MINI PROJECT WEEK 1

Game Development with PyGame

Site-X is a game for casual gamers that wish to have fun with a simple game mechanic: Surviving. You as a programmer are tasked to replicate such mechanics and generate it into a game. This project is inspired from *Software Laboratory Center Binus University*. The description of the game is as follows:

- **Start Scene**

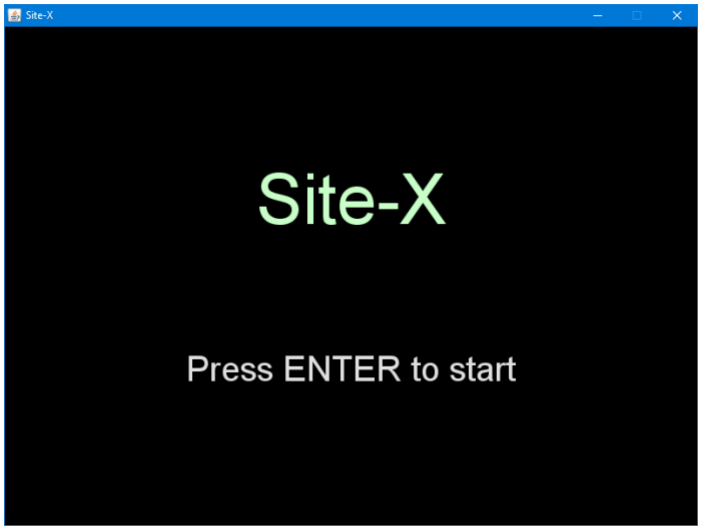

Figure 1. Start Scene appearance

  - Start Scene **consists of several items**:
    - "Site-X" logo
    - "Press ENTER to start" prompt
    - Black background
  - If the player **presses ENTER**, the player will be transitioned to **Play Scene**.

- **Play Scene**

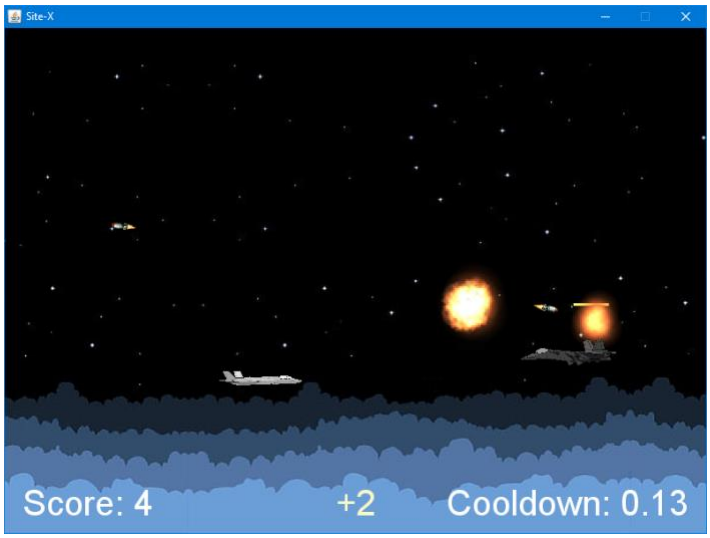

Figure 2. Play Scene appearance

  - Play Scene **consists of several items**:
    - Player score
    - Combo counter
    - Cooldown timer
    - Scrolling background
    - Player
    - Enemies
    - Projectiles
  - Player:
    - The player uses "**assets/images/f35.png**" as its main sprite and has no animation.
    - The player can move the aircraft using **W**, **A**, **S**, and **D**. W moves the aircraft upwards, A moves the aircraft leftwards, S moves the aircraft downwards, while D moves the aircraft rightwards.
    - The player can fire a bolt of laser using **ENTER**. The laser will **travel indefinitely** until it moves offscreen. **Hitting an enemy with a laser will not destroy the laser**.

- The player **can only fire one laser at a time**. Each laser fired will result in **a cooldown of 0.8 seconds**. The player must wait for the cooldown to expire before they can fire another bolt of laser.
- On cooldown, **display the number of seconds left** for the cooldown **on the bottom right corner**.
- In addition to hitting enemies indefinitely, **the number of enemies destroyed by a single laser will result in a combo**. The combo **increases the amount of score the player receives** on each destroyed enemy.

Figure 3. A line of enemies

- **The amount of score the player receives** will be reflected **on the bottom of the screen**. The **combo pop-up fades out after 2 seconds**.

o Enemies:

- Enemies uses "**assets/images/sylph.png**" as its main sprite and has no animation.
- Enemies **spawn randomly** in intervals **between 1 to 2 seconds**. Enemies that spawn will travel at **random heights** and at **random speeds**.
- On spawn, enemies can either move **straight** to the left or travel in **wave** motion. If the enemy **chooses to travel in a wave motion**, the **enemy** will have a **random amplitude** to their wave motion.
- Each enemy will shoot a projectile in **random intervals of 2 to 4 seconds**. Their projectile is a **sprite of a missile with two frames of animation**

("**assets/images/missile.png**"). The enemy will **aim the missile to the general location of the player**.

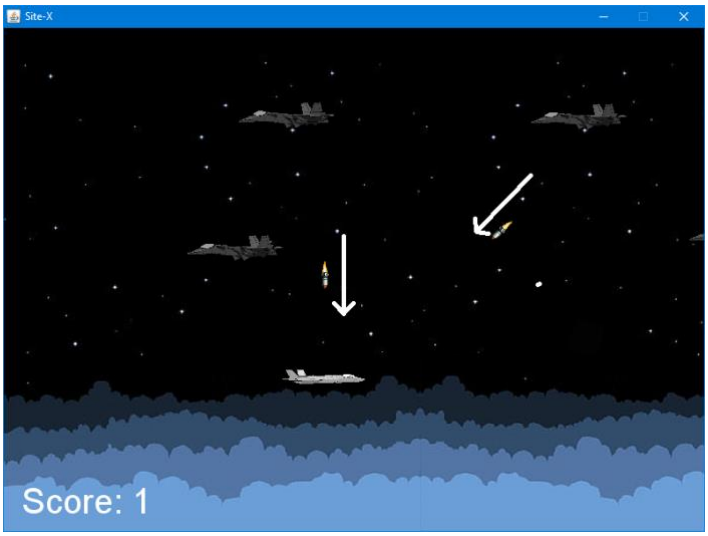

Figure 4. Enemies shooting missiles

- Destroying an enemy will **trigger an explosion animation** ("**assets/images/explosion.png**").
- **Colliding with an enemy or its projectile will result in death**. The player's death will **result in an explosion**. The player will then be **transitioned to Game Over Scene**.

- **Game Over Scene**

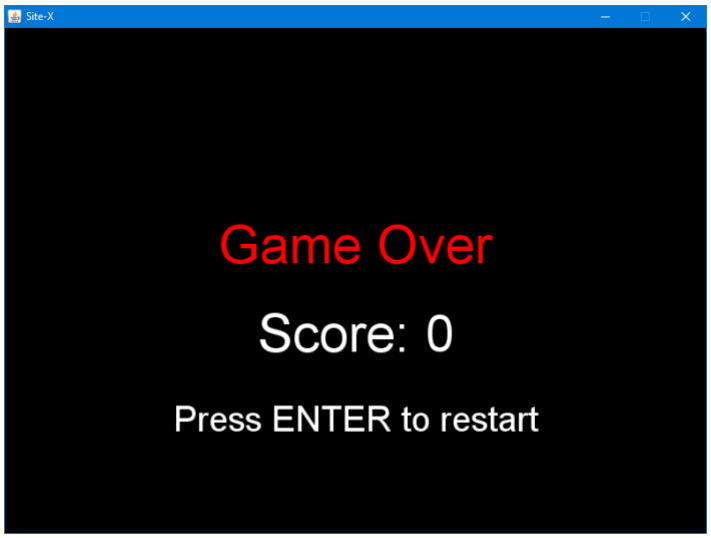

Figure 5. Game Over Scene appearance

  - Game Over Scene **consists of several items**:
    - "Game Over" Text
    - Player score
    - "Press ENTER to restart" prompt
  - The score displayed will be the same amount as on **Play Scene**.
  - If the player **presses ENTER**, the player will be transitioned to **Play Scene** with **all scores and properties reset**.

Komponen
Component

No.	Criteria	Percentage
1.	Start Scene • Menu layout • Input and controls	10%
2.	Play Scene • Entity management • Input and controls • Rendering • Background scroll • Enemy shooting • Enemy motion • Enemy spawning • Scoring • Menu layout • Sound	45%
3.	Game Over Scene • Menu Layout • Score persistence • Input and controls	20%
4.	Others • Scene management • FPS • Animation	25%

Please collaborate with your teammates to finish the project!