

GROUP ASSIGNMENT HIT 137 SOFTWARE NOW
SYDNEY CLASS

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1. First Answer

Steps to Execute this Tkinter Application

1. Install Required Packages: `pip install onnxruntime pillow numpy`
2. Download the ONNX Model:
 - Download the MobileNetV2 ONNX model from Github
 - Save the file as `mobilenetv2.onnx` in the same directory as your Python script
3. Verify the File Location:
Ensure that the `mobilenetv2.onnx` file is in the correct location
4. Create Tkinter Application and Run the script after verifying the file path

(Enter the file.py here)

Explanation of OOP Concepts

1. Encapsulation:
 - The `ModelHandler` class encapsulates the functionality for loading and predicting with the model.
2. Multiple Decorators:
 - The `logger` and `error_handler` decorators are used to log method calls and handle errors, respectively.
3. Multiple Inheritance:
 - The `App` class inherits from both `tk.Tk` (for the graphical user interface) and `ModelHandler` (for handling the model).
4. Polymorphism:
 - The `create_widgets` method can be overridden by subclasses of `App` to change how widgets are created.
5. Method Overriding:
 - The `load_image` method in the `App` class demonstrates method overriding by using the `logger` and `error_handler` decorators to modify its behavior.

This design ensures that the application can load an image, process it using the model, and display the classification result within the Tkinter interface.

2. Second Answer

(Enter file.py here)

Description:

1. Player:

- Picture Alex, the brave hero you guide through the game's adventures. With every move you make, Alex feels the thrill of the journey.
- Alex can walk in any direction, jump over obstacles, and shoot projectiles to fend off enemies. It's like Alex is your avatar in the game, responding to your every command.
- Health, lives, and score are not just numbers for Alex; they represent Alex's well-being, resilience, and achievements. Every hit Alex takes or victory they achieve is felt deeply.
- When Alex gets hurt, gains strength, or loses a life, it's like experiencing the highs and lows of an epic quest together.
- With methods like `'take_damage'`, `'gain_health'`, and `'lose_life'`, you're responsible for keeping Alex safe and ensuring their success. Together, you guide Alex through the challenges they face.

2. Enemy:

- Imagine facing off against foes like Grunt and Seraphina, who stand in Alex's way at every turn. Their movements are calculated, their attacks relentless.
- Each enemy has their own story and their own motivations for standing against Alex. Defeating them isn't just about winning; it's about overcoming personal challenges.
- As you guide Alex through the game, you feel the tension rise with each encounter. Every hit Alex takes from an enemy is a reminder of the dangers they face.
- When enemies take damage, it's like witnessing their defeat firsthand. You celebrate Alex's victories, knowing that every enemy vanquished brings them one step closer to their goal.

3. Projectile:

- Alex's projectiles are like extensions of your own power, launched into the game world to protect and defend. Each shot you fire feels like a strategic move in a grand battle.

- You guide Alex's projectiles with precision, aiming for enemies with accuracy and timing. Every hit feels like a small victory in the larger struggle.
- With each projectile fired, you feel the rush of adrenaline as you help Alex overcome challenges and push forward on their journey.
- The `update` and `check_collision` methods are like tools in your arsenal, helping you navigate the game world and overcome obstacles together with Alex.

4. **Collectible:**

- As you explore the game world with Alex, you stumble upon hidden treasures and helpful items. Each collectible you find feels like a reward for your perseverance.
- Collecting these treasures together with Alex strengthens your bond, providing a sense of accomplishment and progress.
- Each collectible you discover has its own unique story and significance, adding depth to the world you and Alex inhabit.
- With the `apply_effect` method, you decide how to use each collectible to your advantage, strategizing and planning your next move together with Alex.

3. **Third Answer**

The file.py and document have been recorded on this link: <https://github.com/s364265/Tkinter-and-Game-2D.git>