CPSC 304 Project Cover Page

Milestone #: 4

Date: 2023-04-05

Group Number: 13

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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

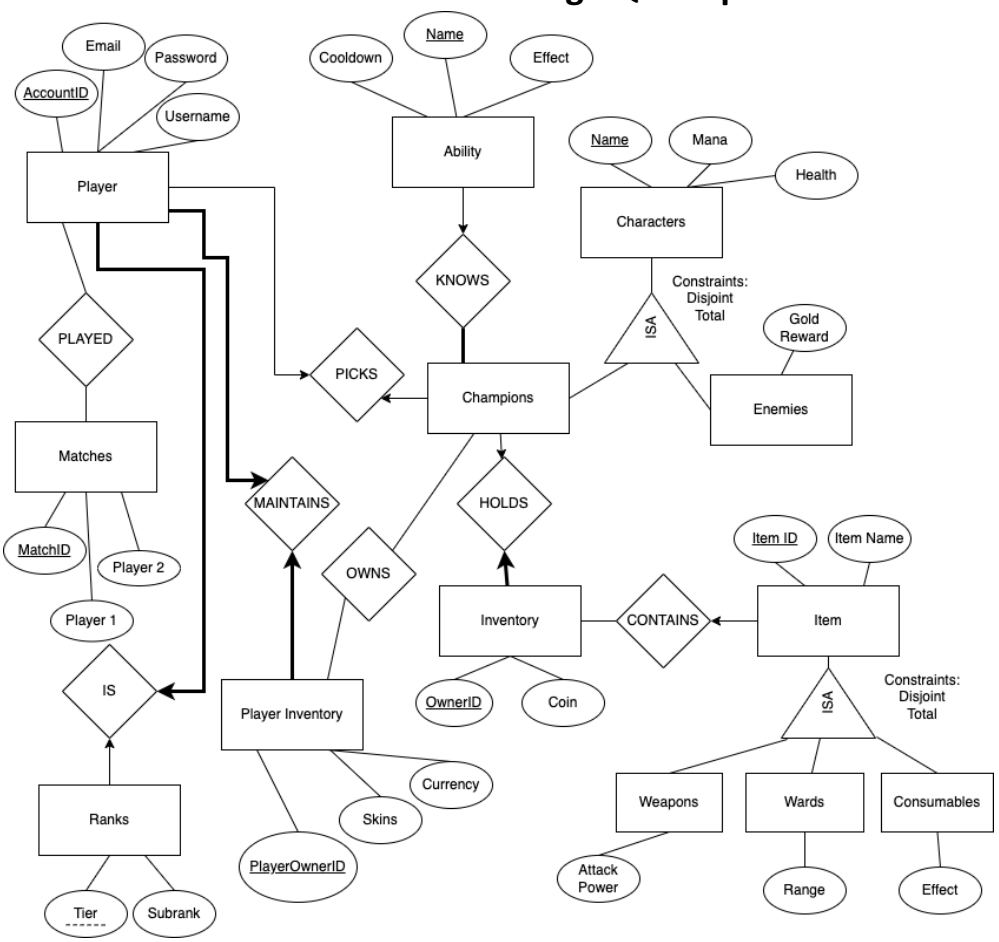
Description:

This database stores information that is necessary for an RPG video game to function. It holds data like a player's account information, the inventory of each player, the abilities and items the player possesses, etc. This information is used by the game in order to keep track of progress throughout the duration of the game. It allows for a player to exit and enter back into the game and resume gameplay without any progress lost. Through the GUI, a developer can insert new players, update a player's contact information and delete accounts. They are also able to filter for data regarding players and game characters.

Schema Changes

Our schema didn't change very much. We normalized our tables as required in M2 and changed some of the relationship names due to duplicates as pointed out by the TA. Our current schema matches what he handed in for Milestone 2.

Schema and Database After Running SQL Script



Player table:

```
SQL> select * from Player;

ACCOUNTID            EMAIL
-------------------- ---------------------------------------
PASSWORD_PLAYER      USERNAME
-------------------- ----------------------------
gamer1               gamer1@email.com
gamer1password       gamer1username

gamer2               gamer2@email.com
gamer2password       gamer2username

gamer3               gamer3@email.com
gamer3password       gamer3username


ACCOUNTID            EMAIL
-------------------- ---------------------------------------
PASSWORD_PLAYER      USERNAME
-------------------- ----------------------------
gamer4               gamer4@email.com
gamer4password       gamer4username

gamer5               gamer5@email.com
gamer5password       gamer5username
```

Matches table:

```
SQL> select * from Matches;

MATCHID              PLAYER1              PLAYER2
-------------------- -------------------- --------------------
102                  gamer1               gamer2
103                  gamer1               gamer3
104                  gamer1               gamer3
105                  gamer4               gamer2
106                  gamer4               gamer5
```

PlayerInventory_1 table:

```
SQL> select * from PlayerInventory_1;

PLAYEROWNERID        SKIN         CURRENCY ACCOUNTID
-------------------- ---------- ---------- --------------------
playerInventory1     skin01            999 gamer1
playerInventory2     skin02            999 gamer2
playerInventory3     skin03            999 gamer3
playerInventory4     skin04            999 gamer4
playerInventory5     skin05            999 gamer5
```

PlayerInventory_2 table:

```
SQL> select * from PlayerInventory_2;

  CURRENCY SUBRANK
---------- --------------------
       999 subrank01
       998 subrank02
       997 subrank03
       996 subrank04
       995 subrank05
```

Rank_Is table:

```
SQL> select * from Rank_Is;

ACCOUNTID                   TIER SUBRANK
-------------------- ---------- --------------------
gamer1                         1 subrank01
gamer2                         2 subrank02
gamer3                         3 subrank03
gamer4                         4 subrank04
gamer5                         5 subrank01
```

Ability_Knows_2 table:

```
SQL> select * from Ability_Knows_2;

EFFECT               COOLDOWN
-------------------- --------------------
Effect01             11
Effect02             12
Effect03             13
Effect04             14
Effect05             15
```

Character table:

```
SQL> select * from Character;

NAME                        HEALTH
-------------------- ----------
Champion01                   100
Champion02                   200
Champion03                   300
Champion04                   400
Champion05                   500
Enemy01                      100
Enemy02                      200
Enemy03                      300
Enemy04                      400
Enemy05                      500
```

Character_2 table:

```
SQL> select * from Character_2;

    HEALTH       MANA
---------- ----------
       100         50
       200        100
       300        150
       400        200
       500        250
```

Champion table:

```
SQL> select * from Champion ;

NAME
--------------------
Champion01
Champion02
Champion03
Champion04
Champion05
```

Ability_Knows_1 table:

```
SQL> select * from Ability_Knows_1;

NAME                 CHAMP_NAME           EFFECT
-------------------- -------------------- --------------------
Ability01            Champion01           Effect01
Ability02            Champion02           Effect02
Ability03            Champion03           Effect03
Ability04            Champion04           Effect04
Ability05            Champion05           Effect05
```

Enemies table:

```
SQL> select * from Enemies;

NAME                 GOLD_REWARD
-------------------- -----------
Enemy01                       10
Enemy02                       20
Enemy03                       30
Enemy04                       40
Enemy05                       50
```

Inventory_holds table:

```
SQL> select * from Inventory_holds ;

OWNERID                    COIN NAME
-------------------- ---------- --------------------
championinventory01          10 Champion01
championinventory02          20 Champion02
championinventory03          30 Champion03
championinventory04          40 Champion04
championinventory05          50 Champion05
championinventory06          50 Champion05
championinventory07          50 Champion05
championinventory09          50 Champion01
```

Item_contains table:

```
SQL> select * from Item_contains;

ITEMID               ITEMNAME             OWNERID
-------------------- -------------------- --------------------
ward01               itemName01           championinventory01
ward02               itemName02           championinventory02
ward03               itemName03           championinventory03
ward04               itemName04           championinventory04
ward05               itemName05           championinventory05
weapon01             itemName01           championinventory01
weapon06             itemName01           championinventory01
weapon02             itemName02           championinventory02
weapon03             itemName03           championinventory03
weapon04             itemName04           championinventory04
weapon05             itemName05           championinventory05

ITEMID               ITEMNAME             OWNERID
-------------------- -------------------- --------------------
consumable01         itemName01           championinventory01
consumable02         itemName02           championinventory02
consumable03         itemName03           championinventory03
consumable06         itemName03           championinventory03
misc01               itemName03           championinventory03
consumable04         itemName04           championinventory04
consumable05         itemName05           championinventory05

18 rows selected.
```

Weapons table:

```
SQL> select * from Weapons ;

ITEMID               ATTACKPOWER
-------------------- -----------
weapon01                      10
weapon02                      20
weapon03                      30
weapon04                      40
weapon05                      50
```

Wards table:

```
SQL> select * from Wards;

ITEMID                    RANGE
------------------- ----------
ward01                        10
ward02                        20
ward03                        30
ward04                        40
ward05                        50
```

Consumables table:

```
SQL> select * from Consumables;

ITEMID              EFFECT
------------------- --------------------------------------------------
consumable01        10
consumable02        20
consumable03        30
consumable04        40
consumable05        50
```

Owns table:

```
SQL> select * from Owns;

PLAYEROWNERID       CHAMP_NAME
------------------- --------------------
playerInventory1    Champion01
playerInventory2    Champion02
playerInventory3    Champion03
playerInventory4    Champion04
playerInventory5    Champion05
```

Picks table:

```
SQL> select * from Picks ;

ACCOUNTID           CHAMP_NAME
------------------- --------------------
gamer1              Champion01
gamer2              Champion02
gamer3              Champion03
gamer4              Champion04
gamer5              Champion05
```

Queries:

The list of required queries are commented in our file to_public_html.php

Insert:

Lines 500-501

```
executeBoundSQL("insert into Player values (:bind0, :bind1, :bind2,
:bind3)", $alltuples);

executeBoundSQL("insert into Rank_is values(:bind0, :bind1, :bind2)",
$allRankTuples);
```

Delete:

Line 456 and line 460

```
executePlainSQL("SELECT Password_Player FROM Player
WHERE AccountID = '".$deleted_ID."'")

executePlainSQL("DELETE FROM Player
WHERE AccountID ='".$deleted_ID."'")
```

Update:

Line 437 and line 441

```
$result_email = executePlainSQL("SELECT Email FROM Player
WHERE Username = '".$player_name."'");

executePlainSQL("UPDATE Player SET email='" . $new_email . "'
WHERE username='" . $player_name . "'");
```

Selection:

Line 517

```
$statement = executePlainSQL("SELECT name FROM Enemies
WHERE gold_reward >='". $gold_threshold . "'")
```

Projection:

Line 536

```
$statement = executePlainSQL("SELECT $drop_select FROM
PlayerInventory_1")
```

Join:
Line 554

```
$statement = executePlainSQL("SELECT C.Name, R.Tier FROM Champion C,
Rank_Is R, Picks S
WHERE S.AccountID = R.AccountID AND S.Champ_name = C.Name
AND R.Tier >= $drop_select")
```

Aggregation with GROUP BY:
Line 583

```
executePlainSQL("SELECT Name, AVG(coin) FROM Inventory_holds
GROUP BY Name")
```

Aggregation with HAVING:
Line 600

```
executePlainSQL("SELECT C.Name, Count(T.ItemID) FROM Champion C,
Inventory_holds I, Item_Contains T
WHERE C.Name = I.Name AND I.OwnerID = T.OwnerID
GROUP BY C.Name
Having Count(T.ItemId) >= $item_amount")
```

Nested Aggregation with GROUP BY:
Line 571

```
executePlainSQL("SELECT Ch.Name from Champion Ch where Ch.Name In
(Select Name from Character Where Health In (Select Health from
Character group By Health Having Health >= $health_select))")
```

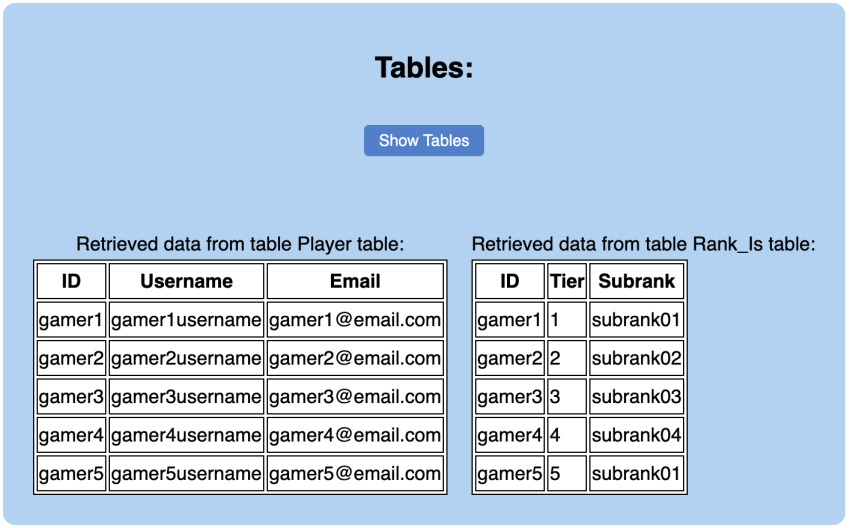
Division:
Lines 621, 624

```
executePlainSQL("SELECT Player2 FROM Matches
WHERE Player1 ='".$difference_id."'")

executePlainSQL("SELECT AccountID FROM Player WHERE AccountID NOT IN
(SELECT Player2 FROM Matches WHERE Player1 ='".$difference_id."')")
```

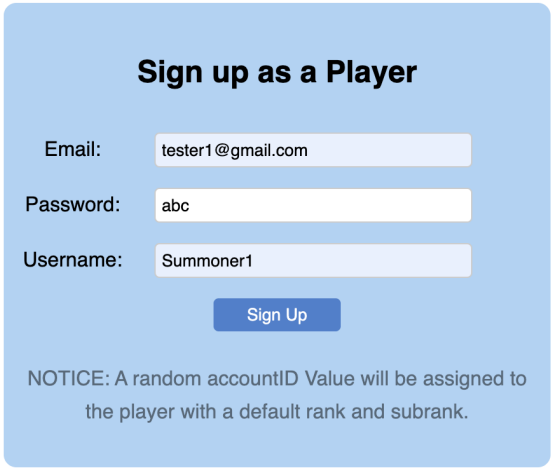
Using the GUI

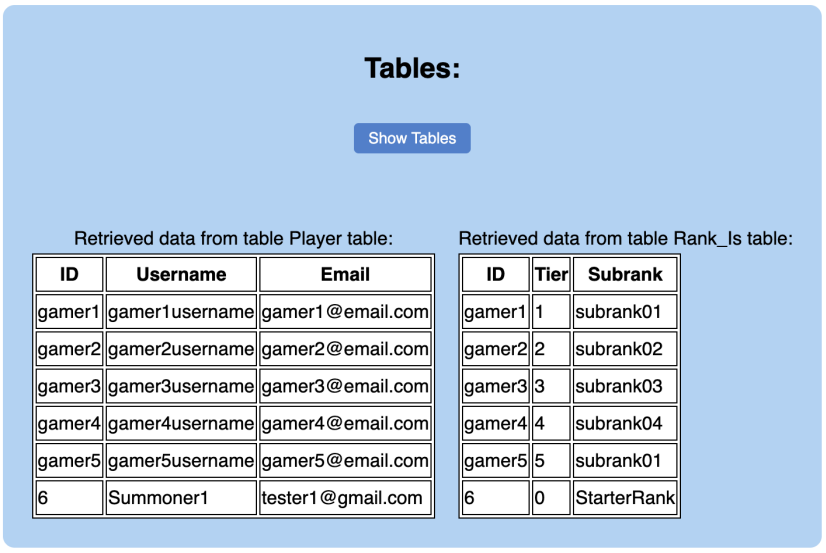
Insert operation:

- Before
  - 

ID	Username	Email
gamer1	gamer1username	gamer1@email.com
gamer2	gamer2username	gamer2@email.com
gamer3	gamer3username	gamer3@email.com
gamer4	gamer4username	gamer4@email.com
gamer5	gamer5username	gamer5@email.com

ID	Tier	Subrank
gamer1	1	subrank01
gamer2	2	subrank02
gamer3	3	subrank03
gamer4	4	subrank04
gamer5	5	subrank01

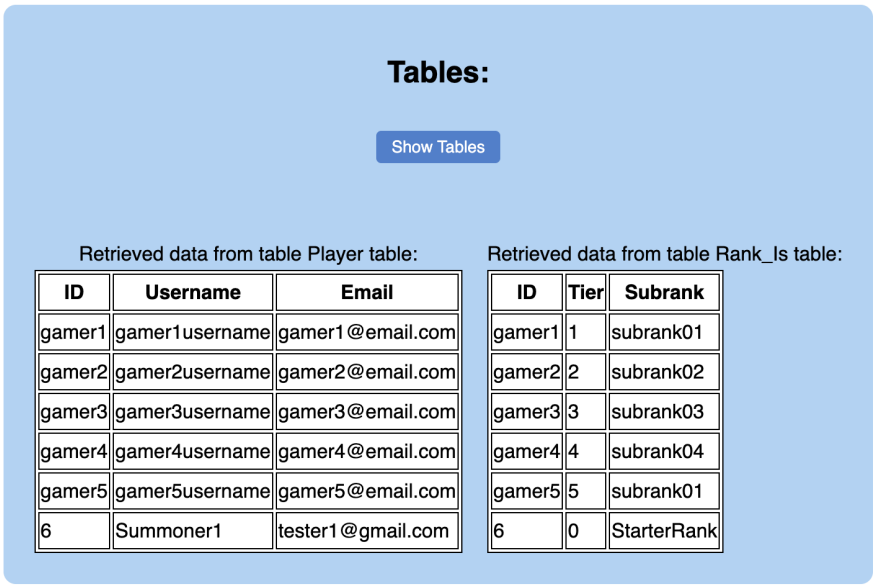
- During
  - 

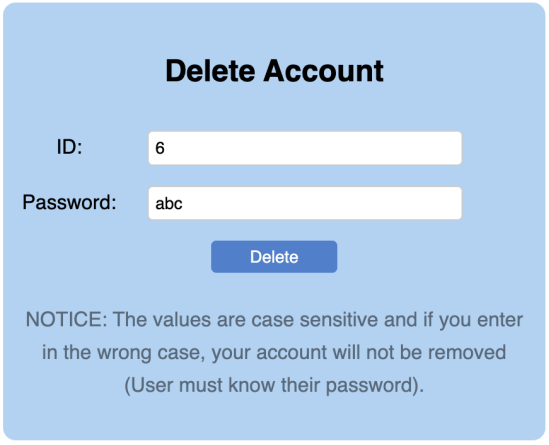
- After
  - 

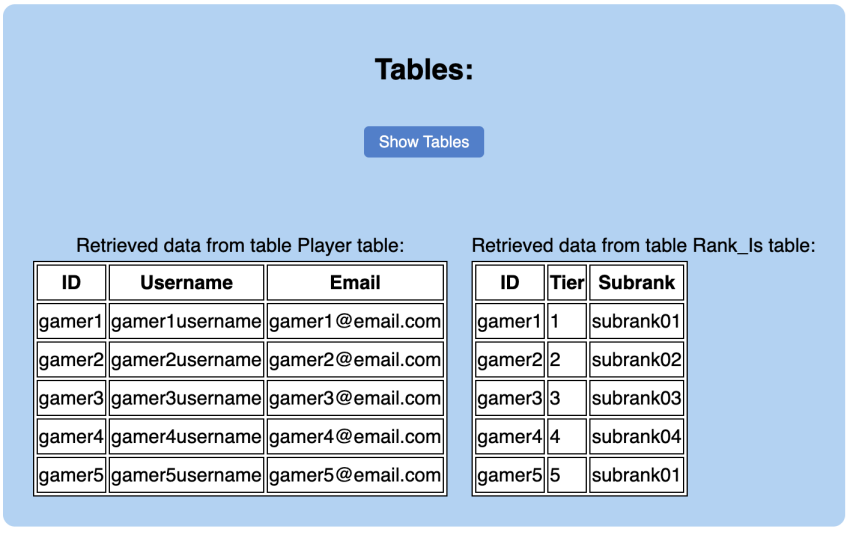
ID	Username	Email
gamer1	gamer1username	gamer1@email.com
gamer2	gamer2username	gamer2@email.com
gamer3	gamer3username	gamer3@email.com
gamer4	gamer4username	gamer4@email.com
gamer5	gamer5username	gamer5@email.com
6	Summoner1	tester1@gmail.com

ID	Tier	Subrank
gamer1	1	subrank01
gamer2	2	subrank02
gamer3	3	subrank03
gamer4	4	subrank04
gamer5	5	subrank01
6	0	StarterRank

Delete insertion

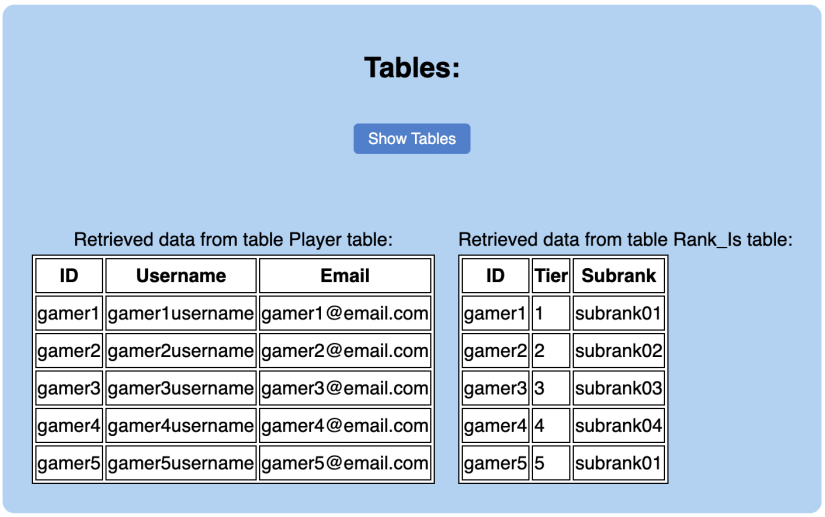
- Before
  - 

- During
  - 

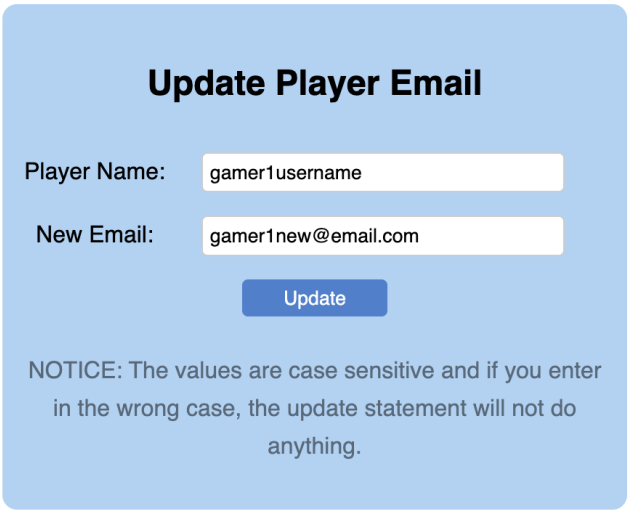
- After
  - 

Update

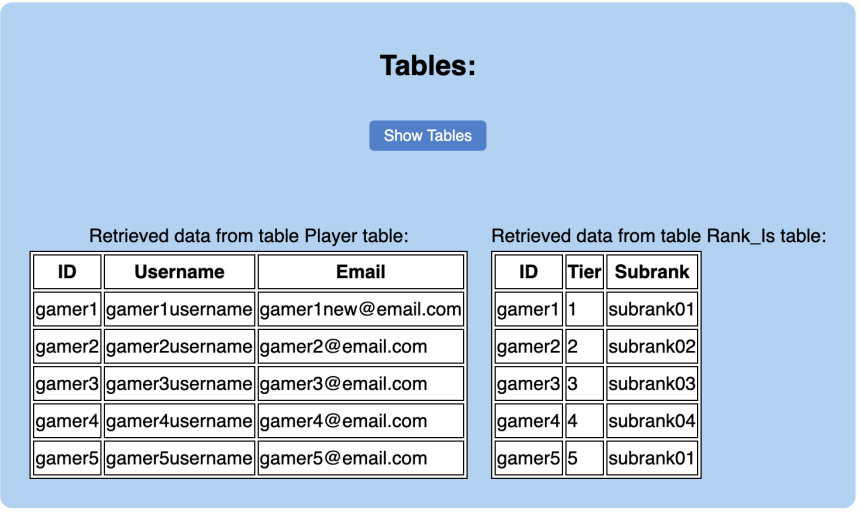
- Before



- During

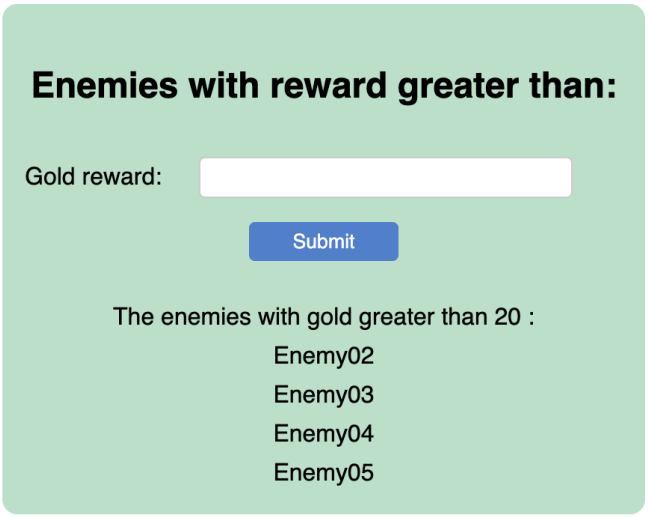


- After



Selection

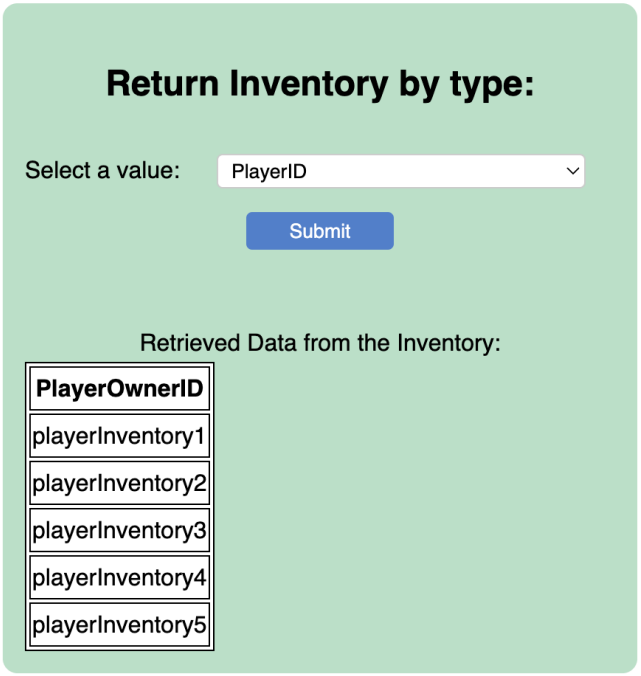
- Before:
  - ```
    SQL> select * from Enemies;

    NAME                 GOLD_REWARD
    -------------------- -----------
    Enemy01                       10
    Enemy02                       20
    Enemy03                       30
    Enemy04                       40
    Enemy05                       50
    ```
- After
  - 

    ```

Projection

- Before
  - ```
    SQL> select * from PlayerInventory_1;

    PLAYEROWNERID        SKIN         CURRENCY ACCOUNTID
    -------------------- ---------- ---------- --------------------
    playerInventory1     skin01            999 gamer1
    playerInventory2     skin02            999 gamer2
    playerInventory3     skin03            999 gamer3
    playerInventory4     skin04            999 gamer4
    playerInventory5     skin05            999 gamer5
    ```
- After
  - 

    ```

Join

- Before

```
SQL> select * from Picks ;

ACCOUNTID   CHAMP_NAME
-------------------- --------------------
gamer1   Champion01
gamer2   Champion02
gamer3   Champion03
gamer4   Champion04
gamer5   Champion05
```

  -

```
SQL> select * from Rank_Is;

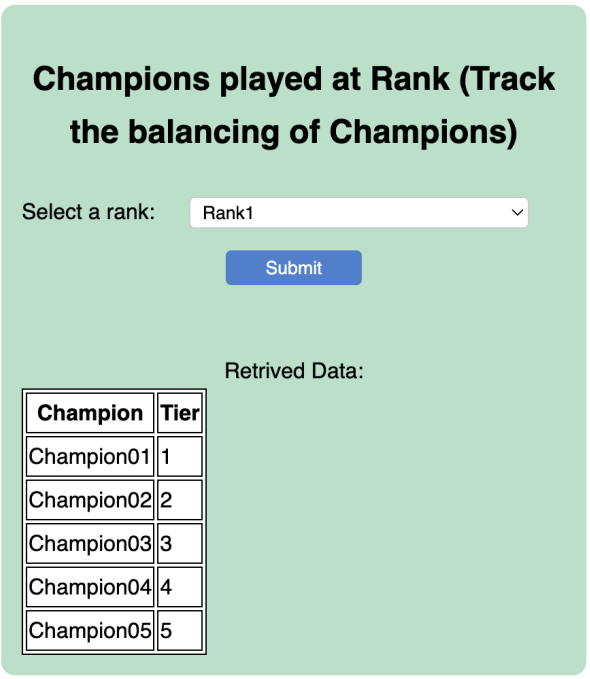
ACCOUNTID                   TIER SUBRANK
-------------------- ---------- --------------------
gamer1                         1 subrank01
gamer2                         2 subrank02
gamer3                         3 subrank03
gamer4                         4 subrank04
gamer5                         5 subrank01
```

  -

```
SQL> select * from Champion ;

NAME
--------------------
Champion01
Champion02
Champion03
Champion04
Champion05
```

- During and After



  -

Aggregation with GROUP BY

- Before
  - ```
    SQL> select * from Inventory_holds ;

    OWNERID                    COIN NAME
    -------------------- ---------- --------------------
    championinventory01          10 Champion01
    championinventory02          20 Champion02
    championinventory03          30 Champion03
    championinventory04          40 Champion04
    championinventory05          50 Champion05
    championinventory06          50 Champion05
    championinventory07          50 Champion05
    championinventory09          50 Champion01
    ```
- After
  - **Champions earned average:**

    Submit

    Retrived Data:

Champion	Average Coins
Champion03	30
Champion04	40
Champion05	50
Champion01	30
Champion02	20
    ```

Aggregation with HAVING

- Before
  -
```
SQL> select * from Item_contains;

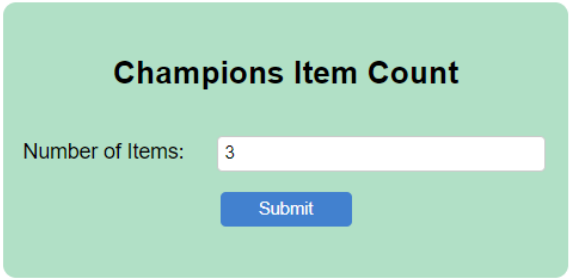
ITEMID              ITEMNAME            OWNERID
------------------- ------------------- -------------------
ward01              itemName01          championinventory01
ward02              itemName02          championinventory02
ward03              itemName03          championinventory03
ward04              itemName04          championinventory04
ward05              itemName05          championinventory05
weapon01            itemName01          championinventory01
weapon06            itemName01          championinventory01
weapon02            itemName02          championinventory02
weapon03            itemName03          championinventory03
weapon04            itemName04          championinventory04
weapon05            itemName05          championinventory05

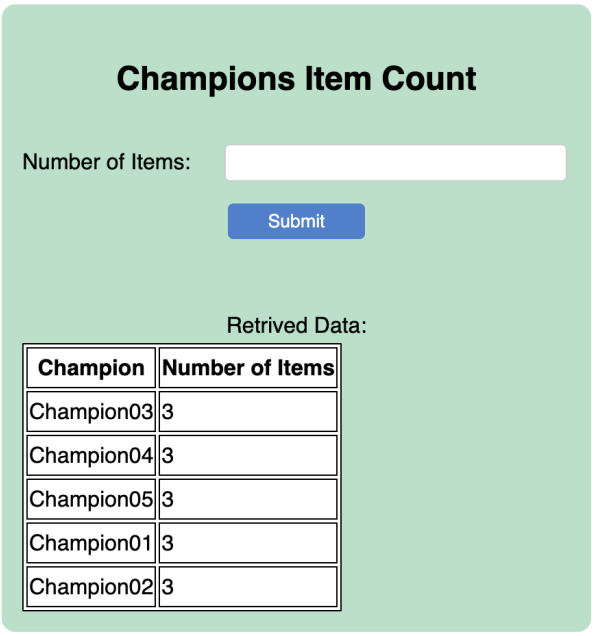
ITEMID              ITEMNAME            OWNERID
------------------- ------------------- -------------------
consumable01        itemName01          championinventory01
consumable02        itemName02          championinventory02
consumable03        itemName03          championinventory03
consumable06        itemName03          championinventory03
misc01              itemName03          championinventory03
consumable04        itemName04          championinventory04
consumable05        itemName05          championinventory05

18 rows selected.
```
  -
```
SQL> select * from Inventory_holds ;

OWNERID                   COIN NAME
------------------- ---------- --------------------
championinventory01         10 Champion01
championinventory02         20 Champion02
championinventory03         30 Champion03
championinventory04         40 Champion04
championinventory05         50 Champion05
championinventory06         50 Champion05
championinventory07         50 Champion05
championinventory09         50 Champion01
```
  -
```
SQL> select * from Champion ;

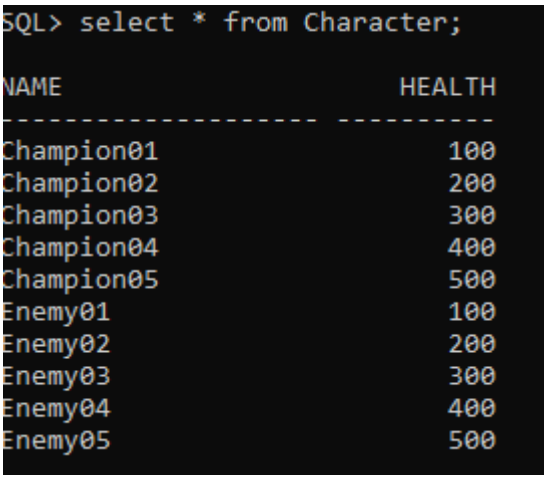
NAME
--------------------
Champion01
Champion02
Champion03
Champion04
Champion05
```
- During
  -
- After



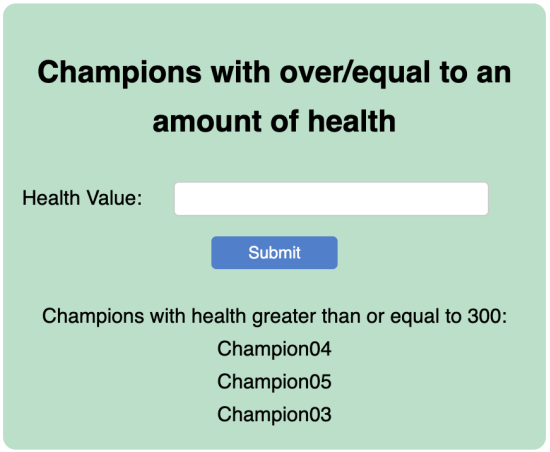


Nested Aggregation with GROUP BY

- Before:



- After



Division

- Before

```
SQL> select * from Matches;

MATCHID              PLAYER1              PLAYER2
-------------------- -------------------- --------------------
102                  gamer1               gamer2
103                  gamer1               gamer3
104                  gamer1               gamer3
105                  gamer4               gamer2
106                  gamer4               gamer5
```

- After

Citations:

Code skeleton taken from oracle test file:
https://www.students.cs.ubc.ca/~cs-304/resources/php-oracle-resources/php-setup.html