

Intro into Scripting Report

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by Connor Ellement

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Intro to Scripting
ACCA5022
JavaScript enabled Website
By Connor Ellement 1803452

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1) Introduction

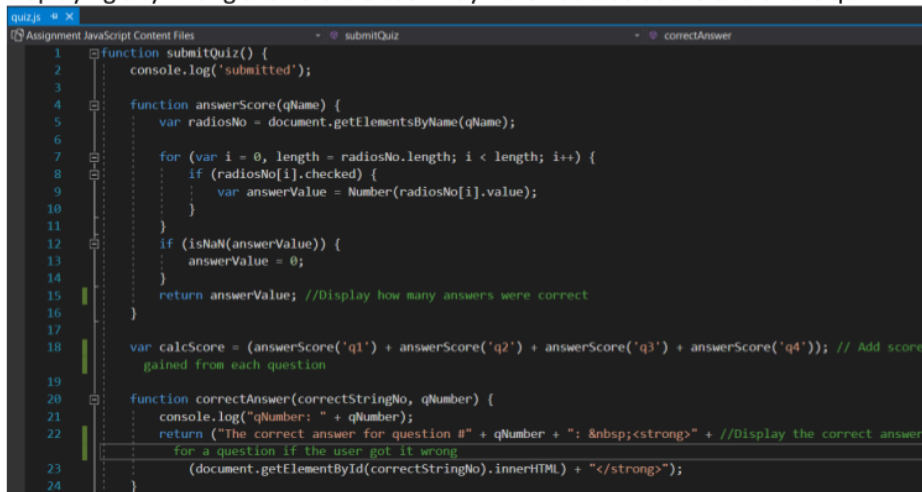
In this assignment, the task set to be completed is to create a website that has various JavaScript functions implemented into the website and allows user interaction. The subject of the website was left to our own discretion, and in my choice, I have chosen to create a website about the BBC TV show, Doctor Who, which was approved by my lecturer. The website is to include three JavaScript components, two of which have been done in class and it is our job to expand on, and the third component is down to our own choice.

2) Javascript components

JavaScript is a language used when coding websites to help web developers make their page interactive to their users. JavaScript can be used for something like having an alert pop up on the load of a page, validating text fields or toggling light/dark mode on a website. Anonymous writer Mindfire Solutions said this on Medium.com about the importance of JS in modern day websites [1], *"The importance of JavaScript as a web technology can be determined from the fact that it is currently used by 94.5% of all websites. As a client-side programming language, JavaScript helps web developers to make web pages dynamic and interactive by implementing custom client-side scripts"*.

2.1) JavaScript Quiz

The first JS component I included in my website was a quiz with JavaScript functionality. In class we had learnt how to make a basic radio button quiz, and the way I expanded on this, was by adding a score counter that totals how many questions you got correct, and by displaying any wrong answers the user may have had also at the end of the quiz.

A screenshot of a code editor with a dark theme. The editor shows three files: 'quiz.js', 'submitQuiz', and 'correctAnswer'. The 'quiz.js' file is open, displaying JavaScript code for a quiz. The code includes a 'submitQuiz' function that logs 'submitted', an 'answerScore' function that iterates through radio buttons to calculate the score, a 'calcScore' variable that sums the scores for four questions, and a 'correctAnswer' function that logs and updates the correct answer for a given question number. Line numbers 1 through 24 are visible on the left side of the code.

```
1 function submitQuiz() {
2   console.log('submitted');
3
4   function answerScore(qName) {
5     var radiosNo = document.getElementsByName(qName);
6
7     for (var i = 0, length = radiosNo.length; i < length; i++) {
8       if (radiosNo[i].checked) {
9         var answerValue = Number(radiosNo[i].value);
10      }
11    }
12    if (isNaN(answerValue)) {
13      answerValue = 0;
14    }
15    return answerValue; //Display how many answers were correct
16  }
17
18  var calcScore = (answerScore('q1') + answerScore('q2') + answerScore('q3') + answerScore('q4')); // Add score
19  // gained from each question
20
21  function correctAnswer(correctStringNo, qNumber) {
22    console.log("qNumber: " + qNumber);
23    return ("The correct answer for question #" + qNumber + ": &nbsp;<strong>" + //Display the correct answer
24      // for a question if the user got it wrong
25      (document.getElementById(correctStringNo).innerHTML) + "</strong>");
26  }
```

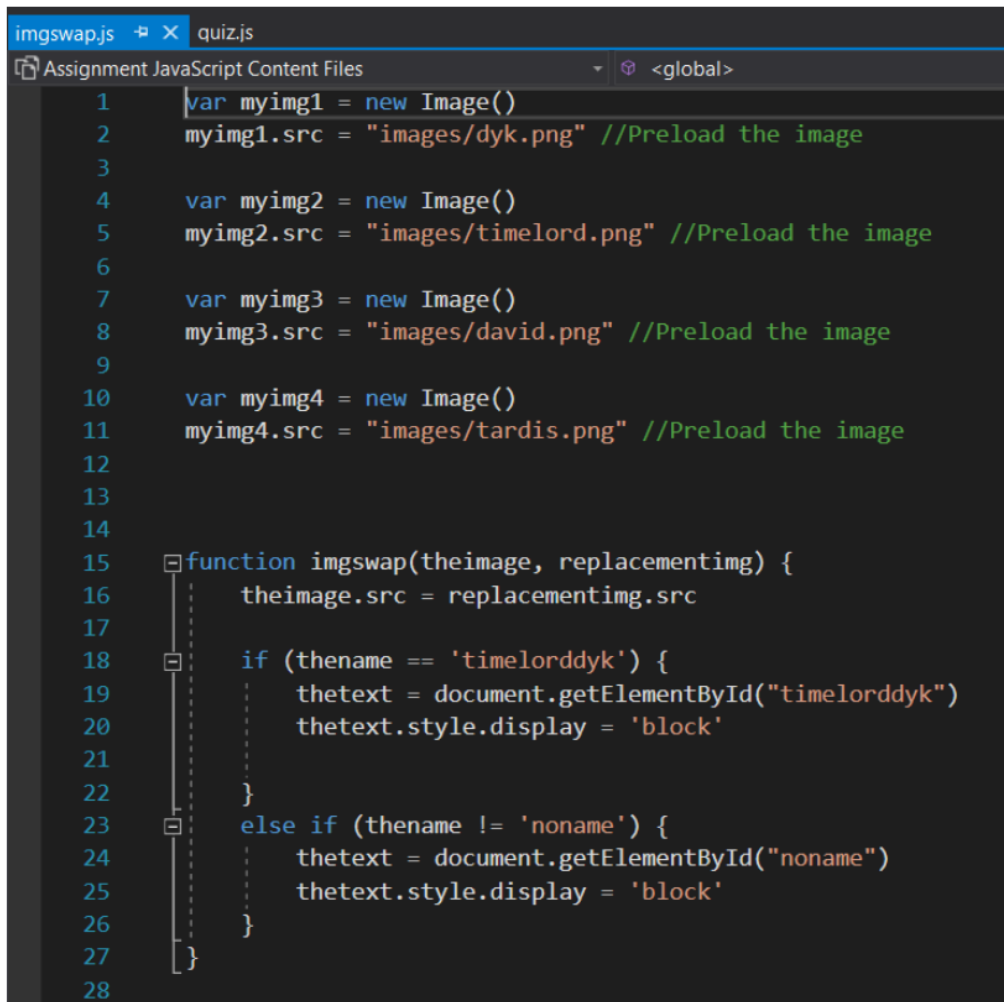
```

24     }
25
26     if (answerScore('q1') === 0) {
27         document.getElementById('correctAnswer1').innerHTML = correctAnswer('correctString1', 1);
28     }
29     if (answerScore('q2') === 0) {
30         document.getElementById('correctAnswer2').innerHTML = correctAnswer('correctString2', 2);
31     }
32     if (answerScore('q3') === 0) {
33         document.getElementById('correctAnswer3').innerHTML = correctAnswer('correctString3', 3);
34     }
35     if (answerScore('q4') === 0) {
36         document.getElementById('correctAnswer4').innerHTML = correctAnswer('correctString4', 4);
37     }
38
39     var questionCountArray = document.getElementsByClassName('question');
40
41     var questionCounter = 0;
42     for (var i = 0, length = questionCountArray.length; i < length; i++) {
43         questionCounter++;
44     }
45
46     var showScore = "Your Score: " + calcScore + "/" + questionCounter; //Display total score from quiz
47
48     if (calcScore === questionCounter) { //If all answers were correct
49         showScore = showScore + "&nbsp; <strong>Perfect Score!</strong>" //Displays score and the string
50     }
51     };
52
53     var showScore = "Your Score: " + calcScore + "/" + questionCounter; //Display total score from quiz
54
55     if (calcScore === questionCounter) { //If all answers were correct
56         showScore = showScore + "&nbsp; <strong>Perfect Score!</strong>" //Displays score and the string
57     }
58     };
59     document.getElementById('userScore').innerHTML = showScore;
60
61     $(document).ready(function () {
62         $('#submitButton').click(function () {
63             $(this).addClass('hide');
64         });
65     });

```

2.2) Image Swap

The next component that is included on the website is what I call an image swap. I have used it in two separate ways. The first way I implemented the image swap was by using a rollover image, where one image is hovered over, it changes to another image, and reverts back once no longer being hovered over, which you can see happening in the screenshots below. We did this in class, and I was unable to expand on it, as I tried getting a fade working, alas to no result.

A screenshot of a code editor with a dark theme. The editor has two tabs at the top: 'imgswap.js' (active) and 'quiz.js'. Below the tabs is a breadcrumb trail: 'Assignment JavaScript Content Files' followed by a dropdown arrow and '<global>'. The code is written in JavaScript and is as follows:

```
1  var myimg1 = new Image()
2  myimg1.src = "images/dyk.png" //Preload the image
3
4  var myimg2 = new Image()
5  myimg2.src = "images/timelord.png" //Preload the image
6
7  var myimg3 = new Image()
8  myimg3.src = "images/david.png" //Preload the image
9
10 var myimg4 = new Image()
11 myimg4.src = "images/tardis.png" //Preload the image
12
13
14
15 function imgswap(theimage, replacementimg) {
16     theimage.src = replacementimg.src
17
18     if (thename == 'timelorddyk') {
19         thetext = document.getElementById("timelorddyk")
20         thetext.style.display = 'block'
21     }
22 }
23 else if (thename != 'noname') {
24     thetext = document.getElementById("noname")
25     thetext.style.display = 'block'
26 }
27 }
28
```

The second implementation of my image swap was changing the background image of my “tardis.html” page upon the click of a button. We did a similar task in class with changing the colour of text, however I went a little further with this by including a button, and instead of a colour change, a whole picture change. Unfortunately, some of the images are pixelated and blurry, due to the main issue of not being able to find high quality images of inside the TARDIS sets. The component is shown below:

```
backgroundSwap.js - x
Assignment JavaScript Content Files - mattTardisTwo - imgPath

1 function jodieTardis() {
2   var imgPath = new String();
3   imgPath = document.getElementById("background").style.backgroundColor; //Locates the Div with the id of "background" and allows the
   background image to be changed
4
5   if (imgPath != "url(images/jodietardis.jpg)") { //If background image is not jodietardis.jpg
6     document.getElementById("background").style.backgroundColor = "url(images/jodietardis.jpg)"; // make the background jodietardis.jpg
7   }
8 }
9
10 function davidTardis() {
11   var imgPath = new String();
12   imgPath = document.getElementById("background").style.backgroundColor; //Locates the Div with the id of "background" and allows the
   background image to be changed
13
14   if (imgPath != "url(images/davidtardis.jpg)") { //If background image is not davidtardis.jpg
15     document.getElementById("background").style.backgroundColor = "url(images/davidtardis.jpg)"; // make the background davidtardis.jpg
16   }
17 }
18
19 function peterTardis() {
20   var imgPath = new String();
21   imgPath = document.getElementById("background").style.backgroundColor; //Locates the Div with the id of "background" and allows the
   background image to be changed
22
23   if (imgPath != "url(images/petertardis.jpg)") { //If background image is not petertardis.jpg
24     document.getElementById("background").style.backgroundColor = "url(images/petertardis.jpg)"; // make the background petertardis.jpg
25   }
26 }
27
28
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backgroundSwap.js - x
Assignment JavaScript Content Files - mattTardisTwo - imgPath

25   }
26 }
27
28 function mattTardis() {
29   var imgPath = new String();
30   imgPath = document.getElementById("background").style.backgroundColor; //Locates the Div with the id of
   "background" and allows the background image to be changed
31
32   if (imgPath != "url(images/matttardis.jpg)") { //If background image is not matttardis.jpg
33     document.getElementById("background").style.backgroundColor = "url(images/matttardis.jpg)"; // make the
   background matttardis.jpg
34   }
35 }
36
37 function mattTardisTwo() {
38   var imgPath = new String();
39   imgPath = document.getElementById("background").style.backgroundColor; //Locates the Div with the id of
   "background" and allows the background image to be changed
40
41   if (imgPath != "url(images/mattv2tardis.jpg)") { //If background image is not matttardis.jpg
42     document.getElementById("background").style.backgroundColor = "url(images/mattv2tardis.jpg)"; // make the
   background mattv2tardis.jpg
43   }
44 }
```

2.3) Pop-Up from

The last of the main three JS components I have implemented into the website is a pop-up form. The form is found on my "news.html" page. Its purpose is to launch a pop-up form when the "join now" button is clicked. The text fields are very basically validated by the fact that they are required to have something in them, and the form also has the use of a close form button. The main use of JS in this form is to close the form, if the user clicks anywhere outside the form.

```
form.js  x  imqswap.js  quiz.js
Assignment JavaScript Content Files  onclick
1  var modal = document.getElementById('newsFrm');
2
3  // When the user clicks anywhere outside of the modal, close it
4  window.onclick = function (event) {
5      if (event.target == modal) {
6          modal.style.display = "none";
7      }
8  }
```

2.4) Other JS implementations

There are a few other JS components implemented into my website. The first of the bunch is collapsible containers that display content inside them when clicked and hide the content again once clicked again.

```
containers.js*  x  topBtn.js*
Assignment JavaScript Content Files  addEventListener("click") callback  content
1  var coll = document.getElementsByClassName("collapsible"); //Get the class collapsible
2  var i;
3
4  for (i = 0; i < coll.length; i++) {
5      coll[i].addEventListener("click", function () { //when clicked, show content inside by adding the active class
6          this.classList.toggle("active");
7          var content = this.nextElementSibling;
8          if (content.style.display === "block") {
9              content.style.display = "none";
10         } else {
11             content.style.display = "block";
12         }
13     });
14 }
```

Another component I included on one of my pages was a scroll to top button. The purpose of this button is to simply scroll back up to the top of the page where the navbar is located when the user scrolls a certain amount down from the top of the page.

```
topBtn.js*  x
Assignment JavaScript Content Files  <global>  onscroll
1  //Get the button
2  var mybutton = document.getElementById("myBtn");
3
4  // When the user scrolls down 20px from the top of the document allow the button to be shown
5  window.onscroll = function () { scrollFunction() };
6
7  function scrollFunction() {
8      if (document.body.scrollTop > 20 || document.documentElement.scrollTop > 20) {
9          mybutton.style.display = "block";
10      } else {
11          mybutton.style.display = "none";
12      }
13  }
14
15  // When the user clicks on the button, scroll to the top of the document
16  function topFunction() {
17      document.body.scrollTop = 0;
18      document.documentElement.scrollTop = 0;
19  }
```

Lastly there is a JS alert that appears when the home page is loaded.

```
script.js  x  containers.js*  topBtn.js*
Assignment JavaScript Content Files  welcome
1  function welcome(){
2      alert("The tardis has taken you to: WhoLore!")
3  }
4  }
```

3) Methodology

The two of the three components were produced from ideas gained from lectures. The background image swap was an extension of an activity we did in class where we had to code clickable text that when clicked changed from black to red, then back to black. As my website is about Doctor Who I decided it would be a cool idea to go further from clickable words, and expand onto button functions and changing a bigger element, and show the insides of the TARDIS sets, to kind of act like a simulator. The concept behind the JS code is simply, IF the background image isn't example.html, then when the button is clicked, make the background image example.html.

I knew I wanted to include a trivia quiz about Doctor Who, and the fact we had already made a basic one in class was a big help. However, a key factor to quizzes are the final score a user gets at the end, so I wanted to make sure my quiz was able to count how many questions the user got, and display the (if any) incorrect answers the user might have gotten.

The pop-up form came about as I thought it would look smart and professional for a newsletter to pop-up in a new window from a button. I knew the code from a different module I am studying, and despite the JS not being too intense, I like the feature it brings. The collapsible content sections were another component created for a better looking way of displaying content. The code process is looping through a function to determine if the collapsible section has been clicked, and if it has, then it drops down the content and changes the content from 'hidden' to 'active'. I was able to do a lot of the code myself but did have to refer to a W3 Schools tutorial [1], to make sure I wasn't wrong in my thought process.

4) Conclusion

In conclusion I am happy with my website with JavaScript implementation/components. Everything works as intended, however, if I was to do this again, I would like to be a bit more adventurous with the JS I use. I also wish my JS knowledge was a bit wider, as some of the code I have done, I know how to code it, but I don't entirely understand what line does what, so I would like to be able to annotate my work more clearly. Duggu Sharma had this to say about why comments are important in coding [2], *"If you see/edit code later, comments may help you to memorize your logic that you have written while writing that code"*.

5) References

- [1] M. Solutions, "How important is JavaScript for Modern Web Developers?," medium.com, 26 06 2017. [Online]. Available: <https://medium.com/@mindfiresolutions.usa/how-important-is-javascript-for-modern-web-developers-2854309b9f52>. [Accessed 09 01 2020].
- [2] W3 Schools, "How to do a collapsible," W3 Schools , [Online]. Available: https://www.w3schools.com/howto/howto_js_collapsible.asp. [Accessed 03 01 2020].
- [3] D. Sharma, "Why Comments Are Important While Writing Code," 14 02 2017. [Online]. Available: <https://www.c-sharpcorner.com/blogs/why-comments-are-important-while-writing-a-code>. [Accessed 09 01 2020].

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GRADEMARK REPORT

FINAL GRADE

58/100

GENERAL COMMENTS

Instructor

Range of coding - Quiz is OK with multiple questions and adding of the score. The rollover section is rather repetitive, you don't need a different function for each doctor, use a parameter instead. Some of your components are a bit limited, you need to expand them to show more Javascript skill

36/60

Overall integration of website - Although I can see you are going for the TARDIS colour with the dark blue, it's a bit too dark really and the text is of varying sizes which makes the page look a bit strange. The banner across the top is OK, but you might want to have the name of the website on it? 5/10

Analysis of technical development -

You have explained what you did, but not WHY you did it that way - why did you take the technical approach you did and is there that you'd consider inefficient or would do differently next time?

7/15

Annotated code listing(s) -

Quite well explained on the whole, although some parts need more detail

10/15

You must remove "I" when writing academic reports.

This is really important and will lose you marks in practically every module if you don't do it. Remove the active voice entirely. For example "The first way I implement the image swap was by using a rollover image. -> "The first way the image swap was implemented was by using a rollover"

"The last component I have implemented is..." -> "The last component that was implemented was..."

Make your writing less personal and more dispassionate.

Total: 58 %

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