# Test Plan for Milestone 2

## Player Animation

* **Test Case:** Pressing “W” key
  + **Expected Result:** Player move up one cell with animating in the up direction looping through four frames
* **Test Case:** Holding “W” key
  + **Expected Result:** Player moves up until a Wall Block or Fire Block is reached with animating in the up direction looping through four frames
* **Test Case:** Pressing “A” key
  + **Expected Result:** Player move left one cell with animating in the left direction looping through four frames
* **Test Case:** Holding “A” key
  + **Expected Result:** Player moves left until a Wall Block or Fire Block is reached with animating in the left direction looping through four frames
* **Test Case:** Pressing “S” key
  + **Expected Result:** Player move down one cell with animating in the down direction looping through four frames
* **Test Case:** Holding “S” key
  + **Expected Result:** Player moves down until a Wall Block or Fire Block is reached with animating in the down direction looping through four frames
* **Test Case:** Pressing “D” key
  + **Expected Result:** Player move right one cell with animating in the right direction looping through four frames
* **Test Case:** Holding “D” key
  + **Expected Result:** Player moves right until a Wall Block or Fire Block is reached with animating in the right direction looping through four frames

## Enemy Animation (Lava monster)

* **Test case**: Enemy bouncing on and off blocks
  + **Expected Result:** 4 frame loop animation in each direction

## Enemy Animation (Tornado man)

* **Test case**: Enemy following player using search
  + **Expected Result:** 4 frame loop animation in each direction

## Enemy Animation (Water Slime)

* **Test case**: Enemy following player using A\* search
  + **Expected Result:** 4 frame loop animation of slime bouncing (no walking animation, no direction)

## Decision Tree + A\*

* **Test case**: Enemy searching for shortest path to player using A\* and a decision tree
  + **Expected Result:** If there exists a path to player, use A\* search to follow the path. If no path exists to the player (blocked by fire etc.,) stay in place and wait.

## Mesh Based Collision:

* **Test case:** Player collides with powerup which uses a .obj file for the vertices and detects mesh collision with player
  + **Expected Result:** Logs “Mesh Collision” in terminal and player collects powerup and receives a 1.5x speed boost for short duration

## FPS Counter

* **Test Case:** Pressing the "F" key
  + **Expected Result:** The FPS counter appears when "F" is pressed and disappears when "F" is pressed again.

## Game Ending Screens

**Test Case:** Different game-ending conditions

1. **Time runs out** **Expected Result:** The "Time Over" screen appears when the timer reaches zero, sad player sprite is displayed
2. **Enemy collides with player** **Expected Result:** The "Game Over" screen appears when the player collides with an enemy., player death sprite is displayed
3. **All correct ingredients are collected** **Expected Result:** The "Victory" screen appears when all required ingredients have been collected. Default player sprite is displayed

## Text Timer Display

* **Test case**: Timer countdown during gameplay
  + **Expected Result:**The timer is displayed at the top right of the screen, counting down in seconds. When the timer reaches zero, the "Time Over" screen appears.

## GAME SCREENS

**Test Case:** Different game screens outside of gameplay

1. **Start screen**
   1. **Expected Result:** The game title “Bad Chili Peppers” displayed with the chilli pepper sprite and a START button
2. **Tutorial Screen**
   1. **Expected Result:** Base level “Tutorial” splash screen with a “continue” button
      1. Press button → Should move on to TutorialPlaying screen (actual tutorial gameplay, details in Tutorial GamePlay mechanics)
3. **Level Select Screen**
   1. **Expected Result:** Level options displayed with the chilli pepper sprite below and a BACK button
4. **Settings Screen (Pressing “ESC” key or click top right gear icon)**
   1. Settings screen pops up with these following buttons: Tutorial, Mute, Back, Main menu, Exit
      1. Tutorial brings player to tutorial level
      2. Mute will mute audio (once implemented)
      3. Back brings user back to previous screen (can also click “ESC” again to go back to previous screen)
      4. Main menu brings player back to start screen
      5. Exit will close the window

## POP UP SCREENS ON PLAYING SCREEN

* **Level start pop-up**
  + Pop-up screen with a “start level” button to begin playing the level
* **Game over pop-up**
  + Pop-up screen with “Restart”, “Main menu”, or “Exit” upon colliding with enemy
* **Out of time (player runs out of time) pop-up**
  + Pop-up screen with “Restart”, “Main menu” or “Exit” upon running out of time
* **Level complete pop-up**
  + Pop-up screen with “Play-again”, “Main menu” or “Exit” upon completing level (Will change later to prompt to go to next level if there are still levels left to play)

## GamePlay mechanics

* **Test case**: Press “Space” to create fire on top of an ingredient
  + **Expected Result:** If the ingredient is of type notCorrect, the ingredient will be burned and removed from all registries. Otherwise, the ingredient will stay under the fire until the fire disappears.
* **Test case:** Use WASD to collide with an incorrect ingredient
  + **Expected Result:** If the ingredient is of type notCorrect, the timer displayed at the top right will deduct 10 seconds
* **Test case:** Use WASD to collide with correct ingredients
  + **Expected Result:** If the ingredient is of type Correct, the ingredient is picked up and removed from the registry. The final correct ingredient once picked up will then prompt the Victory screen

## Tutorial GamePlay mechanics

* Initial load of tutorial
  + Should show popup stating you are playing a tutorial
* On close initial popup
  + Should show a popup showing the controls for the player
* On movement of player
  + Ensure the player moves at least 10 tiles in any direction away from the start point
  + Should show popup for explaining fire controls
* On player fire placement
  + Ensure the player places at least 15 fire blocks on the map
  + Should show popup explaining distinguishing fire
* On player fire extinguishment
  + Ensure the player has removed all fire on the map
  + Should show popup explaining ingredients
* On ingredient collection
  + Ensure the player collects the ingredient placed on the map
  + Should show popup explaining multiple ingredients
* On ingredients collection
  + Should show a HUD with the ingredients to collect
  + Ensure the player collects all the ingredients
  + Should show popup explaining the incorrect ingredients
* [branch 1] On burning incorrect ingredients
  + Ensure the player burns the candy cane
  + Should show popup explaining powerups
  + Should move on to next tutorial state
* [branch 2] On collecting an incorrect ingredient
  + Ensure the player collects the incorrect ingredient
  + Should show popup explaining penalties
  + Should allow player to retry
* On collecting a powerup
  + Ensure the player collects a powerup
  + Wait for the powerup to finish
  + Should show popup explaining enemies
* [branch 1] on avoiding enemy
  + Ensure the player survives for at least 5 seconds
  + Should show popup for playing the game
* [branch 2] on hitting the enemy
  + Ensure the player collides with the enemy
  + Should show popup explaining penalty
  + Should allow trying again
* [branch 1] On collecting all ingredients in tutorial finish
  + Should go back to level select screen
* [branch 2] on colliding with an enemy
  + Same as above
* Redoing the tutorial
  + Should reset tutorial map to initial state
  + Should be able to complete tutorial again