

# Conceptual Model of the Entity Relationship Diagram (ERD) “Game of Tiles”

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## **GAME OF TILES**

*Presented by Team Excellence*

Game of Tiles is a multi-player game of skill played with players around the world through the internet.

### **1.0 ERD Description**

Chens Notation

Conceptual Relational Diagram

Game:

- Game played by many Characters
- Game contains a single Map
- Game is managed by Administrators

Map:

- Map contains 1 game play
- Map created by players who become Map Owners
- Map Owners have restricted permissions over Game
- Map contains many Assets
- The map consists of tiles
- There are multiple levels of maps

Assets:

- An Asset is contained within 1 Map
- An Asset is collected by 1 Character
- There can be multiples of the same Asset type
- Assets are associated with points awarded or removed
- An Asset is located within 1 tile within the Map

Character:

- Character plays 1 game
- Character created date impacts their state within the game
- Character collect many Assets
- Character has 4 skills
- Character played by 1 player
- Character has a state within the game

Skills:

- Skills can be selected by many Characters
- Skills selected influence the Characters ability to react to events within the Game
- Once chosen skills cannot be changed

Players:

- Player plays 1 Character
- Player can chat with other players in the Game

Administrator:

- Creates Game linked to Maps and level
- Monitors Games and Players
- Manages and administers/monitors Games

## **2.0 Business Rules**

### **2.1 Characters**

1. Characters can only move one tile at a time
2. Characters can only move to a tile adjoining the current tile
3. Character competes with other characters on the same map by collecting Assets and interacting using those Assets and Skills chosen
4. Only 1 Character can be placed on a tile at a time
5. The Map 'Home Tile' is the only tile that can contain multiple Characters at the same time

### **2.2 Players**

6. Players must create a Character prior to having their account registered
7. Players must set up an account with an email address and password
8. Players must select 5 skills for their Character
9. Text chat is available to be used by Players to communicate between Characters within the Game
10. Players can create a new Map, doing so makes them Map Owners and have select permissions over that Map
11. Players can request to become Map Owners of a Map their Players has joined

### **2.3 Assets**

12. A tile can contain multiple assets
13. A Character can select an asset on the tile
14. Each asset will either award the Character points or will deduct points

15. Assets can be used against other Players in the Game

## 2.4 Tiles

16. If no Character is on a tile, the tile is empty and is available for a Player to select the tile
17. The state of the Character is retained when a player leaves the Game
18. The Character is removed from a tile when a Player leaves the game and it becomes empty for other Players to select
19. When the Player returns the Character will default back to their tile unless another Player has selected it, in which case the Player must select one of the adjoining tiles
20. The database stores Character position and Asset Position

## 2.5 Accounts

21. Individual accounts can be deleted by Players
22. Deleted Character assets are distributed back to tile locations
23. Two accounts exist, Player account and Administrator account

## 2.6 Administrators

24. Games are moderated by Administrators
25. Players can become Administrator
26. Administrators actions and decisions are reviewed by players and can influence their permissions rankings and status
27. There can be multiple Administrators
28. Administrators have the following rights determined by their permissions:
  - list all registered players
  - edit player information
  - edit character information
  - delete a player
  - delete a character

## 3.0 Assumptions

- 'Item' and 'Asset' are the same thing
- Points begin with the asset and are transferred to the Player once the character has obtained the Asset
- There can be multiple map levels
- There are a limited number of Characters per Game and Map to avoid overcrowding of the tiles
- There are a limited number of tiles on each Map
- There are a limited number of Assets on each Map

- Points can also be awarded if a Character performs over and above another Character in adjacent tiles
- Administrators can also be Players but would not be able to oversee Games they are playing

## 4.0 Data Dictionary

### 4.1 Entities

Entity Name	Description	Aliases	Occurrence
Map	A game design and level containing tiles, assets and characters	Level	Selected to associated game created by Administrator
Tile	Tiles are laid out over the made and contain Characters and Assets	Locality	Characters move across tiles collecting assets and points and interacting with other Characters
Asset	An item that can be obtained by a Character to improve their ability to progress within the game	Item	System allocates assets randomly across tiles of map when created
Map Owner	A Player that has a level of influence and permissions over the Map	-	A Player either creates a Map becoming the Map Owner or can request to be a Map Owner of an existing Map
Character	The avatar of the Player with a set of 5 skills chosen by the Player	-	Players select characteristics before completing registration
Skills	A set of skills chosen by the player that defines the abilities of the Character	Attribute	Skills are chosen by the Player and associated to the Character created
Account	Generalised: Each Player or Administrator has an account	-	Account set-up with user email and password
Player	Specialised: A person signing up to play the game	-	Joins game at registration entering email and password
Administrator	Specialised: Game creators and overseers	Controller	Includes founding game creators, new administrators can be added based on requirements and Player request

### 4.2 Relationships

Entity Name	Cardinality	Relationship	Cardinality	Entity Name
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Administrator Mandatory Participation	N	Moderate	M	Map Mandatory Participation
Map Mandatory Participation	1	Has	M	Tile Mandatory Participation
Map Mandatory Participation	1	Played	M	Character Optional Participation
Tile Optional Participation	1	Contain	M	Asset Optional Participation
Asset Optional Participation	M	Collects	1	Character Mandatory Participation
Character Mandatory Participation	1	Plays	1	Player Mandatory Participation
Character Mandatory Participation	N	Has	M	Skill Optional Participation
Player Optional Participation	1	Chats	M	Player Optional Participation
Player Optional Participation	1	Can Be	1	Map Owner Optional Participation
Map Owner Mandatory Participation	N	Has	M	Map Mandatory Participation