

Stardew Valley Game Documentation

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PROGRESS CHECKLIST

Possible Improvements/Upgrades (for future):

- Open up new areas/maps?? Allowing characters to move beyond just the current farm map, maybe able to go in the house or expand more lands.
- Add more seeds and vegetables to the menu
- Able to fully use keypress events to farm, such as pressing spacebar to water instead of clicking on the crop. (switching back and forth from mouse presses and keyboard events can be confusing)
- Reduce water only when clicking on crops that have not yet matured and clicking on ones that are ready to get harvested will not reduce any water; this makes the water last longer. (currently you can click anywhere on tilled soil and your water will still be reduced even if your crops are matured)
- Adding time into the game: crops will not mature until certain “days” have passed.

Challenges Yet to Solve:

- (UNSOLVED) How to play the sound only once while still in `draw()` function? For instance, if the character is in contact with the shop image, a sound is played to indicate that the shop page is opened. However, everytime when my character `collisionDetection() == true` with the shop, the sound will be played per frame rate.
 - Tried using an `if` statement on `isLooping()` and if `true`, set `false`; this method failed.
 - For other sound effects, I used an `if` statement to see if the sound is not playing, if so, we will then play the sound. This prevents sounds from being played in every frame rate and works well for events like key presses

(spacebar). However, this does not work if I wish to play the sound while the character is in contact with an object and controls are disabled.

```
if(!stepSound.isPlaying()){  
    stepSound.play()  
}
```

Problems Solved:

- (SOLVED) How to make the controlled character avoid an array of tiles instead of just one or two? (tried using for loop but failed, the for loop seems to break when in contact with the first tile listed in the loop)

- List of tiles to be avoided:

```
var boundaries =  
[358,359,360,383,384,385,386,436,413,414,438,439,494,519,542,543,544,562,  
563,588,613,681,1182,1183,1184,1207,1257,13,14,15,19,20,42,43,71,88,89,11  
3,114]
```

- My solution: instead of using multiple tiles, I used a transparent tile in the tile sprite and placed them around the parts I want my characters to avoid. This makes it possible to do an if statement.
- (SOLVED) How to make tools become *active* after you clicked on it?
 - My solution: add all items on the toolbar into an array and whenever a mouse event happens within the tool bar, run the array to make every button UNSELECTED and then see if the position of your click event is of a particular tool, make that tool SELECTED.
 - This creates a problem that sometimes you have to double click in certain area of the toolbar to get a tool to be selected.
- (SOLVED) How to add tiles from different sprite sheets but with different tile sizes?
 - My solution: I didn't add tiles from another sprite sheet but instead add the images I need into the existing sprite and make it correspond to its tile size, which is 16 X 16.
 - I used this for the different stages of the three vegetables.
- (SOLVED) How to make the player only able to plant in one tile and repeated clicks on the same tile will not have overlapping images of seeds, in other words that the number of seeds will not reduce if this happens??
 - **To solve this I also need to know how to get the tile # on character's positions and get this tile's X and Y position in terms of the game window.
 - My solution:

- Once mouse click event occurs, get tile position of the mouse event(`getTile(x, y, mapName)`) in `outdoorLevel1` map; and send this information to function `plantable(tileID)` which checks to see if selected tile is a tilled soil (`tile = 680`); note that ONLY tilled soil can grow crop.
- If `plantable(tileID)` returns `true` we then ask for the X and Y position of this tile in terms of the game window.
- We next ask if this tile position is inside our array of `cropsPos = []` using the `contains(tilePos)` function. This array stores the exact X,Y position of tile with planted seed on the game. If this tile position IS inside the array of already planted seeds, no seeds will be planted.
- If this tile position is NOT in our array, we will push it into `plantSeed(x, y, seedStage)` function in which a seed will be planted, and its position will then be added to `cropsPos`, and its seed type will be added to `crops = []`

```
if(cauliflowerSeed.amount != 0){
    if(plantable(getTile(mouseX,mouseY, outdoorLevel1))){
        if(contains(getTilePos(int(mouseX/tileSize),int(mouseY/tileSize)))){
            // Nothing Happens here
            // crops will not be planted
        }else{
            seedSound.play()
            plantSeed(mouseX,mouseY,0) // plant the seed at the mouse pos
            cauliflowerSeed.amount -= 1 // reduce seed amount in storage
        }
    }
    else{
        mode = 6 //mode 6 triggers warning window
        alertMsg = "seedsMin" // what warning message we want
        warningSound.play()
    }
}
```

- (SOLVED) How to make the character's `collisionDetection()` with the shop area return `false` when I close the shop window?
 - I tried to change the mode from the shop mode (`mode = 5`) to normal mode (`mode = 1`) when clicking on the X button on the shop window but it will still be open.
 - My solution: It is not closing when I click on the X button because even though I have set my mode to change, my character is still in contact with the shop area, thereby constantly activating the shop mode (`mode = 5`). Therefore, I now made it that whenever I click on the X to close the shop

window, 1) game mode will change and 2) the position of my character will move 10px away from the shop area in the y direction. This stops the contact with the shop area and the collisionDetection will = false.

Implemented features:

- ☐ Background image + draw tiles from tile sprites
 - ☐ Two level of tiles (var outdoorLevel1, outdoorLevel2): one as background tiles and another for growing crops
 - ☐ Invisible tiles (tile: 234)

- ☐ Character (WASD) - with different image for different direction



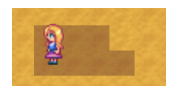
- ☐ Different modes:

- ☐ Mode = 1 Shovel / till the soil
- ☐ Mode = 2 Harvest crops
- ☐ Mode = 3 Watering crops
- ☐ Mode = 4 Planting seeds
- ☐ Mode = 5 Shop
- ☐ Mode = 6 Alert messages

- ☐ Tool Interface: total 9 columns; width: 300px; height 40px



- ☐ **Hoe:** mode = 1
 - ☐ **Pickaxe:** mode = 2
 - ☐ **Watering can:** mode = 3
 - ☐ **Cauliflower seeds:** mode = 4
 - ☐ **Kale seeds:** mode = 4
 - ☐ **Bok Choy seeds:** mode = 4
 - ☐ **Cauliflower:** cannot be selected
 - ☐ **Kale:** cannot be selected
 - ☐ **Bok Choy:** cannot be selected
-
- ☐ **MODE 1** → Shovel / Hoe
 - ☐ Everytime when the **SPACEBAR** is pressed and the character is moving around, the original soil tile (tile: 226, 227, 488, 206) will turn into tilled soil (tile: 680). **ONLY** on tilled soil can crops be planted.

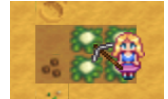


- ❑ **MOUSE PRESS** on tilled soil will remove the crop on top (if there is any) and turn it back into original soil tile. (this acts like a shovel); the original soil displayed after shoveling will be randomized. (original tile, sand grass tile, and this other tile)



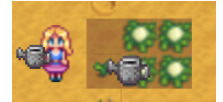
❑ **MODE 2** → Pickaxe

- ❑ **SPACEBAR** is pressed while in the tile with matured crops will then get a harvest. Pressing the spacebar in other areas will not get a response.



❑ **MODE 3** → Watering Can

- ❑ **MOUSE PRESS** on watering can will select the watering can and clicking on the crop will begin watering. Each crop goes through 5 stages of growth until it matures.



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Harvest



- ❑ 20 clicks for a full watering can and if water runs out, move to the water box to refill water (collision detection).
- ❑ **MODE 4** → Planting Seeds
 - ❑ **MOUSE PRESS** on seed bags in the toolbar will activate planting mode for that particular seed (keep a variable whenever a kind of seed is pressed)
 - ❑ **MOUSE PRESS** on tilled soil (only tilled soil) can plant that seed in stage = 0.
 - ❑ Repeated mouse press on planted soil will not add more seeds to the soil nor will it reduce the number of seeds you have.



❑ **MODE 5** → Shop mode

- ❑ Move to the shop box at the right corner will activate shop mode and open the shop interface



- ❑ The shop interface will provide two selections: BUY or SELL

❑ **BUY INTERFACE:**

- ❑ Include the name and the sale price of the 3 types of seeds, the sale price.
- ❑ Number of seeds wish to purchase will have an increase of decrease button; a limit of 10 seeds max can be purchased
- ❑ Warning sign will appear if $\text{player.money} < \text{totalPurchased}$
- ❑ Warning signs will appear if the player attempts to buy more than its storage can hold. Storage can hold maximum 10 pieces of each item.





❑ SELL INTERFACE:

- ❑ Name of the vegetable, price for selling, how many player would like to sell; can sell maximum 10 per vegetable
- ❑ Warning sign will appear if player tries to sell more than what is available in the storage



Random Notes For Myself:

Tile # Documentation:

Seeds/Vegetables

STAGES	0	1	2	3	4	5
Cauliflower	1950	1951	1952	1953	1954	1925
Bokchoy	1732	1757	1782	1807	1832	1857

Kale	1731	1756	1781	1806	1831	1856
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Soil

Plowed soil:	680
Seeded soil:	512, 536, 563
Soil:	226, 227, 488, 206

Decorations / objects

Storage box:	362,363,387,388
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Resources:

- Sound resources: https://www.sounds-resource.com/pc_computer/stardewvalley/
- Game graphic resources:
https://www.sprisers-resource.com/pc_computer/stardewvalley/

Project Proposal

I just changed my mind about building a game that models after Bomb It and instead build a game that is similar to Stardew Valley. I am not sure if this is the kind of complexity you are looking for in a midterm project? I am currently building the basic layouts and see if it works out fine. I might add in more features if I think it's within my abilities if this is too simple for a midterm project, although I already think it will take me a long time to do it.

- **Option:** Choose your favourite video game / mobile game and model it in p5

10/22/2020

Stardew Valley

- **About the Game:** Stardew Valley is a farm simulation role-playing game where players are the owner of a farm house and a plot of land where they can slowly populate it with crops and trees. Players could also harvest crops or other materials by growing them.
- **Control:**
 - WASD - to move around
 - SPACE - to implement the chosen tool
- **Interface**
 - **LANDING PAGE:** logo + background + Start button (no load)



- **CHARACTER:** create your character that you can control (game art sprite sheet)



- **EXTERIOR** → farm layout: (approximate size 700 X 700 canvas)
 - Soil tiles:
 - Watered soil tile
 - Dry soil / unwatered tile
 - Grass tiles
 - Normal grass tile - decoration / no interaction
 - Weed tiles that can be cleaned
 - Rock tile
 - Water / pond tiles

- Land tile - decoration / no interaction
- Path tiles - decoration / no interaction
- **INTERIOR** → farmhouse layout: (hide exterior when show interior?)
 - Furnitures & floor + wall tiles
 - Cursor change
 - Date passed?? Timer?



- **OBJECTS:**
 - Crops (plan to have around 3 types)
 - Inventory box (place to store items)
 - Trash can - throw out unnecessary items
 - Trees - can be cut down to obtain wood
 - Water - fishing (?? not sure how i will implement that)



- **Goal:** unsure about the “goal / objective” of the game; currently thinking about letting the player be able to sell their harvested crops and other materials (rocks/ fishies) and in exchange of currency that in turn can buy home decorations and furniture???

Notes:

Currently unsure of how complex this will go until I build an overall structure and will decide to proceed with more details about the game.