

CPSC 304 Project Cover Page

Milestone #: 1

Date: 2025.02.10

Group Number: 90

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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

Minecraft

ENTITIES:

1. **Player** (username, email, user credentials, skin, XP)
ISA (overlapping, partial):
 - **Host**
 - **Participant**
2. **World** (join code, seed, wname, difficulty, settings)
3. **Achievement** (aname, date received, progress)
4. **Mob** (mid, mname, position, max health, movement speed, current health, mtexture)
5. **Recipe** (rname, resulting Block, ordered list of ingredient Blocks)
6. **Inventory** (iid, remaining slots, maximum slots)
7. **Block** (block id, bname, type)
ISA (disjoint, total):
 - **Inventory Item** (thumbnail, stacking capacity)
 - **Placed Block** (texture, block physics)
8. **Server** (IP address, name, player capacity)

RELATIONSHIPS:

1. **"Achieve"** Player → Achievement (many-to-many)
2. **"Craft"** Recipe → Inventory Item (one-to-one)
 - Participation Constraint: Recipe must "Craft" one block
3. **"Open"** Server → World (one-to-many)
 - Participation Constraint: Server must "Open" at least one World
4. **"Host"** Host → "Open" (hpermissions) (one-to-many) (AGGREGATION of Host to Server-World relationship "Open")
 - Participation Constraint: "Open" must be "Hosted" by at least one Host
5. **"Play"** Player → World (start time, end time) (many-to-one)
6. **"Save"** Player → World (one-to-many)
 - Participation Constraint: World must be "Saved" by at least one Player
7. **"Build"** Placed Block → Mob → World (many-to-many-to-many) (TERNARY)
8. **"Join"** Participant → Server (permissions) (many-to-many)
9. **"Store"** Inventory → Inventory Item (many-to-many)
10. **"Has"** Player → Inventory (one-to-one)
 - Participation Constraint: Inventory must be "Had" by at least one Player

What is the domain of the application?

The domain of this application includes game resource management and achievement tracking.

What aspects of the domain are modeled by the database?

This database models the resources, such as blocks, and achievements that a Minecraft player may have as part of their in-game inventory or profile. It also models how the quantity of these resources may change over time, as the player plays in a world or uses recipes to craft new items. A world itself may also be part of a larger server, which is hosted by other players and can be played in by multiple players.

Database specifications?

This database allows users to monitor the resources in their inventory, craft new blocks, and build new worlds that consist of blocks and mobs. This database also models the multiplayer system in Minecraft, so players can join existing worlds, host servers that contain multiple worlds, as well as join existing servers. Finally, this database models the player's profile, which has achievements resulting from in-game events and a main menu that houses saved worlds and servers.

ER Diagram

See last page.

AI acknowledgement (if applicable)

ChatGPT was used to get some preliminary ideas of what could be modeled as Entities in the database, as well as for clarifying questions regarding Minecraft.

Prompts Given:

Are seeds unique for each world instance in minecraft?

So the seed basically allows someone to generate a duplicate of the world?

But we would not exist in the same instance of a world?

If you share the seed with your friend, and they build things in their copy of the world, then do those things also get built in my world?

If you and another person are on the same minecraft server, can you play in different worlds? Or does the server essentially put you in the same instance of a world?

Is it possible to be in the same world instance, if you and another person are on different servers?

In one server, does the seed identify unique world INSTANCES?

Can join codes be reused for different worlds in minecraft?

Is joining a world the same as joining a server?

Do passive mobs have damage level?

Does a join code exist for servers on minecraft?

What is the difference in joining a private or public server in minecraft

Do they have maximum player capacity

ER Diagram

