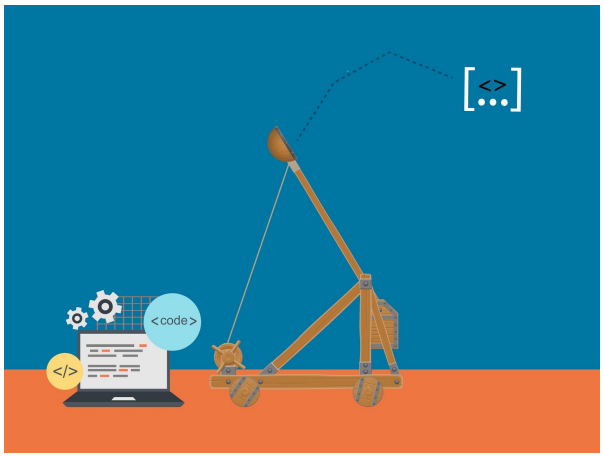
Catapult and the rubber band



What we did:

- Placed the images of the catapult in the game
- Used color picker to pick colors for the rubber
- Drew the rubber band for the catapult

How we did it:

Adding catapult to the game:

Since the catapult itself did not interact with any object in the game, we kept it as a static image. We loaded and placed the image in the game using image() function in p5.js. We loaded the images inside the constructor for slingshot class and positioned it inside the display() function.

```
class SlingShot{
    constructor(bodyA, pointB){
        var options = {
            bodyA: bodyA,
            pointB: pointB,
            stiffness: 0.04,
            length: 10
        }
        this.sling1 = loadImage('sprites/sling1.png');
        this.sling2 = loadImage('sprites/sling2.png');
        this.sling3 = loadImage('sprites/sling3.png');
        this.pointB = pointB
        this.sling = Constraint.create(options);
        World.add(world, this.sling);
    }

    fly(){
        this.sling.bodyA = null;
    }

    display(){
        if(this.sling.bodyA){
            var pointA = this.sling.bodyA.position;
            var pointB = this.pointB;
            strokeWeight(4);
            line(pointA.x, pointA.y, pointB.x, pointB.y);
        }
    }

}
```

```
class SlingShot{
    constructor(bodyA, pointB){
        var options = {
            bodyA: bodyA,
            pointB: pointB,
            stiffness: 0.04,
            length: 10
        }
        this.sling1 = loadImage('sprites/sling1.png');
        this.sling2 = loadImage('sprites/sling2.png');
        this.sling3 = loadImage('sprites/sling3.png');
        this.pointB = pointB
        this.sling = Constraint.create(options);
        World.add(world, this.sling);
    }

    fly(){
        this.sling.bodyA = null;
    }

    display(){
        image(this.sling1,200,20);
        image(this.sling2,170,20);
        if(this.sling.bodyA){
            var pointA = this.sling.bodyA.position;
            var pointB = this.pointB;
            strokeWeight(4);
            line(pointA.x, pointA.y, pointB.x, pointB.y);
        }
    }

}
```

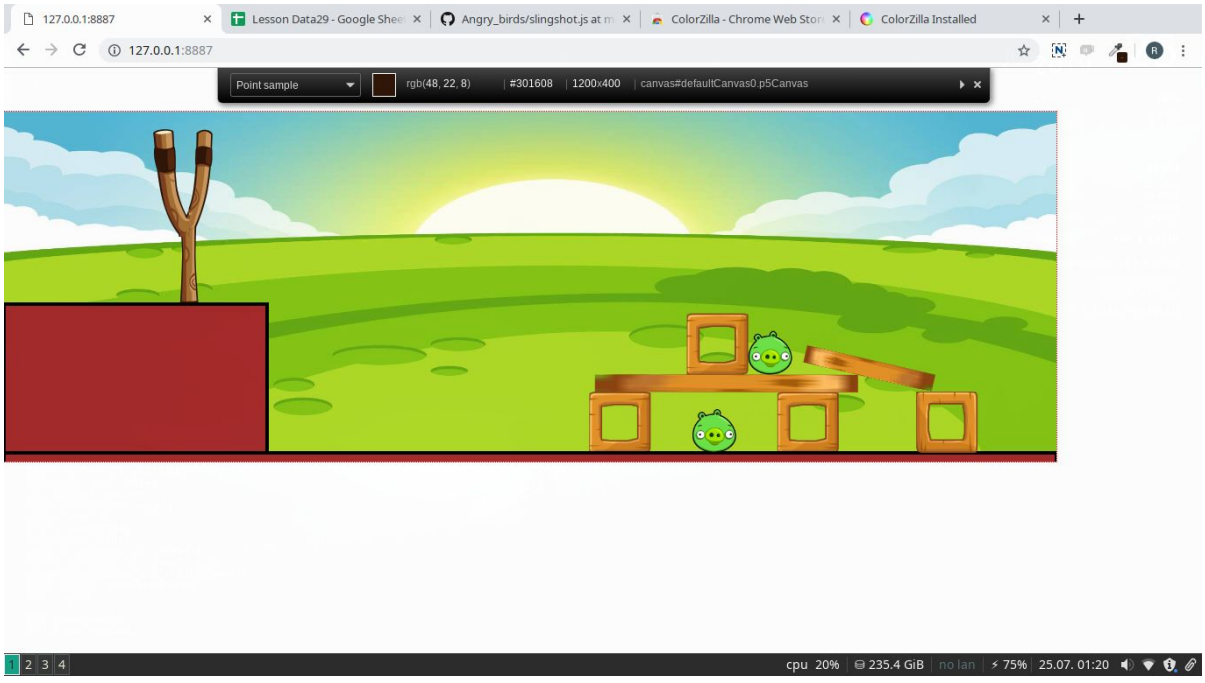
The catapult was then in the right position. Our bird needed to be higher. Thus, we modified script.js to change the position of the bird and the point to which it is anchored.

```
    log3 =  new Log(810,180,300, PI/2);

    box5 = new Box(810,160,70,70);
    log4 = new Log(760,120,150, PI/7);
    log5 = new Log(870,120,150, -PI/7);

    bird = new Bird(200,50);

    //log6 = new Log(230,180,80, PI/2);
    slingshot = new SlingShot(bird.body,{x:200, y:50});
}

function draw(){
    background(backgroundImg);
    Engine.update(engine);
    strokeWeight(4);
    box1.display();
    box2.display();
    ground.display();
    pig1.display();
    log1.display();

    box3.display();
    box4.display();
    pig3.display();
    log3.display();

    box5.display();
    log4.display();
    log5.display();

    bird.display();
    platform.display();
```

We had the catapult and the bird in between the two ends. But we did not want the line from the anchor point.

```
AngryBirdsStage3 ▸ JS Slingshot.js ▸ SlingShot ▸ display
3           var options = {
4               bodyA: bodyA,
5               pointB: pointB,
6               stiffness: 0.04,
7               length: 10
8           }
9           this.sling1 = loadImage('sprites/sling1.png');
10          this.sling2 = loadImage('sprites/sling2.png');
11          this.sling3 = loadImage('sprites/sling3.png');
12          this.pointB = pointB
13          this.sling = Constraint.create(options);
14          World.add(world, this.sling);
15      }
16
17      fly(){
18          this.sling.bodyA = null;
19      }
20
21      display(){
22          image(this.sling1,200,20);
23          image(this.sling2,170,20);
24          if(this.sling.bodyA){
25              var pointA = this.sling.bodyA.position;
26              var pointB = this.pointB;
27              strokeWeight(4);
28              //line(pointA.x - 25, pointA.y, pointB.x, pointB.y);
29          }
30      }
31
32  }
```

Next, we drew two lines from the two ends of the catapult behind the bird. For this we use Colorzilla.



We loaded and positioned the image.

AngryBirdsStage3 › SlingshotJs › SlingShot › display

```
class SlingShot{
    constructor(bodyA, pointB){
        var options = {
            bodyA: bodyA,
            pointB: pointB,
            stiffness: 0.04,
            length: 10
        }
        this.sling1 = loadImage('sprites/sling1.png');
        this.sling2 = loadImage('sprites/sling2.png');
        this.sling3 = loadImage('sprites/sling3.png');
        this.pointB = pointB
        this.sling = Constraint.create(options);
        World.add(world, this.sling);
    }

    fly(){
        this.sling.bodyA = null;
    }

    display(){
        image(this.sling1,200,20);
        image(this.sling2,170,20);
        if(this.sling.bodyA){
            var pointA = this.sling.bodyA.position;
            var pointB = this.pointB;
            push();
            strokeWeight(5);
            stroke(48,22,8);
            line(pointA.x - 20, pointA.y, pointB.x -10, pointB.y);
            line(pointA.x - 20, pointA.y, pointB.x + 30, pointB.y - 3);
            image(this.sling3,pointA.x -30, pointA.y -10,15,30);
            pop();
```

We used conditional programming to draw different lines at different end points depending on the position of the bird with respect to the catapult.

```
AngryBirdsStage3 ▸ Slingshot.js ▸ SlingShot ▸ display
17      fly(){
18          this.sling.bodyA = null;
19      }
20
21      display(){
22          image(this.sling1,200,20);
23          image(this.sling2,170,20);
24          if(this.sling.bodyA){
25              var pointA = this.sling.bodyA.position;
26              var pointB = this.pointB;
27              push();
28
29              stroke(48,22,8);
30              if(pointA.x < 220) {
31                  strokeWeight(7);
32                  line(pointA.x - 20, pointA.y, pointB.x -10, pointB.y);
33                  line(pointA.x - 20, pointA.y, pointB.x + 30, pointB.y - 3);
34                  image(this.sling3,pointA.x -30, pointA.y -10,15,30);
35              }
36              else{
37                  strokeWeight(3);
38                  line(pointA.x + 25, pointA.y, pointB.x -10, pointB.y);
39                  line(pointA.x + 25, pointA.y, pointB.x + 30, pointB.y - 3);
40                  image(this.sling3,pointA.x + 25, pointA.y -10,15,30);
41              }
42
43
44              pop();
45          }
46      }
47
48  }
```

Thus, we were able to launch the Angry birds by using the slingshot.

What's next?

In the next class, you will be learning about creating program for vanishing pigs.