
Week 3: Day 006.1 – Space Invaders: UML Design Refined:

Refine the UML Class Diagram developed in exercise 003.3 for the Space Invaders (Taito, 1978) clone to integrate the C++ SDL Framework and include the **Entity** concept as discussed in class.

Week 3: Day 006.2 – Space Invaders: 2D Sprite, Player Ship Movement:

Download **Day 006 Framework.zip** from AUTonline. A Visual Studio Solution, Project and associated C++ source code files are located in the framework zip. Review the C++ files and then implement the additional features as outlined below.

Using the C++ SDL Framework ideas discussed in class, implement the following features to create the Space Invaders (Taito, 1978) clone example:

- Create a **PlayerShip** class, derived from **Entity**.
- Ensure the constructor chains-up to the super class constructor.
- Ensure the process method chains-up to the super class process method.
- Render the Player Ship entity.
- Allow the Player Ship to be move based upon keyboard input.
 - Xbox360 “D-Pad Left” Button: Moves the Player Ship left.
 - Xbox360 “D-Pad Right” Button: Moves the Player Ship right.
- Ensure the Player Ship does not move outside the boundary of the window.
- Find and address all // **Ex006.2** comments in the framework provided.

Week 3: Day 006.3 – Space Invaders: Alien Enemy Wave:

Add to Space Invaders clone from exercises 006.2 the following features:

- Create an **Enemy** class, derived from **Entity**.
- Ensure the constructor chains-up to the super class constructor.
- Add multiple instances of enemy objects to the game world, each at a unique location.
 - Add **Enemy** entities to an STL container.
 - Render each enemy.
- Using the debugger, ensure each **Enemy** object reuses the same texture instance!
- Find and address all // **Ex006.3** comments in the framework provided.



Week 3: Day 006.4 – Space Invaders: Player Bullets:

Add to Space Invaders clone from exercises 006.3 the following features:

- Create a **Bullet** class, derived from **Entity**.
- Ensure the constructor chains-up to the super class constructor.
- Ensure the process method chains-up to the super class process method.
- Allow the Player to fire bullets from the Player Ship by pressing the “A button” on the Xbox 360 controller.
- Maintain a container of player bullets.
- Render the player’s bullets.
- If a player bullet collides with an alien enemy, the enemy and bullet are both to be destroyed.
- Find and address all // **Ex006.4** comments in the framework provided.

