Basics of Creating a Google map on your page

Creating google maps on your web page does not have to be confusing or difficult, as with any other thing in coding it is all about one piece of code acting upon another.
The difficulties arise, when large scale Copy – Paste and Pray happens!
I've done it myself, you hunt for a solution online, see something that looks close and pop it in, it seems to work but not the way you wanted, and trying to get it to work is a frustrating and ultimately demoralising experience.
The big problem here is you are looking for a needle in someone else's haystack, there are multiple ways to create a map and you may be trying to piece together different methods, like trying to weld the front end of a ford onto the backend of a Honda and expect it to pass as a Mercedes.

Anyway, what this document does, is show you:

- How to add a map.
- Add a marker.
- Add multiple markers.
- Add an information window.

Each stage has screenshots of working code, and each line is commented with a full explanation.

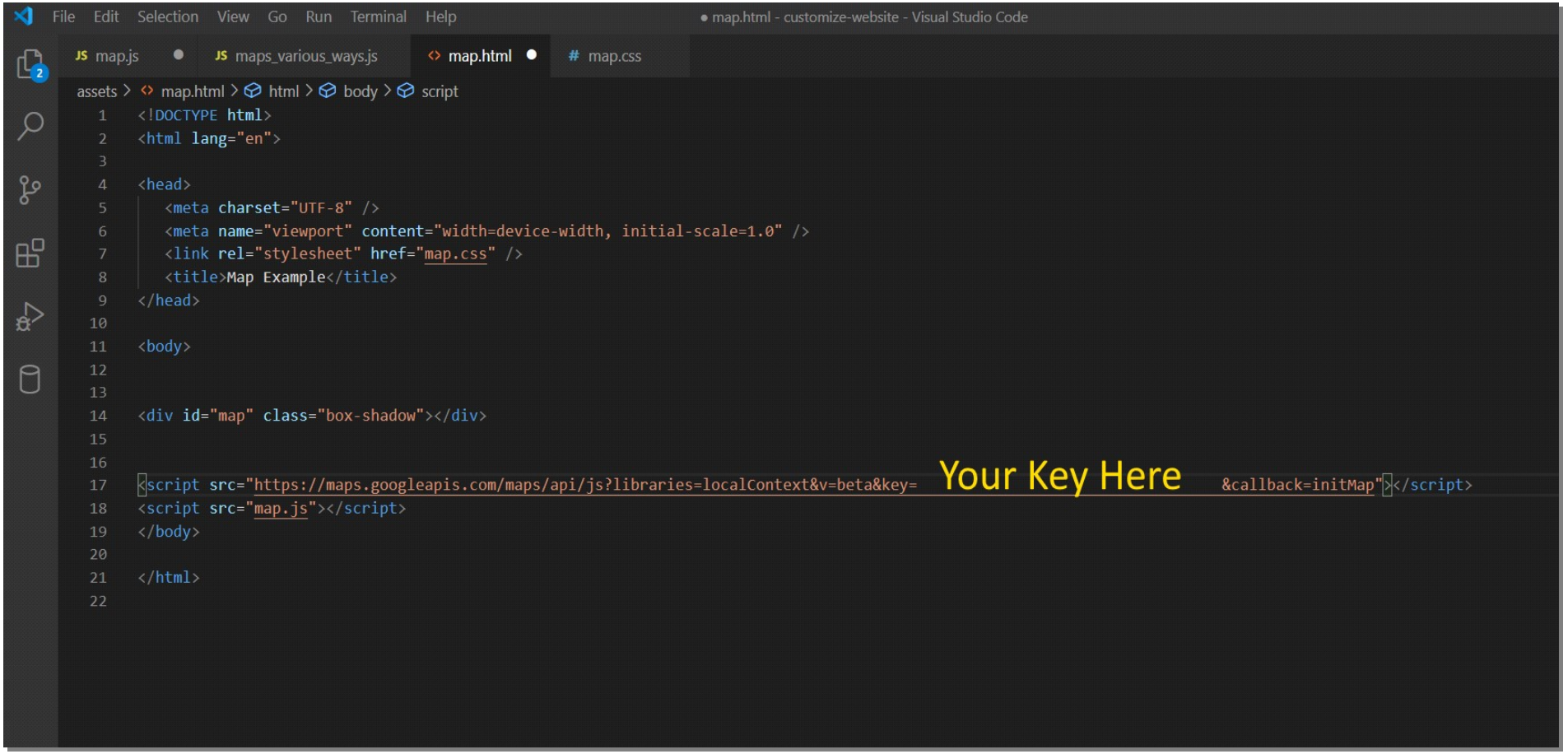
But, before you begin:

- Goto https://developers.google.com/maps/gmp-get-started and follow the instructions to get your own API Key.

Basics of Creating a Google map on your page

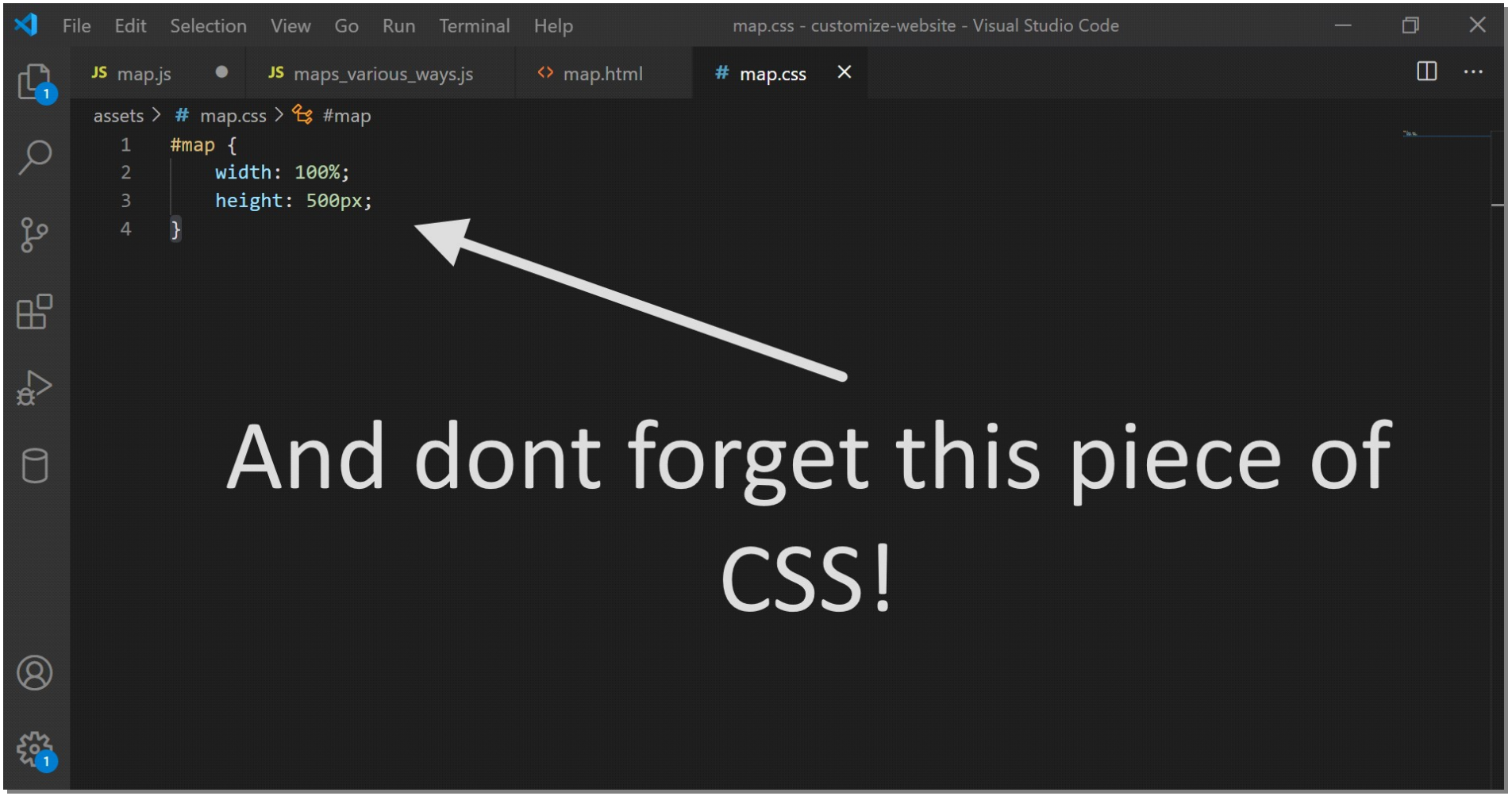
Stage 1 – Create a Map

1. Setup your Html with a map container and your map api key:



Basics of Creating a Google map on your page

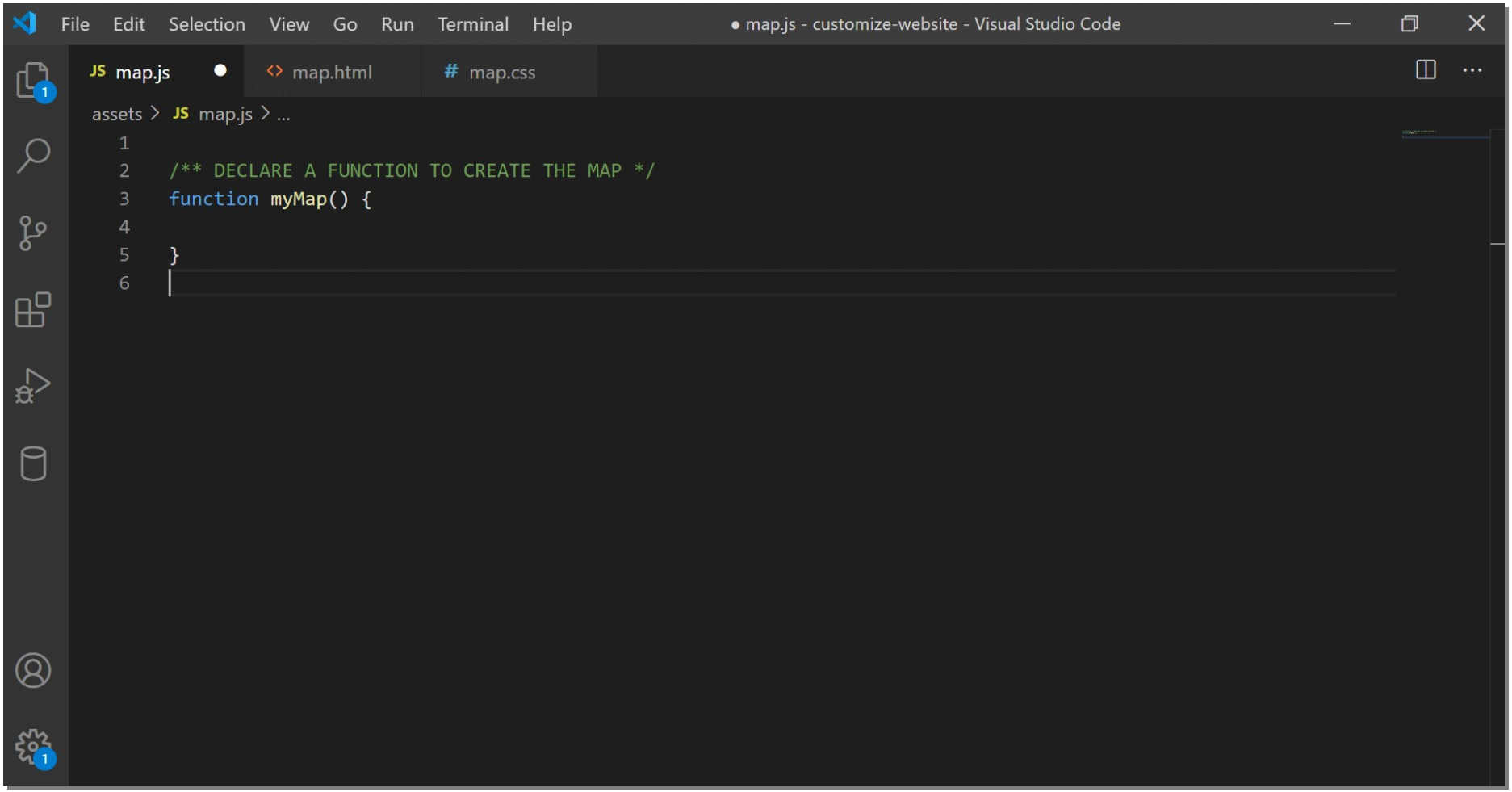
2. Dont forget your CSS, and make sure it is linked in your HTML:



3. Setup a JS file, and make sure it is linked in your html:

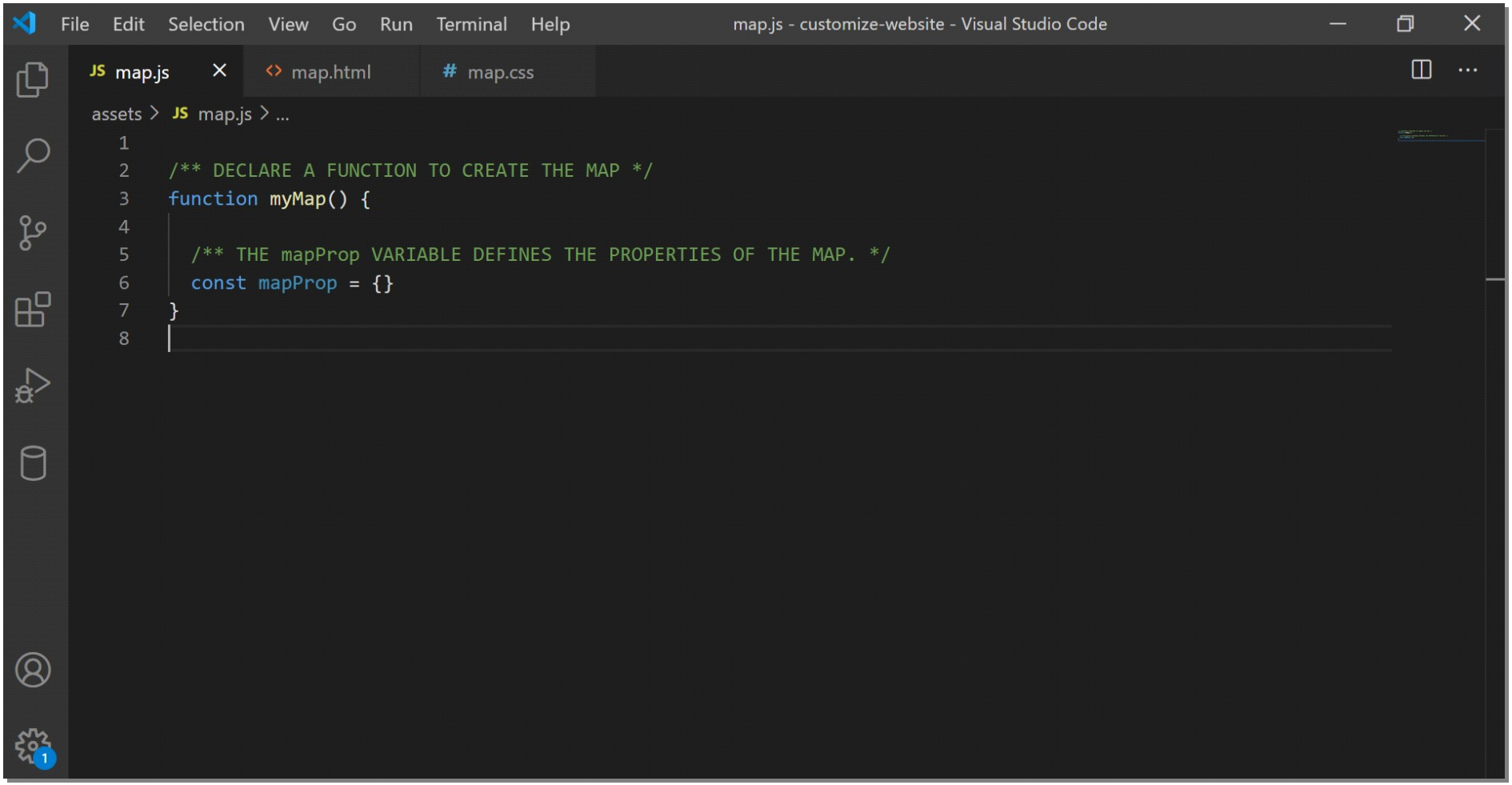
Basics of Creating a Google map on your page

4. Begin your map – setup a map function:



Basics of Creating a Google map on your page

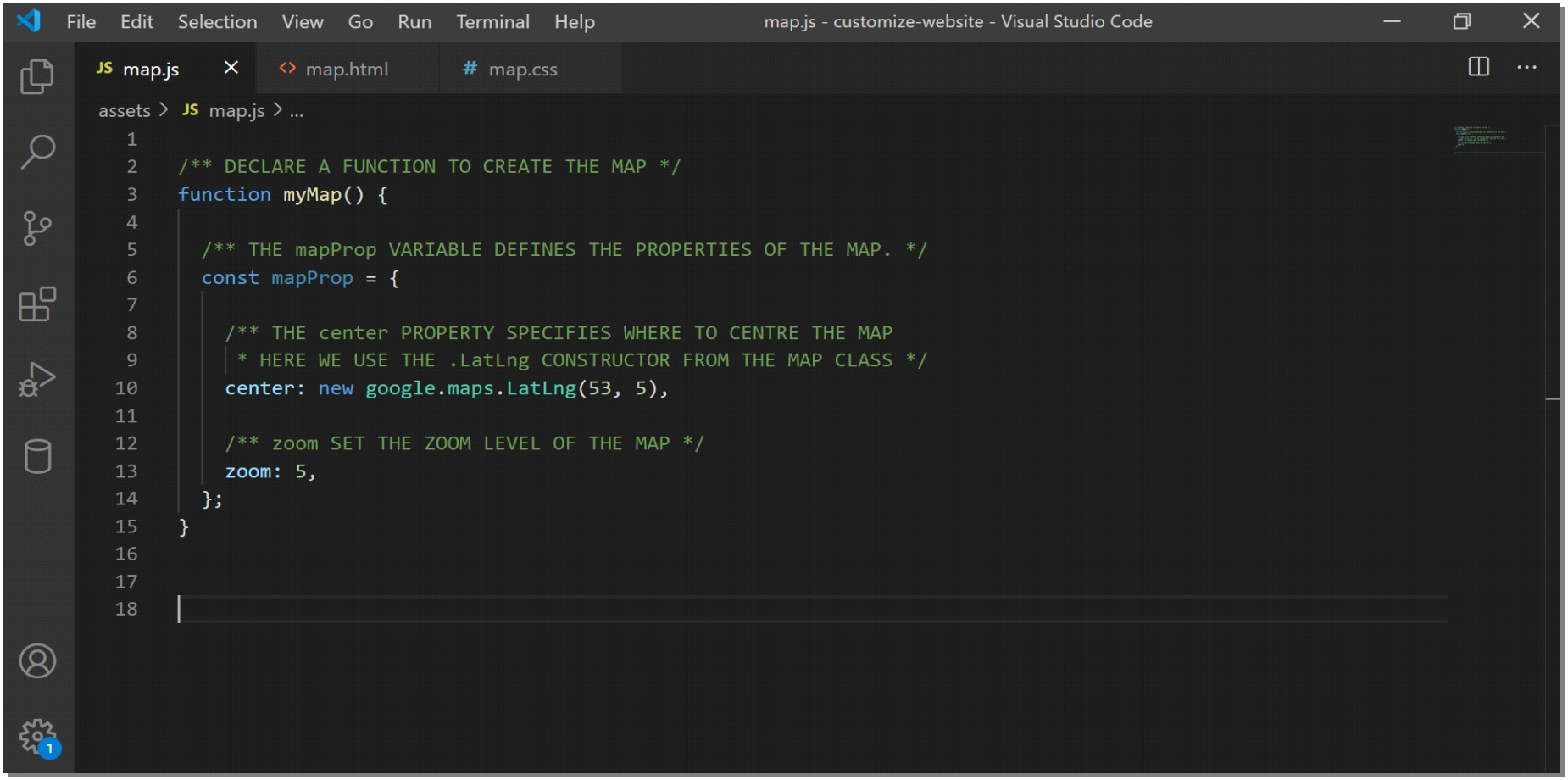
5. Setup a mapProp (call it what you like) – but this will contain the properties of your map.



Basics of Creating a Google map on your page

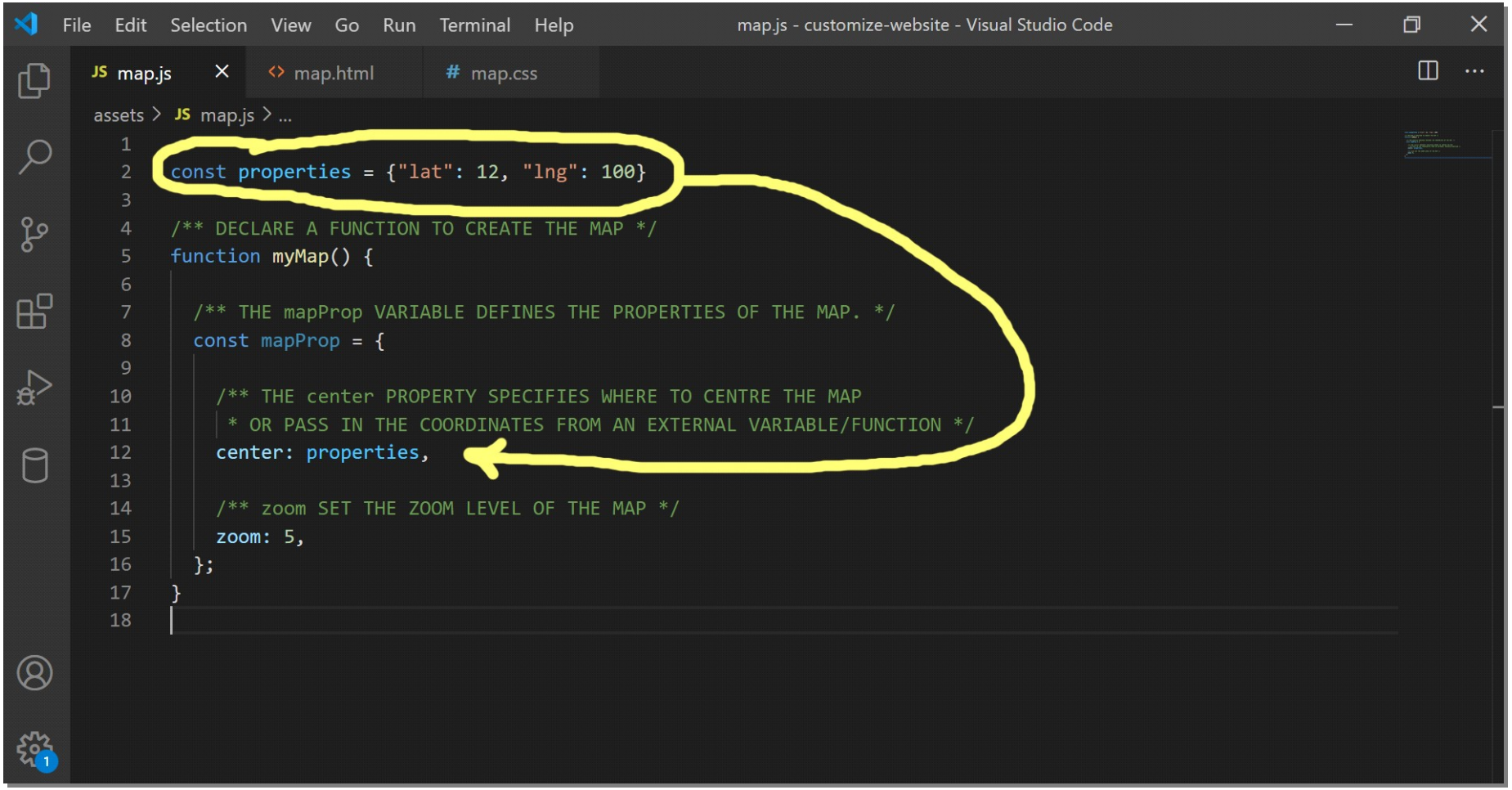
6. Now add the properties you want for your map.

- On line 10 below i am calling a new instance of the .LatLng google constructor and i am passing into this constructor the latitude and longtitude i want for the center of my map.
  All this constructor does is inform that the first number is lat and the 2nd in lng. To see another way of doing this – see step 7 below.
- On line 13 – i set up a default zoom of 5.



Basics of Creating a Google map on your page

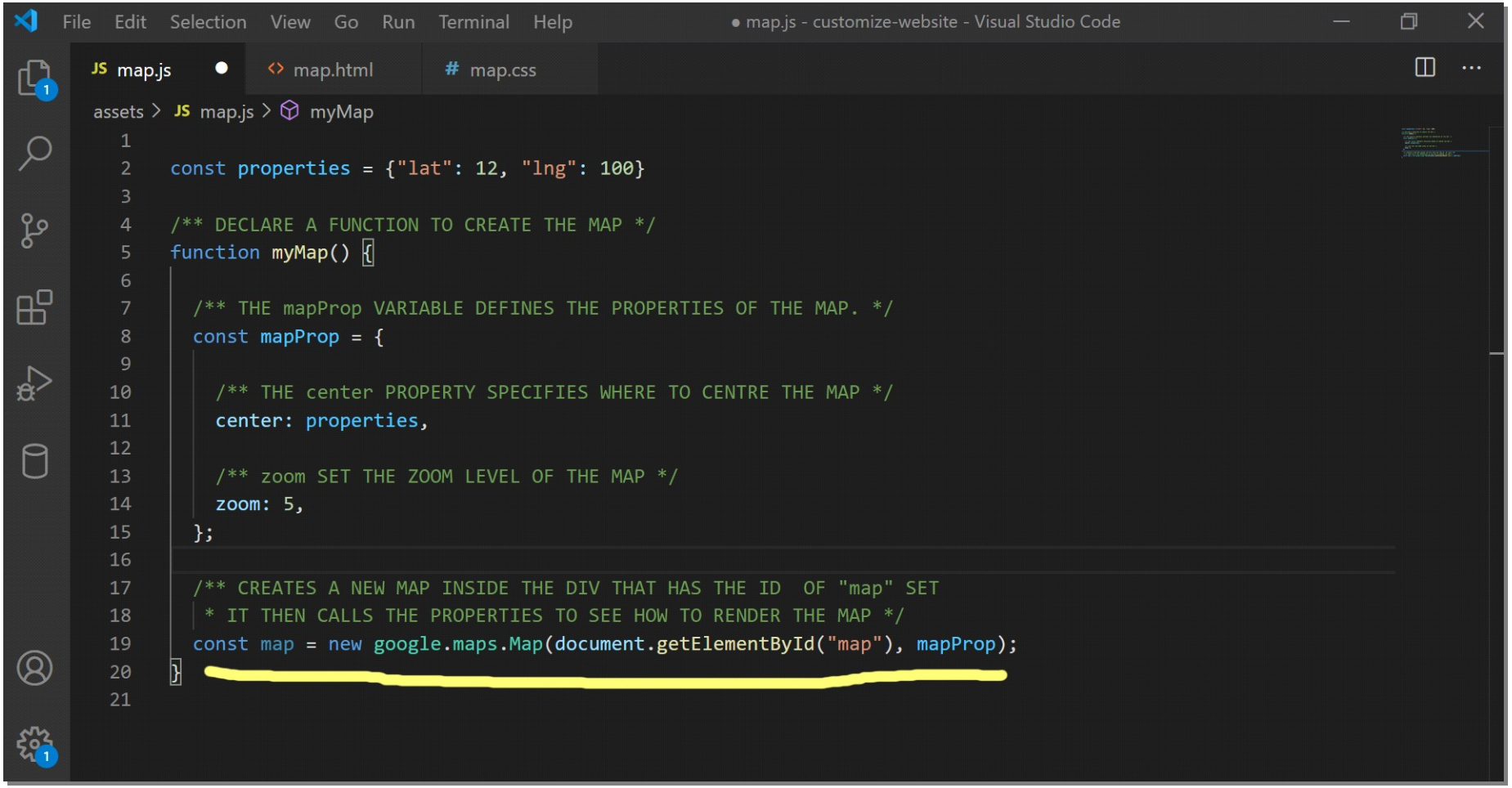
7. As an option to above number 6, you can create a variable (line-2 - below) and link your center to that properties value – both methods will work.



Basics of Creating a Google map on your page

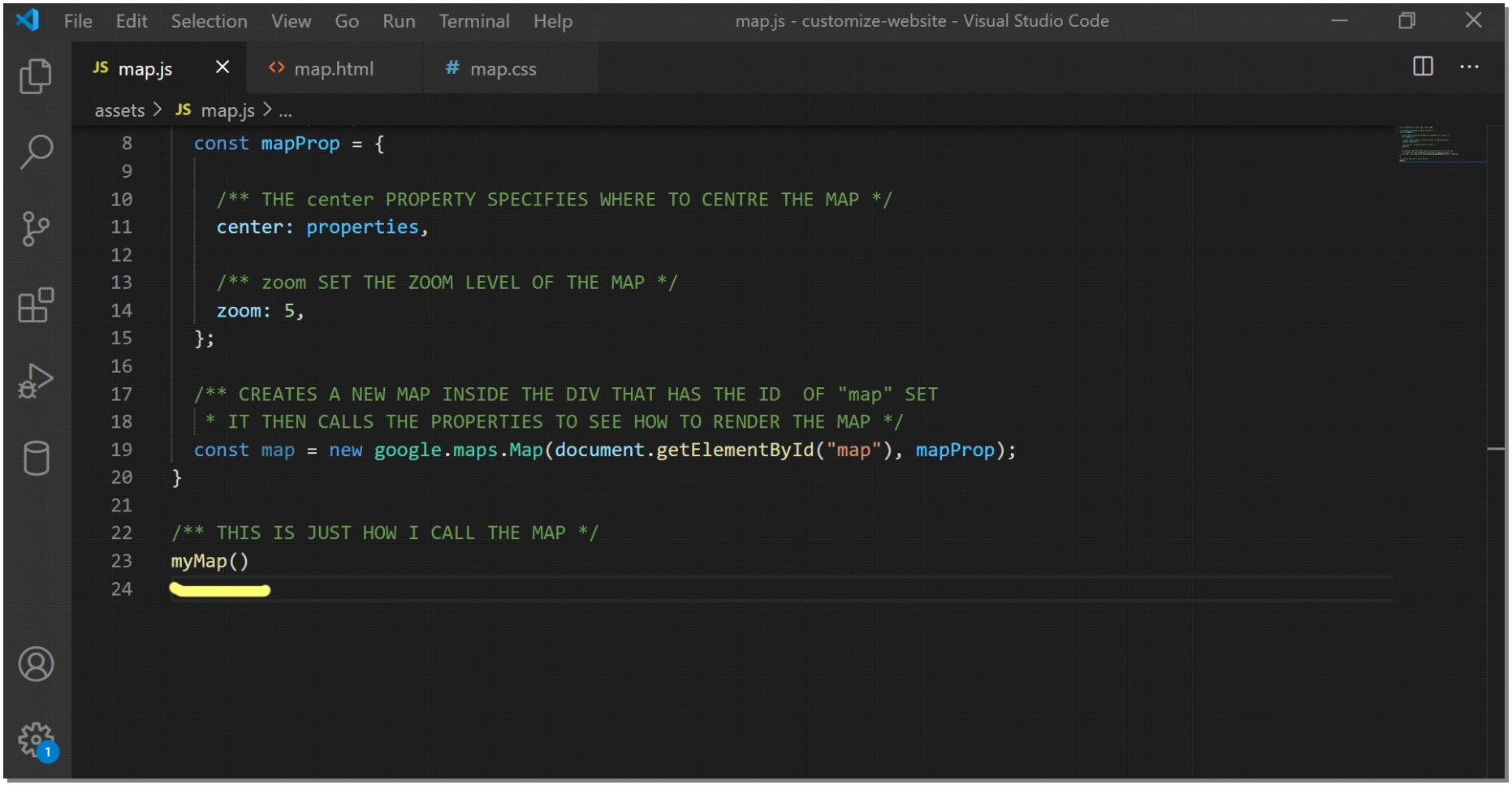
8. Create the map!

- Line 19 creates the map, it calls a new instance of the google maps constructor, and gets the #map id from the HTML. It then calls the properties to find out how you want the map to render. This is all assigned to the variable map.



Basics of Creating a Google map on your page

9. Now call the map function.



Basics of Creating a Google map on your page

10. View your beautiful map:

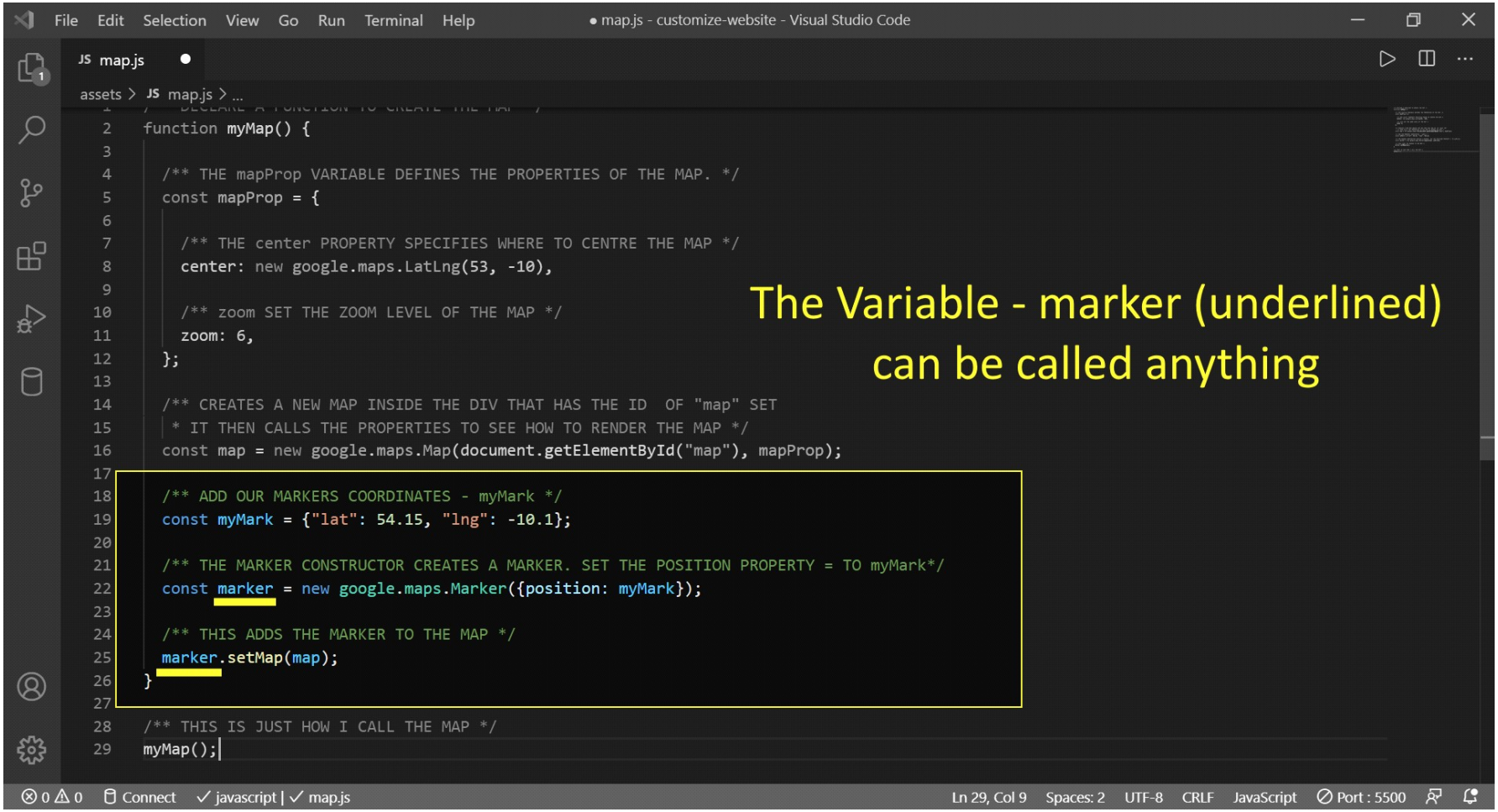
There are many other ways to do this..
And this is one of the problems people have.

Basics of Creating a Google map on your page

Stage 2 – Create and add Markers

1. Underneath where we created our map, in the last stage.

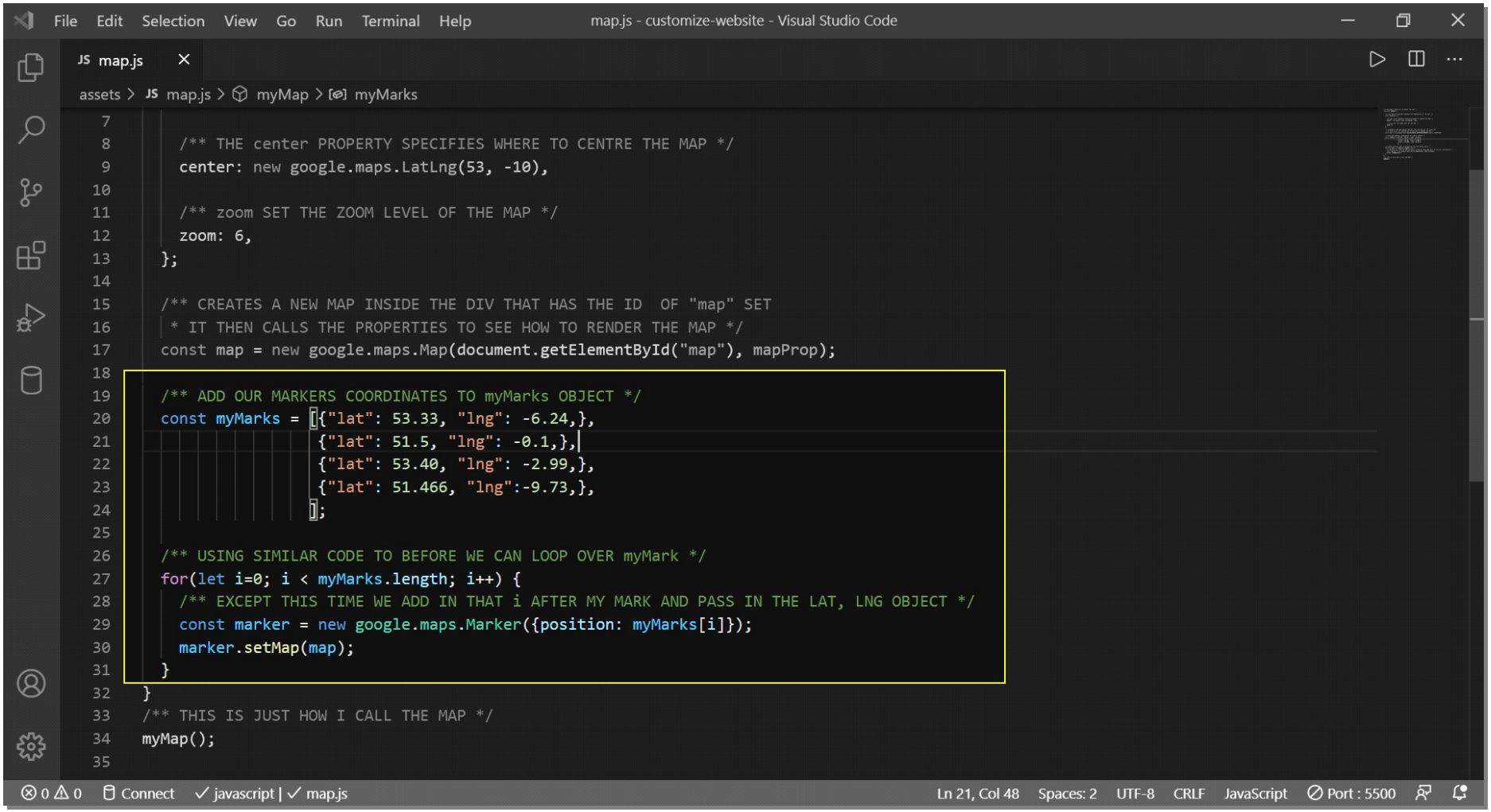
- Create a single marker



Basics of Creating a Google map on your page

2. Underneath where we created our map, in the last stage.

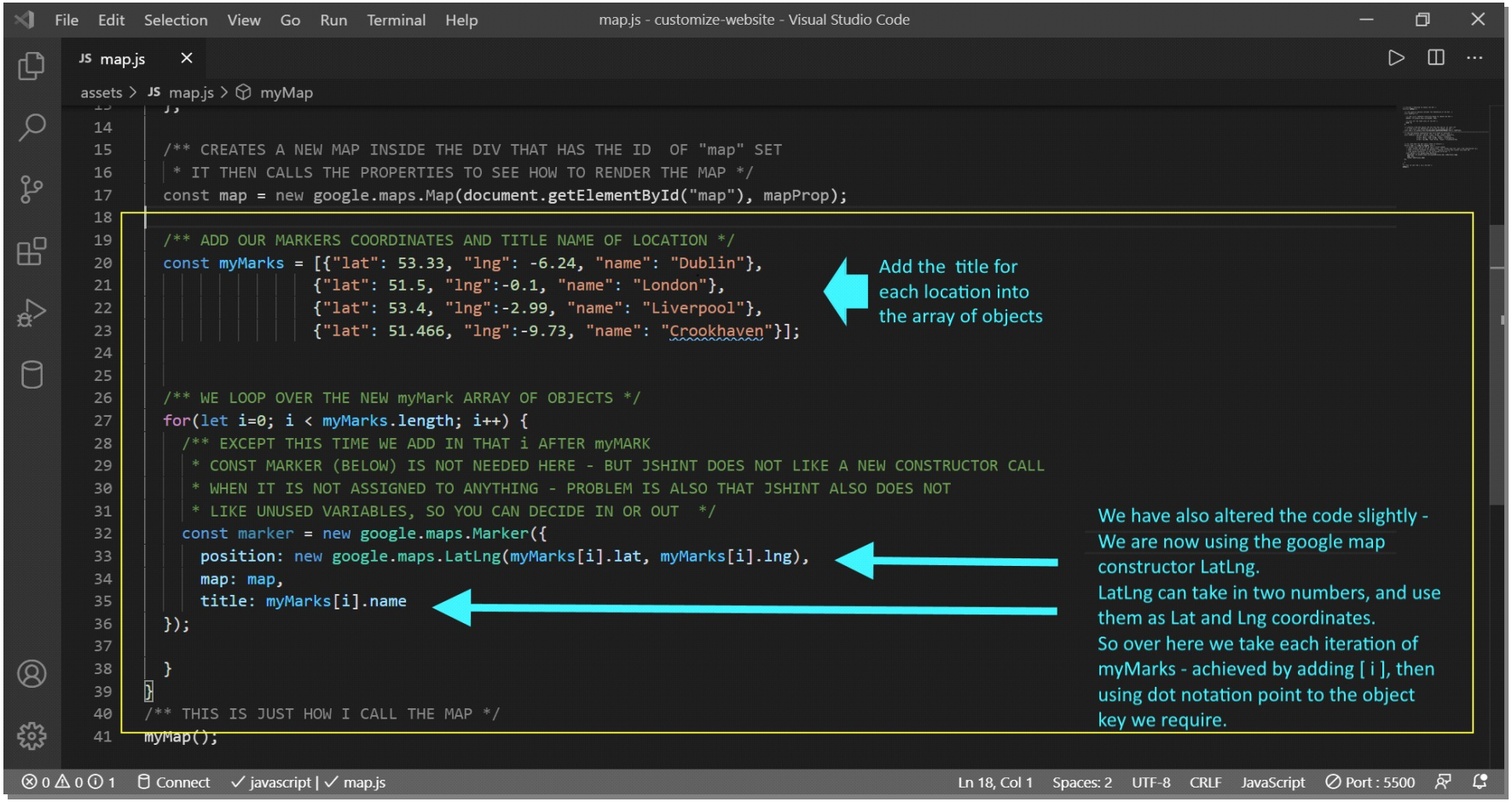
- Create a multiple markers – Each object in the array of objects gets inserted as we loop over the myMarks array. Each object is in the perfect format for inserting using the .Marker class.



Basics of Creating a Google map on your page

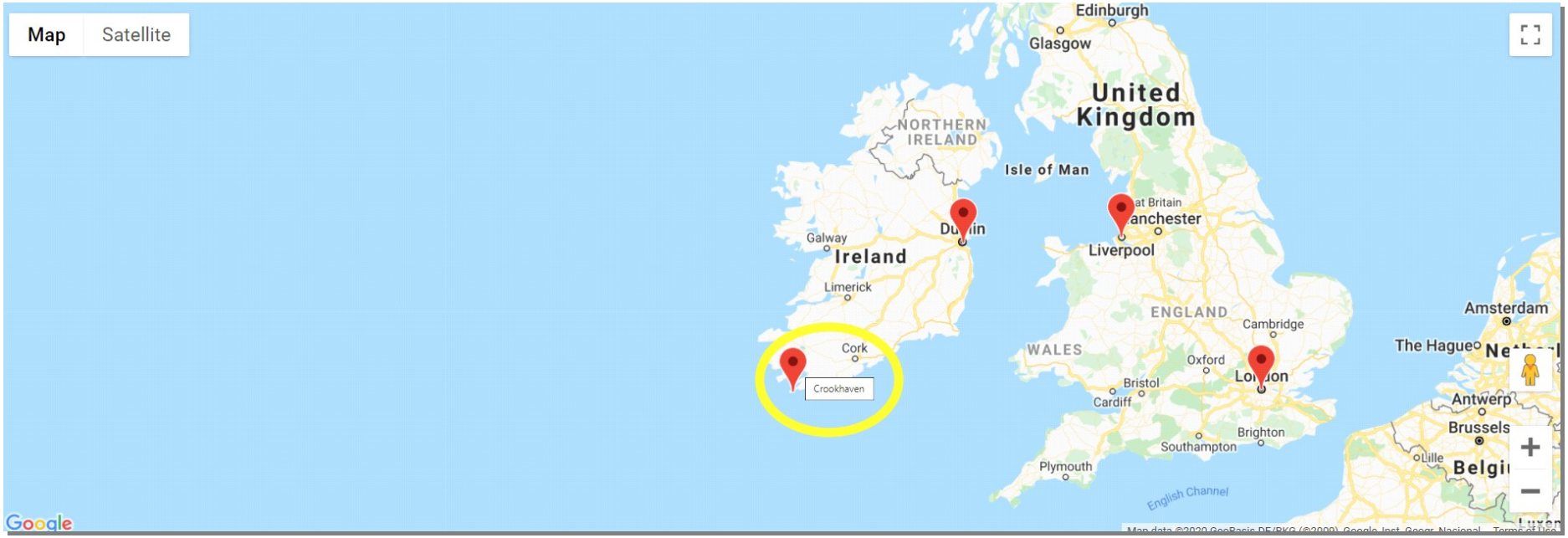
3. Add a title to the marker.

- We alter the code here slightly on line 30. The object(myMark) as it was, was perfect for just inserting using the .Marker class.
  But now myMarks is not only a lat, lng object, because we have added a name key, which we will target for the title of the marker.
  So now we will use the LatLng constructor – which accepts 2 values – a lat, and a lng. And as we we loop over myMarks we can simply use dot notation to point to the key that we need the value of.



Basics of Creating a Google map on your page

This gives us a map with a small title when we hover over the marker:



Basics of Creating a Google map on your page

Stage 3 – Add info to those markers

This will add a small pop up window with information related to each marker, clicking on another marker will close the old marker and open the new one. Or it will be possible to close an info window by clicking the x in the top corner.

As the following code can appear quite complicated a support video is available at: https://www.youtube.com/watch?v=Xptz0GQ2DO4 on this topic and it also uses very similar code.

1. First we will update our sample myMarks array of objects, with some information for the info box (use backticks):

```
/** ADD OUR MARKERS COORDINATES AND TITLE NAME OF LOCATION AND INFORMATION */
const myMarks = [{"lat": 53.33, "lng": -6.24, "name": "Dublin", "information": `Dublin, capital of the Republic of Ireland,
                                                                                is on Ireland's east coast at the mouth of the River Liffey.
                                                                                Its historic buildings include Dublin Castle, dating to the
                                                                                13th century, and imposing St Patrick's Cathedral, founded
                                                                                in 1191. City parks include landscaped St Stephen's Green and
                                                                                huge Phoenix Park, containing Dublin Zoo. The National Museum
                                                                                of Ireland explores Irish heritage and culture.`},
                {"lat": 51.5, "lng":-0.1, "name": "London", "information": `London, the capital of England and the United Kingdom,
                                                                            is a 21st-century city with history stretching back to Roman times.
                                                                            At its centre stand the imposing Houses of Parliament, the iconic
                                                                            'Big Ben' clock tower and Westminster Abbey, site of British monarch
                                                                            coronations.`},
                {"lat": 53.4, "lng":-2.99, "name": "Liverpool", "information": `Liverpool is a maritime city in northwest England,
                                                                               where the River Mersey meets the Irish Sea. A key trade and
                                                                               migration port from the 18th to the early 20th centuries, it's
                                                                               also, famously, the hometown of The Beatles. Ferries cruise the
                                                                               waterfront, where the iconic mercantile buildings known as the
                                                                               "Three Graces" – Royal Liver Building, Cunard Building and Port
                                                                               of Liverpool Building – stand on the Pier Head.`},
                {"lat": 51.466, "lng":-9.73, "name": "Crookhaven", "information": `Crookhaven is a village in County Cork, Ireland,
                                                                                  on the most southwestern tip of the island of Ireland.
                                                                                  An out-of-season population of about sixty swells in the
                                                                                  summer season to about four hundred, with the occupants of
                                                                                  the seasonal holiday homes arriving.`}
];
```

Basics of Creating a Google map on your page

2. **Initialize the InfoObj:**

- **This will store the information in each info window, it is assigned this each time we click on a marker. See step 6.**

```
41
42  /* Initialize an InfoObj - this will store the information displayed in each info window */
43  var InfoObj = [];
44
```

3. Open our for loop to loop over the myMarks, just as we did before, and add in the content string which we want to display in our info window. It will reference the information we added in step 1.

```
46  /* LOOP OVER MyMarks - INSIDE THIS LOOP WE WILL CALL OUR MARKERS */
47  for (i = 0; i < myMarks.length; i++) {
48    let contentString = '<h3>' + myMarks[i].name + '</h3>' +
49    '<p>' + myMarks[i].information + '</p>' +
50    '<a href="https://developers.google.com/maps/documentation/javascript/overview">>' + 'Click me!' + '</a>';
```

Basics of Creating a Google map on your page

4. Call our makers onto the map, we reintroduce our own marker variable on line 44, this is because we need to reference each marker and add an click event listener to it later, and we need something to grab onto.

Also added in an animation effect for the markers, bounce is another common option you could try.

```
52    /** I ADD BACK IN THE MARKER VARIABLE AS CALLING THE .OPEN METHOD ON OUR INFOWINDOW VARIABLE
53     *  NEEDS A REFERENCE TO THE MAP ( SET AT THE START) AND A REFERENCE TO THE MARKER PASSED IN */
54    const marker = new google.maps.Marker({
55
56      position: new google.maps.LatLng(myMarks[i].lat, myMarks[i].lng),
57      map: map,
58      title: myMarks[i].name,
59      animation: google.maps.Animation.DROP,
60    });
```

5. Now we can setup our info window, remember this is all inside our for loop.

- **Content string, setup at the start of the loop, is loaded into the variable infowindow.**

```
62    /** HERE WE SETUP OUR INFO WINDOW, THIS IS WHAT WE CALL  */
63    const infowindow = new google.maps.InfoWindow({
64      content: contentString,
65      maxWidth: 500
66    });
```

Basics of Creating a Google map on your page

6. **The remainder of the required code.**

- **Add an event listener onto each marker in the loop.**
- **When clicked it calls the function to handle closing all other windows, and resets the window (InfoObj) data.**
- **Then opens a new window and saves the current infowindow variable content into the InfoObj array.**

```
68      /** HERE WE ADD A CLICK LISTENER TO THE MARKER */
69      marker.addListener("click", function () {
70        /* CLOSE OTHER WINDOWS */
71        closeOtherInfo();
72        /* CREATE NEW WINDOW */
73        infowindow.open(map, marker);
74        InfoObj[0] = infowindow;
75      });
76    }
77
78    /** This function clears out any old information   */
79    function closeOtherInfo() {
80      if( InfoObj.length > 0 ){
81        InfoObj[0].set("marker", null);
82        InfoObj[0].close();
83        InfoObj[0].length = 0;
84      }
85    }
86  }
87  /** THIS IS JUST HOW I CALL THE MAP */
88  myMap();
```

Basics of Creating a Google map on your page

Completed code

```
/** DECLARE A FUNCTION TO CREATE THE MAP */
function myMap() {
  /** THE mapProp VARIABLE DEFINES THE PROPERTIES OF THE MAP. */
  const mapProp = {
    /** THE center PROPERTY SPECIFIES WHERE TO CENTRE THE MAP */
    center: new google.maps.LatLng(53, -10),

    /** zoom SET THE ZOOM LEVEL OF THE MAP */
    zoom: 4,
  };
  /** CREATES A NEW MAP INSIDE THE DIV THAT HAS THE ID  OF "map" SET
   * IT THEN CALLS THE PROPERTIES TO SEE HOW TO RENDER THE MAP */
  const map = new google.maps.Map(document.getElementById("map"), mapProp);

  /** ADD OUR MARKERS COORDINATES AND TITLE NAME OF LOCATION AND INFORMATION */
  const myMarks = [{"lat": 53.33, "lng": -6.24, "name": "Dublin", "information": `Dublin, capital of the Republic of Ireland,
                                                    is on Ireland's east coast at the mouth of the River Liffey.
                                                    Its historic buildings include Dublin Castle, dating to the
                                                    13th century, and imposing St Patrick's Cathedral, founded
                                                    in 1191. City parks include landscaped St Stephen's Green and
                                                    huge Phoenix Park, containing Dublin Zoo. The National Museum
                                                    of Ireland explores Irish heritage and culture.`},
                {"lat": 51.5, "lng":-0.1, "name": "London", "information": `London, the capital of England and the United Kingdom,
                                                   is a 21st-century city with history stretching back to Roman times.
                                                   At its centre stand the imposing Houses of Parliament, the iconic
                                                   'Big Ben' clock tower and Westminster Abbey, site of British monarch
                                                   coronations.`},
                 {"lat": 53.4, "lng":-2.99, "name": "Liverpool", "information": `Liverpool is a maritime city in northwest England,
                                                  where the River Mersey meets the Irish Sea. A key trade and
                                                  migration port from the 18th to the early 20th centuries, it's
                                                  also, famously, the hometown of The Beatles. Ferries cruise the
                                                  waterfront, where the iconic mercantile buildings known as the
                                                  "Three Graces" – Royal Liver Building, Cunard Building and Port
                                                  of Liverpool Building – stand on the Pier Head.`},
                  {"lat": 51.466, "lng":-
9.73, "name": "Crookhaven", "information": `Crookhaven is a village in County Cork, Ireland,
                                                    on the most southwestern tip of the island of Ireland.
                                                    An out-of-season population of about sixty swells in the
                                                    summer season to about four hundred, with the occupants of
                                                    the seasonal holiday homes arriving.`}
];

  /* Initialize an InfoObj - this will store the information displayed in each info window */
  var InfoObj = [];


  /* LOOP OVER MyMarks - INSIDE THIS LOOP WE WILL CALL OUR MARKERS */
  for (i = 0; i < myMarks.length; i++) {
    let contentString = '<h3>' + myMarks[i].name + '</h3>' +
    '<p>' + myMarks[i].information + '</p>' +
    '<a href="https://developers.google.com/maps/documentation/javascript/overview">>' + 'Click me!' + '</a>';
```

```
    /** I ADD BACK IN THE MARKER VARIABLE AS CALLING THE .OPEN METHOD ON OUR
          INFOWINDOW VARIABLE
     * NEEDS A REFERENCE TO THE MAP (SET AT THE START) AND A REFERENCE
          TO THE MARKER PASSED IN */
    const marker = new google.maps.Marker({

      position: new google.maps.LatLng(myMarks[i].lat, myMarks[i].lng),
      map: map,
      title: myMarks[i].name,
      animation: google.maps.Animation.DROP,
    });

    /** HERE WE SETUP OUR INFO WINDOW, THIS IS WHAT WE CALL  */
    const infowindow = new google.maps.InfoWindow({
      content: contentString,
      maxWidth: 500
    });

    /** HERE WE ADD A CLICK LISTENER TO THE MARKER */
    marker.addListener("click", function () {
      /* CLOSE OTHER WINDOWS */
      closeOtherInfo();
      /* CREATE NEW WINDOW */
      infowindow.open(map, marker);
      InfoObj[0] = infowindow;
    });
  }

  /** This function clears out any old information   */
  function closeOtherInfo() {
    if( InfoObj.length > 0 ){
      InfoObj[0].set("marker", null);
      InfoObj[0].close();
      InfoObj[0].length = 0;
    }
  }
}
/** THIS IS JUST HOW I CALL THE MAP */
myMap();
```

Basics of Creating a Google map on your page

I highly recommend following these steps bit by bit, renaming variables and adding in some of your own code, while continually looking at the results of each change you make. Play with it, break it, fix it and add something to it from the extensive google maps library.

In doing this you will gain a much stronger understanding of maps and markers.

I hope this has proved useful to you in trying to make sense of how google maps does what it does.

Online you will find numerous variations on this, but if you are struggling to understand this, i would advise mastering one method, understand it and know it inside out.

Once you have that, Once you know what each line of code is doing, you will then have the confidence and knowledge to chop and change and understand other methods.

Any Questions on what is covered in this document, please let me know in the comments, and i will do my best to answer them.

Written by: Eamonn Smyth