Clay Pigeon ShootOut

Course:	COMP 2659, Winter 2024
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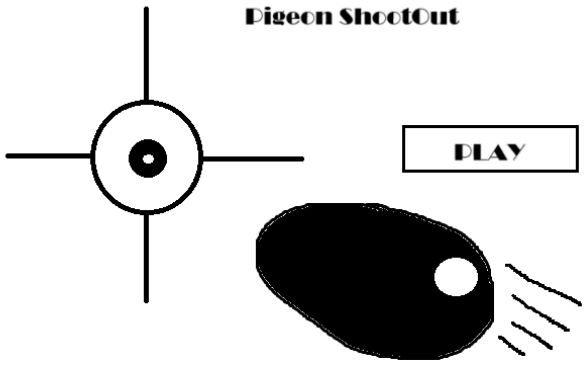
1. General Game Overview

Duck Hunt is a classic 2D-shooter arcade game and a simpler version of the game will be implemented. The pseudo-original game, *Clay Pigeon ShootOut* is very similar. Following the perspective of a hunter, the objective of this game is to shoot down the two clay pigeons that fly across the screen in an easy to detect pattern. The way in which the player completes the game successfully is through the control of the reticle, which aims the 'gun'. The player needs to put the reticle over a clay pigeon and press the spacebar to activate the shoot action. If all clay pigeons are shot down before the timer runs out, the player wins; otherwise, the player loses. This game allows for real time interaction between computer peripherals, the user and the program to produce a fun time.



The reticle starts in the middle of the screen and is controlled by the player. The player can move the reticle anywhere on the screen, but cannot go past the edges of the screen. The clay pigeons follow the same behaviour without player

control. Anywhere the player can go, the clay pigeons can go (theoretically), and anywhere the player cannot go, the clay pigeons cannot go.

2. Gameplay Details for Core 1-Player Version

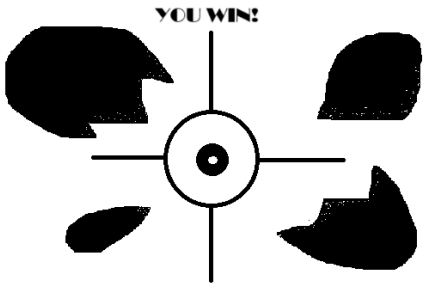
The player will use the W, A, S, and D keys to move the reticle up, left, down, and right in that order. The spacebar will be used to shoot.

Objective and Rules:

The game begins with the player's reticle in the middle of the screen and both clay pigeons will appear on opposite ends of the screen—one clay pigeon will be on the top left, and the other clay pigeon will be on the bottom right.

The main goal of the game is to shoot the clay pigeons. A clay pigeon counts as being *shot* when the player triggers the *Shoot* cascaded event while the reticle is touching a clay pigeon. When a clay pigeon is shot, the asset falls to the bottom of the screen and it is removed from play.

If the player has not shot both clay pigeons before the time reaches 00 seconds, they get a "You Lose" screen. If the player hits both clay pigeons before the time runs out they get a "You Win" screen.



Objects:

Object Name	Properties	Behaviours	Image
Cursor/Reticle	Starts in the centre of the screen. Variable integer coordinates for position: (horizontal) *x*, (vertical) *y*. Variable signed integers horizontal (dx) and vertical velocity (dy) and direction. Constant unsigned integers *height* and *width* determine size.	Moveable within *bounds*	
clay_pigeon	Variable integer coordinates for position: (horizontal) *x*, (vertical) *y*.	Moves within *bounds*	position_4

	Variable signed integers horizontal (dx) and vertical velocity (dy) and direction. Constant unsigned integers *height* and *width* determine size. A boolean value, *is_dead*, that indicates whether the unit is in play or not. An integer that determines which bitmap to plot for animation cycling, *Phase*.		 position_3  position_2  position_1  dead

Asynchronous (Input) Events:

Event Name	Triggering Input Event	Description
Move up request	W key is depressed	Sets the player's reticle vertical direction to -4.
Move down request	S key is depressed	Sets the player's reticle vertical direction to 4.
Move left request	A key is depressed	Sets the player's reticle horizontal direction to -4.
Move right request	D key is depressed	Sets the player's reticle horizontal direction to 4.
Shoot request	Spacebar key is depressed	Triggers *Shoot* (Cascading Event)

Synchronous (Timed) Events:

Event Name	Trigger Timing	Description
Game Timer	Every second	The timer starts at 60 seconds and counts down to

		0. The game ends when the timer reaches 0.
Player Movement	Every 1/70th of a second.	The reticle will move based on the player's asynchronous requests. The vertical and horizontal distance will be calculated based on inputs described by the asynchronous request.
Clay Pigeon Movement	Every 1/70th of a second.	The clay pigeon will either change its vertical distance or horizontal distance by 1 (negatively or positively) as long as the clay pigeon is within *bounds*.

Condition-Based (Cascaded) Events:

Event Name	Trigger Condition	Description
Shoot (Win Condition)	Activates when the Spacebar is pressed.	If the reticle is pointed at a clay pigeon when this event is activated, the clay pigeon accelerates downward to the bottom of the screen. If no clay pigeons are on the screen after this event, the player wins.
Time Out (Lose Condition)	Activates when *timer* object has a value of 0.	If the timer reaches 0 and there are still clay pigeons in play (as in they have not been shot), the player loses.

Bounds Check	When the reticle or clay pigeon is moved to the edge of the screen.	The x-axis and y-axis of the reticle will not move past the range.

Hypothetical Gaming Session:

Upon running the game, a big splash screen will be presented to the player. In this splash screen there will be an option to play or quit. If the player chooses to continue, the game will render the opening scene. Off to the bottom of that number there will be art displaying the controls of the game and text that reads: “You have 60 seconds to shoot down both pigeons!”, and will begin to count down to zero then start the game.

After the start menu, the reticle will be centred on the screen and the clay pigeons will appear on the sides. On the top right corner there will be a timer. The player will control the reticle and has 60 seconds to hit both clay pigeons. The clay pigeons will begin flapping with a rhythm that matches their onscreen speed, and will progressive increase in both speed of motion and rhythm of flapping sounds. If the player fires their gun, an audible sound queue will play mimicking the sound of a gunshot. If the player hits a clay pigeon another sound will be played to notify that the object is hit, and if not, a different sound will be played.

3. Game Play Details for Core 2-Player Version

If a second player is implemented, the objective of the game would still be the same except that both players will be matched up in a versus match, where the objective of the match is to shoot down more clay pigeons than the other player. The match will be timed and bullets start at three and a reload procedure will occur once a player runs out of bullets. During this procedure the player may not shoot their weapon until the procedure completes. Most aspects of the game are similar to the single player option, such as the controls and game view. The only additional difference is a counter on the top centre of the screen to display the amount of clay pigeons each player has achieved.

4. Sound Effects

Effect Name	Description	Event Trigger
gun_shot	A singular note that starts loud and then decrescendos.	Activates on *Shoot*.
explosion	A singular, very loud note that starts loud and then decrescendos.	Activates on *Shoot*, if a clay pigeon is shot.

5. Additional Features (Time Permitting)

- A bullet system where the player has three tries to shoot down mallards, which would add another lose condition to the gameplay.
- Special ammunition that mallard drops upon death and allows for power ups like: double damage, lazer, birdshot (bigger area of effect on shots).
- Endless mode, endless number of rounds and more erratic mallard pathing as the number of rounds go higher.
- Include animation for the mallard.