Jupyter Idle Heroes - Card Fusion Queries (autosaved)

File
Edit
View
Insert
Cell
Kernel
Widgets
Help

H
N
Python 3 O

Trusted

Python 3 O

#### **SQL Queries to Combine Cards**

The SQL database used here was created by **Rannmann** on GitHub. There are plans to change the representation, but first we'd like to see how well we can queriy the correct combinations to fuses 5-star★ and 6-star★ Heroes.

To make the queries easier to write an modify, the **SQLiteStudio** program and editor were used. Queries were later pasted here into Jupyter. An SQL editor, (with syntax completion and db exploration, etc) is always faster to use on SQL data (to answer quick questions than a Jupyter notebook/ Pandas dataframe.

#### **Database Creation**

GitHub user **Rannmann** provide the DLL for the necesary tables in tables.sql. Within SQLiteStudio, you can click a few buttons to &Add a Dtabase (Ctrl+O). Then you give the database a name and location. It's good to choose the extension of .db which shoud make your database usable by other variants of sql.

Once this databse is created, you can double-click it in the navigaiton areas, and then open a new black "page" for a query (Open SQL &editor (Alt+E)). Pasting the DDL query in there, hit the run button, for each separate query, and the commands will be executed.

Note that this fule contains both the CREATE statements, and the INSERT statements to populate the created tables, ones after the other.

#### Table Quick Info

- factions 3 columns: id, name, icon. 6 rows: name s of Shadow, Fortres, Abyss, Forest, Dark, Light
- icon column is always NULL
- heroes 8 columns: id, faction id, stars, name, icon, hive pve, hive pvp, hive overall score
- icon column is always NULL
- the pvp, pve, and overall columns have sparse decimal data from scale of 1-10
- I have no use for these columns, nor data
  232 rows
- fusions 8 columns: id; faction id; result hero; input [hero(1,2)]+[amount(1,2)]; fodder [amount,stars]
   112 rows
  - all cells contain data

### Card Fusion Background Information

For 5-star and 6-star cards, at the least, 2 unique heroes ar eused as "input". While the uniqueness is 2 the number of each unique hero can vary.

Then, there are an additional 3 to 4 heroes of any type/name that must also be included. These can be futhere copies of the unique heroes, copies of a completely different hero, or distinct instances of 3 to 4 hereos. Since the only restriction on the additional cards in the star level, they are often nicknamed "fodder" cards.

Furthermore, for many ★5-star hereos, they are fused by using multiple copies of there ★4-star equivalents (plus a certain number of "fodder" cards).

An example is below.

## Card Fusion Example

```
Hero : ★ 5-star "Ent Elder"
```

```
heroes.stars: 5
heroes.name: Ent Elder
heroes.id: 160
faction.id: 4
faction.name: Forest
fusions.id: 72 (based on the order inserted into the db)
fusions.faction_id: 4 (matches the id in the _faction_ table)
fusions.result_hero_id: 160 (matches the id in the heroes table)
fusions.input_hero_1_id: 152
    fusions.input_hero_1_amount: 4
    (corresponding) heroes.name: Ent Elder (the 4-star version of the 5-star we are fusing)
    (corresponding) heroes.stars: 4
fusions.input_hero_2_id: 148
    fusions.input_hero_1_amount: 4 (the copies of this specific 3-star hero we need)
    (corresponding) heroes.name: Frey
    (corresponding) heroes.stars: 3
fusions.fodder amount: 4 (the number of any mixed or match 4-star heroes we need)
```

Why Make an App?

fusions.fodder\_stars: 4

The goal of the app would be to both indicate which heroes can currently be fused based on data abotu the players "active" hero inventory, and shows which heroes have alomst enough of their components to be fused.

Moreover, players also have "dormant" bag inventory. This "Bag" can contain unused cards, a ertain number of which can be used to summon a random hero of a certain star level, or a specific hero.

It would be ideal if the app could take into account both the "active" hero inventory and the "dormant" hero-cards in the bag inventory, to tell the player (again)

- which ★5-star and ★6-star cards can currently be fused and
- ullet which of those cards is close to completion. Clos can mean missing 1 to n components

# <u>Extra</u>

The format of th SQL database is fine, give the rules of how cards combine. However, it would be nice to modify the normalization and not have columns like input\_1\_id, input\_2\_id. Instead, we could make join to an inputs table that has 2 entries for the specific inputs.

Additionally, we have "asset" data from other GitHub repositories, such that we could crate a directory of all the images, and then store the image location into the database. This would make the look up (via a Jupyter Notebook or an App) simpler.

Base Queries

```
select * from factions;
select * from heroes;
select * from fusions;
```

Query used for example

```
select
    h.stars,
    h.name,
    h.id as heroes_table_id,
    fus.*,
    ih1.stars as IH1stars, ih1.name as IH1name,
    ih2.stars as IH2stars, ih2.name as IH2name
from fusions as fus

left join heroes as h
    on fus.result_hero_id = h.id

left join heroes as ih1
    on fus.input_hero_1_id = ih1.id

left join heroes as ih2
    on fus.input_hero_2_id = ih2.id

where fus.faction_id = 4

;
```

Query Output: As Markdown Table, and Tab Separated
 "Ent Elder" is row 3

stars

Wind 158 70 150 145 5 158 4 4 4 Walker 159 71 151 147 Chief 159 4 160 72 148 Ent Elder 160 152 5 Headstriker 161 73 161 153 4 146 4 4 162 74 154 4 149 4 4 Thale 4 162 155 Kargath 163 75 163 4 146 4 The Grey-164 76 164 156 4 148 4 4 4 165 77 165 157 147 5 Zekkis 4 Thale 178 78 178 162 2 165 1 3 The Grey-179 79 179 164 2 161 180 80 162 180 165 2 3 Zekkis Demon 166 158 181 81 2 181 3 Dragon 182 82 182 167 2 163 3 1 183 83 168 161 183 2 3 Faceless 184 84 169 184 2 3 Starlight 185 85 4 185 170 2 162 3 160 171 2 3 Groo 186 86 186 1 187 87 172 2 187 159 3 Eddga 188 88 188 173 2 162 3 Vesa 2 189 89 189 174 163 Malassa 190 90 175 3 Watcher 191 91 191 176 Valkyrie 177 162 Oberon 192 92 192 2 3

name heroes\_table\_id id faction\_id result\_hero\_id input\_hero\_1\_id input\_hero\_1\_amount input\_hero\_2\_id input\_hero\_2\_amount fodder\_amount

heroes\_table\_id id faction\_id result\_hero\_id input\_hero\_1\_id input\_hero\_1\_amount \_hero\_2\_id input\_hero\_2\_amount fodder\_amount fodder\_stars IH1stars IH1name IH2stars IH2name 4 Wind Walker 3 Sybil 158 150 4 Wind Walker 158 70 4 145 Chief 159 71 4 159 151 4 147 Chief 3 Blue Shaman 4 Ent Elder 160 72 160 152 148 Ent Elder Headstriker 161 73 161 153 Headstriker 3 Undomiel Thale 3 Forests Captain Thale 162 74 4 162 154 4 149 Kargath 163 75 155 146 Kargath 3 Undomiel 163 4 4 The Grey-eyed 3 Frey 76 The Grey-eyed 164 164 156 77 157 147 Zekkis 4 Thale 178 178 162 165 5 Zekkis 2 Thale 179 79 The Grey-eyed 179 164 The Grey-eyed 5 Zekkis 180 5 Thale 165 2 162 Zekkis Demon Hunter 181 181 166 158 Demon Hunter 5 Wind Walker Dragon Slayer 182 82 4 182 163 Dragon Slayer 5 Kargath 167 5 5 183 Faceless 5 Headstriker 4 184 84 184 169 165 2 Starlight 185 162 Starlight 5 Thale 85 185 170 171 2 Eddga 187 187 172 2 159 188 173 2 162 Vesa Malassa 5 Kargath Heart Watcher 190 190 175 164 5 Heart Watcher 5 The Grey-eyed 191 91 4 191 176 163 Valkyrie 5 Kargath

192 92 4 192 177 2 162 1 3 5 5