**Lesson Plan - Recycle Paper Bags**

**Lesson Plan:**

Creating a Recycle Paper Bags game using the pgzrun library

**Objective:**

Learners will develop a game called "Recycle Paper Bags" using the Pygame Zero framework. The objective of the game is to catch the paper bags while avoiding non-recyclable items.

**Duration:**

1-2 class sessions (can be adjusted based on the learners' proficiency)

**Materials:**

* Computers with Pygame Zero library installed
* Visual Studio Code (offline editor) or Replit (online editor) available.
* Images for game assets (background, recyclable items, non-recyclable items)

**Lesson Plan Outline:**

**Introduction**

* Introduce the concept of developing a game to promote awareness about waste management and recycling.
* Show examples of similar games or provide a brief explanation of the game mechanics.
* Explain the objective of the lesson, which is to create the "Recycle Paper Bags" game using Pygame Zero.

**Game Logic**

**Game Development:**

* - Discuss the code provided to the learners and explain its structure and purpose.
* - Introduce the Pygame Zero framework and its features for game development.
* - Explain the variables and constants used in the code, such as WIDTH, HEIGHT, CENTRE\_X, CENTRE\_Y, FINAL\_LEVEL, START\_SPEED, and ITEMS.
* - Guide learners through the code step-by-step, discussing the functions and their role in the game.

**Drawing and Updating:**

* - Explain the draw() function and its purpose in rendering the game elements on the screen.
* - Discuss the update() function and its role in updating the game state.
* - Emphasize the use of global variables to track the game progress and control the flow of the game.

**Item Generation and Animation:**

* - Discuss the make\_items() function and its purpose in generating the recyclable and non-recyclable items.
* - Explain the create\_items() function and how it creates the Actor objects for each item.
* - Discuss the layout\_items() function and how it positions the items on the screen.
* - Explain the animate\_items() function and how it animates the items falling from the top to the bottom of the screen.

**Game Interaction:**

* - Discuss the on\_mouse\_down() function and how it handles mouse clicks on the items.
* - Explain how collisions are checked between the mouse click position and the item position.
* - Discuss the handle\_game\_over() function and how it handles game over conditions.
* - Explain the handle\_game\_complete() function and how it handles completing a level or winning the game.

**Starter Project:**

<https://replit.com/@ShreeaaSaran/Recycle-Paper-Bags-Boilerplate#main.py>

**Finished Project:**

<https://replit.com/@ShreeaaJetlearn/Recycle-Paper-Bags#>

**Homework:**

Discuss how additional recyclable and non-recyclable items can be added to the game.

Introduce sound effects or background music to enhance the game experience.

Encourage learners to explore and implement their own ideas for improving the game.

**Note:**

The lesson plan can be adjusted based on the learners' prior knowledge and proficiency level in Python. The timings provided are approximate and can be modified as per the classroom requirements.