Cat, Wreck 'n' Havoc GDD

High Concept
A group of strangely powered stray cats are assigned by a secret agent to take down a shady organisation.

Concept
A 2D platformer where you take control of several cats with special abilities as they cause havoc throughout multiple homes with various enemies.

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1.0 Characters

- 1.1 Playable Characters
    - In our game, there will be a selection of playable characters that the player will swap between during the level.
    - These characters will have special abilities that only they can use.
    - Each character will have an Individual characteristic that will distinguish them from one another to give the player a visual queue to what ability they can use.

    - 1.1.1 Dash Cat
        - Individual characteristic:
            - Thin long body
        - Ability:
            - Dashing forward
                - Effect: Culls all momentum and dashes in the direction the player is moving. Gravity is disabled until the character stops dashing.

    - 1.1.2 Slam Cat
        - Individual characteristic:
            - Large Square body
        - Ability:
            - Slam attack
                - Effect: While on the ground the player lurches forward breaking any boxes in their way. While in the air they will slam down to the ground.

    - 1.1.3 Spring Cat
        - Individual characteristic:
            - Curled tail
        - Ability:
            - Double Jump
                - Effect: While in the air the player can perform a second jump.

- 1.2 Side Characters
    The spy characters will somewhat act as straight men to the wackiness of the cats and will be based on spy characters from the 80s ie James Bond.

- 1.2.1 Secret Agent (Name TBD)
    - Tuxedo wearing
    - Cocktail drinking
    - Professional
    - A non-playable character for the players to interact with

- 1.3 Enemy Characters
    We will have a variety of enemies in our game. These will be based on henchmen of 80s spy villains. All wearing similar uniforms there will be a clear distinction between the different types but with each type having variants.
    - 1.3.1 Basic Enemy
        - Can be tall and lanky or short
        - When the player lands on their heads they are knocked out

    - 1.3.2 Bulky Enemy
        - Can be short and stout or muscular
        - When the player lands on their heads they are stunned for a few seconds
    - 1.3.3 Punch 'Em Joe
        - Short and round
        - Has big boxing gloves
    - 1.3.4 Muscle Steve
        - Big and bulky
        - Looks like an old school bodybuilder with the leotard

2.0 Story

- 2.1 Themes
- Our game will take inspiration from the 80s and the themes that can be found in the media (films, tv, video games) of the time.
    - 80s arcade games
    - 80s spy films

- 2.2 Inspirations

    - 2.2.1 Film and TV inspirations
        - The James Bond franchise (from the 80s era)
        - Stranger Things
        - Maimi Vice
        - A-Team
        - Tom and Jerry

    - 2.2.2 Game Inspirations
        - Super Mario franchise (2D versions)
        - Bro Force
        - Far Cry 3: Blood Dragon
        - Untitled Goose Game
        - Catlateral Damage
        - Octodad: Dadliest Catch

- 2.3 Progression

2.0 Story

3.0 Gameplay

- 3.1 Goals

    - 3.1.1 Story Goals
        - 3.1.1.1 Main Goal - The Main story goal for the player is to take down the shady organisation by causing as much chaos as possible.
        - 3.1.1.2 Rewards - Progression through the story and unlocking the next cosmetics for the player to equip to the characters

    - 3.1.2 Level Goals
        - 3.1.2.1 Main Goal - The goal for the player on each level is to knock over a certain amount of pieces of furniture to unlock the exit to allow for the player to progress to the next zone
        - 3.1.2.2 Additional Goal - The player will have the opportunity will knock more furniture throughout the level to achieve a greater score when they are graded at the end of the level
        - 3.1.2.3 Rewards - Depending on the score the player got in the level they would receive cosmetic items for the playable characters
        - 3.1.2.4 Additional Level Goals - At every star ranking on a level the player will unlock a new challenge on the level. Each challenge will unlock a new cosmetic item for the playable characters. Challenges include:
            - Time Trial - Complete the level at a certain time.
            - 1 Life - Complete the level with only 1 life.
            - Stealth Mode - Go unseen by enemies.

- 3.2 Player abilities
    The three characters in our game each will have individual character abilities that they can use throughout the level.
        - 3.2.1 Dash Cat
            - Abilities :
                - Vertical movement
                - Jumping
                - Dash - Sudden movement in the direction the player character is facing
                - Air Dash - The player can Dash while in the air to temporarily stop horizontal movement until the dash has finished

- 3.2.2 Slam Cat
    - Abilities:
        - Vertical movement
        - Jumping
        - Forward Slam - If used while on the ground the player will dart forward and if they make contact with destructible objects, those objects would be destroyed or if they make contact with enemies it will stun or eliminate the enemy they make contact with from behind.
        - Downwards Slam - If used while in the air the player will dart downwards breaking any destructible objects they contact or stun/eliminate enemies. When the player makes contact with the floor, an animation of a cloud of dust will play and will break any destructible objects and stun/eliminate enemies this animation touches.

- 3.2.3 Spring Cat
    - Abilities :
        - Vertical movement
        - Jumping
        - Double Jump - While in the air the player can jump for a second time and can be used to change direction
        - Head Bounce - When the player lands on the head of an enemy character they will perform a larger-than-normal jump

- 3.3 Game Mechanics
    Our characters will all have slightly different ways of getting about the levels. This will be through their abilities and the character's movement speeds (TBD)

    - 3.3.1 Character movement
        - Basic movement
            - Walk
                - Controls
                    - A&D and Left Joy Stick to move
                - Effect

- The player character will move left and right across the screen when input is held down. (will add a force to slow down & stop the player when input is released)
  - Air Movement
    - Jumping
      - Controls
        - Space and Bottom Button on the right D-pad
      - Effect
        - The player character will move upwards for a short time
    - Air control
      - Controls
        - A&D and Left Joy Stick to move
      - Effect
        - While in the air The player character will move left and right across the screen slowly
  - Character abilities
    - Controls
      - Left Shift and Left bumper (Same control as Jump for the Double Jump ability)
    - Effect
      - [See 3.2 for the effects]
- 3.3.2 Enemy interactions
  - Basic contact with the player
    - When the player touches an enemy from the side they with lose a life. [See 3.3.3 Player lives for more]
    - If the player lands on the enemy's head they will have a small bounce off of their head and the enemy will be stunned for a second or eliminated.
  - Contact involving player abilities
    - [See 3.2 for the effects]
- 3.3.3 Player Lives
  - The player will have 9 lives displayed as hearts on the screen.
  - Touching the sides of an enemy will have the player to lose one of these lives. (TBD)
  - Once the player runs out of life they will respawn at the start of the level.
  - The player can gain back some life by collecting Tuna Cans around the level (Still TBD) [See 3.5.2 for more information]
- 3.3.4 Swapping Characters
  - There will platform placed throughout the level.
    - To use these platforms the player must stand on them

- Controls
  - F on the Keyboard or the Right Button on the Right D-Pad.
- Effect
  - The player character will switch to the character displayed on the platform. The Character the player was just controlling will then be displayed on the platform.

- 3.4 Enemy behaviour

The enemies in our game will all behave similarly. This behaviour will be somewhat simple allowing the player to pick up the patterns quickly.

- 3.4.1 Movement
  - Enemies will move from left to right and switch directions if they collide with the terrain or other enemies. Each Enemy AI will play a short animation before turning around.
- 3.4.2 Chasing the player
  - When the player comes into range of the enemies they will start walking in the direction of the player.
- 3.4.3 Stunned
  - When stunned the enemy will remain still for a time before resuming their normal behaviour.
- 3.4.4 Boss AI Behaviour
  - 3.4.4.1 Punch 'Em Joe
    - 3.4.4.1.1 Stomping
      - Punch 'Em Joe will move left to right and will switch directions if they collide with the terrain.
    - 3.4.4.1.2 Stunned
      - When the player jumps on Punch 'Em Joe's head they will be stunned for a short amount of time before starting a charge punch.
    - 3.4.4.1.3 Chasing Player
      - Once the player has jumped on Joe's head once Joe will begin to chase the player for a short time before becoming
    - 3.4.4.1.4 Charge Punch
      - 3.4.4.1.4.1 Charge up
        - Punch 'Em Joe will face the player as they charge up their punch. After a few seconds, the direction will be locked and after a few more seconds the punch will activate.
      - 3.4.4.1.4.2 Punch
        - Once the charge-up is finished Punch 'Em Joe will fling in the direction that had been locked in, only stopping if it hits the player

or terrain. Once Joe has finished his Punch he will become Tuckered Out. (see 3.4.4.2.5)

- 3.4.4.1.5 Tuckered Out
  - After Joe has Chased the player or Punched he will stop moving and will play an animation where he takes a few breaths.
- 3.4.4.2 Muscle Steve
  - 3.4.4.2.1 Stage 1
    - During the first stage Muscle Steve will remain still on a platform.
  - 3.4.4.2.2 Punch
    - During the second & third stages, Muscle Steve will punch the player away if they get too close.
  - 3.4.4.2.3 Throwing objects
    - During the third stage, Muscle Steve will throw projectiles out to the main area of the boss fight, these projectiles will damage the player if hit.
  - 3.4.4.2.4 Stage changes
    - Muscle Steve will play a short animation when the boss fight changes stages.
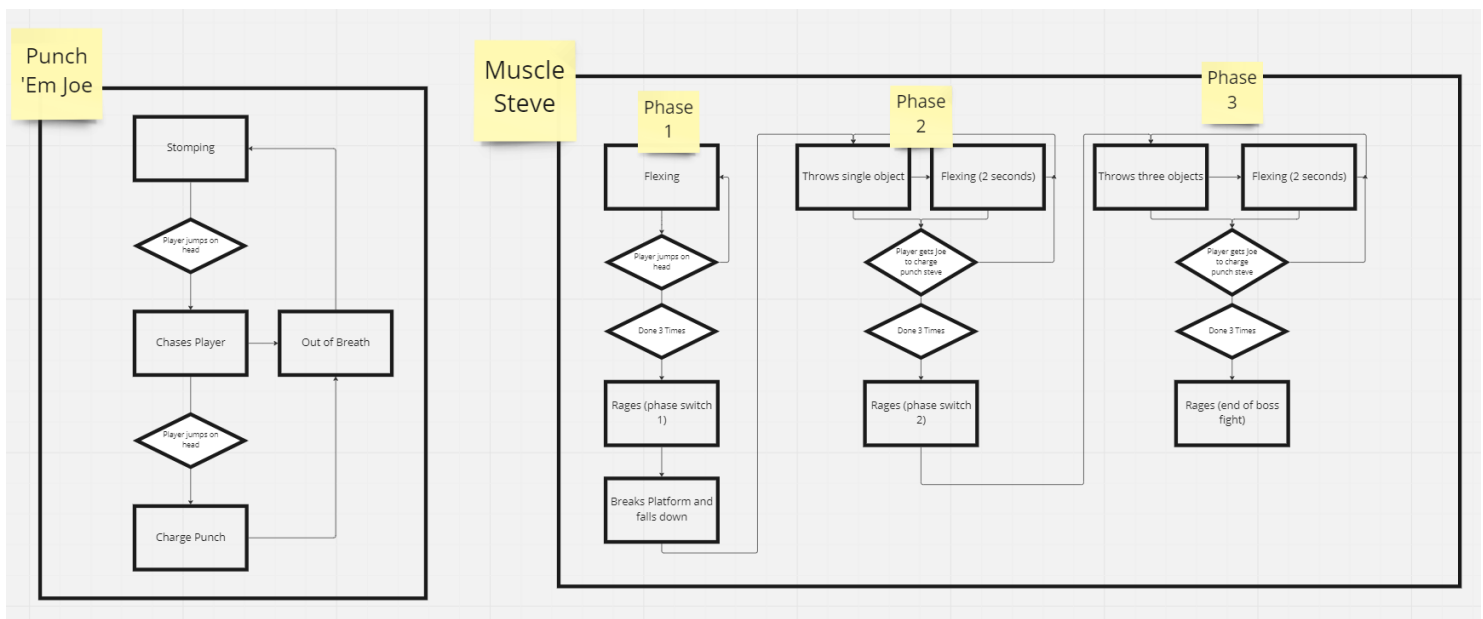

Diagram of the AI behaviour for the Punch 'Em Joe and Muscle Steve boss fight. [Here]

- 3.5 Items and powerups

  - 3.5.1 Furniture
    - 3.5.1.1 -Types

- We will have a variety of furniture throughout all of our levels. These will change based on what area the level is part of
  - 3.5.1.2 Appearance
    - Will depend on the area the level is part of (TBD)
  - 3.5.1.3 - Interaction
    - When the player touches the furniture it will fall off the level and the furniture counter will go up by one.

- 3.5.2 Tuna Cans
  - Appearance
    - A side-on view of a tuna can (Still TBD)
  - Interaction
    - When the player touches the Tuna Can, the item will be deleted and life will be added to the display

- 3.6 Progression and challenges

  - 3.6.1 Cosmetics
    - At the end of each level, the player will be rewarded hats and outfits that they can equip
    - These Cosmetics will be rewarded to the player base on the grading system [See 3.6.2]
  - 3.6.2 Grading System
    - Each level will have a set amount of furniture the level
    - The player needs to knock over a percentage of them to progress to the next level and that will achieve them a 1-star ranking (TBD)
    - Each star ranking will be based on a percentage of the furniture in the level with 100% earning the player a 5-star ranking
    - Each star ranking will earn the player a set cosmetic item and these items will be teased in the level select screen

- 3.7 Win/lose conditions
  - Knock over a certain amount of the furniture to unlock the level ends
    - When that number is met the UI will change to show the amount of furniture score for the next star rank
    - When the player achieves the next star rank they will unlock a new cosmetic at the end of the level

4.0 Art Style

- For our art style, we are going to use a 2D 32x32 pixel art style for the characters and the environment.
- Full Asset List (see Visual section): [removed]

- 4.1 Character Art
    - All playable characters must have some visible characteristic that separates them from each other. These characteristics must be present in all variations of the character's design.
    - Each character has a special ability and when used it will have its animation. These animations must follow the same design across all their variations.

    - 4.1.1 Character Cosmetics

        - 4.1.1.1 Dash Cat
            - Body
                -
            - Hat
                -
            - Ability Animation
                -

        - 4.1.1.2 Slam Cat
            - Body
                -
            - Hat
                -
            - Ability Animation
                -

        - 4.1.1.3 Spring Cat
            - Body
                -
            - Hat
                -
            - Ability Animation
                -

- 4.2 Environmental Art
    - The environmental art must be made modular so that we can easily build our levels.

- We are aiming to have our levels start like an average part of a normal town and then as the player progresses through the level it will transition into a secret lab
    - 4.2.1 Starting Environment Examples
        - Arcade
        - Average Home
        - Shop

- 4.3 Animations
    - Due to the 2D art style, we will be using all animations will be done using sprite sheets. These sprite sheets need to be repeatable as well as easily able to transition between certain animations to another.
    - 4.3.1 Character Animations
        - Each character will have the following animations
            - Walking
                - We will have a number of walking animations per character that is dependent on the movement speed of the player (Stretch goal)
            - Jumping
            - Falling
            - Hit
            - Using Ability
                - Character movement during ability
                - Ability affect
        - The character cosmetics changes will change the animations and will require new character sheets for each cosmetic item
    - 4.3.2 Boss Animations
        - Each of the bosses will have their own animations for each of their stage changes and abilities.
        - 4.3.2.1 Punch 'Em Joe
            - Walking
            - Chasing Player
            - Tuckered Out
            - Head Bonce reaction
            - Charge Punch
                - Two Stages
                    - One normal
                        - Will flip to follow the player.
                    - One flashing
                        - Will start once the direction of the punch is locked.
            - Thrown animation
        - 4.3.2.2 Muscle Steve
            - Flexing (Ideal for phase 1)

- Picking up & Throwing objects
- Raging out (Phase change)
  - 2 variants
    - One for each phase change
      - Progressively angrier.

5.0 Sound and Music

- For our game, we are taking inspiration from 80s music and games so all audio tracks (music or sound effects) must follow these themes
- Full Asset List (see Audio section): [removed]
- 5.1 In-game sounds
    - TBD

- 5.2 Back Ground Music
    - TBD

6.0 Technical Description

- 6.1 Platform
    - We intend to initially release our game onto the following platforms
        - PC
            - Steam store (initially)
            - Epic Games Store (TBD)
        - Nintendo Switch (TBD)

- 6.2 Engine
    - We will be using the Unity engine to build the game.
        - Version - 2020.3.35f1

- 6.3 Version Control
    - For version control, we will be using Github to manage the various versions of the game project.

- 6.4 Project Management
    - We will be using Jira for project management.

7.0 Controls
- The Controls we plan on using for our game will be based on standard industry practice for this genre of games (also known as legacy controls) for each platform we plan to use.

- 7.1 - PC Controls
    - 7.1.1 - Side On Controls
        - Move Left - A (Keyboard)
        - Move Right - D (Keyboard)
        - Jump-Space (Keyboard)
        - Double Jump (Spring Cat Only) - Space (Keyboard) while in the air
        - Dash (Dash Cat Only) - Left Shift (Keyboard)
        - Air Dash (Dash Cat Only) - Left Shift (Keyboard) while in the air
        - Forward Slam (Slam Cat Only) - Left Shift (Keyboard)
        - Downwards Slam (Slam Cat Only) - Left Shift (Keyboard) while in the air
        - Switch Character (When in character switch zone) - F (Keyboard)
    - 7.1.2 Top-Down Controls
        - Move up - W (Keyboard)
        - Move Down - S (Keyboard)
        - Move Left - A (Keyboard)
        - Move Right - D (Keyboard)
        - Select World/Level (When in the zone) - F (Keyboard)

- 7.2 Switch Controls
    - 7.2.1 - Side On Controls
        - Move Left - Analog Stick (Moved Left)/Left +Control Pad button
        - Move Right - Analog Stick (Moved Right)/Right +Control Pad button
        - Jump - B Button
        - Double Jump (Spring Cat Only) - B Button while in the air
        - Dash (Dash Cat Only) - ZR Button
        - Air Dash (Dash Cat Only) - ZR Button while in the air
        - Forward Slam (Slam Cat Only) - ZR Button
        - Downwards Slam (Slam Cat Only) - ZR Button while in the air
        - Switch Character (When in character switch zone) - A Button
    - 7.2.2 Top-Down Controls
        - Move up - Analog Stick (Moved Up)/Up +Control Pad button

- Move Down - Analog Stick (Moved Down)/Down +Control Pad button
- Move Left - Analog Stick (Moved Left)/Left +Control Pad button
- Move Right - Analog Stick (Moved Right)/Right +Control Pad button
- Select World/Level (When in the zone) - A Button