Project 1

This project start the creation of a Drawing Utility. The main page is located in *drawer.html* which you can load into a browser. This project separated into two parts. The first part requires that you learn how to **read** Javascript and the seconds asks you two **write** Javascript.

Application Usage

1. Building a Line:
    1. Left Click on a location on the screen.
    2. Left Clicking on the Last Point created ends building a line
2. Moving/Add Points after a line is built:
    1. Left Click on a **black** dot and drag to the desired location
    2. Left Click on a **blue** dot to insert a point at that location
3. Removing a Point after a line is built:
    1. Hold down the Left Shift key
    2. Left Click on a black point

Part 1

Read all JavaScript files, the *drawer.html* and *drawer.css*. Comment all sections of code use the JavaScript or HTML/CSS block comment. Proper comments should summarize JavaScript code, not replace it.

For example, line 2 of *linetool.js*: Poor Comment: "Creates a variables named POINT_RADIUS and assigned it the value 20" Good Comment: "Specifies the radius of graphical points"

Sometimes, comments should be for entire sections of code and not just one line. For example, line 37-44 of *linetool.js* can be described in one comment, because the code is a response to **one** question.

Part 2

In this portion of the project, you will create a Singly-Linked List and have the *LineTool* use it instead of the JavaScript array.

1. Create a new file called *LinkedList.js*. Dont forget to modify *drawer.html* at the script tags to include the file!

2. Within the file, create two classes:

    - *LinkedList* - describes an optimized singly-linked list
    - *LinkedNode* - describes a node for a singly-linked list

3. Replace the line 7 of *linetool.js* with:

```
this.points = new LinkedList()
```

4. Correctly implement all methods needed by the *LineTool* class to store points:

`push(item)` - Adds *item* to the end of the list.

`splice(index, numToDelete, itemToAdd)` - Adds *itemToAdd* to the LinkedList at *index* after removing *numDelete* items.

For example, splice(1, 3, 5) removes 3 items after index 1 then inserts a 5.

[] is used to *access* elements in the list, so you'll need to create a *get* method and a *set* method. You'll also need to modify the code in *linetool.js*.

Google: JavaScript getters setters

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length is also accessed, so you'll need to make a *get* method for it.

Iterators - for/of loops use an iterator to move sequentially through an object. To create an iterator:

`[Symbol.iterator]` which returns the correct object.

Google: JavaScript Iterators