

CPSC 427 (Fall 2025) - Test Plans

Debug

“O” can be pressed to brighten up the map for easier testing.

Tutorial

The tutorial should appear as a short instructional text box. There are 9 steps in total, and it only appears when starting the game for the first time. In other words, even if you press “=” to restart, it will not appear again from the beginning.

Common behavior:

- When the tutorial appears, time is paused.
- Pressing the “Skip” button or the “Next” button should close the tutorial.
 - If the Skip button is pressed, no tutorial steps should not appear afterward.
 - If the Next button is pressed, the next tutorial step should appear again at the next trigger.

Tutorial Triggers:

- Step 1: Should appear immediately when the game starts.
- Step 2: Should appear a few seconds after the game starts.
- Step 3: Should appear when all ammo is used up.
- Step 4: Should appear a few seconds after reloading.
- Step 5: Should appear immediately after Step 4.
- Step 6: Should appear immediately after Step 5.
- Step 7: Should appear immediately after Step 6.
- Step 8: Should appear immediately after Step 7.
- Step 9: Should appear a few seconds after opening the inventory.

Player Movement (Keyboard)

The player should move up when “W” is pressed, left when “A” is pressed, down when “S” is pressed, and right when “D” is pressed.

The player should be able to hold multiple keys at once, and move in the appropriate directions based on which keys were pressed most recently.

- Press “W” and “A”: move up and left
- Press “W” and “D”: move up and right
- Press “S” and “A”: move down and left
- Press “S” and “D”: move down and right

If the player holds down a key, and then presses and releases the key that moves them in the opposite direction, they should briefly change direction.

- Hold “W”, then press and release “S”: move up, then down, then up again
- Hold “A”, then press and release “D”: move left, then right, then left again
- Hold “S”, then press and release “W”: move down, then up, then down again
- Hold “D”, then press and release “A”: move right, then left, then right again
- When the “Left Shift” key is pressed, the player should quickly dash forward in their current movement direction for a short duration.

Player Movement (Mouse)

The player should be able to use the mouse to aim the flashlight and shoot bullets from a gun.

- The player and flashlight should always be facing towards the mouse’s current position
- Left-clicking should shoot a bullet from the player’s gun in the direction that they are currently facing
- Bullets should continue moving in the direction they are shot until they hit an enemy or obstacle, or go off-screen

Inventory

An UI for the inventory should open up when the “I” key is pressed. Weapons and suits can be purchased and equipped within this UI. \$1000 is initially given for testing the purchase feature.

1. Closing the inventory UI
 - The “I” key can be pressed again to close the UI
 - “X” on the right-bottom of the UI can be clicked to close the UI
2. Switching between **Weapons** and **Suits** tab
 - When the inventory is opened for the first time, the **Weapons** tab is displayed by default.
 - When the inventory is closed and reopened, it opens to the **last tab** that was previously viewed.
 - You can switch between the **Weapons** and **Suits** tabs by clicking the buttons at the top center. The currently active tab is highlighted in **yellow**.
3. Purchasing **Weapons** or **Suits**.
 - For **Weapons** or **Suits** that can be purchased, a yellow “Buy <price>” button appears to the right of the item.
 - Clicking the yellow button purchases the item and deducts its price from the user's balance.
 - If the user doesn't have enough money, the purchase cannot be made. Clicking the button will have no effect.
 - **Weapons** or **Suits** that cannot be purchased are shown with a gray “Lock” label.
 - Purchased **Weapons** or **Suits** will have a green “Equipped” button or a blue “Equip”
4. Equipping **Weapons** or **Suits**.
 - When the blue “Equip” button is clicked, the item is equipped and the button changes to a green “Equipped” button.
 - This means that the previously equipped item of the same type is unequipped, and its green “Equipped” button reverts to a blue “Equip” button.
 - The equipped items should remain the same when the inventory is reopened, regardless of closing, reopening, or switching tabs.

World Generation

The game world is generated in “chunks”, which are generated as needed as the player moves through the world. Chunks are converted to a more space-efficient format as they move out of the player’s view.

The game world can be re-generated by pressing the “G” key.

- Obstacles should not overlap with each other, or with the player’s starting position
- Obstacles should appear at roughly the same density throughout the world
- Obstacles should not suddenly appear or vanish within the bounds of the game window
- There should be large regions of the world with no obstacles that the player can freely walk through

- The game should not lag as the player travels farther from their starting point, and as more chunks are generated

Enemy

There are three types of enemies in M2:

1. A **Placeholder** enemy, which represents all enemies in general. This enemy is a green triangle with a red tip.
2. A **Slime**, which represents how sprites for enemies should act like. This enemy is a blue pixel slime.
3. An **Evil Plant**, which is a stationary enemy that cannot move but attacks the player by shooting projectiles.

Enemy test plans:

1. **Placeholder** and **Slime** enemies should move towards the player.
2. Enemies with sprite sheets, such as the **slime** and **Evil Plant** should cycle through their frames to display animation.
3. Enemies should face the player:
 - **Placeholder** enemies should always face its red tip to the player.
 - **Slime** enemies will face either left or right, depending on where the player is positioned with respect to the **slime** enemy.
 - **Evil Plant** enemies should face up, down, left, or right depending on the player's position relative to them.
 - This only applies when the player is within **Evil Plant**'s detect range.
4. Enemies should play their death animation when their health is fully depleted (after being hit by 4 bullets). The entity should then be removed from the registry:
 - **Placeholder** Enemies: Spins clockwise, while shrinking until it disappears
 - **Slime** and **Evil Plant** Enemies: Plays the death animation from the sprite sheet once before disappearing

Enemy AI test plans:

- The enemy should be able to navigate around obstacles and reach the player even when the player is hiding behind them.
- **Evil Plant** enemies should face the player when the player enters their detection range. If the player moves into their attack range, they should shoot projectiles toward the player.
 - Projectiles should continue moving in the direction they are shot until they hit an enemy or obstacle, or go off-screen

Bonfire

When the player exits their spawn radius, a bonfire is generated at a distance away from the direction that they are currently facing.

The player can interact with the bonfire by pressing “E”.

- The bonfire should be generated out of the player’s sight when the player moves outside of their spawn radius (indicated on the minimap)
- The bonfire should eventually be reachable if the player continues in the same direction they were facing when they exited the spawn radius

Interacting with the bonfire should do the following:

- Center the camera on the bonfire
- Prevent the player from firing their gun or moving
- Allow the player to access their inventory
- Despawn all enemies in the world

Interacting with the bonfire again should revert the camera to its default position and allow the player to continue moving around the world.