupy any of the 32 Tiles on the Bangi Game Board Attributes: • position: the current position of the piece on the Board of the Banqi Game • isCaptured: a true or false condition for whether the piece is captured or not by the opposing User • color: either red or black to identify the team it is associated with Soldier **Definition:** 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 Bangi Game Associations: • A Soldier is-A Piece in the Bangi Game Attributes:

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	name: the type of Piece, which is Soldier in this case
	rank: the precedence of the Soldier in the Banqi Game (seventh)
Tile	<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
	Associations:
	Each game Board has 32 Tiles
	A Tile may be empty of have a Piece on it during a Banqi Game
	Attributes:
	<ul> <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>
User	Definition: an individual with a registered account/profile on the system, who can play any number of Banqi
	Games
	Associations:
	A User plays many Banqi Games
	A User owns 16 pieces per Banqi Game
	A User has a User Profile
	A User can send Invites to Banqi Games they created
	Attributes:
	<ul> <li>nickName: 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> </ul>
	<ul> <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> </ul>
	password: an additional measure of authentication associated with a User's profile in the system

### **User Profile**

**Definition:** the visual structure, which shows the User's wins, losses, draws and information about the current Banqi Games they're playing

#### Associations:

- Each User has a User Profile
- The User Profile holds a record of the data for all of a it's User's Banqi Games

#### Attributes:

- <u>joinedDate</u>: the date in which the User created/registered their account on the system
- wins: the number of Banqi Game wins associated with the User
- losses: the number of Banqi Game losses associated with the User
- <u>draws</u>: the number of Banqi Game draws associated with the User
- forfeits: the number of Banqi Games, which the User has forfeited