

Application Program Design:

Function 1: List All Items

//This function lists every item in the database

//Uses item

- Steps:**
1. Select all items from item
 2. Display every item and its attributes

Function 2: Item Info

//This function displays the info for an item

//Uses item

Input: item Name

- Steps:**
1. Select item from item with Item Name
 2. Display the item's attributes

Function 3: Items with Most Durability

//This function displays the items with the most durability

//Uses item

- Steps:**
1. Select items from item with durability equal to the max durability
 2. Display item names and durability

Function 4: Items with Least Durability

//This function displays the items with the least durability

//Uses item

- Steps:**
1. Select items from item with durability equal to the min durability (greater than 0)
 2. Display item names and durability

Function 5: Items with Specific Durability

//This function displays the items that have Durab greater than/equal to/less than an input value

//Uses item

Input: Durability, Comparison

Steps: 1. Select items from item with Durability based on Comparison
2. Display item names and durability

Function 6: Renewable Items

//This function list all the renewable items

//Uses item

Steps: 1. Select all items from item that are renewable
2. Display item names, stack sizes, and durability

Function 7: Nonrenewable Items

//This function lists all the nonrenewable items

//Uses item

Steps: 1. Select all items from item that are nonrenewable items
2. Display item names, stack sizes, and durability

Function 8: List All Blocks

//This function lists every block in the database

//Uses block

Steps: 1. Select all blocks from block
2. Display every block and its attributes

Function 9: Block Info

//This function displays info for a block

//Uses block

Input: Block Name

Steps: 1. Select all blocks from block with Block Name
2. Display the block's attributes

Function 10: Block's Drops

//This function lists all the drops for a block

//Uses block, block_drop, item

Input: Block Name

- Steps:**
1. Select all blocks from block with Block Name
 2. Join with block_drop where BID = ID
 3. Join with item where IID = ID
 4. Display the item Names, and block_drop attributes for each drop

Function 11: Flammable Blocks

//This function lists all the flammable blocks

//Uses block

- Steps:**
1. Select all blocks from block that are flammable
 2. Display blocks and their attributes except Flam

Function 12: Fireproof Blocks

//This function lists all the fireproof blocks

//Uses block

- Steps:**
1. Select all blocks from block that are fireproof
 2. Display blocks and their attributes except Flam

Function 13: Tile Entities

//This function list all the blocks that are tile entities

//Uses block

- Steps:**
1. Select all blocks from block that are tile entities
 2. Display blocks and their attributes except TE

Function 14: Tool to Harvest Block

//This function displays the tools that can be used to harvest a block

//Uses block, harvest_tool

Input: Block Name

- Steps:**
1. Select all blocks from block where Name = Block Name

2. Join with harvest_tool where ID = BID
3. Display harvest_tools

Function 15: Blocks with Inventories

//This function displays the blocks that are inventories

//Uses block

- Steps:**
1. Select all blocks from block that are inventories
 2. Display blocks with their attributes except InventoryFlag

Function 16: Blocks Affected by Fortune

//This function lists the blocks that are affected by fortune

//Uses block, block_drop

- Steps:**
1. Join block with block_drop where ID = BID
 2. Select results that are affected by fortune
 3. Display block Names and block_drop Drops

Function 17: Blocks Affected by Silk Touch

//This function lists the blocks that are affected by silk touch

//Uses block, block_drop

- Steps:**
1. Join block with block_drop where ID = BID
 2. Select results that are affected by silk touch
 3. Display block Names and block_drop Drops

Function 18: List All Entities

//This function lists every entity in the database

//Uses entity

- Steps:**
1. Select all entities from entity
 2. Display every entity and its attributes

Function 19: Living Entities

//This function displays all living entities

//Uses entity

- Steps:**
1. Select all entities from entity that are living
 2. Display entity Names and living attributes

Function 20: Nonliving Entities

//This function displays all nonliving entities

//Uses entity

- Steps:**
1. Select all entities from entity that are nonliving
 2. Display entity Names and nonliving attributes

Function 21: Hostile Entities

//This function displays all hostile entities

//Uses entity

- Steps:**
1. Select all entities from entity that are hostile
 2. Display entity Names and hostile attributes

Function 22: Passive Entities

//This function displays all passive entities

//Uses entity

- Steps:**
1. Select all entities from entity that are passive
 2. Display entity Names and hostile attributes

Function 23: Entity Info

//This function displays info for an entity

//Uses entity

Input: Entity Name

- Steps:**
1. Select all entities from entity with Entity Name
 2. Display the entity's attributes

Function 24: Mob's Drops

//This function lists all the drops for a mob

//Uses entity, entity_drop, item

Input: Mob Name

- Steps:**
1. Select all mobs from entity with Mob Name
 2. Join with entity_drop where EID = ID
 3. Join with item where IID = ID
 4. Display the item Names, and entity_drop attributes for each drop

Function 25: Entity Equipment

//This function lists all possible equipment an entity can equip

//Uses entity, can_equip, item

Input: Entity Name

- Steps:**
1. Select all entities from entity with Entity Name
 2. Join with can_equip where EID = ID
 3. Join with item where IID = ID
 4. Display the item Names for each equipable item

Function 26: Strongest Entities

//This function displays the entities with the most attack damage

//Uses entity

- Steps:**
1. Select all entities from entity where AtkDmg = max attack damage
 2. Display the entity names and the max attack damage

Function 27: Weakest Entities

//This function displays the entities with the least attack damage

//Uses entity

- Steps:**
1. Select all entities from entity where AtkDmg = min attack damage
 2. Display the entity names and the min attack damage

Function 28: Entities with Specific Attack

//This function displays the entities that have AtkDmg greater than/equal to/less than an input value

//Uses entity

Input: Attack Damage, Comparison

Steps: 1. Select entities from entity with AtkDmg based on Comparison
2. Display the entity names and attack damages

Function 29: Entities with Most HP

//This function displays the entities with the most HP

//Uses entity

Steps: 1. Select all entities from entity where HP = max HP
2. Display the entity names and the max HP

Function 30: Entities with Least HP

//This function displays the entities with the least HP

//Uses entity

Steps: 1. Select all entities from entity where HP = min HP
2. Display the entity names and the min HP

Function 31: Entities with Specific HP

//This function displays the entities that have HP greater than/equal to/less than an input value

//Uses entity

Input: HP, Comparison

Steps: 1. Select entities from entity with HP based on Comparison
2. Display the entity names and HPs

Function 32: Item to Breed Mob

//This function lists all possible items a mob can breed with

//Uses entity, can_equip, item

Input: Mob Name

Steps: 1. Select all Mobs from entity with Entity Name
2. Join with breeds_with where EID = ID
3. Join with item where IID = ID
4. Display the item names for each breeding item

Function 32: List All Enchantments

//This function lists every enchantment in the database

//Uses enchantment

Steps: 1. Select all enchantments from enchantment
2. Display every enchantment and its attributes

Function 33: Find Enchants for Item

//This function lists all the enchantments for an item

//Uses enchantment, enchant, item

Input: Item Name

Steps: 1. Select item from item where Name = Item Name
2. Join with enchant where ID = IID
3. Join with enchantment where EnID = ID
4. Display enchantment names and max levels

Function 34: Find Items for Enchant

//This function lists all the items for an enchantment

//Uses enchantment, enchant, item

Input: Enchantment Name

Steps: 1. Select all enchantments from enchantment where Name = Enchantment Name
2. Join with enchant where ID = EnID
3. Join with item where IID = ID
4. Display item names

Function 35: Mobs that use Enchantment

//This function lists all mobs that use equipment that can be enchanted with a given enchantment

//Uses enchantment, enchant, item, can_equip, entity

Input: Enchantment Name

Steps: 1. Select all enchantments from enchantment where Name = Enchantment Name

2. Join with enchant where ID = EnID

3. Join with item where IID = ID

4. Join with can_equip where ID = IID

5. Join with entity where EID = ID

4. Display mob names

Function 36: List All Status Effects

//This function lists every status effect in the database

//Uses status_effect

Steps: 1. Select all status effects from status_effect

2. Display every effect and its attributes

Function 37: Effect Origin

//This function lists the sources of a give status effect

//Uses status_effect, item_effect, item, block_effect, block, entity_effect, entity

Input: Status Effect Name

Steps: 1. Select status effect from status_effect where Name = Status Effect Name

2. Join with item_effect where ID = SEID

3. Join with item where IID = ID

4. Display item name and item_effect attributes

5. Join status effect with block_effect where ID = SEID

6. Join with block where BID = ID

7. Display Block name and block_effect attributes

8. Join status effect with entity_effect where ID = SEID

9. Join with entity where EID = ID

10. Display entity name and entity_effect attributes

Function 38: Items that Give Effects

//This function lists all items that give effects

//Uses status_effect, item_effect, item

Input: Item Name

- Steps:**
1. Select item from item where Name = Item Name
 2. Join with item_effect where ID = IID
 3. Join with status_effect where SEID = ID
 4. Display effect name and item_effect attributes

Function 39: Blocks that Give Effects

//This function lists all blocks that give effects

//Uses status_effect, block_effect, block

Input: Block Name

- Steps:**
1. Select block from block where Name = Block Name
 2. Join with block_effect where ID = BID
 3. Join with status_effect where SEID = ID
 4. Display effect name and block_effect attributes

Function 40: Entities that Give Effects

//This function lists all entities that give effects

//Uses status_effect, entity_effect, entity

Input: Entity Name

- Steps:**
1. Select entity from entity where Name = Entity Name
 2. Join with entity_effect where ID = IID
 3. Join with status_effect where SEID = ID
 4. Display effect name and entity_effect attributes

Function 41: List All Recipes

//This function lists every recipe in the database

//Uses crafting_recipe, smelting_recipe, brewing_recipe, item

Steps:

1. Select all recipes from crafting_recipe
2. Join each input and output with the item whose ID = input/output ID
3. Display every recipe with item names and its attributes
4. Select all recipes from smelting_recipe
5. Join input and output with the item whose ID = input/output ID
6. Display every recipe with item names and its attributes
7. Select all recipes from brewing_recipe
8. Join potion, ingredient, and output with the item whose ID = potion/ingredient/output ID
6. Display recipes with item names and its attributes

Function 42: Item Recipes

//This function lists every recipe where a given item is an output

//Uses crafting_recipe, smelting_recipe, brewing_recipe, item

Input: Item Name

Steps:

1. Select all recipes from crafting_recipe
2. Join with item from item where OID = ID and ID = Item Name
3. Join each input with the item whose ID = input ID
4. Display every recipe with item names and its attributes
5. Select all recipes from smelting_recipe
6. Join with item from item where OID = ID and ID = Item Name
7. Join input with the item whose ID = input ID
8. Display every recipe with item names and its attributes
9. Select all recipes from brewing_recipe
10. Join with item from item where OID = ID and ID = Item Name
11. Join potion and ingredient with the item whose ID = potion/ingredient ID
12. Display recipes with item names and its attributes

Function 43: Recipes that use Item

//This function lists every recipe where a given item is an input

//Uses crafting_recipe, smelting_recipe, brewing_recipe, item

Input: Item Name

- Steps:**
1. Select all recipes from crafting_recipe
 2. Join with item from item where any input ID = ID and ID = Item Name
 3. Join output with the item whose ID = OID
 4. Display every recipe with item names and its attributes
 5. Select all recipes from smelting_recipe
 6. Join with item from item where IID = ID and ID = Item Name
 7. Join output with the item whose ID = OID
 8. Display every recipe with item names and its attributes
 9. Select all recipes from brewing_recipe
 10. Join with item from item where PID/InID = ID and ID = Item Name
 11. Join output with the item whose ID = OID
 12. Display recipes with item names and its attributes

Function 44: 2x2 Recipes

//This function lists all recipes that are craftable in the 2x2 crafting grid

//Uses crafting_recipe, item

- Steps:**
1. Select all recipes from crafting_recipe where TBT = 1
 2. Join each input and output with the item whose ID = input/output ID
 3. Display the recipes with item names and its attributes

Function 45: Shaped Recipes

//This function lists all recipes that are shaped

//Uses crafting_recipe, item

- Steps:**
1. Select all recipes from crafting_recipe where Shplss = 0
 2. Join each input and output with the item whose ID = input/output ID
 3. Display the recipes with item names and its attributes

Function 46: Shapeless Recipes

//This function lists all recipes that are shapeless

//Uses crafting_recipe, item

Steps: 1. Select all recipes from crafting_recipe where Shplss = 1
2. Join each input and output with the item whose ID = input/output ID
3. Display the recipes with item names and its attributes

Functions 47-64: Insert Functions

//These functions insert into each table

Input: Table's Attributes

Steps: 1. Insert Table's Attributes into the table

Functions 65-82: Delete Functions

//These functions delete data from each table

Input: Table's Primary Key

Steps: 1. Delete Table's Primary Key from the table

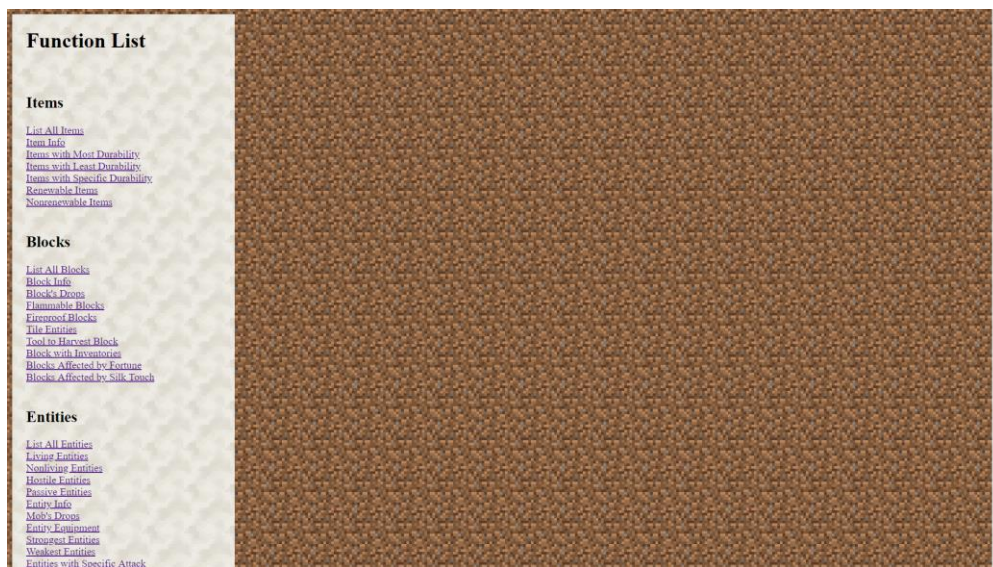
User Manual

Overview

The purpose of this system is to store information about the game Minecraft and its many items, blocks, entities, etc.

Functions

On the left side of the screen is the function list. Every function that can be used to interact with the database are located here.



Function List

The function list is divided into 7 categories: Items, Blocks, Entities, Enchantments, Status Effects, Recipes, and Modify. Clicking on a function link will either run the function and produce the desired output or prompt the user to provide input before being run. Clicking the search button after the input textboxes will run the function provide the output on the right.

Function List	Output				
Items List All Items Item Info Items with Most Durability Items with Least Durability Items with Specific Durability Renewable Items Nonrenewable Items	Name	ID	Stack Size	Durability	Renewable
	Arrow	minecraft:arrow	64	0	1
	Bamboo	minecraft:bamboo	64	0	1
	Beacon	minecraft:beacon	64	0	0
	Bedrock	minecraft:bedrock	64	0	1
	Beetroot	minecraft:beetroot	64	0	1
	Beetroot Seeds	minecraft:beetroot_seeds	64	0	1
	Black Carpet	minecraft:black_carpet	64	0	1
	Black Wool	minecraft:black_wool	64	0	1
	Blaze Powder	minecraft:blaze_powder	64	0	1
	Blaze Rod	minecraft:blaze_rod	64	0	1
	Blue Carpet	minecraft:blue_carpet	64	0	1
	Blue Wool	minecraft:blue_wool	64	0	1
	Bone	minecraft:bone	64	0	1
	Bone Meal	minecraft:bone_meal	64	0	1
	Book	minecraft:book	64	0	1
	Bow	minecraft:bow	1	384	1
	Brown Carpet	minecraft:brown_carpet	64	0	1
	Brown Wool	minecraft:brown_wool	64	0	1
Blocks List All Blocks Block Info Blocks Drops Flammable Blocks Fireproof Blocks Tile Entities Tool to Harvest Block Block with Inventories Blocks Affected by Fortune Blocks Affected by Silk Touch					
Entities List All Entities Living Entities Nonliving Entities Hostile Entities Passive Entities Entity Info Mob's Drops Entity Equipment Strongest Entities Weakest Entities Entities with Specific Attack					

Function that does not require input

Function List	Input	Output
Items List All Items Item Info Items with Most Durability Items with Least Durability Items with Specific Durability Renewable Items Nonrenewable Items	Item Info Item Name: <input type="text"/> <input type="button" value="Search"/>	
Blocks List All Blocks Block Info Blocks Drops Flammable Blocks Fireproof Blocks Tile Entities Tool to Harvest Block Block with Inventories Blocks Affected by Fortune Blocks Affected by Silk Touch		
Entities List All Entities Living Entities Nonliving Entities Hostile Entities Passive Entities Entity Info Mob's Drops Entity Equipment Strongest Entities Weakest Entities Entities with Specific Attack		

Function that requires input

Function List

Input

Output

Items

List All Items

Item Info

Items with Most Durability

Items with Least Durability

Items with Specific Durability

Renewable Items

Nonrenewable Items

Item Info

Item Name: Turtle Shell

Search

Name

ID

Stack Size

Durability

Is Renewable

Turtle Shell

minecraft:turtle_helmet

1

276

1

Blocks

List All Blocks

Block Info

Block's Drops

Flammable Blocks

Fireproof Blocks

Tile Entities

Tool to Harvest Block

Block with Inventories

Blocks Affected by Fortune

Blocks Affected by Silk Touch

Entities

List All Entities

Living Entities

Nonliving Entities

Hostile Entities

Passive Entities

Entity Info

Mob's Drops

Entity Equipment

Strongest Entities

Weakest Entities

Entities with Specific Attack

Function after being run with input

Some functions will give an error if there was not enough input provided to run the function or if the input is invalid.

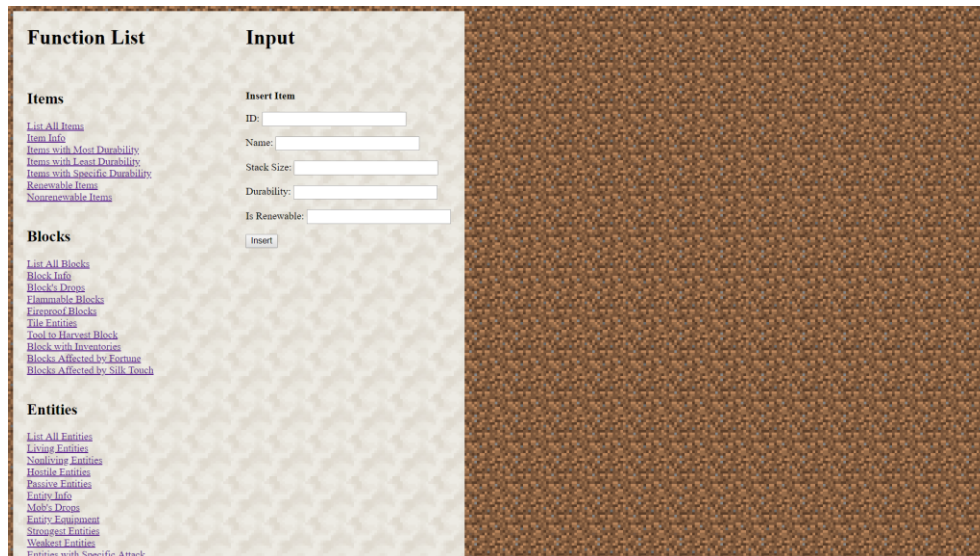
Function List	Input	Output
Items List All Items Item Info Items with Most Durability Items with Least Durability Items with Specific Durability Renewable Items Nonrenewable Items	Item Info Item Name: <input type="text"/> <input type="button" value="Search"/> ERROR Missing Item Name	
Blocks List All Blocks Block Info Block's Drops Flammable Blocks Fireproof Blocks Tile Entities Tool to Harvest Block Block with Inventories Blocks Affected by Fortune Blocks Affected by Silk Touch		
Entities List All Entities Living Entities Nonliving Entities Hostile Entities Passive Entities Entity Info Mob's Drops Entity Equipment Strongest Entities Weakest Entities Entities with Specific Attack		

Clicking search without input results in an error

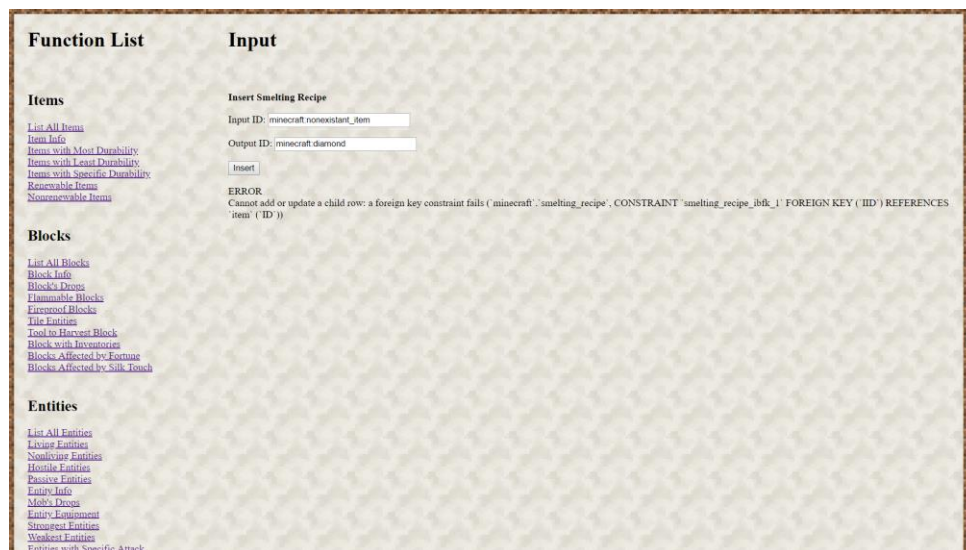
Modifying the Database

The modify section of the database is divided into insert and delete functions. These functions can be used to add or remove data from the database. When inserting new data, the user will provide input using the input textboxes to the right side of the function list. Certain inputs will require data to exist in

the database already. Attempting to input data that does not exist in the database in these textboxes will result in an error. Attempting to insert duplicate data will also result in an error.

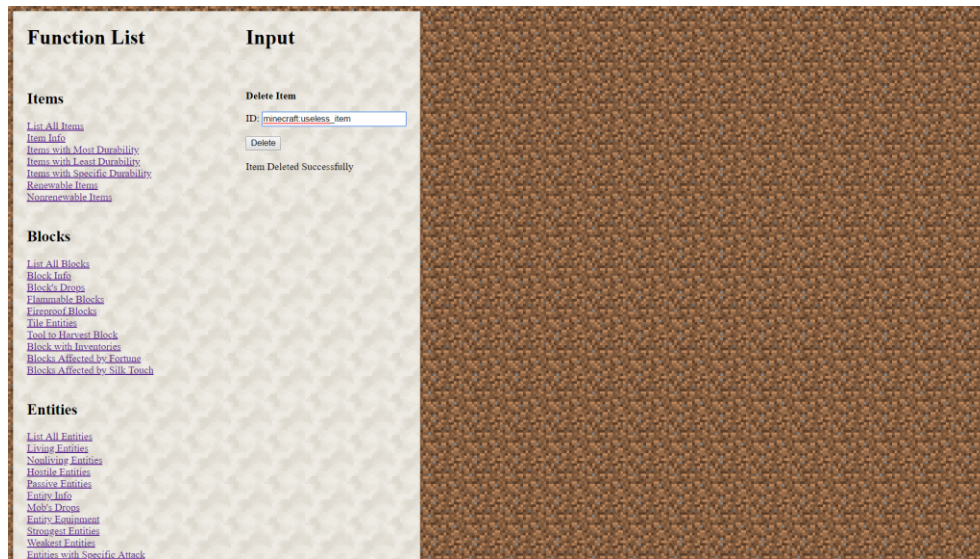


Input field for an insert function

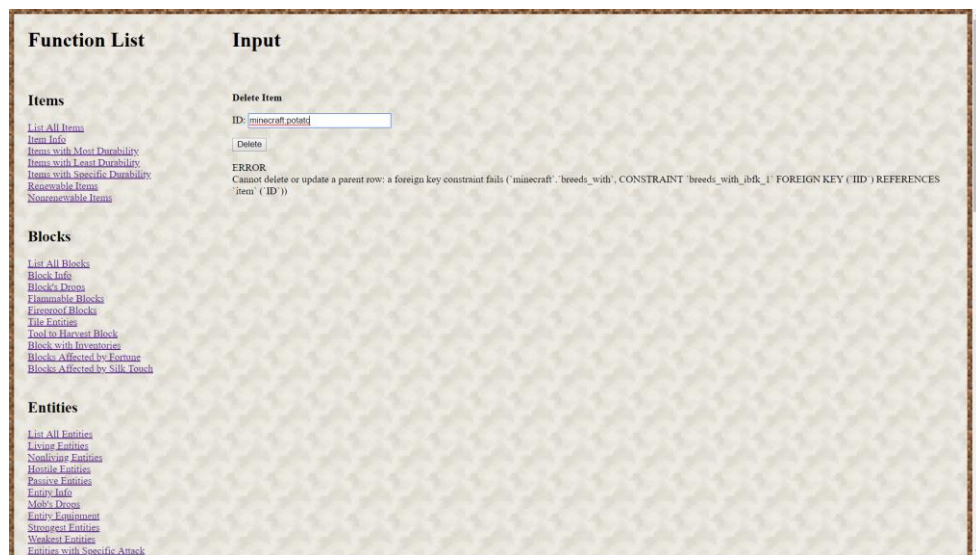


Error from attempting to insert nonexistent data

The delete functions work similarly to the insert functions. The user is provided with input textboxes. These textboxes only require the unique attributes of the data that is being deleted. Attempting to delete data that is being used by another table will result in an error. Data can only be deleted if it is not being referenced by other data.



Using the delete function to delete a useless item



Error resulting from attempting to delete an item that is being referenced elsewhere