**XENO COLOSSEUM**

**Game Description & Basic Rules**

(pasted from Game Description of original GDD)

-2D browser based PVP fighting game.

-Similar gameplay to “Super Smash Brothers”.

-Anime aesthetic with cyberpunk and fantasy themes.

-All of the characters are considered 'endangered species,' integrated into an advance alien empire which has assigned them the role of gladiator.

-Up to 10 person matches, in which 10 players fight each other for 5 minutes.

-Knocking a player off the stage or reducing their health points (HP) to 0 will result in a knockout (KO).

-The winner of the match is the player who has the greatest number of KOs minus deaths (i.e. the number of times the player themselves was KO’d)

-Matches that result in a tie will lead to a tie breaking match between the players which tied. (no time limit, 1 life sudden death)

- 15 character choices available

- 5 stages

-Two modes: unranked and ranked matches.

-Ranked matches require that a player must create an account and login.

-Ranked matches require a full lobby of 10 players

**Gameplay Overview**

**Goals**

Moment-to-moment scope

- Avoid oncoming damage by blocking and positioning / Safely deal damage to opponents

- Avoid falling or being forced offstage / Force opponents offstage

- Manage HP and special meter

Match scope

- Score more points (K.O.s minus Deaths) than opponents by the time limit

- Target the current points leader to keep the match closer to even

Game scope

- Increase player MMR/ELO and climb the ranked leaderboard

- Prove skill by defeating stronger opponents

- (stretch goal / economy-specific) collect in-game currency, unlock characters and skins, potentially cosmetics, sound packs, etc.

**Character Gameplay (abstract)**

**Movement**

Turn direction

- Determines the direction of grabs and neutral attacks.

- When airborne, determines direction of forward and back aerial attacks.

- Determines direction of forward and back throws.

Acceleration and Max Speed

- These motion factors can vary by character (stronger characters need to “feel” heavier, slightly longer acceleration time)

- Characters can be temporarily “slowed” by certain effects, reducing both their acceleration and max speed.

Dashing

- Dash inputs are performed by rapidly inputting two movement inputs from a neutral control position…

- Double-tapping a single arrow key/cardinal stick direction

- Quickly tapping two different arrow keys/stick direction in sequence (separated by tiny window of “neutral” movement)

- The combination and order of directions performed (A + B) determines dash trajectory and distance  
 - After an initial dash speed bonus wears off, another dash may be performed

- Attacks performed out of dashes have 33% increased knockback, but twice as much end lag

- A dash can be performed with one input immediately following a landing from fast fall.

-This cancels the landing lag, adding it instead to dash attack move lag or at the end of the dash if no moves are performed.

Jumping

- Pressing the jump button for a short time (< 3 frames) executes a short hop with a lower jump arc

- After minimum jump height has been cleared, releasing the jump button begins descent early

- After maximum jump height has been reached, or descent has been initiated early, player enters the “falling” state.

- Jump height to be determined per character, but kept mostly consistent within a tight range

Fast fall

- Moving the control stick downward or pushing the down arrow key while airborne causes the player to plummet towards the ground

- Faster than natural falling speed.

Aerial jumps

- Most characters have at least a double jump but some may have only one jump, or more than two

- Each jump and aerial move performed increments a player’s landing lag tax (inability to attack/grab/block/dash/jump for duration after landing on ground)

**Attacks**

Each of the following attacks can be ranged or melee, depending on the character.

Each attack does some damage, inflicts some knockback (according to a base knockback amount + trajectory curve factored into target’s current damage % status).

Most attacks have some frames of delay, or start lag,

Attacks also possess a duration of end lag for the user, whereby after the attack the must wait a short window before inputting a jump, attack, grab, or block.

Attacks connecting with a target reduces their end lag significantly, and typically allows the user to attack again quickly.

Hitting multiple opponents with a single attack minimizes its end lag to just a few frames.

As a general principle to support the moment-to-moment goal of dealing safe damage, mistiming an attack leaves a player with an open window for punishment (end lag).

Additionally, attacks with fast

Attacks are classified first by the button of input, and secondarily by the position of the player’s control stick or movement keys at the time of button-press.

“Neutral” implies that the stick is in resting position or that no movement keys are being pressed.

Attack Types:

Weak Attacks (Tilts)

*- Jab (Neutral Tilt)*

*- Forward Tilt*

*- Down Tilt*

*- Up Tilt*

Strong Attacks (Smashes)

*- Forward Smash \**

*- Up Smash \**

*- Down Smash \**

Specials

*- Neutral Special*

*- Forward Special*

*- Down Special*

*- Up Special*

Aerials

*- Neutral Air*

*- Forward Air*

*- Down Air*

*- Up Air*

*- Back Air \**

(starred moves are generically the most reliable kill options against low health opponents, but this varies by character quite a bit)

Details & Constraints:

- Weak and strong attacks (tilts and smashes) can only be used while grounded.

- Specials can be used while grounded or airborne. They cost SP from the Special Meter to use. The Special Meter is filled by dealing damage.

- ”Neutral Smash” is a grab input rather than an attack.

- “Back Smash” reverses your character’s turn direction (small turnaround lag) and then activates a Forward Smash in the new forward direction.

- Entering a strong or weak attack input while airborne will activate an aerial.

- “Strong” and “weak” aerials share animations (reducing assets), but differ by sound and timing, as well as by damage and knockback data.

- “Weak” aerials do less damage but are easier to string combos out of, due to faster deployment and shorter knockback trajectories

- “Strong” aerials are slightly slower (harder to land), but do more damage. Harder to combo from, but great for finishing a kill due to longer knockback.

**Grabbing & Throwing**

Grab Inputs

- Grabs are performed by pressing the strong attack button while holding no other directions (a neutral smash).

- This input doesn’t exist in smash bros, but has some precedent in other fighting games.

- Having to let go of the control stick or movement keys before pushing the button “feels” like lunging in for a grab.

- Reduces number of needed buttons and increases number of compatible input devices (to support a greater playerbase)

Grab Delay

- Similar concept as move delay or start lag, but specific to grabs.

- Time after input before grab hitbox is deployed. Can vary by character, occupies the time of the windup animation.

- Negate the Grab Delay in the frames following a Perfect Block

- Grab delay is extended if the previous action taken was also a missed grab

Grab Miss

- Player suffers Miss Lag. Duration (frames) varies by character, cannot move or perform action while a grab miss animation plays.

- If the player is dealt damage during miss lag, add a flat 5% to the damage they take and a few frames to their future landing lag

”Mashing Out”

- While in the “held” state before a throw, the grabbed player can mash inputs to reduce grab’s expiration time.

- If the grab expires, the held player falls out and is given a short period of grab immunity.

- During the grab immunity period, the grabbed player gains a slight damage bonus against the holding player

Directional Throws

- Characters are either thrown Up, Down, Forwards, or Backwards, based on the cardinal direction closest to the player’s movement input

Button Throws

- Button throws are based on the normal directional throws, but do more damage with a smaller knockback arc

- Character-specific as to which buttons (weak, strong, special) determine the throw direction (game sense + character diversification)

Aeriel Grabs

- Not every character can grab in the air, but some can.

- Aerial grabs have a shorter expiration time when waiting for a throw input.

- Missed Aerial Grabs are subject to less Miss Lag (see below) than grounded grabs

**Blocking**

Shield Health + Recovery

- The amount of damage a character’s shield can withstand, as well as the rate of shield recharge, varies slightly by character.

- Filling the Special Meter or damaging an opponent’s shield hastens the shield recovery time.

Chip Damage

- Some small percent of chip damage and chip knockback will still penetrate a player’s shield and nudge them away from the attack.

- Entering movement inputs while blocking, if timed opposite oncoming attacks, will reduce this chip damage and knockback based on their timing and accuracy

Shield Break

- Reducing a fighter’s shield health to zero will stun them and make them weak to damage and knockback for around 3.5 seconds (needs testing).

Shield Drop (releasing button before expiry)

- Small window of shield lag afterward, whereby player can jump and dash but can’t attack or grab.

**Character Outline Sample**

Sample concept for a character with some of their moves defined

Machine Gunner, acrobatic soldier type

-Flips/Jumps with somersaults, leading to unique gun behavior while airborne.

-Neutral air: Fires machine gun bullets in a circle based on current rotation.

-Forward air: Fires bullets straight ahead

-Down air: Fires bullets downward (slows descent)

-Up air: Fires bullets upward (triggers fast fall)

-Back air: Kicks behind them with a big boot

“Strong” equivalent aerials fire a single large projectile as opposed to many small ones. (and a stronger, slower back air)

-Grab: Deploys a claw lob. When it connects with opponents, grapple to them. Usable midair.

-Neutral Special: Sticky mine (surfaces and players). Press again to detonate, expires after awhile. Can damage self for bomb jump tricks, recovery, etc.

-Grounded strong attacks involve knife or very close range weaponry, deal high damage but lower knockback.

-Good kill options: Back-air, bullet spray at edge of screen with aerials, explosion tricks with mine at edge of stage or screen.

**Animation Workload**

**Asset List**

Menus

*- Title Screen*

*- Main Menu*

*- Settings/Preferences*

*- Character Selection*

*- Loading Screen*

- *Credits/Legalese*

Generic

*- Ground dust and landing particles*

*- Dash dust*

*- Smoke/air trails for big knockback (sailing across screen)*

*- Out of bounds death*

*- Post-K.O. player sprite explosion*

Per Character (48 anims average)

*- Portrait (1 frame)*

*- Portrait Get-Hit (2 frames)*

*- Portrait Injured (1 frame)*

*- Portrait Victorious (3 frames)*

*- Portrait Defeated (1 frame)*

*- Intro / Battle start*

*- Victory pose*

*- Idle*

*- Injured Idle*

*- Run/move cycle*

*- Slowing down*

*- Skid/turnaround (1-2 frames)*

*- Dash takeoff*

*- Rising*

*- Falling*

*- Landing*

*- Get-hit I (1 frame)*

*- Get-hit II (1 frame)*

*- Get-hit serious I (1 frame)*

*- Get-hit serious II (1 frame)*

*- Death*

*- Blocking*

*- Block hit weathered (1 frame)*

*- Block broken*

*- Jab (Neutral Tilt)*

*- Forward Tilt*

*- Down Tilt*

*- Up Tilt*

*- Neutral Air*

*- Up Air*

*- Down Air*

*- Forward Air*

*- Back Air*

*- Forward Smash*

*- Up Smash*

*- Down Smash*

*- Grab*

*- Neutral Special*

*- Forward Special*

*- Down Special*

*- Up Special*

*- Forward throw (re-use animation for back throw even if arc is altered)*

*- Up Throw*

*- Down Throw*

*- Weak button-throw (use directional throws as animation base)*

*- Heavy button-throw*

*- Special button-throw*

Some Characters:

*- Aerial jump (most characters)*

*- Aerial grab*

*- Special movement/landing particles*

**Sound Workload**

**Generic:**

Menu Sounds:

*- 1 highlight element sound*

*- 1 select element sound*

*- 1 retreat menu sound*

*- 1 enter character select menu sound*

*- 1 highlight character sound*

*- 1 select character sound*

*- 1 withdraw character selection sound*

*- 1 Lock in characters / move to start match sound*

Battle Meta Sounds:

*- 1 Fight begin sound*

*- 1 End of match sound*

*- 1 “Winner” sound*

*- 1 “Defeat” sound*

*- 1 “Tiebreaker” sound*

*- 1 Timer nearing-zero tick sound*

Hit Sounds:

*- 5 weak hit sounds*

*- 4 medium hit sounds*

*- 3 serious hit sounds*

*- 2 critical hit (sweet spot) sounds*

*- 1 botched hit (sour spot) sound*

*- 2 fire hit sounds*

*- 2 electric hit sounds*

*- 2 rock/gravel hit sounds*

Death sounds:

*- 1 Falling out of bounds sound*

*- 1 K.O. by percent sound*

Move Sounds:

*- 1 Light land on ground sound*

*- 1 Heavy land on ground sound*

*- 1 Jump from ground sound*

*- 1 Jump from air sound*

*- 1 Dash takeoff sound*

*- 1 Knockback flung wind sound*

**Per character:**

*- Move activation sounds*

*- Unique move hit sounds*

*- Character movement sound*

*- Possibly special character overrides moving, landing, etc sounds (ex: cyborg character clanking and shifting heavily)*

*- Small bank of chirps / simple talk sounds*

**Music Workload**

*-Title Theme*

*-Menu Theme*

*-Character select Theme*

*-Lobby Waiting Theme*

*-Stage 1 Theme*

*-Stage 2 Theme*

*-Stage 3 Theme*

*-Stage 4 Theme*

*-Stage 5 Theme*

*-End of match fanfare*

**Control Logistics**

- Goal: Support keyboard and gamepad controller inputs through the browser

-Realistic as long as secondary developer is comfortable with Unity Web APIs

- Rebindable controls

**Future Feature ideas / stretch goal concepts:**

*-friends list / blocklist*

*-private messaging*

*-private unranked lobbies*

*-Duel mode (1v1) unranked, possibly ranked (will be a common request, I anticipate)*

*-Training / hit test mode*

*-Achievements, unlocks, progression*

**Future Game mode concept: Kingmaker**

*- 5 to 10 players*

*- Same as unranked, but the current points leader is tracked with a crown icon above their head at all times*

*- The crown-wearer deals 10% more damage, but is subject to around 5% greater knockback from all damage sources*

*- Killing the crown-wearer awards 2 points to the K.O.ing player instead of 1*

*- The game ends once a player crosses a points threshold (first to: 10,20,35, etc.)*

**Future Game mode concept: Lobby Best of 5**

*- 10 player Lobby*

*- Play 1-minute private unranked matches until a player has 3 wins (2 wins for best of 3)*

*- Allows for customizable rulesets*