

Demo Video:

<https://www.loom.com/share/056bafdfd51b4d48a770e05992c9a93b?sid=84c1246d-e929-44a2-aec0-060fd10cfb8d>

Team Members:

Olivia Spartz

Reilly Ferraro

Introduction:

We created a game using Pygame. An apple moves across the screen and the user has to click it as many times as possible before time runs out.

Project Structure:

Main file titled "project"

- main.py

Subfolder titled "assets"

- apple.png

Key Functionalities:Game Initialization:

- pygame.init initializes pygame
- pygame.display.set_mode creates a game window
- pygame.display.set_caption sets the window title
- pygame.image.load(os.path.join('assets', 'apple.png')) loads apple image
- Variables are sectioned off and defined

Game Loop:

- while run: ensures the game runs until the user quits
- clock.tick(FPS) controls game frame rate

Timer:

- A countdown timer is used with pygame.time.set_timer(pygame.USEREVENT, 1000)

Scoring:

- When the apple is clicked on, the counter increases by one and displays during the game as well as the game over screen

Apple movement:

- Apple moves and bounces off window edges by reversing its speed when it hits a boundary

Event Handling:

- Mouse interaction with play again and quit buttons with pygame.MOUSEBUTTONDOWN

Rectangle Collision Points:

- Using rect.collidepoint(mouse_pos) we created interactive quit and play again buttons

Game Over Screen:

- Game over screen appears when the timer runs out and displays the score as well as buttons for restarting or quitting

Rendering:

- The timer, apple, and score appear on the game window during play and is updated using `pygame.display.flip()`
- Displayed on game screen using `window.blit`
- The font is rendered using `pygame.font.SysFont`

Reset Function:

- If the user clicks the “Play Again” button at the end of the game the game variables reset and the game begins again

Exit/Quit Functions:

- Players can quit using the red circle at the top left of the window
- Players can quit using the escape key because of `pygame.KEYDOWN` and `pygame.K_ESCAPE`
- Players can quit at the end of the game using the red quit button

Known Problems:

- The way we calculated the space the apple took up assumed the apple was rectangular which is not true. A player could click slightly off the apple and still receive a point.

Potential future extensions:

- Possibly speeding up the apple movement as the score increases
- Allowing the user to select a difficulty level, that could affect the speed of the Apple and time
- Blinking apple image
- Game over if you fail to select the apple for a certain amount of time

Team Member Contributions:

Olivia Spartz:

- Known problems section of the report
- Potential future extensions section of the report
- Introduction section of the report
- Sources section of the report
- Did functions regarding the Apple portion of the code
- Voice over demo
- Added explanation next to code

Reilly Ferraro:

- Potential future extensions section of the report
- Key functionalities section of the report
- Sources section of the report
- The project structure section of the report
- Did initializing functions regarding the game window
- Set up variables regarding FPS, colors, sizes, font
- Did functions regarding game over screen
- Functions involving timer
- Added explanation next to code

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References:

[Countdown timer in Pygame - Stack Overflow](#) - parts of the timer

<https://www.youtube.com/watch?v=jO6qQDNa2UY> - YouTube tutorial from modules - general usage

[Pygame Front Page — pygame v2.6.0 documentation](#) - general

[pygame.time](#) - also parts of timer

[pygame module for loading and rendering fonts](#) - fonts - specifically font.Sys.Font

[PYTHON Trouble using escape key to exit - pygame](#) - esc key to quit function

[pygame.display](#) - pygame.display.flip to update the window

The movement of the apple came from the ball game lesson in class

[pygame.mouse — pygame v2.6.0 documentation](#) - using the cursor to select buttons and apple

[pygame.Rect — pygame v2.6.0 documentation](#) - all of the rectangle collide-point functions (buttons)