A cat wearing glasses

AI-generated content may be incorrect.DALZIEL ALEXANDER SARKHOT

TOWER OF HANOI GAME

(Technology of Choice &

Application Structure)

A rainbow colored stacking toy

AI-generated content may be incorrect.

**TECHNOLOGY OF CHOICE:**

The Tower of Hanoi Game is developed using Pygame. Pygame is a python library that is specifically designed for writing video games and graphical applications. I utilized Pygame because it provides an intuitive API for handling graphics, events and animations. It has the ability to render shapes, colors and images with ease. The library also allows for handling of user input such as mouse clicks or keyboard actions, efficiently. This makes it an ideal choice for creating interactive games. Hence, I choice the Pygame Library from Python to design the game. Also coding in python is fairly simple and can be efficiently executed.

It was my first time using Pygame so I watched the following videos to help me navigate through all of its components:

<https://www.youtube.com/watch?v=FfWpgLFMI7w&list=PPSV&t=1797s>

<https://www.youtube.com/watch?v=G8MYGDf_9ho>

**APPLICATION STRUCTURE:**

1. Game Foundation:

* The game window is created with a resolution of 800x600 pixels.
* A title and icon for the game window was set.
* A while loop that will run the game was created with an exit event if the user decides to close the window.

1. User Interface Elements:

* Buttons are implemented using a custom Button class
* First button images are loaded then instances of the Button class are created.
* Each button (Start, Exit, Undo) carries out a specific function.

1. Poles and Disks:

* The game has 3 poles (A, B, C)
* Disks of different colors and sizes are stored in a dictionary and placed at an initial state on pole A.

1. Game Mechanics:

* Players can move disks from one pole to the next by clicking on the disk and the pole the user wishes to move it to.
* The game ensures only valid moves are allowed, meaning that a smaller disk cannot be placed on a larger one.
* The moves are animated to show the user the movement of a disk from one pole to the next.
* The undo button allows the last move to be reversed.

1. Timer and Move Counter:

* A timer tracks the elapsed time from the time the game starts.
* A mover counter keeps track of the number of moves made by the player, if a player presses the undo button then the moves counter decreases by one.

1. Game States:

* The game starts with a home page where the users are able to select the number of disks.
* The game can be paused and resumed.
* The game runs until all disks are successfully moved to the target pole.

INSTRUCTIONS:

Requirements: you have to have python installed on your system.

Step 1: Install Pygame

Type pip install pygame in your terminal

Step 2: Set up the File Structure