Welcome to the 3rd Assignment of this unit.

Question 1

Create a Tkinter application using the concepts of object-oriented programming, such as, multiple inheritance, multiple decorators, encapsulation, polymorphism, and method overriding, etc.

Wherever you use these concepts in code, explain them using # (How they are linked to code).

Examples:

- Youtube Like Interface Applications.
- Using single/multiple Open-Source AI models (smaller) to a create desktop application. Ex: An Image classification application, Language translation app, object detection app, facial recognition app, etc.
  (You just need to download the models and add its input points to the buttons in your tkinter application. Whatever the user enters into the application should go the AI model and give a output on the application.)

Question 2

Create a simple "side-scrolling" 2D game using Pygame. The game should allow the player to control a character with the ability to run, jump, shoot projectiles. The game should have enemies, collectibles, and 3 levels. It should also have a scoring system, health, and lives.

The game should include the following, but not limited to:

- Player class (movements, speed, jump, health, lives) - Methods
- Projectile Class (movements, speed, damage) – Methods
- Enemy Class (……) – Methods
- Collectible Class (health boost, extra life, etc.,)
- Level Design (3 Levels), Add boss enemy at the end.
- A Scoring system based on enemies defeated, and collectibles collected, health bar for players, and enemies.
- Implement a game over screen with the option to restart.

Bonus: Create a dynamic camera that follows the players smoothly.

You have three game ideas, select one and implement the above requirements.

- A game with human-like characters (hero, enemy)

- A game with an animal (Hero) and human characters (Enemy).
- A tank-based game navigating through a battlefield to engage with enemy tanks or something.

Question 3

Welcome to the final task of this assignment. You are required to create a GitHub repository and add all your group mates to it (make sure to keep it public, not private). You should do this before you start the assignment.

All the answers and contributions should be recorded in GitHub till you submit the assignment.

Submission Guidelines

- **Zip all the programming files and outputs and upload them to Learline.**
- **Include your GitHub Repository link in the programming files that you submit.**