

CPSC 304: Milestone 4

Hunt: Showdown

Project Implementation

[Github Repo](#)

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Project Description:

Our application represents a simplified model of the *Hunt: Showdown* equipment system, and also models locations and monster entities within the game. The database includes information about the different Hunters featured in the game, including the various traits that they can acquire. Each Hunter is expected to carry a firearm, and they may also choose to wield a tool and bring various consumables. Each firearm, tool and consumable all have different specifications and descriptions; firearms also require ammunition which may be of different types. Hunters may be located at different locations on the map, and at each location, there may be monsters that spawn. Names of the various locations, along with coordinates, are included in the databases. Information about the different monsters that spawn at each location are also modeled accordingly.

Our application allows users to view all data tables within the database including Hunters, Consumables, Firearms, etc. Additionally, users may insert tuples into the *Trait* table, delete tuples from the *Consumable* table, and update tuples of the *Tool* table based on user input. Additionally, we provided functionality to drop tables and reset the database utilizing our GUI to aid ease of use for presentation purposes. We also successfully implemented queries which allow for user input to demonstrate selection, projection, and joins. More complex queries involving aggregation with group by, aggregation with having, nested aggregation with group by, and division are hardcoded, but query based on meaningful inquiries a potential user might make. All backend implementations have been successfully linked with our frontend and as such, all functionality may be demoed via our GUI. We also took the extra step and made an effort to polish up the appearance of our application utilizing CSS.

Our final schema did not differ from the schema we previously submitted. However, minor changes were made to the SQL initialization statements we previously submitted in order to ensure compatibility with Oracle, and to provide more tuples which may be meaningfully queried. Additionally, since the previous milestone, we made changes to some of our queries (aggregation with having and nested aggregation with group by) in order to better reflect the requirements of the rubric, and a few very minor changes were made to our intended GUI elements as well as to be more user-friendly. We have attached a copy of our schema below, as well as screenshots to show all data present post-initialization. All operations and queries are also clearly documented below with references to where in the code they are implemented.

Schema:

Firearm(**firearmName: char(100)**, firearmDescription: text(8000), firearmCapacity: int, firearmRateOfFire: int, firearmHandling: int, firearmCost: int)

- firearmDescription must be NOT NULL
- firearmCapacity must be NOT NULL
- firearmRateOfFire must be NOT NULL
- firearmHandling must be NOT NULL
- firearmCost must be NOT NULL

Ammo(**firearmName: char(100)**, **ammoType: char(100)**, ammoDescription: text(8000), ammoDamage: int, ammoEffectiveRange: int, ammoVelocity: int, ammoCost: int)

- ammoDescription must be NOT NULL
- ammoDamage must be NOT NULL
- ammoEffectiveRange must be NOT NULL
- ammoVelocity must be NOT NULL
- ammoCost must be NOT NULL and DEFAULT 0
- ammoType is a PARTIAL KEY

Consumable(**consumableName: char(100)**, consumableDescription: text(8000), consumableCost: int)

- consumableDescription must be NOT NULL
- consumableCost must be NOT NULL

Syringe(**consumableName: char(100)**, syringeHealing: int, syringeEffectDuration: int)

Explosive(**consumableName: char(100)**, explosiveEffectiveRange: int, explosiveEffectiveRadius: int, explosiveDamage: int)

- explosiveEffectiveRange must be NOT NULL
- explosiveEffectiveRadius must be NOT NULL
- explosiveDamage must be NOT NULL

Tool(toolName: char(100), toolDescription: text(8000), toolMeleeDamage: int,
toolHeavyMeleeDamage: int, toolCost: int)

- toolDescription must be NOT NULL
- toolCost must be NOT NULL

Trait(traitName: char(100), traitDescription: text(800), traitCost: int)

- traitDescription must be NOT NULL
- traitCost must be NOT NULL

Location(locationName: char(100), locationCoordinates: char(100))

- locationCoordinates must be NOT NULL UNIQUE and is a CANDIDATE KEY

Monster(monsterName: char(100), monsterDescription: text(8000), monsterType: char(100),
monsterSize: char(100), monsterHealth: int)

- monsterDescription must be NOT NULL
- monsterType must be NOT NULL
- monsterSize must be NOT NULL
- monsterHealth must be NOT NULL

Hunter(hunterName: char(100), hunterDescription: text(8000), hunterFunds: int,
hunterLevel: int, hunterHealth: int, **locationName: char(100)**, **firearmName: char(100)**)

- hunterDescription must be NOT NULL
- hunterFunds must be NOT NULL and DEFAULT 0
- hunterLevel must be NOT NULL and DEFAULT 1
- hunterHealth must be NOT NULL
- locationName must be NOT NULL
- firearmName must be NOT NULL

Consumes(**hunterName: char(100), consumableName: char(100)**)

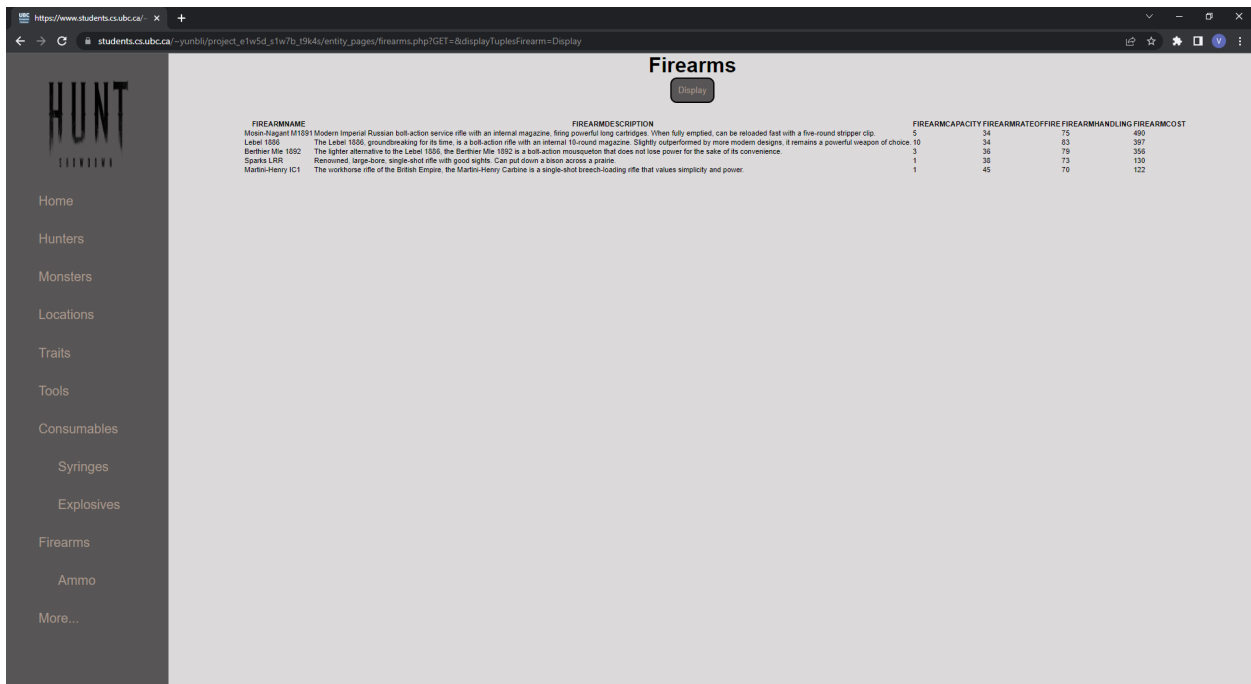
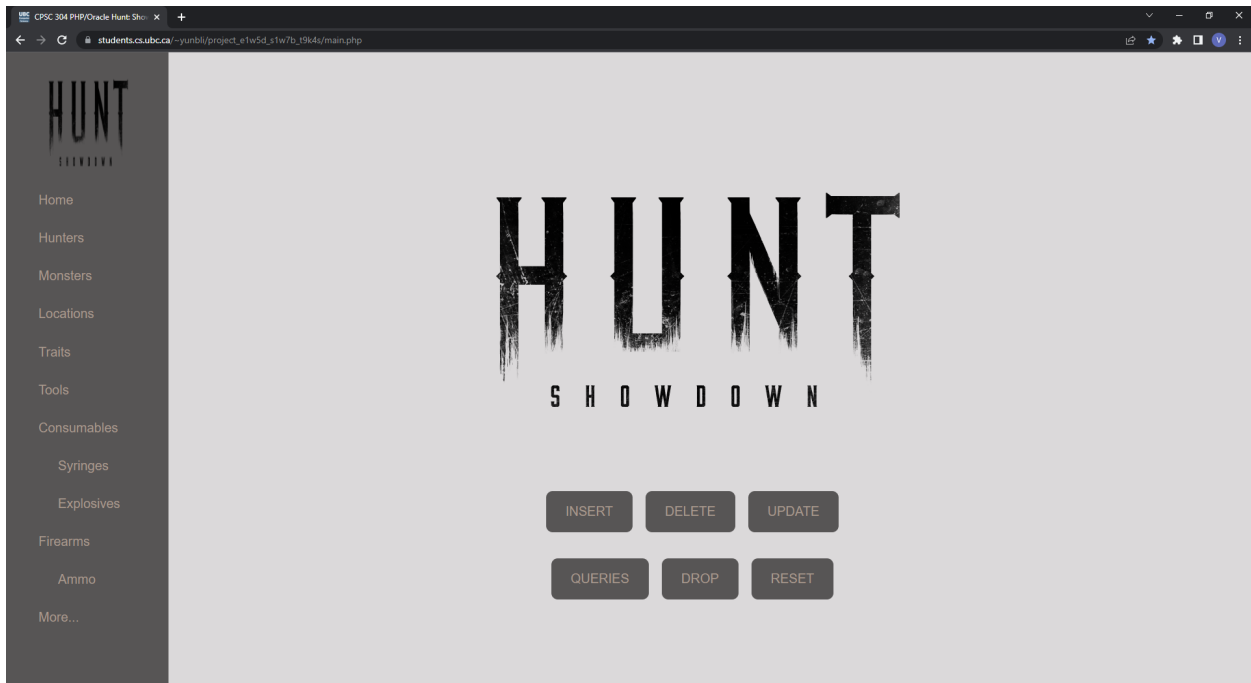
Wields(**hunterName: char(100), toolName: char(100)**)

Acquires(**hunterName: char(100), traitName: char(100)**)

Hunts(**hunterName: char(100), monsterName: char(100)**)

Spawns(**locationName: char(100), monsterName: char(100)**)

Post-Initialization Screenshots:



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Syringes

Display

CONSUMABLENAME	CONSUMABLEDESCRIPTION	CONSUMABLECOST	SYRINGEHEALING	SYRINGEEFFECTDURATION
Vitality Shot (Weak)	A shot which immediately restores 75 health.	20	75	
Vitality Shot	A shot which immediately restores all health.	85	150	
Regeneration Shot	A shot that continually restores health over a long duration. However, health regenerates at a reduced rate.	65		600
Stamina Shot	A shot which immediately restores all stamina and stops further depletion for 10 minutes.	100		600
Antidote Shot	Instantly cures and prevents all poison effects. Physical damage associated with poison attacks still applies.	95		1200

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Explosives

Display

CONSUMABLENAME	CONSUMABLEDESCRIPTION	CONSUMABLECOST	EXPLOSIVEEFFECTRANGE	EXPLOSIVEEFFECTRADIUS	EXPLOSIVEDAMAGE
Dynamite Bundle	A bundle of several dynamite sticks. Why only bring one?	75	15	9	1500
Frag Bomb	Frag bombs send lethal shrapnel over a large area, lacerating nearby enemies.	103	20	10	150
Flash Bomb	Home made mercury based, blinding light bomb. Capable of disorienting several targets at once.	47	20	8	1
Sticky Bomb	Dynamite charge in a sticky frame that can be attached to objects and enemies. Its eight-second fuse doubles the detonation time of a dynamite stick.	64	15	8	1000
Waxed Dynamite Stick	A dynamite stick with a modified powder fuse that enables detonation under water.	24	20	8	750

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Display

TOOLNAME	TOOLDESCRIPTION	TOOLMELEE	DAMAGE	TOOLHEAVY	MELEE	DAMAGE	TOOLCOST
Knife	An all-purpose tool and melee weapon that has saved many lives - and taken just as many.	52	105			30	
Clawing	A row of metal rings upon the hand in order to increase the damage caused in hand-to-hand combat.	31	72			15	
Knuckle Knife	The savage knuckle knife is a rough-hewn specialization for close quarters combat, suited for both bludgeoning and brutal thrusting deathblows.	58	82			15	
Throwing Axes	Silent and deadly short-ranged projectile weapon. Can be retrieved and re-used.	74	142			30	
Throwing Knives	Silent, but short-ranged projectile weapon. Thrown knives can be retrieved and re-used.	22	52			40	

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Traits

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TRAITNAME	TRAITDESCRIPTION	TRAITCOST
Adrenaline	Instantly start regenerating Stamina while your Health is critically low.	1
Ambidextrous	Quicker reloading of matched pairs, and custom clip reloads for semi-auto pistol sets.	3
Assault	Increases melee damage of throwing knives and throwing axes.	2
Breathface	Reduced reaction range of animals.	4
Blade Sight	Balls, arrows, throwing axes, and throwing knives are highlighted in Dark Sight for better visibility.	1

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Locations

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LOCATIONNAME	LOCATION	COORDINATES
Alice Farm	60, 60	
Canoe Livestock	50, 70	
Port Renier	60, 80	
Scupper Lake	90, 80	
Wandell Graves	20, 80	

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Monsters

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MONSTERTYPE	MONSTERSIZE	MONSTERNAME	MONSTERDESCRIPTION	MONSTERHEALTH
Boss	Medium	Assassin	The Assassin is characterized by a fast moving pool of insects that can form into a cloaked humanoid when stationary.	2000
Boss	Medium	Butcher	The Butcher is characterized by a huge bloated body, the head of a pig, and a flailing hook.	2000
Boss	Medium	Spider	The Spider is characterized by a sentient mass of limbs, poisonous in both body and intent.	2000
Boss	Medium	Scrapbeak	Scrapbeak is characterized by a beak structure fused with the bone of the skull.	2000
Basic	Small	Onet	Slow-moving and mostly human creatures that are possibly the victims of a viral infection.	100
Basic	Large	Meathead	A headless and massive, almost bloated, humanoid monster with leeches for hair.	300

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Hunters

Display

HUNTERLEVEL	HUNTERNAME	HUNTERDESCRIPTION	HUNTERFUNDS	LOCATIONNAME	FIREARMNAME	HUNTERHEALTH
1	The Night Acolyte	Nadine Orville is a member of the doomsday cult, Night of the Hunter, and founder Isaac Poveles right hand fighter.	0	Alice Farm	Mosin-Nagant M1891	50
2	Redshot	After having drunk too much whiskey one night, Jonathan Redshot accepted a bet from his companions to enter the bayou with a target on his back.	0	Alice Farm	Lebel 1855	55
3	Carcass Gunrunner	A butcher, clandestine arms dealer, and hobby apothecarist, Jason Trevers is a brutal Hunter, and known for being coldly logical and just unhinged enough that his opponents never know what to expect.	0	Darrou Livestock	Lebel 1886	60
4	The Black Coal	William Durant is a Hunter, a scoutmaster, and a murderer with a complicated past.	0	Port Keeler	Bentley M16 1952	65
5	Sheriff Huxton	During the early days of the infection, Sheriff Wayne Huxton was instrumental in halting the rapid spread of the infection.	0	Snapper Lake	Sparta LMR	70

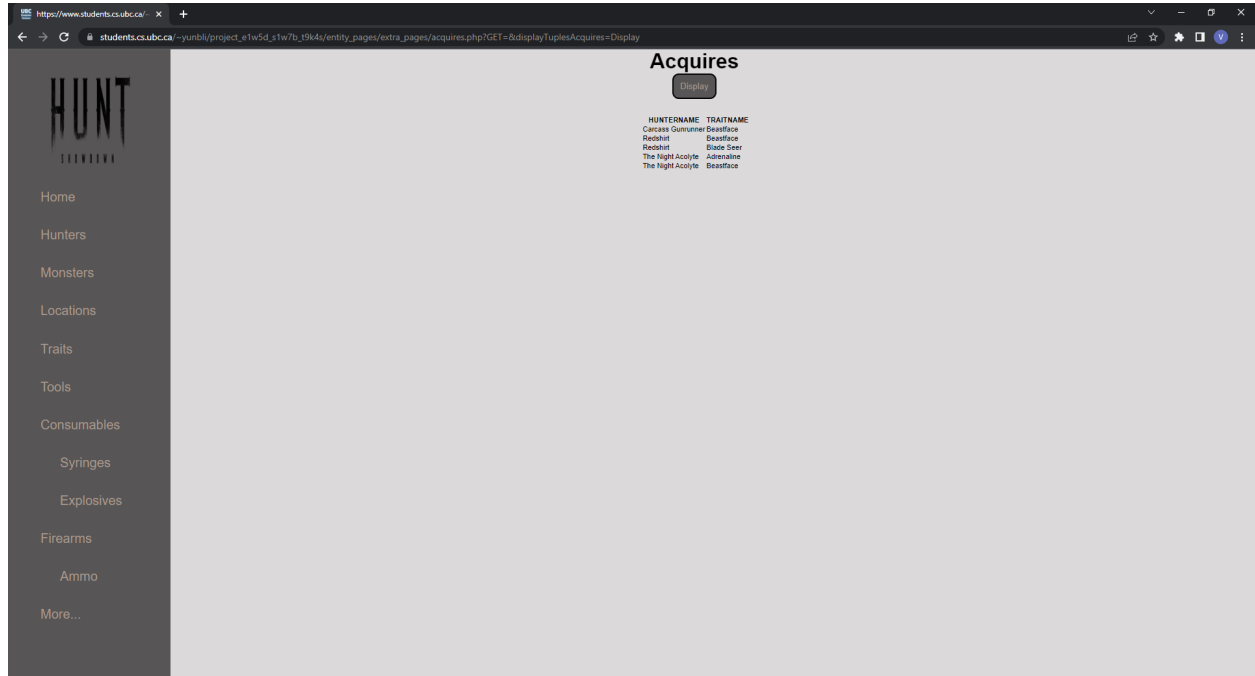
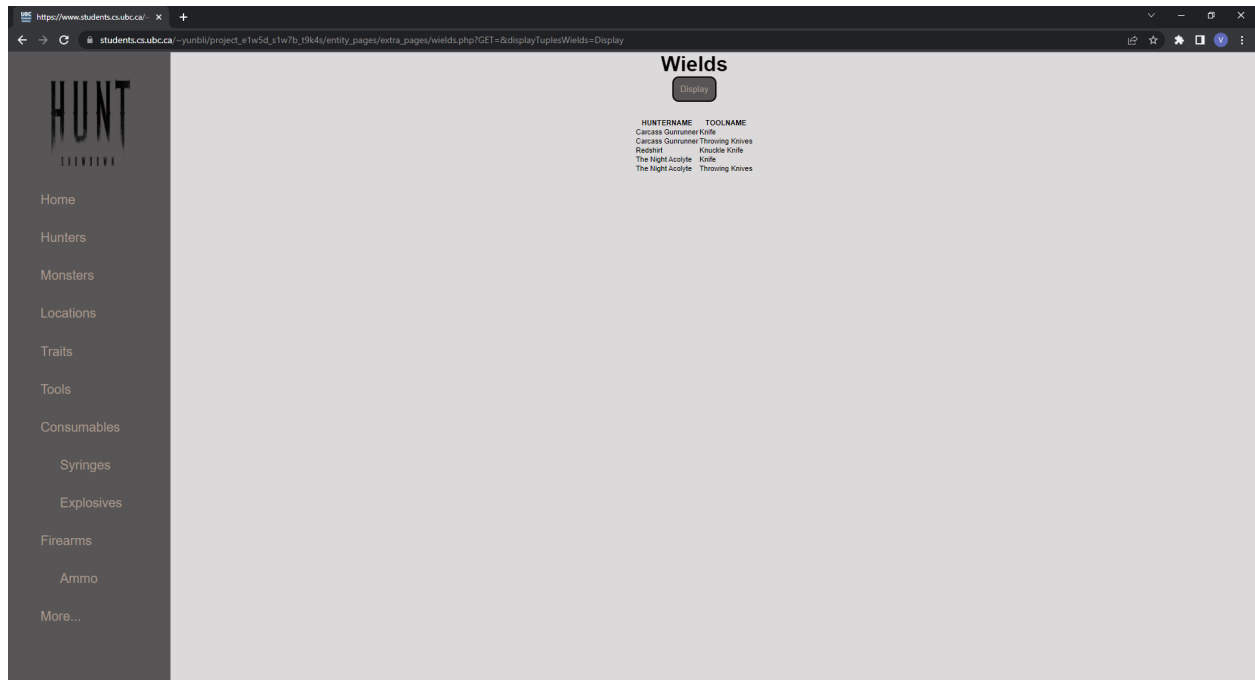
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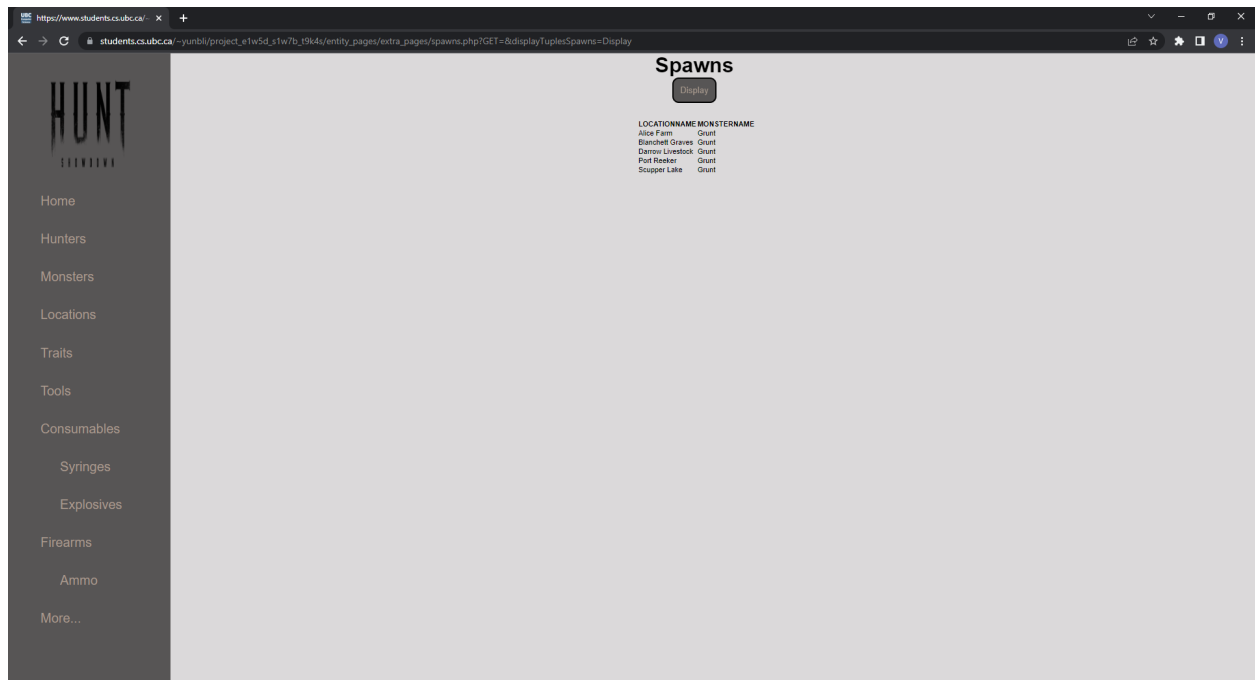
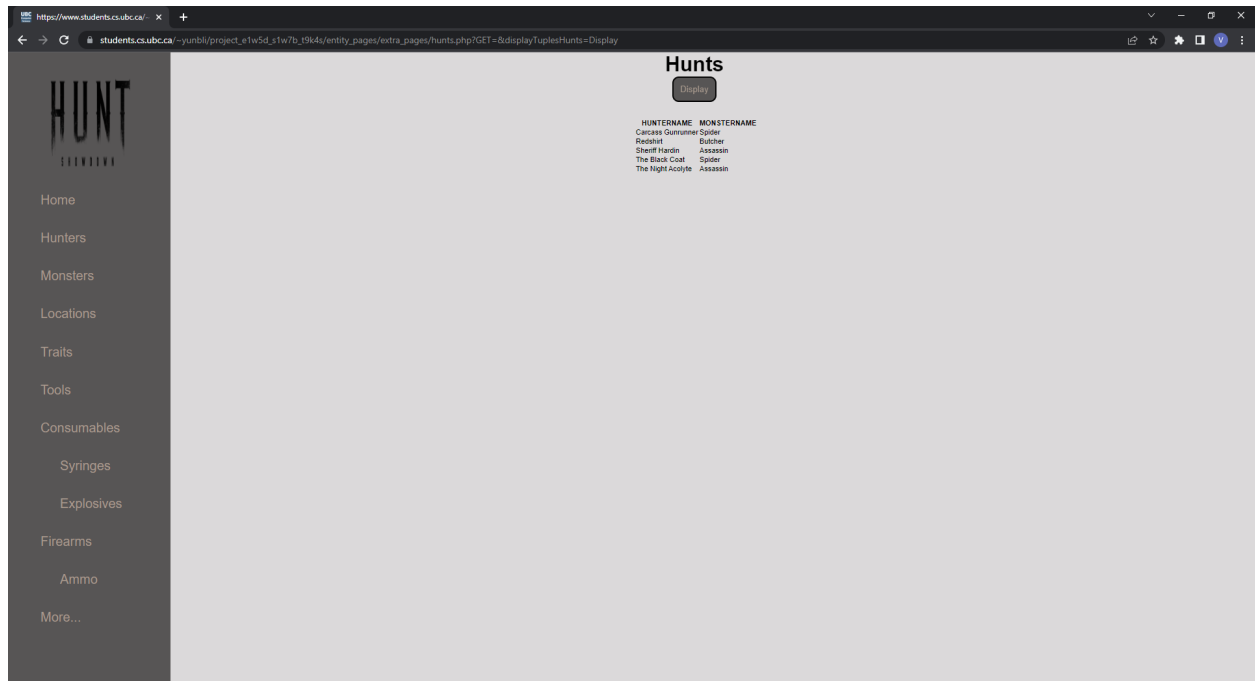
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Consumes

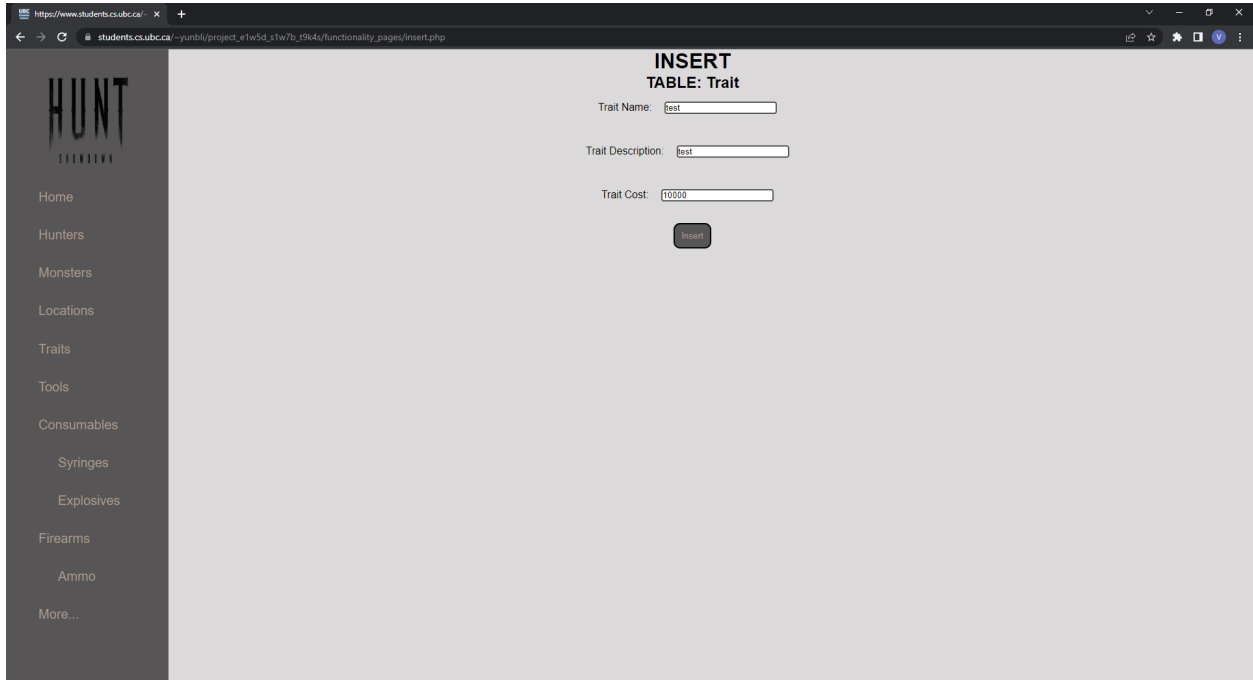
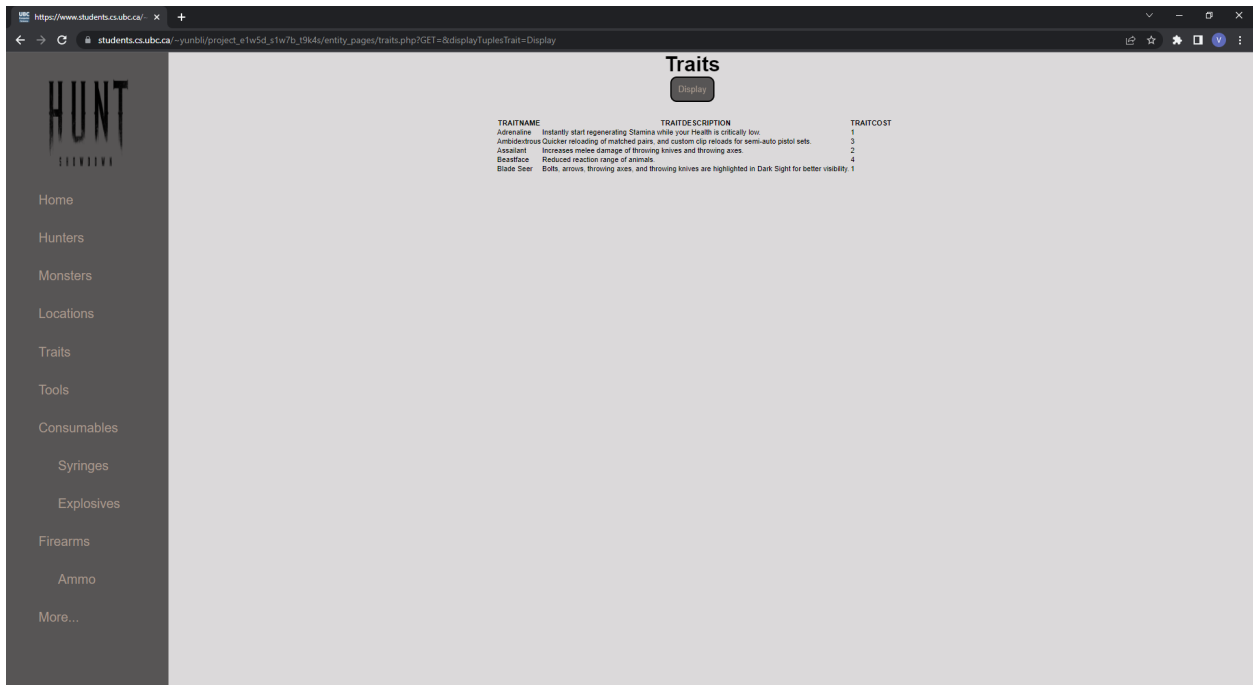
Display

HUNTERNAME	CONSUMABLENAME
Redshot	Flash Bomb
Redshot	Vitality Shot
The Night Acolyte	Flash Bomb
The Night Acolyte	Regeneration Shot
The Night Acolyte	Vitality Shot

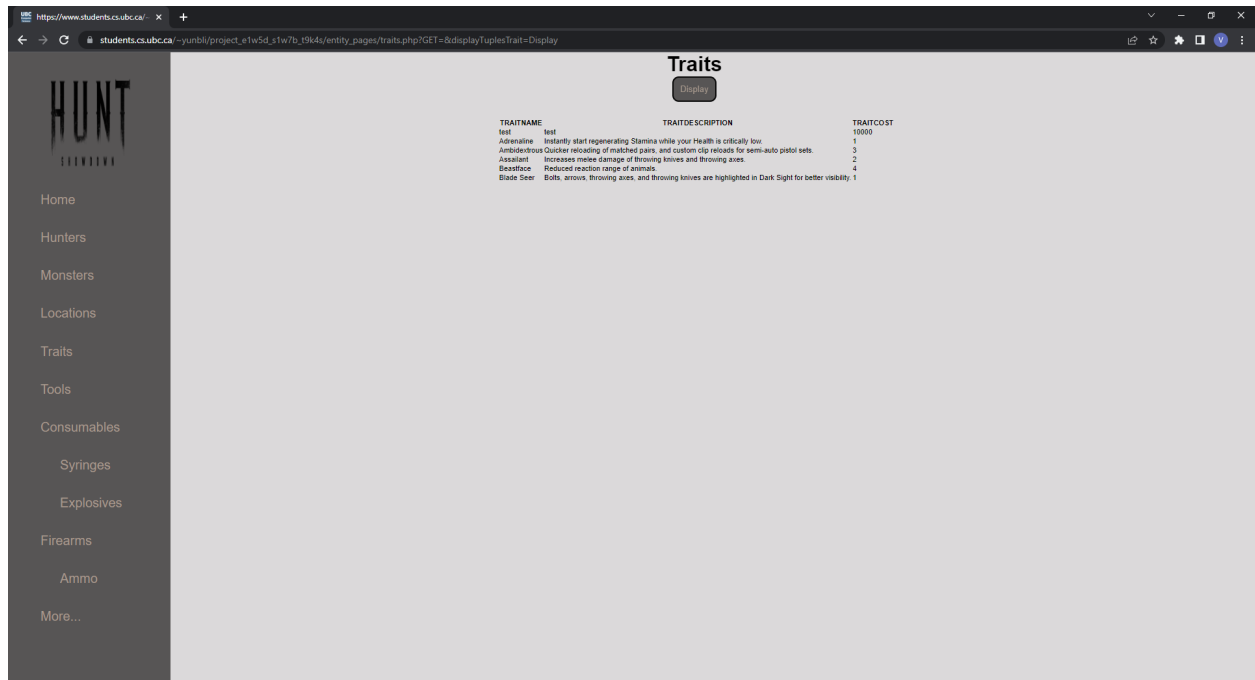




INSERT¹



¹ This operation satisfies the insert rubric item for our project



In this insert operation, the user is able to input values for all trait attributes for an insertion into the *Trait* table.

The backend code for this operation functionality may be found within the *handleInsertRequest()* function in *./backend_functionality\handlers.php*

DELETE²

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CONSUMABLENAME	CONSUMABLEDESCRIPTION	CONSUMABLECOST	SYRINGEHEALING	SYRINGEEFFECT	SYRINGEDURATION	EXPLOSIVEEFFECT	EXPLOSIVERANGE	EXPLOSIVEEFFECT	EXPLOSIVERADIUS	EXPLOSIVEDAMAGE
Dynamite Bundle	A bundle of several dynamite sticks. Why only bring one?	75		15		9				1500
Frag Bomb	Frag bombs send lethal shrapnel over a large area, lacerating nearby enemies.	103		20		10				150
Flash Bomb	Home made, mercury based, blinding light bomb. Capable of disorienting several targets at once.	47		20		8				1
Sticky Bomb	Dynamite charge in a sticky frame that can be attached to objects and enemies. Its eight-second fuse doubles the detonation time of a dynamite stick.	64			15		8			1000
Vitality Shot (Weak)	A shot which immediately restores 75 health.	20	75							
Vitality Shot	A shot which immediately restores all health.	85	150							
Regeneration Shot	A shot that continually restores health over a long duration. However, health regenerates at a reduced rate.	85				600				
Stamina Shot	A shot which immediately restores all stamina and stops further depletion for 10 minutes.	100				600				
Antidote Shot	Instantly cures and prevents all poison effects. Physical damage associated with poison attacks still applies.	50				1200				
Warped Dynamite Stick	A dynamite stick with a modified powder fuse that enables detonation under water.	24			20		8			750

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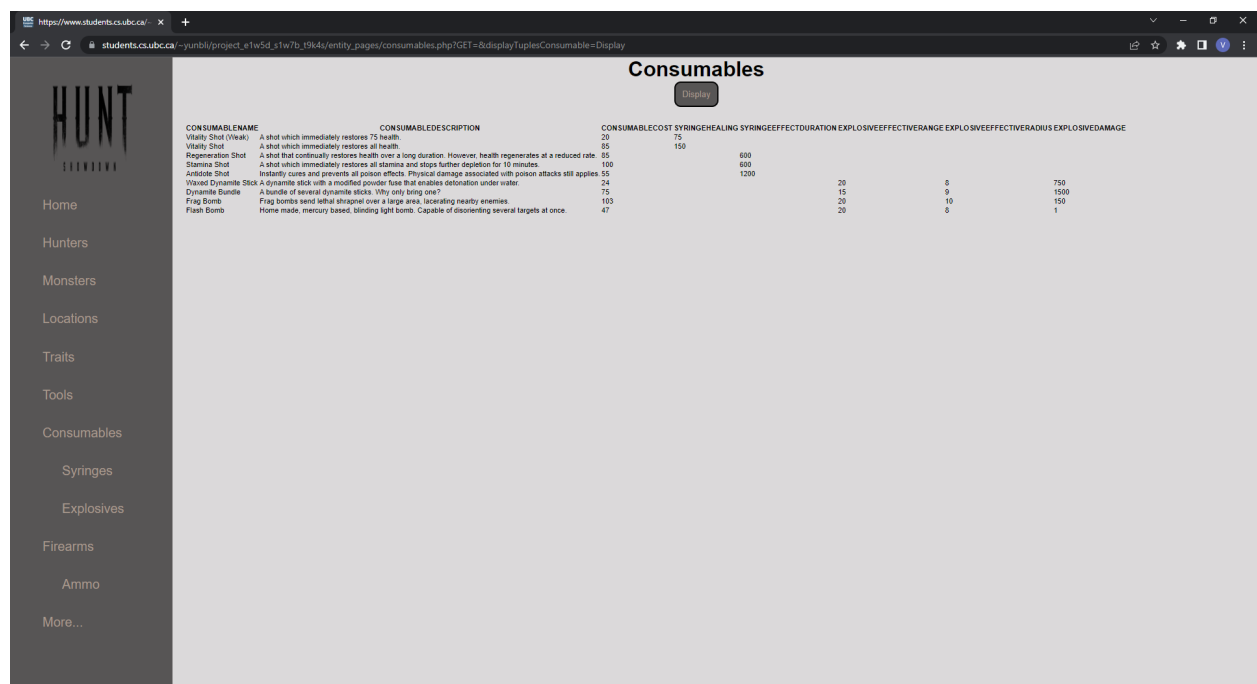
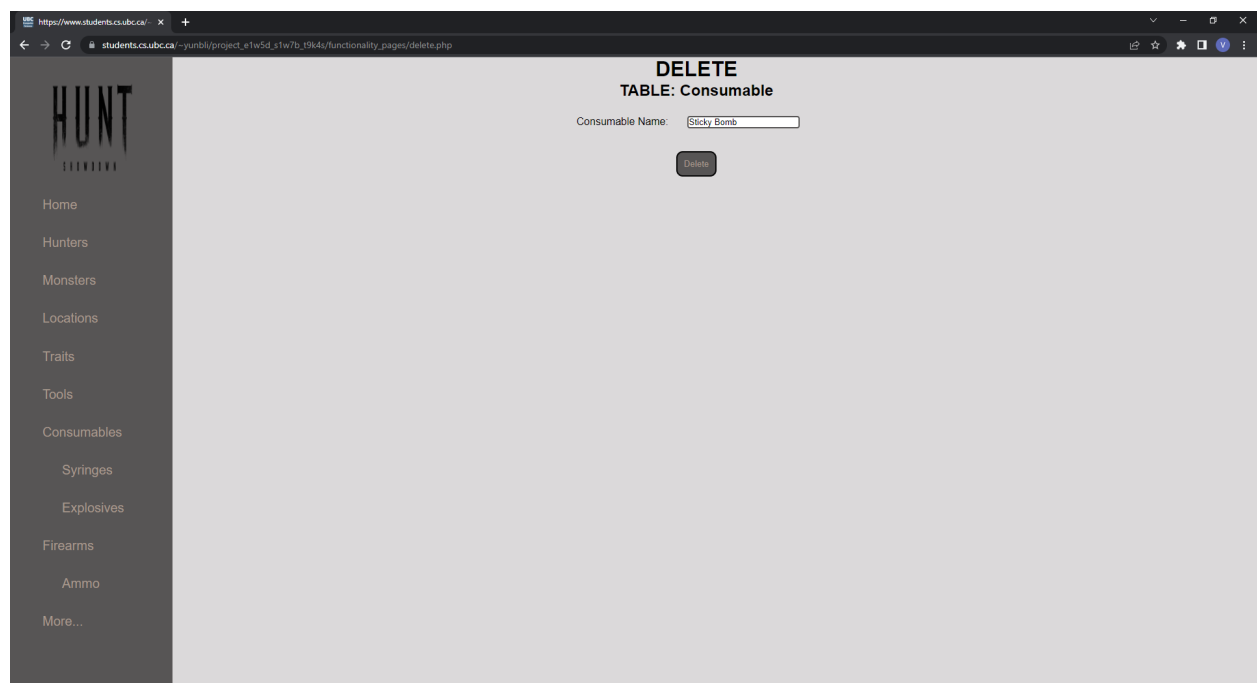
More...

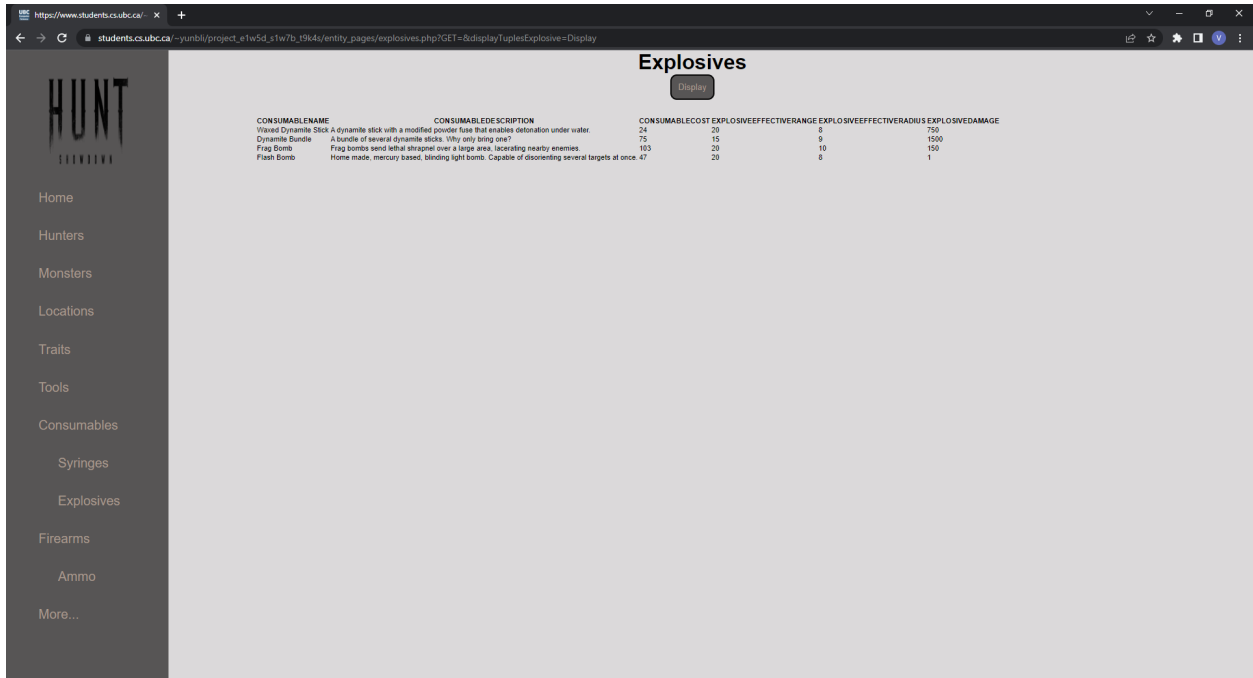
Explosives

Display

CONSUMABLENAME	CONSUMABLEDESCRIPTION	CONSUMABLECOST	EXPLOSIVEEFFECT	EXPLOSIVERANGE	EXPLOSIVEEFFECT	EXPLOSIVERADIUS	EXPLOSIVEDAMAGE
Dynamite Bundle	A bundle of several dynamite sticks. Why only bring one?	75	15		9		1500
Frag Bomb	Frag bombs send lethal shrapnel over a large area, lacerating nearby enemies.	103	20		10		150
Flash Bomb	Home made, mercury based, blinding light bomb. Capable of disorienting several targets at once.	47	20		8		1
Sticky Bomb	Dynamite charge in a sticky frame that can be attached to objects and enemies. Its eight-second fuse doubles the detonation time of a dynamite stick.	64	15		8		1000
Warped Dynamite Stick	A dynamite stick with a modified powder fuse that enables detonation under water.	24	20		8		750

² This operation satisfies the delete rubric item for our project





The screenshot shows a web browser window with the URL `https://www.students.cs.ubc.ca/~yunbli/project_e1w5d_s1w7b_t9w4s/entity_pages/explosives.php?GET=&displayTuplesExplosive=Display`. The page title is "Explosives". On the left is a sidebar menu with options: Home, Hunters, Monsters, Locations, Traits, Tools, Consumables, Syringes, Explosives, Firearms, Ammo, and More... The main content area displays a table of explosives.

CONSUMABLENAME	CONSUMABLEDESCRIPTION	CONSUMABLECOST	EXPLOSIVEEFFECTIVENESS	RANGE	EXPLOSIVEEFFECTRADIUS	EXPLOSIONDAMAGE
Vivax Dynamite Stick	A dynamite stick with a modified powder fuse that enables detonation under water.	24	20	8	750	
Dynamite Bundle	A bundle of several dynamite sticks. Why only bring one?	75	15	9	1500	
Frag Bomb	Frag bombs send lethal shrapnel over a large area, incapacitating nearby enemies.	103	20	10	150	
Flash Bomb	Home made, mercury based, blinding light bomb. Capable of disorienting several targets at once.	47	20	8	1	

In this delete operation, the user is able to input a consumable name to identify which consumable they would like to delete from the *Consumable* table. Note the cascade-on-delete scenario between the *Consumable* table and the *Explosive* table in the provided example. The backend code for this operation functionality may be found within the *handleDeleteRequest()* function in *./backend_functionality/handlers.php*

UPDATE³

The screenshot shows the 'Tools' display page in the HUNT application. The left sidebar contains a navigation menu with the following items: Home, Hunters, Monsters, Locations, Traits, Tools (selected), Consumables, Syringes, Explosives, Firearms, Ammo, and More... The main content area is titled 'Tools' and features a 'Display' button. Below the button is a table with the following data:

TOOLNAME	TOOLDESCRIPTION	TOOLMELEE	DAMAGE	TOOLHEAVY	MELEE	DAMAGE	TOOLCOST
Knife	An all-purpose tool and melee weapon that has saved many lives - and taken just as many.	52	105	30			
Dusters	A row of metal rings worn on the hand in order to increase the damage caused in hand-to-hand combat.	31	72	15			
Knuckle Knife	The savage knuckle knife is a roughshod specialization for close quarters combat, suited for both bludgeoning and brutal thrusting deathblows.	58	62	15			
Throwing Axes	Silent and deadly short-ranged projectile weapon. Can be retrieved and reused.	74	142	30			
Throwing Knives	Silent, but short-ranged projectile weapon. Thrown knives can be retrieved and re-used.	22	52	40			

The screenshot shows the 'UPDATE TABLE: Tool' form in the HUNT application. The left sidebar is identical to the previous screenshot. The main content area is titled 'UPDATE TABLE: Tool' and contains the following form fields:

- Tool Name:
- Attribute to Update:
- New Value:
- Update button

³ This operation satisfies the update rubric item for our project

TOOLNAME	TOOLDESCRIPTION	TOOLMELEEEDAMAGE	TOOLHEAVYMELEEEDAMAGE	TOOLCOST
Knife	Knife	52	105	30
Chakram	A row of metal rings worn on the hand in order to increase the damage caused in hand-to-hand combat.	31	72	15
Knuckle Knife	The savage knuckle knife is a roughhewn specialization for close quarters combat, suited for both bludgeoning and brutal thrusting deathblows.	58	92	15
Throwing Axes	Silent and deadly short-ranged projectile weapon. Can be retrieved and reused.	74	142	30
Throwing Knives	Silent, but short-ranged projectile weapon. Thrown knives can be retrieved and re-used.	22	52	40

In this update operation, the user is able to input a tool name to identify which tool they would like to update from the *Tool* table. Additionally, they may specify which tool attribute they would like to update as well as a new value for said tool attribute.

The backend code for this operation functionality may be found within the *handleUpdateRequest()* function in *./backend_functionality\handlers.php*

SELECTION & PROJECTION QUERY⁴

FIREARMNAME	AMMO TYPE	AMMO DESCRIPTION	AMMO DAMAGE	AMMO EFFECT	RANGE	AMMO VELOCITY	AMMO COST
Mosin-Nagant M1891	Long	Large caliber rifle cartridge with high penetration damage and low damage dropoff. Pierces wooden walls, small trees, thin stone walls and single metal sheets.	143	334	400	0	
Mosin-Nagant M1891	Long	Large caliber rifle cartridge with high penetration damage and low damage dropoff. Pierces wooden walls, small trees, thin stone walls and single metal sheets.	136	319	615	0	
Mosin-Nagant M1891	Spitzer	Spitzer rounds revolutionize rifle ballistics, improving both penetration and muzzle velocity, though adding slightly stronger recoil. They are more stable in flight and can punch clean through multiple targets, but often cause less severe wounds.	116	335	620	150	
Lebel 1895	Long	Large caliber rifle cartridge with high penetration damage and low damage dropoff. Pierces wooden walls, small trees, thin stone walls and single metal sheets.	132	310	630	0	
Berthier Me 1892	Long	Large caliber rifle cartridge with high penetration damage and low damage dropoff. Pierces wooden walls, small trees, thin stone walls and single metal sheets.	130	305	590	0	
Berthier Me 1892	Incendiary	This bullet contains a small phosphorous charge that ignites when fired and sets flammable targets alight. A visible tracer can give the shooters position away.	130	305	590	10	
Berthier Me 1892	Spitzer	Spitzer rounds revolutionize rifle ballistics, improving both penetration and muzzle velocity, though adding slightly stronger recoil. They are more stable in flight and can punch clean through multiple targets, but often cause less severe wounds.	111	316	780	75	
Sparks LRR	Long	Large caliber rifle cartridge with high penetration damage and low damage dropoff. Pierces wooden walls, small trees, thin stone walls and single metal sheets.	149	347	533	0	
Sparks LRR	Incendiary	This bullet contains a small phosphorous charge that ignites when fired and sets flammable targets alight. A visible tracer can give the shooters position away.	149	347	533	10	
Sparks LRR	Poison	This bullet shatters on impact, releasing a toxic agent fatal in high doses. But the cost is reduced stopping power and penetration.	149	347	533	30	

TABLE:

Attributes:

Condition:

FIREARMNAME	AMMO TYPE	AMMO DAMAGE	AMMO VELOCITY	AMMO COST
Mosin-Nagant M1891	Long	136	615	0
Mosin-Nagant M1891	Spitzer	116	620	150
Lebel 1895	Long	132	630	0
Berthier Me 1892	Spitzer	111	780	75

This query projects *firearmName*, *ammoType*, *ammoDamage*, *ammoVelocity*, and *ammoCost* from the *Ammo* table, with the selection condition that the *ammoVelocity* > 600. The backend code for this query functionality may be found within the *handleSelectionAndProjectionRequest()* function in *./backend_functionality/handlers.php*

⁴ This query satisfies both selection and projection rubric items for our project

JOIN & SELECTION QUERY⁵

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HUNTERLEVEL	HUNTERNAME	HUNTERDESCRIPTION	HUNTERFUNDS	LOCATIONNAME	FIREARMNAME	HUNTERHEALTH
1	The Night-Jewels	Nadine Orville is a member of the doomsday cult, Night of the Hunter, and founder Isaac Powell's right-hand fighter.	0	Alice Farm	Moss-Ruger 181891	50
2	Redshit	After having drunk too much whiskey one night, Jonathan Redshit accepted a bet from his companions to enter the bayou with a target on his back.	0	Alice Farm	Lebel 1806	55
3	Carcass Gurner	A butcher, clandestine arms dealer, and hobby apothecarian, Jason Trevis is a brutal Hunter, and known for being coldly logical and just unhinged enough that his opponents never know what to expect.	0	Carrow Livestock	Lebel 1806	60
4	The Black Coat	William Durant is a Hunter, a scoundrel, and a murderer with a complicated past.	0	Port Reeler	Berthier M1892	65
5	Sheriff Hardin	During the early days of the infection, Sheriff Wayne Hardin was instrumental in halting the rapid spread of the infection.	0	Supper Lake	Sparks LRR	70

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FIREARMNAME	FIREARMDISCRPTION	FIREARMCAPACITY	FIREARMRATEOFFIRE	FIREARMHANDLING	FIREARMCOST
Moss-Ruger 181891	Modern Imperial Russian bolt-action service rifle with an internal magazine, firing powerful long cartridges. When fully emptied, can be reloaded fast with a five-round trigger clip.	5	34	75	499
Lebel 1806	The Lebel 1806, groundbreaking for its time, is a bolt-action rifle with an internal 10-round magazine. Slightly outperformed by more modern designs, it remains a powerful weapon of choice.	10	34	63	397
Berthier M1892	The lighter alternative to the Lebel 1806, the Berthier M1892 is a bolt-action musquetoon that does not lose power for the sake of its convenience.	3	36	79	356
Sparks LRR	Reinforced, large-bore, single-shot rifle with good sights. Can put down a lion across a prairie.	1	35	73	130
Martin-Henry IC1	The workhorse rifle of the British Empire, the Martin-Henry Carbine is a single-shot breech-loading rifle that values simplicity and power.	1	45	70	122

⁵ This query only satisfies the join rubric item for our project

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JOIN AND SELECT

TABLES: Hunter, Firearm

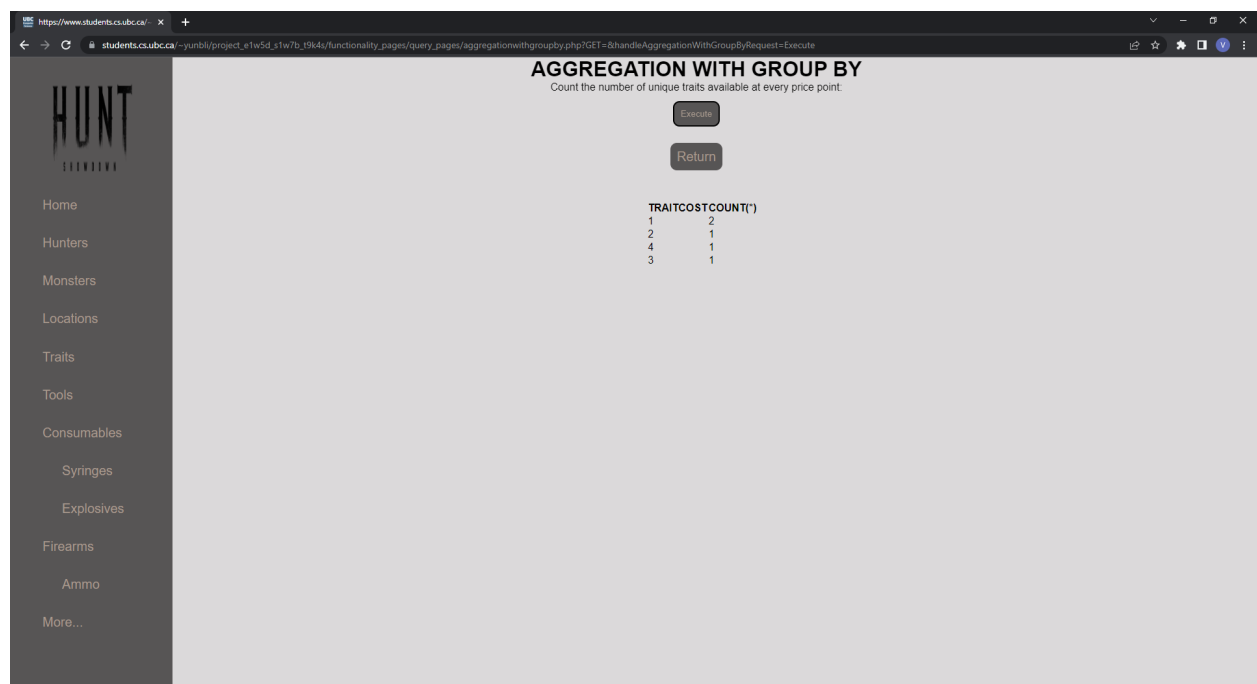
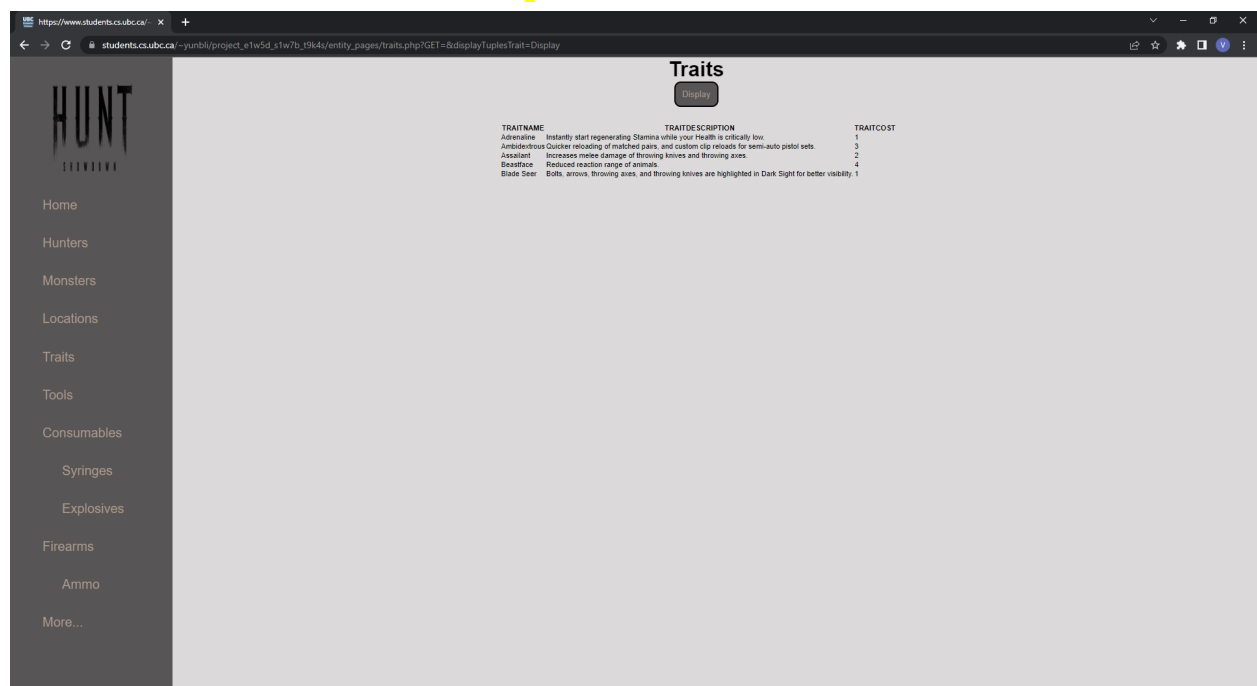
Hunter:

Firearm:

HUNTERNAME	HUNTERDESCRIPTION	HUNTERFUNDS	HUNTERLEVEL	LOCATIONNAME	FIREARMNAME	FIREARMDISCRPTION	FIREARMCAPACITY	FIREARMRATEOFFIRE	FIREARMMHANDLING	FIREARMCOST
Carcass Gunrunner	A butcher, clandestine arms dealer, and hobby apothecarist. Jason Trevors is a brutal Hunter, and known for being coldly logical and just unkind enough that his opponents never know what to expect.	0	3	Darrov Livestock	Lebel 1896	The Lebel 1896, groundbreaking for its time, is a bolt-action rifle with an internal 16-round magazine. Slightly outperformed by more modern designs, it remains a powerful weapon of choice.	10	34	83	397
The Black Coat	William Duvert is a Hunter, a scoundrel, and a murderer with a complicated past.	0	4	Port Reeler	Berthier Mle 1892	The lighter alternative to the Lebel 1896, the Berthier Mle 1892 is a bolt-action mousqueton that does not lose power for the sake of its convenience.	3	36	79	356

This query joins the *Hunter* and *Firearm* tables and subsequently selects tuples given the conditions that *hunterLevel* ≥ 3 and said hunter is carrying a firearm of *firearmCost* > 350 . The backend code for this query functionality may be found within the `handleJoinAndSelectionRequest()` function in `./backend_functionality/handlers.php`

AGGREGATION WITH GROUP BY⁶



This query counts the numbers of unique traits that are available at each price point.

The backend code for this query functionality may be found within the *handleAggregationWithGroupByRequest()* function in *./backend_functionality\handlers.php*

⁶ This query satisfies the aggregation with group by rubric item for our project

AGGREGATION WITH HAVING⁷

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FIREARMNAME	FIREARMDISCRPTION	FIREARMCAPACITY	FIREARMRATEOFFIRE	FIREARMHANDLING	FIREARMCOST
Moss-Nagant M1891	Modern Imperial Russian bolt-action service rifle with an internal magazine, firing powerful long cartridges. When fully emplied, can be reloaded fast with a five-round stripper clip.	5	34	75	490
Leber 1896	The Leber 1896, groundbreaking for its time, is a bolt-action rifle with an internal 10-round magazine. Slightly outperformed by more modern designs, it remains a powerful weapon of choice.	10	34	63	397
Berther Me 1892	The lighter alternative to the Leber 1896, the Berther Me 1892 is a bolt-action musquetoon that does not lose power for the sake of its convenience.	3	36	79	266
Sparks LRR	Renowned, large-bore, single-shot rifle with good sights. Can put down a boss across a prairie.	1	38	73	130
Martin-Henry IC1	The worthwhile rifle of the British Empire, the Martin-Henry Carbine is a single-shot breech-loading rifle that values simplicity and power.	1	45	70	122

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FIREARMNAME	AMMOTYPE	AMMODESCRIPTION	AMMODAMAGE	AMMOEFFECTIVERANGE	AMMOVELOCITY	AMMOCOST
Martin-Henry IC1	Long	Large caliber rifle cartridge with high penetration damage and low damage dropoff. Pierces wooden walls, small trees, thin stone walls and single metal sheets.	143	324	400	0
Moss-Nagant M1891	Long	Large caliber rifle cartridge with high penetration damage and low damage dropoff. Pierces wooden walls, small trees, thin stone walls and single metal sheets.	136	319	615	0
Moss-Nagant M1891	Spitzer	Spitzer rounds revolutionize rifle ballistics, improving both penetration and muzzle velocity, though adding slightly stronger recoil. They are more stable in flight and can punch clean through multiple targets, but often cause less severe wounds.	116	335	620	150
Leber 1896	Long	Large caliber rifle cartridge with high penetration damage and low damage dropoff. Pierces wooden walls, small trees, thin stone walls and single metal sheets.	132	310	630	0
Berther Me 1892	Long	Large caliber rifle cartridge with high penetration damage and low damage dropoff. Pierces wooden walls, small trees, thin stone walls and single metal sheets.	130	305	590	0
Berther Me 1892	Incendiary	This bullet contains a small phosphorous charge that ignites when fired and sets flammable targets alight. A visible tracer can give the shooter's position away.	130	305	590	10
Berther Me 1892	Spitzer	Spitzer rounds revolutionize rifle ballistics, improving both penetration and muzzle velocity, though adding slightly stronger recoil. They are more stable in flight and can punch clean through multiple targets, but often cause less severe wounds.	111	318	790	75
Sparks LRR	Long	Large caliber rifle cartridge with high penetration damage and low damage dropoff. Pierces wooden walls, small trees, thin stone walls and single metal sheets.	149	347	633	0
Sparks LRR	Incendiary	This bullet contains a small phosphorous charge that ignites when fired and sets flammable targets alight. A visible tracer can give the shooter's position away.	149	347	633	10
Sparks LRR	Poison	This bullet shatters on impact, releasing a toxic agent fatal in high doses. But the cost is reduced stopping power and penetration.	149	347	633	30

⁷ This query satisfies the aggregation with having rubric item for our project

The screenshot shows a web browser window with the URL `https://www.students.cs.ubc.ca/~yunbli/project_e1w5d_s1w7b_t9w4s/functionality_pages/query_pages/aggregationwithhaving.php?GET=8&handleAggregationWithHavingRequest=execute`. The page has a dark sidebar on the left with the 'HUNT' logo and a list of navigation links: Home, Hunters, Monsters, Locations, Traits, Tools, Consumables, Syringes, Explosives, Firearms, Ammo, and More... The main content area is light gray and contains the title 'AGGREGATION WITH HAVING' and the instruction 'Find the names of all firearms who have more than one ammo type.' Below this are two buttons: 'execute' and 'Return'. The 'execute' button has been clicked, and a table of results is displayed. The table has two columns: 'FIREARMNAME' and 'COUNT(*)'. The results are as follows:

FIREARMNAME	COUNT(*)
Berthier Mle 1892	3
Mosin-Nagant M18912	2
Sparks LRR	3

This query finds the names of all firearms who have more than one ammo type.
The backend code for this query functionality may be found within the *handleAggregationWithHaving()* function in *./backend_functionality/handlers.php*

NESTED AGGREGATION WITH GROUP BY⁸

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HUNTERLEVEL	HUNTERNAME	HUNTERDESCRIPTION	HUNTERFUNDS	LOCATIONNAME	FIREARMNAME	HUNTERHEALTH
1	The Night-Jessie	Nadine Orville is a member of the doomsday cult, Night of the Hunter, and founder Isaac Powell's right-hand fighter.	0	Alice Farm	Moss-Hugget M1891	50
2	Redshut	After having drunk too much whiskey one night, Jonathan Redshut accepted a bet from his companions to enter the bayou with a target on his back.	0	Alice Farm	Lebel 1886	55
3	Carcass Gunrunner	A butcher, clandestine arms dealer, and hobby apothecarian, Jason Trevous is a brutal Hunter, and known for being coldly logical and just unhinged enough that his opponents never know what to expect.	0	Carrow Livestock	Lebel 1886	60
4	The Black Coat	William Durant is a Hunter, a scoundrel, and a murderer with a complicated past.	0	Port Reeler	Berthier Mle 1892	65
5	Sheriff Hardin	During the early days of the infection, Sheriff Wayne Hardin was instrumental in halting the rapid spread of the infection.	0	Supper Lake	Sparks LRR	70

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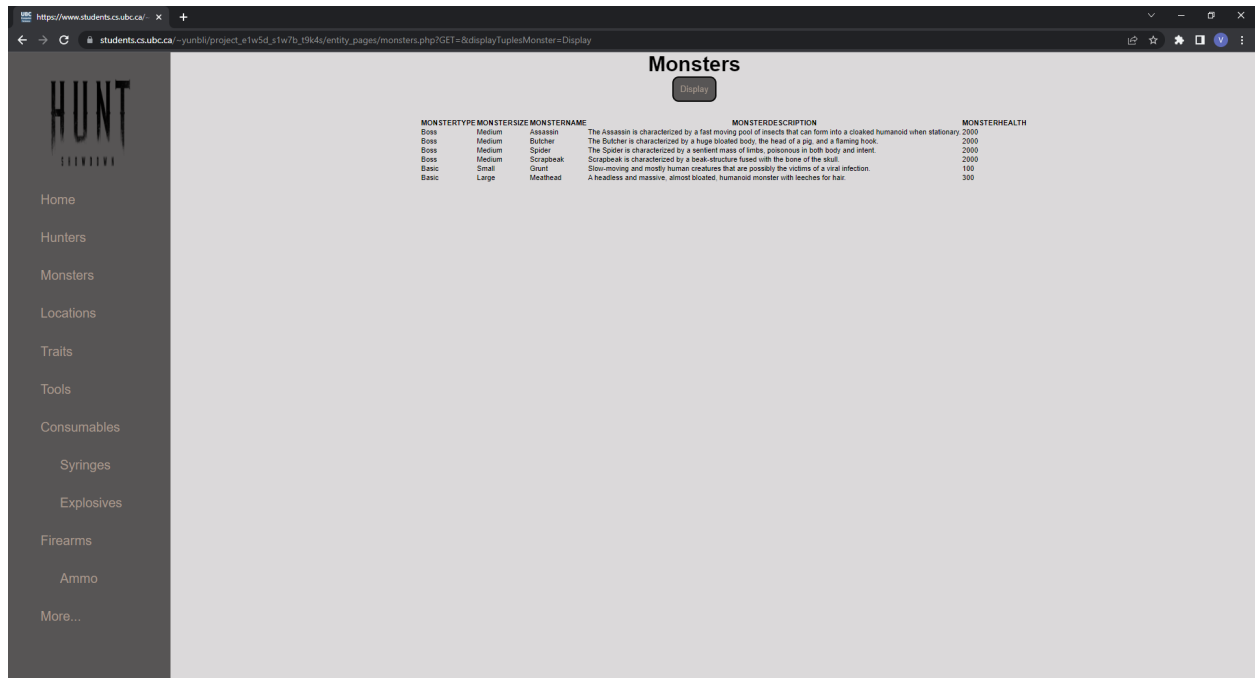
More...

Hunts

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HUNTERNAME	MONSTERNAME
Carcass Gunrunner	Spider
Redshut	Butcher
Sheriff Hardin	Assassin
The Black Coat	Spider
The Night-Acolyte	Assassin

⁸ This query satisfies the nested aggregation with group by rubric item for our project



This query finds the names and levels of all hunters whose level is greater or equal to, for every boss, the average level of hunters that hunt said boss.

The backend code for this query functionality may be found within the *handleNestedAggregationWithGroupByRequest()* function in *./backend_functionality\handlers.php*

DIVISION⁹

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HUNTERLEVEL	HUNTERNAME	HUNTERDESCRIPTION	HUNTERFUNDS	LOCATIONNAME	FIREARMNAME	HUNTERHEALTH
1	The Night Acolyte	Nadine Orville is a member of the doomsday cult, Night of the Hunter, and founder Isaac Powell's right-hand fighter.	0	Alice Farm	Moss-Hugget M1891	50
2	Redshit	After having drunk too much whiskey one night, Jonathan Redshit accepted a bet from his companions to enter the bayou with a target on his back.	0	Alice Farm	Lebel 1886	55
3	Carcass Gurnamer	A butcher, clandestine arms dealer, and hobby apothecarian, Jason Tivens is a brutal Hunter, and known for being coldly logical and just unhinged enough that his opponents never know what to expect.	0	Carrow Livestock	Lebel 1886	60
4	The Black Coat	William Durant is a Hunter, a scoundrel, and a murderer with a complicated past.	0	Port Reeler	Berthier M1892	65
5	Sheriff Hardin	During the early days of the infection, Sheriff Wayne Hardin was instrumental in halting the rapid spread of the infection.	0	Supper Lake	Sparks LRR	70

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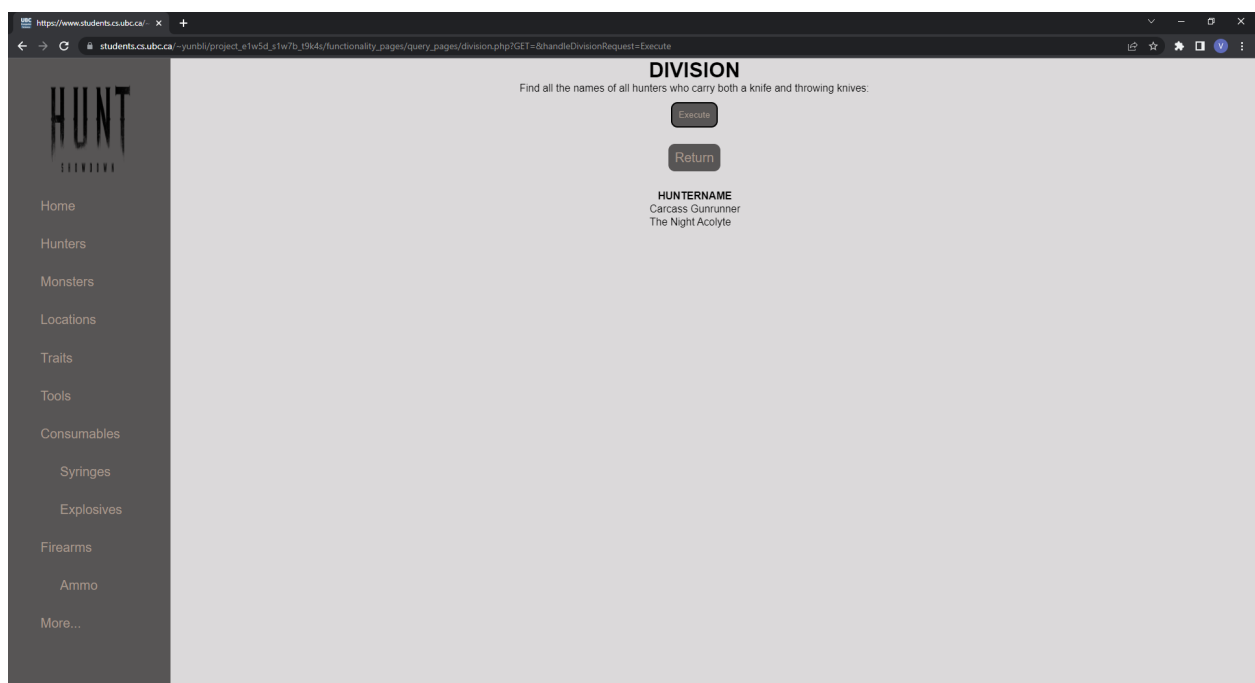
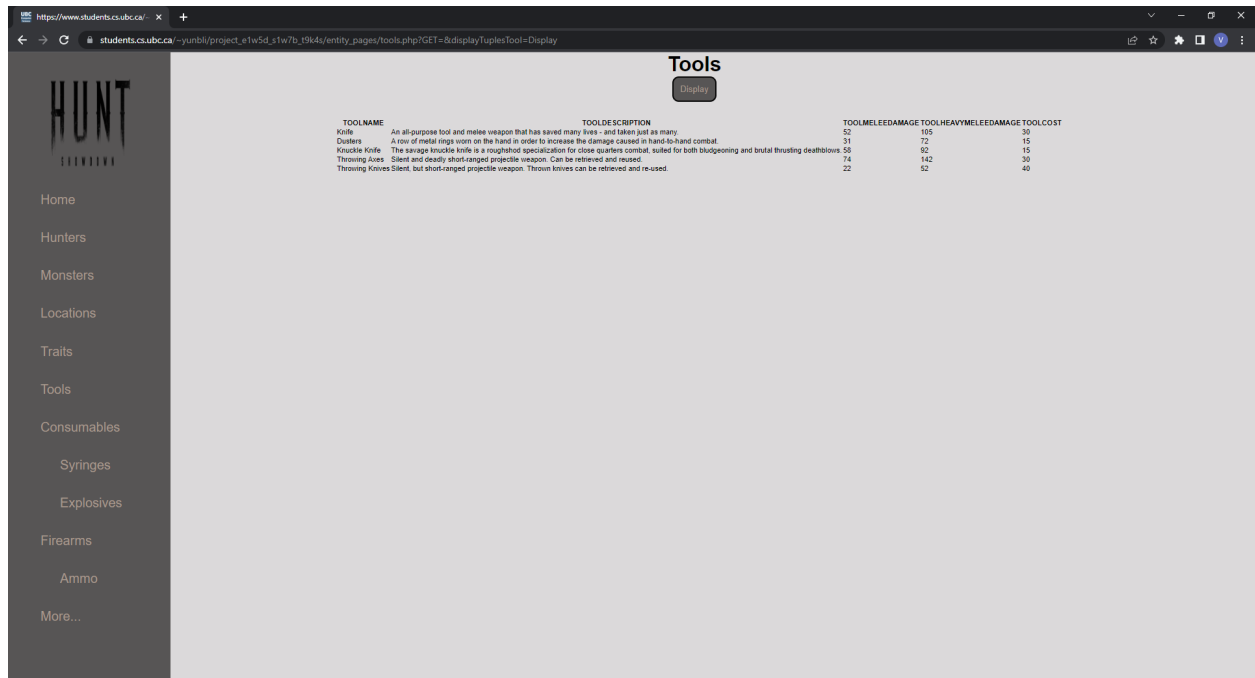
More...

Wields

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HUNTERNAME	TOOLNAME
Carcass Gurnamer	Knife
Redshit	Knuckle Knife
The Night Acolyte	Knife
The Night Acolyte	Throwing Knives

⁹ This query satisfies the division rubric item for our project



This query finds the names of all hunters who carry both a knife and throwing knives. The backend code for this query functionality may be found within the *handleDivisionRequest()* function in *./backend_functionality\handlers.php*