

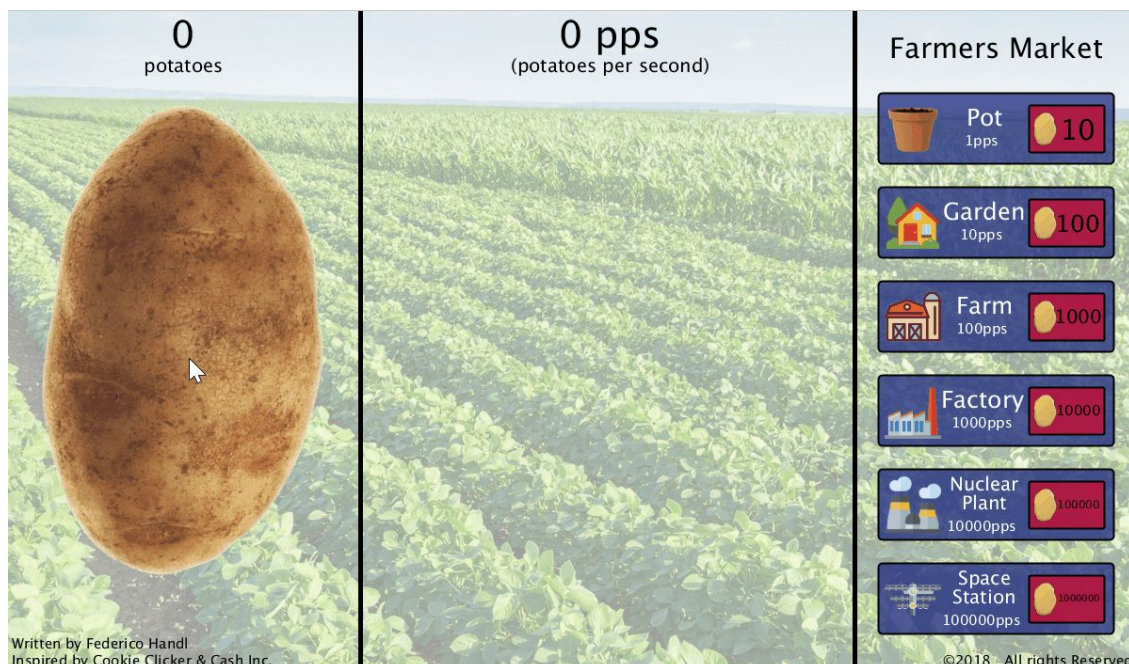
Potato Clicker

This project will pull together a lot of the things you have learned up to now. You might want to have your old sheets and programs on hand to remind you of some things (especially material to do with *ArrayLists* and *Classes*)!

This is **your** game - after you have finished the basic version feel free to make any changes you want!

What we are aiming for:

In this lesson, you're going to make a potato clicker game! The aim of this game is to collect as many potatoes as you can. You can use your potatoes to buy upgrades that produce more potatoes for you. By the end, your game should look something like this:



1. To start off, write a simple program, where every time you click on the screen, your `potato number` goes up by one. Display this number on the screen. (the number on the top-left of the gif above)
2. Write a function that adds a new variable to the total potato number every second and display this number on the screen. (the “pps number” at the top of the screen on the gif above)
Hint: For this, you'll need to use the `millis()` function.
3. Add a button that, when pressed, will increase the number of potatoes per second by a certain amount. (like the “Pot” or the “Garden” in the gif above)
Hint: It might be helpful to create a new class for this

4. Edit your code so that this button can only be pressed if the player has a certain amount of potatoes; the 'price' of the button should increase every time it is clicked and the number of potatoes spent should be removed from the total number of potatoes.
 5. Create an 'Upgrade' class which keeps track of each upgrade's price and pps value. Each Upgrade object should also have its own Button object
 6. Using an arrayList, add more upgrades, all with a different prices and pps values
- Help Handout

Use the code below to help you add more potatoes every second:

```
int time;

void setup() {
  time = millis();
}

void draw() {
  addPotatoes();
}

void addPotatoes() {
  if (time > millis()+1000) {
    /* write code here
    to add potatoes */
    time = millis();
  }
}
```

Create a Button class with a boolean that is true when the mouse is on the button. Then use void mouseClicked() to check if the button is pressed and increase the number of potatoes per second by a certain amount.

```

Button button;

void setup() {
    button = new Button();
}

void draw() {}

void mouseClicked() {
    if (button.mouseOverButton()) {
        /* write code here to
        increase the rate of
        potatoes per second */
    }
}

class Button {

    Button() {

    }

    boolean mouseOverButton() {
        if (mouse inside button) {
            return true;
        } else {
            return false;
        }
    }
}

```

Use this code to help you write your Upgrade class:

```

class Upgrade {
    int pps;
    int price;
    Button button;

    public Upgrade(int rate, int cost) {
        pps = rate;
        price = cost;
        button = new Button();
    }

    void buy() {
        /* Write code here that
        changes all values which
        need to be changed when
        an upgrade is bought */
    }
}

```

To create more upgrades, use an ArrayList, like this:

```
ArrayList<Upgrade> upgrades = new ArrayList<Upgrade>();

void setup() {
    upgrades.add(new Upgrade());
}

void draw() {
    for (int i=0; i<upgrades.size(); i++) {
        upgrades.get(i).draw();
    }
}
```