CPSC 304 Project Cover Page

Milestone #: 4

Date: Apr 5, 2024

Group Number: 73

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By typing our names and student numbers in the above table, we certify that the work in the attached assignment was performed solely by those whose names and student IDs are included above. (In the case of Project Milestone 0, the main purpose of this page is for you to let us know your e-mail address, and then let us assign you to a TA for your project supervisor.)

In addition, we indicate that we are fully aware of the rules and consequences of plagiarism, as set forth by the Department of Computer Science and the University of British Columbia

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Summary:

The domain of our application is Pokemon gaming and the tracking of game statistics. With the ability to customize their own Pokemon games, users will be able to tailor their game experiences according to their preferences. Furthermore, in regards to the tracking of game statistics domain, users are able to track individual player progression data, including Pokemons they've captured, guests they completed, etc.

Description:

Our application displays the data for the tables at the bottom of the page, where the user can scroll through and see the data they have added freely; each table also has an add and remove button for the user to manipulate the table. Above that we have our query functions for projection, joins, selection, and update for the Pokemon table and our aggregate queries for the user to find the average region count, the game with the least amount of regions, the most popular Pokemon type, and the division query to find the game that includes all the roles. Errors are also correctly handled when users input any wrong information.

Final Schema:

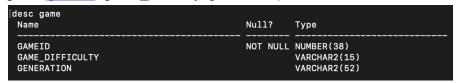
We updated all the tables that had a type constraint of DATE for the date attributes in pokemon_caught, quest_assigned, and gymMaster_owns. We changed the type constraint to VARCHAR instead because it was easier to work with when creating the add/remove functionalities for our tables in the frontend.

We updated the schema for Pokemon_Caught to have 'type1' and 'type2' instead of just type so that we can have a non-primary key UNIQUE constraint on 'type1' because all Pokemon's have at least one type.

Also updated the foreign key constraints with the ISA hierarchy with People_has and NPC_LivesIn, GymMaster_owns, and Trainer. Instead of the three (NPC_LivesIn, GymMaster_owns, and Trainer), each having a foreign key to gameID, we just made the pid the foreign key to People_has, then in people_has it would have the foreign key to gameID. So essentially, instead of every single child of the ISA hierarchy having a foreign key to the game, we just made the parent of the ISA hierarchy have the foreign key to the game, and the children have a foreign key to the parent. This just made the relations and tables easier to set up.

Schema and Screenshots:

game(gameid, game difficulty, generation)



items_has(item#, rarity, gameid, itemname)

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[desc items_has Name	Null?	Type
ITEM# RARITY GAMEID ITEMNAME	NOT NULL	NUMBER(38) VARCHAR2(15) NUMBER(38) VARCHAR2(20)

gym_includes(gym#, difficulty, type, gameid)

[desc gym_includes Name 	Null?	Туре
GYM# DIFFICULTY TYPE GAMEID		NUMBER(38) VARCHAR2(10) VARCHAR2(10) NUMBER(38)

region_apartof(regionname, type, gym#, gameid)

[desc region_apartof Name	Null?	Type
REGIONNAME TYPE GYM# GAMEID	NOT NULL	VARCHAR2(30) VARCHAR2(20) NUMBER(38) NUMBER(38)

enterableareas(<u>area#</u>, type)

[desc enterableareas Name	Null?	Туре
AREA# TYPE	NOT NULL	NUMBER(38) VARCHAR2(30)

leadsto(regionname, area#)

[desc leadsto Name	Null?	Туре
REGIONNAME AREA#		VARCHAR2(20) NUMBER(38)

type_weakness(type, weakness)

[desc type_weakness Name	Null?	Type
TYPE WEAKNESS	NOT NULL	VARCHAR2(15) VARCHAR2(50)

people_has(pid, gameid)

[desc people_has Name	Null?	Туре
PID GAMEID	NOT NULL	NUMBER(38) NUMBER(38)

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pokemon_caught(<u>name</u>, **type1**, **type2**, specialattack, caught_since, **pid**)

[desc pokemon_caught Name	Null?	Туре
NAME TYPE1 TYPE2 SPECIALATTACK CAUGHT_SINCE PID		VARCHAR2(15) VARCHAR2(10) VARCHAR2(10) VARCHAR2(20) DATE NUMBER(38)

badge_gym(badge, gym#, gameid)

[desc badge_gym Name	Null?	Туре
BADGE GYM# GAMEID	NOT NULL	VARCHAR2(50) NUMBER(38) NUMBER(38)

gymmaster_owns(pid, name, badge, owns_since)

[desc gymmaster_owns Name	Null	l?	Туре
PID NAME BADGE OWNS_SINCE	NOT	NULL	NUMBER(38) VARCHAR2(25) VARCHAR2(15) DATE

role_catchphrase(role, catch_phrase)

[desc role_catchphrase Name	Null?	Туре
ROLE CATCH_PHRASE	NOT NULL	VARCHAR2(15) VARCHAR2(50)

npc_livesin(pid, name, role, regionname)

[desc npc_livesin Name	Null?	Туре
PID NAME ROLE REGIONNAME	NOT NULL	NUMBER(38) VARCHAR2(25) VARCHAR2(15) VARCHAR2(30)

trainer(pid, name, fav_pokemon)

[desc trainer Name	Null?	Туре
PID NAME FAV_POKEMON	NOT NULL	NUMBER(38) VARCHAR2(25) VARCHAR2(15)

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difficulty_reward(difficulty, reward)

```
      [desc difficulty_reward
      Null? Type

      Name
      ------

      DIFFICULTY
      NOT NULL VARCHAR2(15)

      REWARD
      VARCHAR2(20)
```

quest_assigned(questid, difficulty, pid, date_accepted)

desc quest_assigned Name	Nul:	1?	Туре
QUESTID DIFFICULTY PID DATE_ACCEPTED	NOT	NULL	NUMBER(38) VARCHAR2(15) NUMBER(38) DATE

SQL Queries & Location:

INSERT

`INSERT INTO \${req.body.tableName} (\${Object.keys(req.body.input).join(', ')}) VALUES (\${Object.values(req.body.input).join(', ')})`;

/server/appController.js (line 114)

DELETE

`DELETE FROM \${req.body.tableName} WHERE \${req.body.primaryKey} = \${req.body.input}`

/server/appController.js (line 133)

UPDATE

```
'UPDATE REGION_APARTOF SET GAMEID = :1, GYM# = :2 WHERE REGIONNAME = :3'; const bindings = [gameID, gymNum, regionName];
```

/server/tables/regionService.js (line 34)

SELECTION

`SELECT * FROM pokemon caught \${whereClause}`

/server/appController.js (line 83)

PROJECTION

`SELECT \${selectedFields} FROM \${req.body.tableName}`;

/server/appController.js (line 191)

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JOIN

`SELECT * FROM pokemon_caught pc, people_has ph WHERE pc.\${commonAttribute} = ph.\${commonAttribute}`;

/server/appController.js (line 156)

Aggregation with GROUP BY

'SELECT AVG(count) FROM (SELECT g.GAMEID, count(*) AS count FROM GAME g, REGION_APARTOF r WHERE g.GAMEID = r.GAMEID GROUP BY g.GAMEID)'

/server/tables/regionService.js (line 71)

Aggregation with HAVING

SELECT t.TYPE FROM TYPE_WEAKNESS t, POKEMON_CAUGHT p WHERE p.TYPE1 = t.TYPE or p.TYPE2 = t.TYPE GROUP BY TYPE HAVING COUNT(*) = (SELECT MAX(count) FROM (SELECT count(*) AS count FROM TYPE_WEAKNESS t1, POKEMON_CAUGHT p1 WHERE p1.TYPE1 = t1.TYPE or p1.TYPE2 = t1.TYPE GROUP BY TYPE))';

/server/tables/typeService.js (line 33)

NESTED Aggregation with GROUP BY

'SELECT GAMEID FROM REGION_APARTOF GROUP BY GAMEID HAVING COUNT(*) = (SELECT MIN(COUNT(*)) FROM REGION_APARTOF a GROUP BY GAMEID)';

/server/tables/regionService.js (line 47)

DIVISION

'SELECT g1.GAMEID FROM GAME g1 WHERE NOT EXISTS (SELECT r.ROLE FROM ROLE_CATCHPHRASE r MINUS SELECT n1.ROLE FROM PEOPLE_HAS p1, NPC_LIVESIN n1 WHERE p1.GAMEID = g1.GAMEID AND n1.PID = p1.pid)';

/server/tables/gameService.js (line 35)

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Screenshots for each Query:

INSERT

EnterableAreas

Area#	Туре
50	idk
123	a
243	asdf
0	house
I	forest
2	cave
3	store
4	Pokemon Center
5	tunnle

Area#: 999
Type: TESTING

Add Remove

Add

EnterableAreas

Area#	Туре
50	idk
123	a
999	TESTING
243	asdf
0	house
I	forest
2	cave
3	store
4	Pokemon Center
5	tunnle

Area#: Type: 999 TESTING

Add

Inserted successfully!

Add Remove

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DELETE

EnterableAreas

Area#	Туре
50	idk
123	a
999	TESTING
243	asdf
0	house
I	forest
2	cave
3	store
4	Pokemon Center
5	tunnle

area#: 50

Add Remove

Remove

EnterableAreas

Area#	Туре
123	a
999	TESTING
243	asdf
0	house
I	forest
2	cave
3	store
4	Pokemon Center
5	tunnle

Add	Remove
-----	--------

UPDATE

Update Pokémon Region Gym

Which region would you like to update?
Region Name:

What game and gym would you like to change for that region?

Game ID:	Gym Number:	Undate Gvm

Region_apartof

RegionName	Type	Gym#	GameID
testing	test	99	8
Hearthrome City	town	2	2
Celestic City	city	I	I
Jubilife City	city	54	I
Full Moon Island	island	27	I
Twin Leaf Town	town	28	2
Lilycove City	city	9	0
Mossui Town	town	26	0
Nuvema Town	town	36	I
Seafolk Village	village	18	I
Seven Island	island	37	2

Add	Remove

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Bulbasaur grass poison Max Overgrowth 21-03-2020

Hydro Pump

Solar Beam

21-05-2020

21-02-2022

21-01-2020

07-12-2013

1

1

0

9

Venusaur grass poison Trailblze

Charizard fire flying Inferno

Blastoise water

Ninetales fire

Region_apartof **RegionName** Туре Gym# GameID 100 8 testing test Hearthrome 2 2 town City Celestic City city Jubilife City city 54 **Update Pokémon Region Gym** Full Moon island 27 Island Which region would you like to update? Twin Leaf Town 28 2 town Region Name: testing Lilycove City 0 Mossui Town 26 0 town Nuvema Town What game and gym would you like to change for that region? town 36 1 Seafolk Village village 18 Gym Number: 100 Update Gym 37 2 Seven Island island Region gym updated successfully! Add Remove **SELECTION SELECTION** OR: fire water grass normal electric ice fighting poison ground flying psychic bug \Box reserved by pid 12 or greater \Box type2 is poison Enter Clear Pokémon List **SELECTION** OR: ✓ fire ✓ water ✓ grass □ normal □ electric □ ice □ fighting □ poison □ ground □ flying □ psychic □ bug ✓ reserved by pid 12 or greater type2 is poison Enter Clear Pokémon List NAME TYPE1 TYPE2 SPECIALATTACK CAUGHT_SINCE PID

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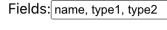
PROJECTION

Projection

Table Nam	e:
Fields:	
Projection	Clear List

Projection

lable N	ame: pokemon_caught	





NAME TYPE1 TYPE2

Bulbasaur grass poison Venusaur grass poison Charizard fire flying

Blastoise water

Beedrill bug poison Butterfree bug flying Pidgeot normal flying

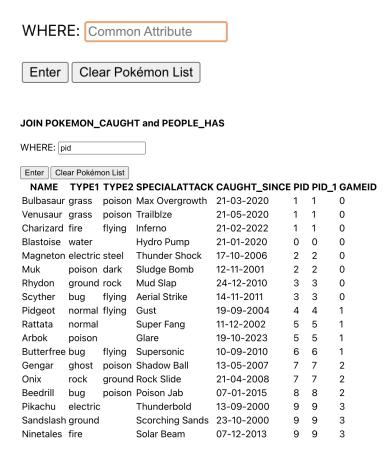
Rattata normal
Arbok poison
Pikachu electric
Sandslash ground
Ninetales fire

Magneton electric steel
Muk poison dark
Gengar ghost poison
Onix rock ground
Rhydon ground rock
Scyther bug flying

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JOIN

JOIN POKEMON_CAUGHT and PEOPLE_HAS



Aggregation with GROUP BY

AVERAGE REGION COUNT

Get value Clear

AVERAGE REGION COUNT

Get value Clear

AVERAGE REGION COUNT: 3

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Aggregation with HAVING

MOST POPULAR TYPE

Get value | Clear

MOST POPULAR TYPE

Get value | Clear

MOST POPULAR TYPE: POISON

NESTED Aggregation with GROUP BY

GAME WITH LEAST REGIONS

Get value Clear

GAME WITH LEAST REGIONS

Get value Clear

GAME WITH LEAST REGIONS: 4
GAME WITH LEAST REGIONS: 0

DIVISION

GAME WITH ALL ROLES

Get value Clear

GAME WITH ALL ROLES

Get value Clear

GAME WITH ALL ROLES: 0