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V.1.3

PAD Database

Software Design Document



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|  |  |  |  |
| --- | --- | --- | --- |
| Name | Version | Reason for Change | Date |
| Ryan Breau | 1.0 | Created initial SDD Document | 05/11/2017 |
| Ryan Breau | 1.1 | Feedback | 05/12/2017 |
| Ryan Breau | 1.2 | Made additions as well as reorganizing existing information | 05/15/2017 |
| Ryan Breau | 1.3 | Revised existing information as well as added use cases | 05/16/2017 |

# Revision History

# 1. Introduction

## 1.1 Purpose

This document outlines the design of the Puzzle and Dragons database.

## 1.2 Scope

*The product will keep an account of all the Attributes, Types, Active Skills, Leader Skills, Awoken Skills, Latent Skills, Monsters, Monster Evolution Trees, Monster Instances, and Team Instances*

## 1.3 Context

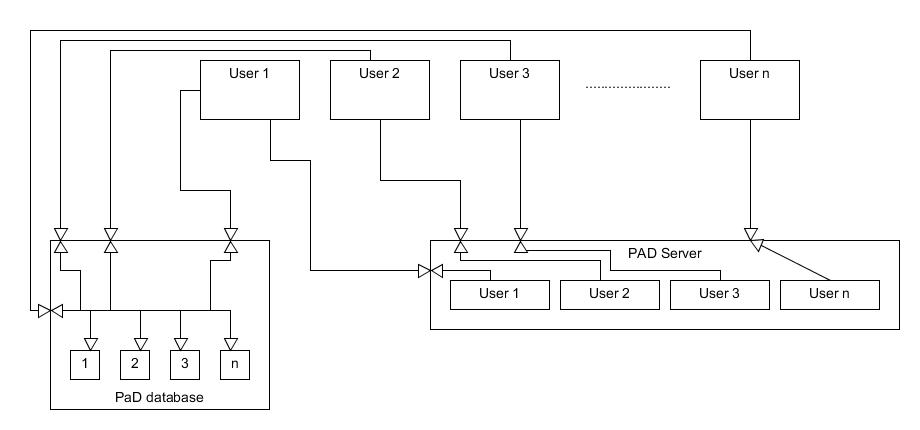


Figure Visual Representation of Product Use

With the PAD server, a player can only see their own progress, monsters, etc.; with our database, player will be able to see the progress, monster, etc. of other players, so long as they update their information. This figure is a visual representation of this.

## 1.4 Summary

The product will be a database consisting of 14 tables.

# 2. References

* Puzzle and Dragons, created by GungHo
* PADX - <http://www.puzzledragonx.com/>
* Puzzle and Dragons Database V1\_3

# 3. Glossary

Attribute: Element, a monster will have 1-2 of these.

Types: Monster Classifications, a monster will have 1-3 of these.

Active Skills: An ability a monster can have and use only after a set amount of turns, once used the amount of turns resets.

Leader Skill: A passive ability a monster could have, is only activated when a monster is set as a Leader.

Leader: The first and only necessary monster on a team.

Awoken Skills: Dormant skills a monster can activate when fused with the right monster, passive skills.

Fusion: An action that powers up a base monster using 1-5 other monsters, monster used in a fusion are lost.

Latent Skills: Passive skills given to a monster by fusing a specific type of monster to it, a monster can have up to 5 by default but an extra slot is currently able to be unlocked

Monsters: Cards, creature, characters.

Evolution Tree: The path of evolution a monster can take.

Evolution: An action that takes a base monster and up to 5 additional monsters and create the next/chosen monster in the base monster’s evolution tree, additional monsters are lost upon evolution.

Monster Instance: A monster owned by a user.

Team Instance: A team created by a user.

Team: 1-5 monsters used in dungeons to progress through the game.

+/Plus: An increase to a monster instance’s base stats.

HP: Health Points

ATK: Attack

RCV: Recovery/Receive

PAD: Puzzle and Dragons

NA: North America

# 4. Body

## 4.1 Database Architecture

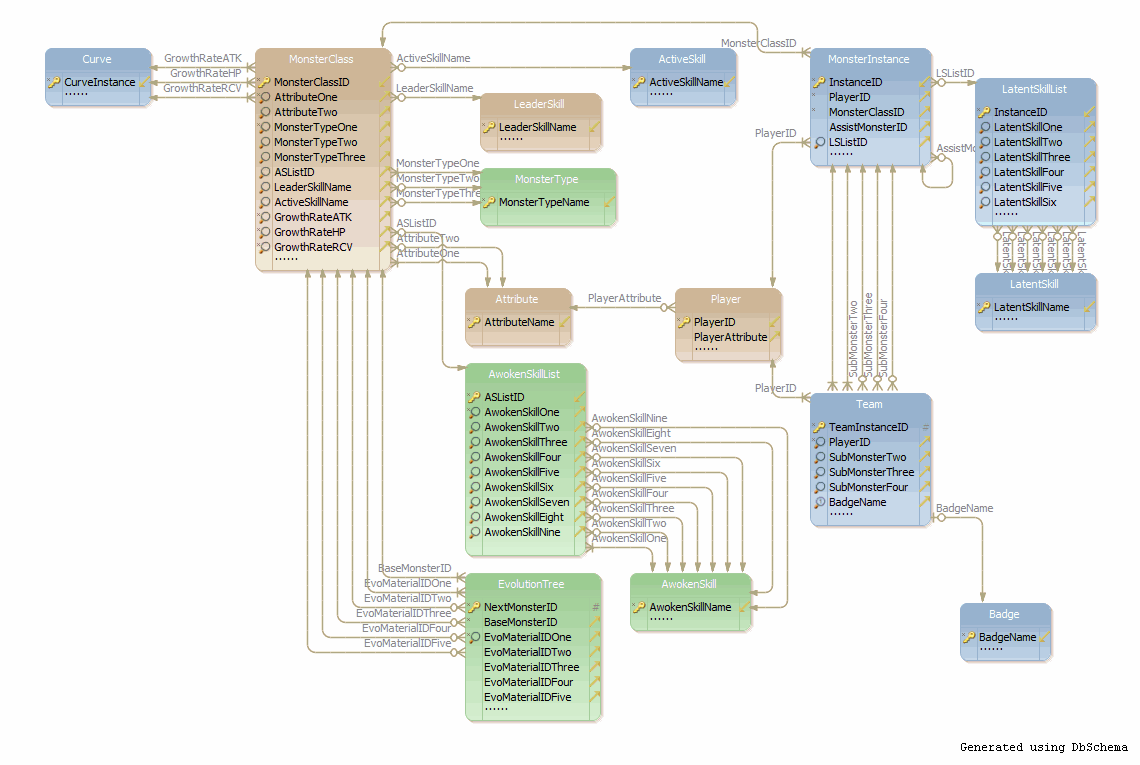


Figure Database Schema

The basic schema for the database. Shows the relationships that will be formed once development begins.

## 4.2 Database Fields, Types and Sizes

### 4.2.1 Attribute Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Data Type | Size | Key | Relationships |
| AttributeName | varchar, not null | 50 | PK | MonsterClass: AttributeOne, AttributeTwo  Player: PlayerAttribute |

### 4.2.2 MonsterType Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Data Type | Size | Key | Relationships |
| MonsterTypeName | varchar, not null | 50 | PK | MonsterClass: MonsterTypeOne, MonsterTypeTwo, MonsterTypeThree |

### 4.2.3 LeaderSkill Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Data Type | Size | Key | Relationships |
| LeaderSkillName | varchar, not null | 50 | PK | MonsterClass: LeaderSkillName  Team: TeamLeaderSkill |
| LeaderSkillDescription | varchar, not null | max |  |  |

### 4.2.4 ActiveSkill Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Data Type | Size | Key | Relationships |
| ActiveSkillName | varchar, not null | 50 | PK | MonsterClass: ActiveSkillName |
| ActiveSkillDescription | varchar, not null | max |  |  |
| ActiveMaxLevel | Int, not null | 2 |  |  |
| ActiveSkillMaxCooldown | Int, not null | 2 |  |  |

### 4.2.5 AwokenSkill Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Data Type | Size | Key | Relationships |
| AwokenSkillName | Varchar, not null | 50 | PK | AwokenSkillList: AwokenSkillOne, AwokenSkillTwo, AwokenSkillThree, AwokenSkillFour, AwokenSkillFive, AwokenSkillSix, AwokenSkillSeven, AwokenSkillEight, AwokenSkillNine |
| AwokenSkillDescription | Varchar, not null | Max |  |  |

### 4.2.6 AwokenSkillList

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Data Type | Size | Key | Relationships |
| ASListID | Int, not null | 4 | PK | MonsterClass: ASListID |
| AwokenSkillOne | Varchar, not null | 50 | FK | AwokenSkill: AwokenSkillName |
| AwokenSkillTwo | varchar | 50 | FK | AwokenSkill: AwokenSkillName |
| AwokenSkillThree | varchar | 50 | FK | AwokenSkill: AwokenSkillName |
| AwokenSkillFour | varchar | 50 | FK | AwokenSkill: AwokenSkillName |
| AwokenSkillFive | varchar | 50 | FK | AwokenSkill: AwokenSkillName |
| AwokenSkillSix | varchar | 50 | FK | AwokenSkill: AwokenSkillName |
| AwokenSkillSeven | varchar | 50 | FK | AwokenSkill: AwokenSkillName |
| AwokenSkillEight | varchar | 50 | FK | AwokenSkill: AwokenSkillName |
| AwokenSkillNine | varchar | 50 | FK | AwokenSkill: AwokenSkillName |

### 4.2.7 MonsterClass Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Data Type | Size | Key | Relationships |
| MonsterClassID | Int, not null | 4 | PK | MonsterInstance: MonsterClassID, AssistMonsterID  EvolutionTree: BaseMonsterID, EvoMonsterIDOne, EvoMonsterIDTwo, EvoMonsterIDThree, EvoMonsterIDFour, EvoMonsterIDFive |
| MonsterName | Varchar, not null | 50 |  |  |
| Rarity | Int, not null | 2 |  |  |
| AttributeOne | Varchar, not null | 50 | FK | Attribute: AttributeName |
| AttributeTwo | Varchar | 50 | FK | Attribute: AttributeName |
| MonsterTypeOne | Varchar, not null | 50 | FK | MonsterType: MonsterTypeName |
| MonsterTypeTwo | Varchar | 50 | FK | MonsterType: MonsterTypeName |
| MonsterTypeThree | varchar | 50 | FK | MonsterType: MonsterTypeName |
| MaxExperience | Int, not null | 12 |  |  |
| MaxLevel | Int, not null | 2 |  |  |
| MonsterCost | Int, not null | 3 |  |  |
| ASListID | Int | 4 | FK | AwokenSkillList: ASListID |
| LeaderSkillName | varchar | 50 | FK | LeaderSkill: LeaderSkillName |
| ActiveSkillName | varchar | 50 | FK | ActiveSkill: ActiveSkillName |
| MaxHP | Int, not null | 5 |  |  |
| MinHP | Int, not null | 5 |  |  |
| GrowthRateHP | Real, not null | 2 |  |  |
| MaxATK | Int, not null | 5 |  |  |
| MinATK | Int, not null | 5 |  |  |
| GrowthRateATK | Real, not null | 2 |  |  |
| MaxRCV | Int, not null | 5 |  |  |
| MinRCV | Int, not null | 5 |  |  |
| GrowthRateRCV | Real, not null | 2 |  |  |
| MaxCoinValue | Int, not null | 12 |  |  |
| MinCoinValue | Int, not null | 12 |  |  |
| MaxExperienceValue | Int, not null | 12 |  |  |
| MinExperienceValue | Int, not null | 12 |  |  |
| MonsterPointValue | Int, not null | 10 |  |  |
| LSSlots | Int, not null | 2 |  |  |

### 4.2.8 Player Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Data Type | Size | Key | Relationships |
| PlayerID | Int, not null | 9 | PK | MonsterInstance: PlayerID  Team: PlayerID |
| PlayerAttribute | Varchar, not null | 50 | FK | Attribute: AttributeName |
| PlayerName | Varchar, not null | 50 |  |  |
| Rank | Int, not null | 4 |  |  |

### 4.2.9 Badge Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Data Type | Size | Key | Relationships |
| BadgeName | Varchar, not null | 50 | PK | Team: BadgeName |
| BadgeDesc | Varchar, not null | max |  |  |

### 4.2.10 MonsterInstance Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Data Type | Size | Key | Relationships |
| InstanceID | Int, not null | 12 | PK | MonsterInstance: InstanceID  Team: LeaderMonster, SubMonsterOne, SubMonsterTwo, SubMonsterThree, SubMonsterFour |
| PlayerID | Int, not null | 9 | FK | Player: PlayerID |
| MonsterClassID | Int, not null | 4 | FK | MonsterClass: MonsterClassID |
| CurrentExperience | Int, not null | 12 |  |  |
| PlusHP | Int, not null | 2 |  |  |
| PlusATK | Int, not null | 2 |  |  |
| PlusRCV | Int, not null | 2 |  |  |
| SkillsAwoke | Int, not null | 1 |  |  |
| AssistMonsterID | Int | 12 | FK | MonsterInstance: InstanceID |
| SkillLevel | int | 2 |  |  |
| LSListID | int | 12 | FK | LatentSkillList: InstanceID |
| ActiveSkillCooldown | int | 2 |  |  |
| CurrentHP | Int, not null | 5 |  |  |
| CurrentATK | Int, not null | 5 |  |  |
| CurrentRCV | Int, not null | 5 |  |  |
| PlusHPAmount | Int, not null | 3 |  |  |
| PlusATKAmount | Int, not null | 3 |  |  |
| PlusRCVAmount | Int, not null | 3 |  |  |
| CurrentLevel | Int, not null | 2 |  |  |

### 4.2.11 LatentSkill Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Data Type | Size | Key | Relationships |
| LatentSkillName | Varchar, not null | 50 | PK | LatentSkillList: LatentSkillOne, LatentSkillTwo, LatentSkillThree, LatentSkillFour, LatentSkillFive, LatentSkillSix |
| LatentSkillDesc | Varchar, not null | Max |  |  |
| LSSlotsReq | Int, not null | 1 |  |  |

### 4.2.12 LatentSkill List

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Data Type | Size | Key | Relationships |
| InstanceID | Int, not null | 12 | PK | MonsterInstance: LSListID |
| LatentSkillOne | Varchar | 50 | FK | LatentSkill: LatentSkillName |
| LatentSkillTwo | Varchar | 50 | FK | LatentSkill: LatentSkillName |
| LatentSkillThree | Varchar | 50 | FK | LatentSkill: LatentSkillName |
| LatentSkillFour | Varchar | 50 | FK | LatentSkill: LatentSkillName |
| LatentSkillFive | Varchar | 50 | FK | LatentSkill: LatentSkillName |
| LatentSkillSix | Varchar | 50 | FK | LatentSkill: LatentSkillName |
| ExtraSlot | Bit, not null | 1 |  |  |

### 4.2.13 Team Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Data Type | Size | Key | Relationships |
| TeamInstanceID | Int, not null | 12 | PK |  |
| PlayerID | Int, not null | 9 | FK | Player: PlayerID |
| TeamName | Varchar, not null | 50 |  |  |
| LeaderMonster | Int, not null | 5 | FK | MonsterInstance: InstanceID |
| SubMonsterOne | int | 5 | FK | MonsterInstance: InstanceID |
| SubMonsterTwo | int | 5 | FK | MonsterInstance: InstanceID |
| SubMonsterThree | int | 5 | FK | MonsterInstance: InstanceID |
| SubMonsterFour | int | 5 | FK | MonsterInstance: InstanceID |
| BadgeName | varchar | 50 | FK | Badge: BadgeName |
| TeamHP | Int, not null | 8 |  |  |
| FireATK | Int, not null | 8 |  |  |
| WaterATK | Int, not null | 8 |  |  |
| WoodATK | Int, not null | 8 |  |  |
| LightATK | Int, not null | 8 |  |  |
| DarkATK | Int, not null | 8 |  |  |
| TeamRCV | Int, not null | 8 |  |  |
| TeamCost | Int, not null | 4 |  |  |
| TeamLeaderSkill | Varchar | 50 | FK | LeaderSkill: LeaderSkillName |

### 4.2.14 EvolutionTree Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Data Type | Size | Key | Relationships |
| NextMonsterID | Int, not null | 5 | PK |  |
| BaseMonsterID | Int, not null | 5 | FK | MonsterClass: MonsterClassID |
| EvoMonsterIDOne | int, not null | 5 | FK | MonsterClass: MonsterClassID |
| EvoMonsterIDTwo | Int | 5 | FK | MonsterClass: MonsterClassID |
| EvoMonsterIDThree | int | 5 | FK | MonsterClass: MonsterClassID |
| EvoMonsterIDFour | int | 5 | FK | MonsterClass: MonsterClassID |
| EvoMonsterIDFive | int | 5 | FK | MonsterClass: MonsterClassID |
| MinLevel | Int, not null | 2 |  |  |
| Devolvable | Bit, not null | 1 |  |  |
| LevelReset | Bit, not null | 1 |  |  |

## 4.3 Use Cases

### 4.3.1 Admin

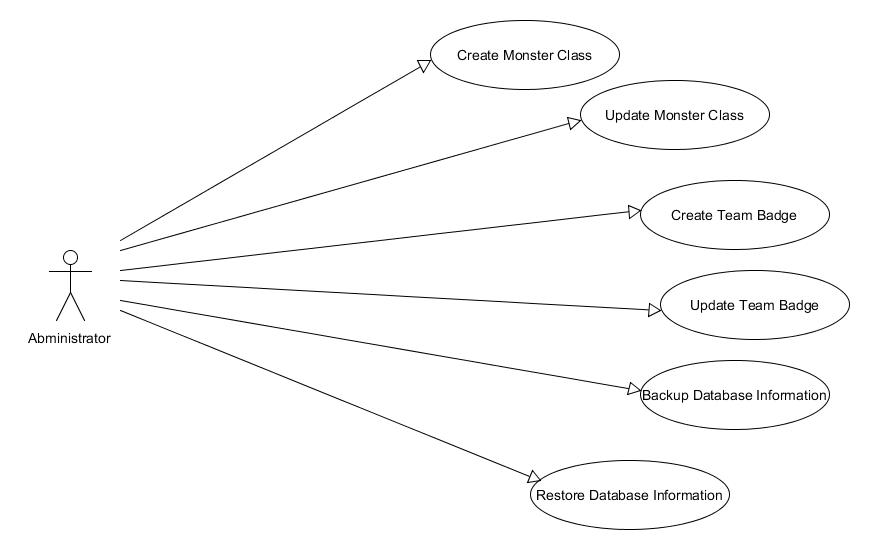


Figure Administrator Use Case

### 4.3.2 User

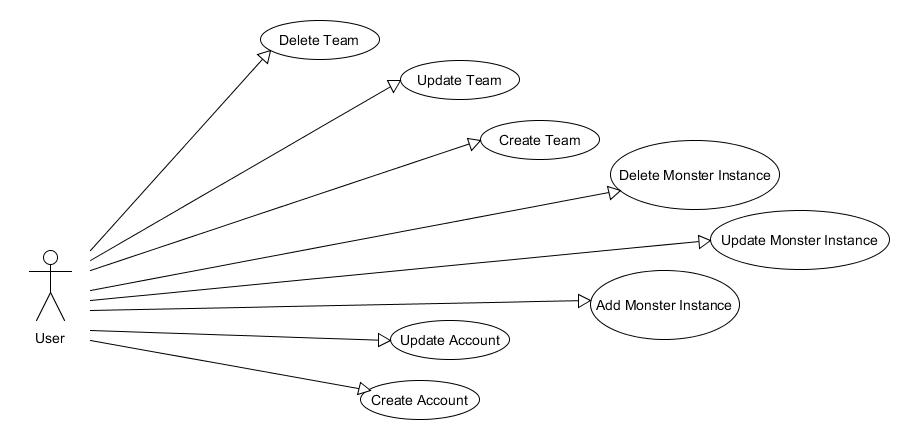


Figure User Use Case