

# CPSC 304 Project Cover Page

Milestone #: 4

Date: Oct 15th 2023

Group Number: 28

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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.

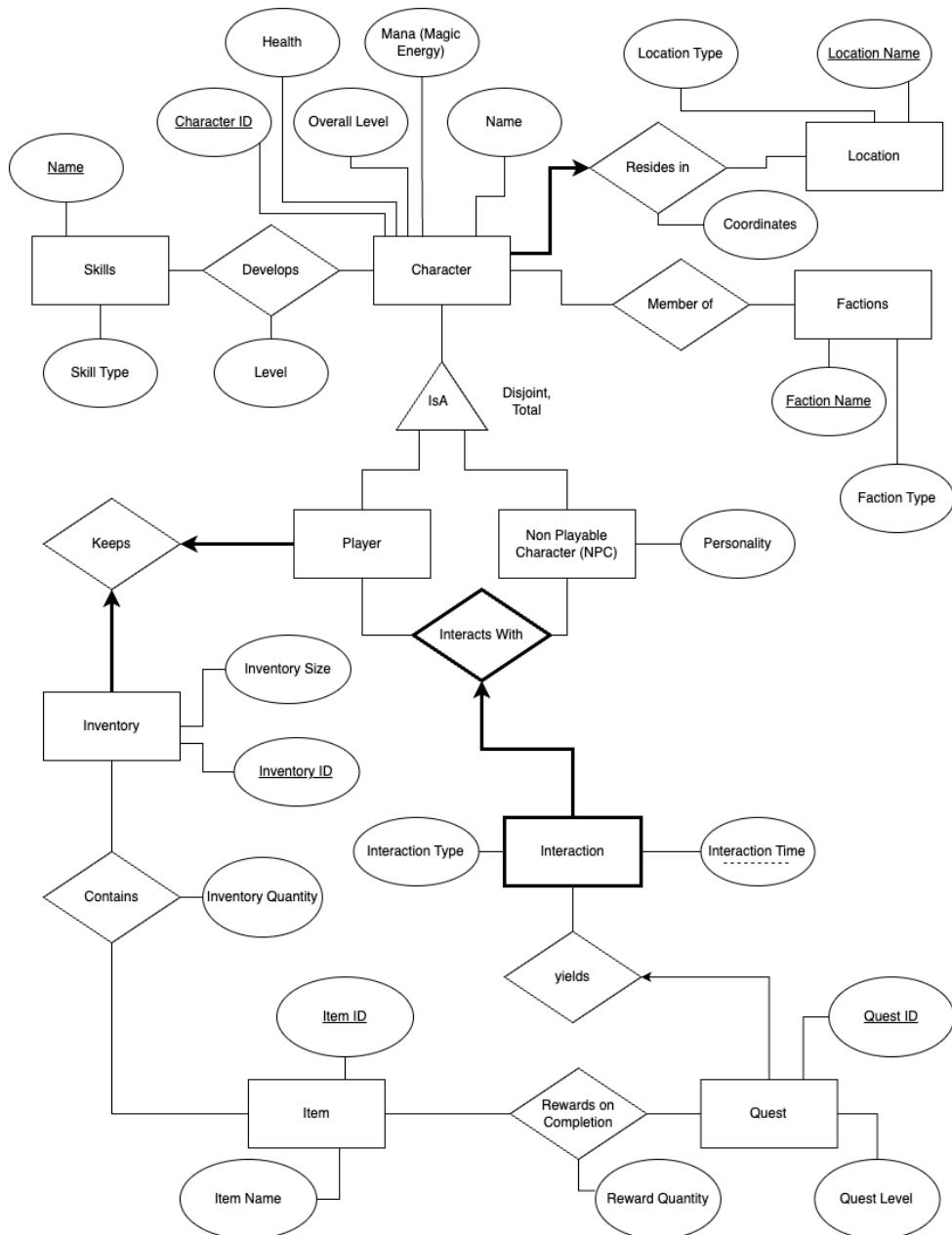
## **1. A short description of the final project, and what it accomplished.**

Our final project provides a GUI for implementing and modifying the game world in a low-code and robust way. Our project's main demographic is server administrators and owners, who can use our application to change their respective game world without needing to know any SQL or database knowledge. It would also be useful for faction leaders to see statistics on their team, and modify their users (given the correct access of course). Within this game, characters traverse through diverse landscapes, engage in social exchanges, align themselves with factions, embark on quests, and oversee inventories filled with a wide array of items. Our application generates visuals to see all that data in a simplified way.

## **2. Describe how your final schema differed from the schema you turned in.**

Our final schema changed in two ways: We changed the Inventory relation to only use InventoryId and InventoryCount, and removed PlayerID. This was at the request of the TA, as they pointed out that the PlayerID was unnecessary due to how there is a one-to-one relationship between inventories and players.

We also updated the errors in the schema, namely the mistakes of not having CharacterID be a foreign key in Player and NonPlayerCharacter. There was also the error of missing the foreign key in the RewardsOnCompletion relation, but that was resolved during normalization as that specific table was broken up.



3. A copy of the schema and screenshots that show what data is present in each relation after the SQL script from item #2 is run.

**BOLD = Foreign Key, UNDERLINE = Primary Key**

**CharacterInfo**(Character ID: int, **Coordinates**: string, Health: int, Overall Level: int, Mana, Name: int)

WHERE ORDER BY

	CHARACTERID	COORDINATES	HEALTH	OVERALLLEVEL	MANA	CHARACTERNAME
1	1382	10-20-103	100	28	38	RemmyRoblox
2	3312	15-25-20	90	4	40	Mercury1989
3	5869	5-15-20	80	3	60	AminTheAdmin
4	1129	20-30-40	70	2	70	SteveGamer
5	1269	22-36-40	60	1	80	xX_JoeShmoe_Xx
6	2001	5-15-20	1120	28	38	Average Man
7	2002	5-15-20	90	4	40	Witch
8	2003	5-15-22	82	3	60	Bug
9	2004	20-30-40	70	2	70	Demon
10	2005	22-36-40	50	1	80	Demon Dark

**CoordinateLocations**(Coordinates: string, Location Name: string *not null*)

WHERE ORDER BY

	COORDINATES	LOCATIONNAME
1	10-20-103	Floating City
2	15-25-20	The Great Forest
3	5-15-20	The Great Forest
4	5-15-22	The Great Forest
5	20-30-40	The End
6	22-36-40	The End

**Location**(Location Name: string, Location Type: string)

WHERE ORDER BY

	LOCATIONNAME	LOCATIONTYPE
1	Floating City	Sky
2	The Great Forest	Forest
3	The End	Endgame
4	Atlantis	Sea
5	Verudon	City

**MemberOf**(Character ID: int, Faction Name: string)

WHERE		ORDER BY	
	CHARACTERID		FACTIONNAME
1	1129	Endkeepers	
2	1269	Endkeepers	
3	1382	Skyguard	
4	3312	Forestwatch	
5	5869	Forestwatch	

**Factions**(Faction Name: string, Faction Type: string)

WHERE		ORDER BY	
	FACTIONNAME		FACTONTYPE
1	Skyguard	Holy	
2	Forestwatch	Neutral	
3	Endkeepers	Dark	
4	Seeguard	Neutral	
5	Citywatch	Lawful	

**Skill**(Skill Name: string, Skill Type: string)

WHERE		ORDER BY	
	SKILLNAME		SKILLTYPE
1	Sky Slash	Attack	
2	Forest Heal	Heal	
3	End Shield	Defense	
4	Sea Wave	Attack	
5	City Guard	Defense	

**Develops**(Skill Name: string, Character ID: int, Level: int)

WHERE		ORDER BY	
	SKILLNAME	CHARACTERID	CURRENTLEVEL
1	Sky Slash	1382	10
2	Forest Heal	3312	5
3	Forest Heal	5869	3
4	End Shield	1129	8
5	City Guard	1269	2

**Player**(Character ID: int, Inventory ID: int *unique not null*)

WHERE		ORDER BY	
	CHARACTERID	INVENTORYID	
1	1382	1001	
2	3312	1002	
3	5869	1003	
4	1129	1004	
5	1269	1005	

**NonPlayableCharacter**(Character ID: int, Personality: string)

WHERE		ORDER BY	
	CHARACTERID	PERSONALITY	
1	2001	Aggressive	
2	2002	Helpful	
3	2003	Mysterious	
4	2004	Talkative	
5	2005	Silent	

**Inventory**(Inventory ID: int, **Player.CharacterID**: int *not null*, Inventory Size: int)

WHERE		ORDER BY	
	INVENTORYID		INVENTORIESIZE
1	1001		20
2	1002		15
3	1003		18
4	1004		25
5	1005		10

**Contains**(Inventory ID: int, Item ID: int, Inventory Quantity: int)

WHERE		ORDER BY	
	INVENTORYID	ITEMID	INVENTORYQUANTITY
1	1001	1001	1
2	1001	1002	1
3	1001	1004	1
4	1001	1003	1
5	1001	1005	1
6	1002	1002	1
7	1003	1003	5
8	1004	1004	2

**Item**(Item ID: int, Item Name: string)

WHERE		ORDER BY	
	ITEMID	ITEMNAME	
1	1001	Sword of Light	
2	1002	Dark Shield	
3	1003	Health Potion	
4	1004	Bow of Eternity	
5	1005	Ring of Strength	

**QuestRewards**(Quest ID: int, Reward Quantity: int)

WHERE ORDER BY

	QUESTID	RewardQuantity
1	101	1
2	112	1
3	312	5
4	12	1
5	99	3

**RewardItems**(Reward Quantity: int, Item ID: int)

WHERE ORDER BY

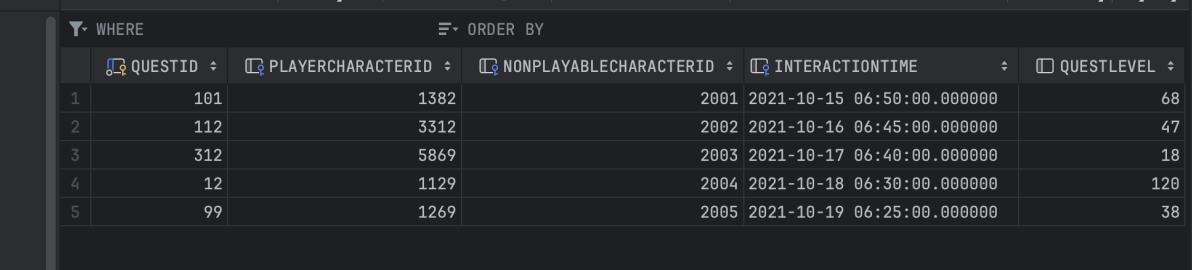
	REWARDQUANTITY	ITEMID
1	1	1001
2	2	1002
3	5	1003
4	3	1004
5	4	1005

**Interactions**(Player.Character ID: int, NonPlayableCharacter.Character ID: int  
Interaction Time: int *not null*, Interaction Type: string)

WHERE ORDER BY

	PLAYERCHARACTERID	NONPLAYABLECHARACTERCHARACTERID	INTERACTIONTIME	INTERACTIONTYPE
1	1382		2001 2021-10-15 06:50:00.000000	Conversation
2	3312		2002 2021-10-16 06:45:00.000000	Combat
3	5869		2003 2021-10-17 06:40:00.000000	Trade
4	1129		2004 2021-10-18 06:30:00.000000	Trade
5	1269		2005 2021-10-19 06:25:00.000000	Conversation

**YieldsQuest(QuestID: int, **Player.CharacterId**: int,  
**NonPlayableCharacter.CharacterId**: int, **Interaction Time**: int, **Quest Level**: int)**



QUESTID	PLAYERCHARACTERID	NONPLAYABLECHARACTERID	INTERACTIONTIME	QUESTLEVEL
1	101	1382	2001 2021-10-15 06:50:00.000000	68
2	112	3312	2002 2021-10-16 06:45:00.000000	47
3	312	5869	2003 2021-10-17 06:40:00.000000	18
4	12	1129	2004 2021-10-18 06:30:00.000000	120
5	99	1269	2005 2021-10-19 06:25:00.000000	38

#### 4. ANSWERS TO qD AND qE

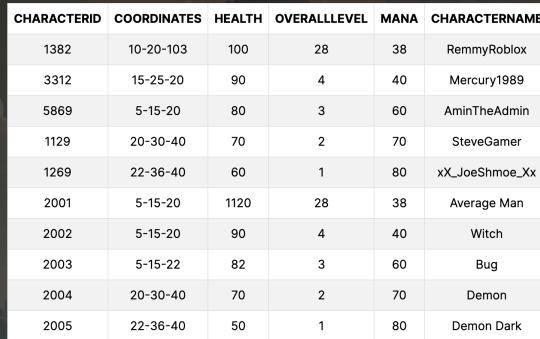
##### INSERT

Location: ./app/app/page.tsx, Lines 742 - 751

```
case "INSERT":
  let entities = Object.keys(query).join(",");
  let values = Object.values(query)
    .map(entity) => {
      const converted = convertStringToIntIfPossible(entity);
      return typeof converted === "number" ? converted : `.${converted}.`;
    }
  .join(",");
  executeQuery = `INSERT INTO ${currTable} VALUES (${sanitizeInputs(values)}); COMMIT`;
  break;
```

Screenshots:

Character Table before insert



CHARACTERID	COORDINATES	HEALTH	OVERALLLEVEL	MANA	CHARACTERNAME
1382	10-20-103	100	28	38	RemmyRoblox
3312	15-25-20	90	4	40	Mercury1989
5869	5-15-20	80	3	60	AminTheAdmin
1129	20-30-40	70	2	70	SteveGamer
1269	22-36-40	60	1	80	xX_JoeShmoe_Xx
2001	5-15-20	1120	28	38	Average Man
2002	5-15-20	90	4	40	Witch
2003	5-15-22	82	3	60	Bug
2004	20-30-40	70	2	70	Demon
2005	22-36-40	50	1	80	Demon Dark

Fill in input elements for inserting new Character based off its properties

Add new Character

4922
10-20-103
Health
<div style="width: 100px; height: 10px; background-color: #ccc; position: relative;"><div style="width: 37%; height: 100%; background-color: #2e6b2e; position: absolute; left: 0; top: 0;"></div></div> 37
Level
<div style="width: 100px; height: 10px; background-color: #ccc; position: relative;"><div style="width: 12%; height: 100%; background-color: #2e6b2e; position: absolute; left: 0; top: 0;"></div></div> 12
Mana
<div style="width: 100px; height: 10px; background-color: #ccc; position: relative;"><div style="width: 37%; height: 100%; background-color: #2e6b2e; position: absolute; left: 0; top: 0;"></div></div> 37
Goblin

Clear Run

Character table now has new tuple of 'Goblin'

CHARACTERID	COORDINATES	HEALTH	OVERALLLEVEL	MANA	CHARACTERNAME
4922	10-20-103	37	12	37	Goblin
1382	10-20-103	100	28	38	RemmyRoblox
3312	15-25-20	90	4	40	Mercury1989
5869	5-15-20	80	3	60	AminTheAdmin
1129	20-30-40	70	2	70	SteveGamer
1269	22-36-40	60	1	80	xX_JoeShmoe_Xx
2001	5-15-20	1120	28	38	Average Man
2002	5-15-20	90	4	40	Witch
2003	5-15-22	82	3	60	Bug
2004	20-30-40	70	2	70	Demon
2005	22-36-40	50	1	80	Demon Dark

## DELETE

Location: ./app/app/page.tsx, Lines 753 - 761

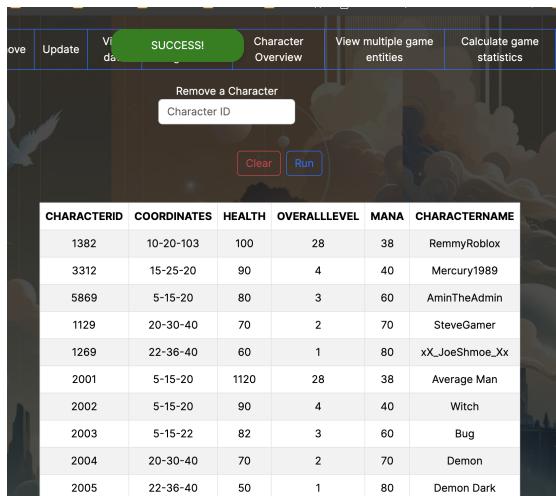
Screenshots: Character table with tuple 'Goblin'

CHARACTERID	COORDINATES	HEALTH	OVERALLLEVEL	MANA	CHARACTERNAME
4922	10-20-103	37	12	37	Goblin
1382	10-20-103	100	28	38	RemmyRoblox
3312	15-25-20	90	4	40	Mercury1989
5869	5-15-20	80	3	60	AminTheAdmin
1129	20-30-40	70	2	70	SteveGamer
1269	22-36-40	60	1	80	xX_JoeShmoe_Xx
2001	5-15-20	1120	28	38	Average Man
2002	5-15-20	90	4	40	Witch
2003	5-15-22	82	3	60	Bug
2004	20-30-40	70	2	70	Demon
2005	22-36-40	50	1	80	Demon Dark

Enter in primary key of table, for Character it is Character ID



After running, Success notification is given and 'Goblin' tuple is removed



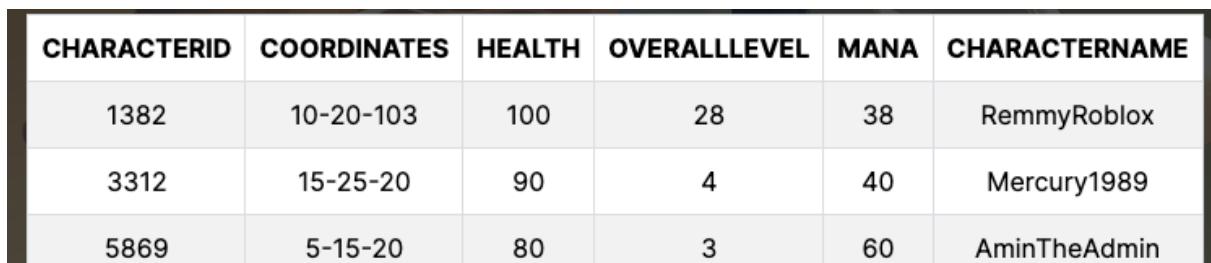
CHARACTERID	COORDINATES	HEALTH	OVERALLLEVEL	MANA	CHARACTERNAME
1382	10-20-103	100	28	38	RemmyRoblox
3312	15-25-20	90	4	40	Mercury1989
5869	5-15-20	80	3	60	AminTheAdmin
1129	20-30-40	70	2	70	SteveGamer
1269	22-36-40	60	1	80	xX_JoeShmoe_Xx
2001	5-15-20	1120	28	38	Average Man
2002	5-15-20	90	4	40	Witch
2003	5-15-22	82	3	60	Bug
2004	20-30-40	70	2	70	Demon
2005	22-36-40	50	1	80	Demon Dark

## UPDATE

Location: ./app/app/page.tsx, Lines 763 - 780

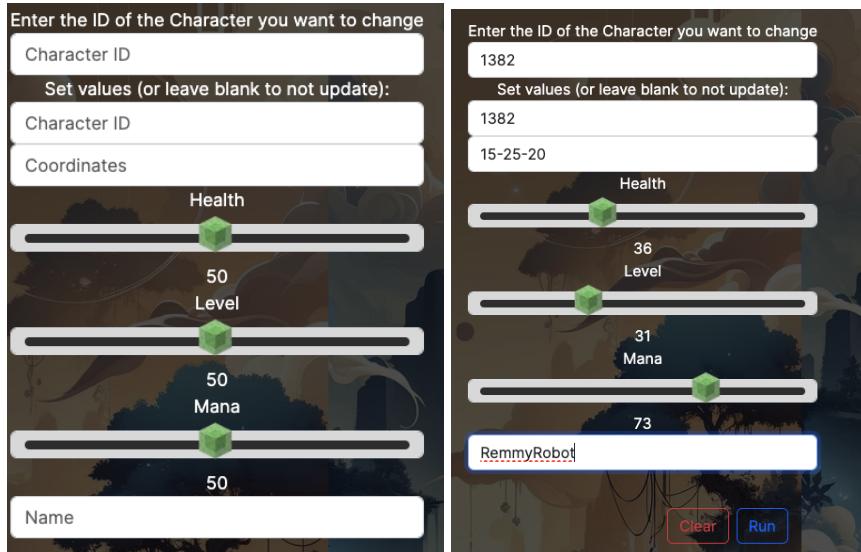
```
case "UPDATE":  
  let targetRow = Object.entries(query)  
    .map(([key, value]) => {  
      return returnProperString(key, value);  
    })  
    .join(" AND ");  
  
  console.log(updateValues);  
  
  let updates = Object.entries(updateValues)  
    .filter(([key, value]) => value.trim() !== "")  
    .map(([key, value]) => {  
      return returnProperString(key, value);  
    })  
    .join(", ");  
  executeQuery = `UPDATE ${currTable} SET ${sanitizeInputs(updates)} WHERE ${targetRow}; COMMIT`;  
  setUpdateValues({});  
  break;
```

Screenshots: Character table before any changes (keep notice of first row)



CHARACTERID	COORDINATES	HEALTH	OVERALLLEVEL	MANA	CHARACTERNAME
1382	10-20-103	100	28	38	RemmyRoblox
3312	15-25-20	90	4	40	Mercury1989
5869	5-15-20	80	3	60	AminTheAdmin

Select primary key and values wish to be changed for that tuple



After command is run, updated tuple is now visible

CHARACTERID	COORDINATES	HEALTH	OVERALLLEVEL	MANA	CHARACTERNAME
1382	15-25-20	36	31	73	RemmyRobot
3312	15-25-20	90	4	40	Mercury1989

## JOIN

Location: ./app/app/page.tsx, Lines 789 - 805

```

case "MULTIJOIN":
  where_clause = defaultQuery
  ? sanitizeInputs(defaultQuery) !== ""
    ? `WHERE ${sanitizeInputs(defaultQuery)}`
    : ""
  : "";
  executeQuery =
  SELECT DISTINCT CHARACTERNAME, HEALTH, OVERALLLEVEL, MANA, LOCATIONNAME, SKILLNAME FROM CHARACTERINFO
  LEFT JOIN PLAYER ON PLAYER.CHARACTERID = CHARACTERINFO.CHARACTERID
  LEFT JOIN COORDINATELOCATIONS ON COORDINATELOCATIONS.COORDINATES = CHARACTERINFO.COORDINATES
  LEFT JOIN DEVELOPS ON CHARACTERINFO.CHARACTERID = DEVELOPS.CHARACTERID
  `

  if (whereHavingStr !== "") {
    executeQuery += `WHERE ${sanitizeInputs(whereHavingStr)}`;
  }
  break;

```

Screenshots:

The character table before any joins

CHARACTERID	COORDINATES	HEALTH	OVERALLLEVEL	MANA	CHARACTERNAME
1382	15-25-20	36	31	73	RemmyRobot
3312	15-25-20	90	4	40	Mercury1989
5869	5-15-20	80	3	60	AminTheAdmin
1129	20-30-40	70	2	70	SteveGamer
1269	22-36-40	60	1	80	xX_JoeShmoe_Xx
2001	5-15-20	1120	28	38	Average Man
2002	5-15-20	90	4	40	Witch
2003	5-15-22	82	3	60	Bug
2004	20-30-40	70	2	70	Demon
2005	22-36-40	50	1	80	Demon Dark

Character overview will join character info, locations, and skills to get more info on a character

Character Overview

## PROJECTION

Location: ./app/app/page.tsx, Lines 782 - 787

```
case "PROJECT": | 
    setProjectSelections([]); 
    executeQuery = `SELECT ${projectSelections.join(
        ","
    )} FROM ${currTable}`; 
    break;
```

This is the Interaction table prior projection

PLAYERCHARACTERID	NONPLAYABLECHARACTERCHARACTERID	INTERACTIONTIME	INTERACTIONTYPE
1382	2001	15-OCT-21 06.50.00.000000 AM	Conversation
3312	2002	16-OCT-21 06.45.00.000000 AM	Combat
5869	2003	17-OCT-21 06.40.00.000000 AM	Trade
1129	2004	18-OCT-21 06.30.00.000000 AM	Trade
1269	2005	19-OCT-21 06.25.00.000000 AM	Conversation

We'll select columns InteractionTime and Non Playable Character ID to project on

Select

INTERACTIONTIME    NONPLAYABLECHARACTERCHARACTERID    PLAYERCHARACTERID

INTERACTIONTYPE

After executing, we have only columns InteractionTime and Non Playable Character ID left

INTERACTIONTIME	NONPLAYABLECHARACTERCHARACTERID
18-OCT-21 06.30.00.000000 AM	2004
19-OCT-21 06.25.00.000000 AM	2005
15-OCT-21 06.50.00.000000 AM	2001
16-OCT-21 06.45.00.000000 AM	2002
17-OCT-21 06.40.00.000000 AM	2003

## SELECTION

Location: ./app/app/page.tsx, Lines 726 - 740

```

switch (op) {
  case "SELECT":
    let string = defaultQuery ? `${defaultQuery}` : "*";
    setProjectSelections([]);
    where_clause = defaultQuery
      ? sanitizeInputs(defaultQuery) !== ""
        ? `WHERE ${sanitizeInputs(defaultQuery)}`
        : ""
      : "";
    executeQuery = `SELECT ${projectSelections.join(
      ","
    )} FROM ${currTable} ${where_clause}`;
    if (whereHavingStr !== "") {
      executeQuery += `WHERE ${whereHavingStr}`;
    }
  break;
}

```

This is the Develops table when no SQL query has been ran

SKILLNAME	CHARACTERID	CURRENTLEVEL
Sky Slash	1382	10
Forest Heal	1382	18
End Shield	1382	20
Sea Wave	1382	5
City Guard	1382	2
Forest Heal	3312	5
Forest Heal	5869	3
City Guard	1269	2

We'll select those columns skill name and current level where the level is greater or equal to 7

The screenshot shows a user interface for querying a database table. At the top, there is a search bar labeled "Find in Player Skills" and a filter section with dropdown menus for "CURRENTLEVEL" (set to ">= 7") and "Filter" (set to "7"). To the right, there is a "Visible Columns" section with checkboxes for "CHARACTERID" (unchecked), "SKILLNAME" (checked), and "CURRENTLEVEL" (checked). The main area displays a table with the following data:

SKILLNAME	CHARACTERID	CURRENTLEVEL
Sky Slash	1382	10
Forest Heal	1382	18
End Shield	1382	20
Sea Wave	1382	5
City Guard	1382	2
Forest Heal	3312	5
Forest Heal	5869	3
City Guard	1269	2

As a result we get skills with level  $\geq 7$

SKILLNAME	CURRENTLEVEL
Sky Slash	10
Forest Heal	18
End Shield	20

## AGGREGATION GROUP BY

Location: ./app/app/page.tsx, Lines 828 - 841

```
case "AGGREGATION":
  if (groupBy[1] == undefined) {
    executeQuery = `SELECT ${groupByOperation}(${groupBy[0]}) FROM ${currTable}`;
  }

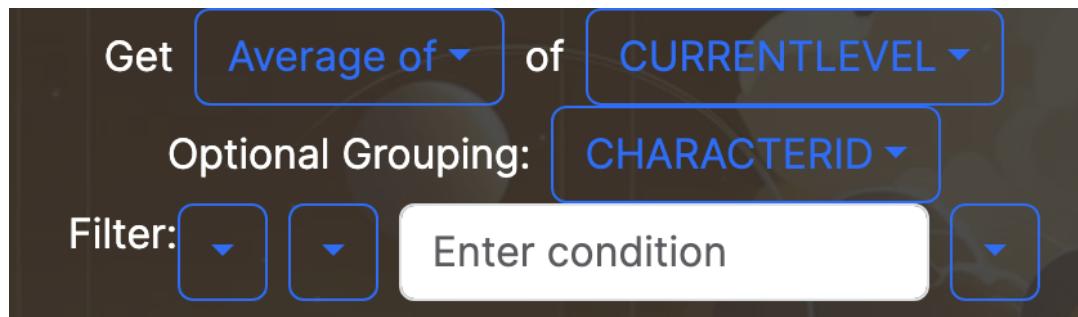
  else {
    executeQuery = `SELECT ${groupByOperation}(${groupBy[0]}), ${groupBy[1]} FROM ${currTable} GROUP BY ${groupBy[1]}`;
  }

  if (whereHavingStr === "") {
```

This is the development table prior to running anything.

SKILLNAME	CHARACTERID	CURRENTLEVEL
Sky Slash	1382	10
Forest Heal	1382	18
End Shield	1382	20
Sea Wave	1382	5
City Guard	1382	2
Forest Heal	3312	5
Forest Heal	5869	3
City Guard	1269	2

We're going to get the average of the current skill level and group it by character id



The result is the following,

AVG(CURRENTLEVEL)	CHARACTERID
11	1382
5	3312
2	1269
3	5869

## AGGREGATION WITH HAVING

Location: ./app/app/page.tsx, Lines 828 - 845

```

    executeQuery += `WHERE ${sanitizeInputs(whereHavingStr)}`;
} else {
  executeQuery = `SELECT ${groupByOperation}(${groupBy[0]}), ${groupBy[1]} FROM ${currTable} GROUP BY ${groupBy[1]} `;
  executeQuery += `HAVING ${sanitizeInputs(whereHavingStr)}`;
}
  
```

This is the character table before grouping.

CHARACTERID	COORDINATES	HEALTH	OVERALLLEVEL	MANA	CHARACTERNAME
1382	15-25-20	36	31	73	RemmyRobot
3312	15-25-20	90	4	40	Mercury1989
5869	5-15-20	80	3	60	AminTheAdmin
1129	20-30-40	70	2	70	SteveGamer
1269	22-36-40	60	1	80	xX_JoeShmoe_Xx
2001	5-15-20	1120	28	38	Average Man
2002	5-15-20	90	4	40	Witch
2003	5-15-22	82	3	60	Bug
2004	20-30-40	70	2	70	Demon
2005	22-36-40	50	1	80	Demon Dark

We will get the count of Character Ids and group by Coordinates, excluding Coordinates 20-30-40

Get Count of of CHARACTERID  
Optional Grouping: COORDINATES  
Filter: COORDINATES <> 20-30-40

As a result we get,

COUNT(CHARACTERID)	COORDINATES
2	15-25-20
2	22-36-40
3	5-15-20
1	5-15-22

## NESTED AGGREGATION WITH GROUP BY

Location: ./app/app/utils/nested\_aggregations.ts, Lines 7 - 60

```
    executeQuery += `WHERE ${sanitizeInputs(whereHavingStr)}`;  
} else if (having) {  
  executeQuery = `SELECT ${groupByOperation}(${groupBy[0]}), ${groupBy[1]} FROM ${currTable} GROUP BY ${groupBy[1]}`;  
  executeQuery += `HAVING ${sanitizeInputs(whereHavingStr)}`;  
}  
}
```

The tables Location, Coordinates and CharacterInfo will be used for nested aggregation.

LOCATIONNAME	LOCATIONTYPE	COORDINATES	LOCATIONNAME
Floating City	Sky	10-20-103	Floating City
The Great Forest	Forest	15-25-20	The Great Forest
The End	Endgame	5-15-20	The Great Forest
Atlantis	Sea	5-15-22	The Great Forest
Verudon	City	20-30-40	The End
		22-36-40	The End

CHARACTERID	COORDINATES	HEALTH	OVERALLLEVEL	MANA	CHARACTERNAME
1382	15-25-20	36	31	73	RemmyRobot
3312	15-25-20	90	4	40	Mercury1989
5869	5-15-20	80	3	60	AminTheAdmin
1129	20-30-40	70	2	70	SteveGamer
1269	22-36-40	60	1	80	xX_JoeShmoe_Xx
2001	5-15-20	1120	28	38	Average Man
2002	5-15-20	90	4	40	Witch
2003	5-15-22	82	3	60	Bug
2004	20-30-40	70	2	70	Demon
2005	22-36-40	50	1	80	Demon Dark

We'll select the query,

```
Count of Players with Health Greater than Average Player Health
```

By running this we're running the nested aggregation query

```
'SELECT COUNT(P.CharacterID) AS Count
FROM Player P, CharacterInfo C
WHERE P.CharacterID = C.CharacterID AND C.Health > (SELECT AVG(Health)
FROM CharacterInfo C2, Player P1
WHERE P1.CharacterID = C2.CharacterID)',
```

And this will give the result,



## DIVISION

Location: ./app/app/utils/division\_questions.ts, Lines 6 - 29

```
export const divisionQueries: DivisionQueries = {
  "Select all players who have all items": `CREATE OR REPLACE VIEW DIVIDEND AS
    SELECT ITEMID, INVENTORYID, CHARACTERID, HEALTH, OVERALLLEVEL, MANA, CHARACTERNAME, INVENTORYQUANTITY FROM PLAYER
    NATURAL JOIN CHARACTERINFO
    NATURAL JOIN CONTAINS;

    CREATE OR REPLACE VIEW TEMP_DIVIDEND AS
    SELECT DISTINCT INVENTORYID, CHARACTERID, HEALTH, OVERALLLEVEL, MANA, CHARACTERNAME, INVENTORYQUANTITY
    FROM DIVIDEND;

    CREATE OR REPLACE VIEW DIVISOR AS
    SELECT DISTINCT ITEMID FROM ITEM;

    CREATE OR REPLACE VIEW INTERMEDIATE AS
    SELECT * FROM DIVISOR, TEMP_DIVIDEND
    MINUS
    SELECT * FROM DIVIDEND;

    SELECT * FROM TEMP_DIVIDEND
    MINUS
    SELECT INVENTORYID, CHARACTERID, HEALTH, OVERALLLEVEL, MANA, CHARACTERNAME, INVENTORYQUANTITY FROM INTERMEDIATE;
  `,
};
```

These are the tables that will be used for the division query,

CHARACTERID	COORDINATES	HEALTH	OVERALLLEVEL	MANA	CHARACTERNAME
1382	15-25-20	36	31	73	RemmyRobot
3312	15-25-20	90	4	40	Mercury1989
5869	5-15-20	80	3	60	AminTheAdmin
1129	20-30-40	70	2	70	SteveGamer
1269	22-36-40	60	1	80	xX_JoeShmoe_Xx
2001	5-15-20	1120	28	38	Average Man
2002	5-15-20	90	4	40	Witch
2003	5-15-22	82	3	60	Bug
2004	20-30-40	70	2	70	Demon
2005	22-36-40	50	1	80	Demon Dark
2331	15-25-20	33	69	26	dad

INVENTORYID	ITEMID	INVENTORYQUANTITY
1001	1001	1
1001	1002	1
1001	1004	1
1001	1003	1
1001	1005	1
1002	1002	1
1003	1003	5
1004	1004	2

ITEMID	ITEMNAME
1001	Sword of Light
1002	Dark Shield
1003	Health Potion
1004	Bow of Eternity
1005	Ring of Strength

And by selecting the corresponding query

What would you like to know?: Select all players who have all items ▾

Then this runs the query,

```
"CREATE OR REPLACE VIEW DIVIDEND AS
SELECT ITEMID, INVENTORYID, CHARACTERID, HEALTH, OVERALLLEVEL,
MANA, CHARACTERNAME, INVENTORYQUANTITY FROM PLAYER
NATURAL JOIN CHARACTERINFO
NATURAL JOIN CONTAINS;

CREATE OR REPLACE VIEW TEMP_DIVIDEND AS
SELECT DISTINCT INVENTORYID, CHARACTERID, HEALTH,
OVERALLLEVEL, MANA, CHARACTERNAME, INVENTORYQUANTITY
FROM DIVIDEND;

CREATE OR REPLACE VIEW DIVISOR AS
SELECT DISTINCT ITEMID FROM ITEM;

CREATE OR REPLACE VIEW INTERMEDIATE AS
SELECT * FROM DIVISOR, TEMP_DIVIDEND
MINUS
SELECT * FROM DIVIDEND;

SELECT * FROM TEMP_DIVIDEND
MINUS
SELECT INVENTORYID, CHARACTERID, HEALTH, OVERALLLEVEL, MANA,
CHARACTERNAME, INVENTORYQUANTITY FROM INTERMEDIATE;"
```

And we get the result,

INVENTORYID	CHARACTERID	HEALTH	OVERALLLEVEL	MANA	CHARACTERNAME	INVENTORYQUANTITY
1001	1382	36	31	73	RemmyRobot	1