

**FNB App Academy Week 4**

1 message

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Hi,

**Welcome to Week 4 and the start of the Intermediate level of the FNB App Academy!**

In the beginner level, you learnt how to build apps using html and bring them to life using css. We ended up the beginner level by building two complete apps from the ground up! You should be fairly comfortable with using these two languages by now. But I'm sure you've noticed by now that the projects you've built, while beautiful, are quite static. They don't have any deeper functionality or uses, other than just displaying information.

It's time to change that. We're going to kick things up a notch and add a third language to the mix, JavaScript. The final sibling in the HTML5 family. JavaScript is used to add functionality to your HTML pages like adding a handler to manage form submissions, or performing calculations or even building entire videos games!

This week, we'll work on teaching you the very basics of JavaScript. It's going to be a little confusing at first, but hang in there! You've made it this far, you got this!

We've also got some exciting lectures coming up. You'll learn valuable skills like:

- APIs, Data Input and Processing
- User Centric App Development
- Data Management and Analysis
- Business Development

Let's dive in!

*Make sure to complete all of this weeks lessons before next weeks lessons are sent out in order to avoid falling behind.*

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## Coming Up Tomorrow: Design Thinking

In Tuesday's session, we'll dive into Design Thinking, the skill of solving problems with people in mind. This is the next major step in helping you design great apps.

You've already learned that great apps need to solve problems. But how do you come up with solutions that appeals to people and takes their needs and preferences in to account?

Tune in to tomorrow's session at **11:00 on the App of the Year Site** or YouTube channel to find out.

Tune in on the App of the Year site

Tune in on YouTube

Recordings of these sessions will be made available on these platforms as well.

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WEEK 4  
*Beginner Level*

Start Course



# Tips to make the most of this lesson

1. Watch all the videos once
2. Watch them a second time
3. In the second time, follow as you learn



## SECTION 1

# JAVASCRIPT BASICS



## Lesson 1

### JavaScript Outputs



HTML5 is made up of 3 different languages. HTML, CSS and JavaScript. HTML is used to build the skeleton of any web page or app. CSS is used to improve the appearance of the page. You've already had plenty of experience using both of these languages. In this module, you're going to learn the final HTML5 language, JavaScript.

JavaScript is employed to give added functionality to a webpage or app and make it more dynamic. For instance, let's say you wanted to create an app that asks the user to enter his or her name and then display the entered name as the heading of the page. Or you wanted to create an app that asked the user to enter 2 numbers and then displayed the sum of the 2 numbers in a paragraph. These apps wouldn't be possible to create using only HTML and CSS. But with a little added JavaScript, these apps are relatively easy to create.

In this lesson we jump straight into some JavaScript and learn how to use JavaScript to output text and numbers onto a webpage.

### Code:

```
<script>
document.getElementById("heading1").innerHTML = ("This is JavaScript!");
document.getElementById("paragraph1").innerHTML = ("I'm having fun!");
</script>
```



## Lesson 2

### Variables Part 1



Variables play a fundamental role whenever you're developing using JavaScript. Put simply, variables are storage containers that can store information away to be used later. For instance if you wanted to store a users name or id number, you would use a variable.

In this lesson, you will learn how to create and use variables in JavaScript

## Code:

```
var text1;
var text2;
var text3;
text1 = "Hello everyone on the planet";
text2 = "I love learning JS!";
text3 = " JS is awesome!";
document.getElementById("heading1").innerHTML = (text1);
document.getElementById("paragraph1").innerHTML = (text2 + text3);
```



## Lesson 3

### Variables Part 2



In the previous lesson, we used variables to store some text. Then we made JavaScript output the contents of those variables to our webpage. But variables can also be used to store numbers. Those numbers can then be displayed like normal text or they can be used in calculations.

### Code:

```
var numA = 7;  
var numB = 10;  
document.getElementById("heading1").innerHTML = (text1);  
document.getElementById("paragraph2").innerHTML = (numA + " x " + numB + " = "  
numA * numB );
```



## Lesson 4

### Conditionals



Very often when developing a system, you would need the computer to make a decision. An example would be if you were developing an app that required the user to enter a username and password to login. If the username and password are correct, then the app will allow the player to proceed. Otherwise, the app will display a message informing the user that the credential entered were incorrect.

This kind of decision making is accomplished using conditionals. Or put simply, the "if" and "else" statements.

### Code:

```
var userInputPassword = "008";
var actualPassword = "007";
if(userInputPassword == actualPassword){
document.getElementById("output").innerHTML = ("Correct password");
}else{
document.getElementById("output").innerHTML = ("Incorrect password. Try again");
}
```



## Lesson 5

### Functions



In this lesson, you are going to learn about Functions. Put simply, functions are a set of instructions that are grouped together and giving a name. Any time you need the computer to run those instructions, instead of having to type out all the instructions, you would just call the name of the function. This is especially

helpful if you need to run the same set of instructions multiple times at different areas in your app. Functions make your life as a developer much easier and help keep your code optimized and efficient.

JavaScript comes built in with some functions that we can use in our projects. In this lesson, we are going to use the "onclick" function to detect whenever the user clicks on a heading.

### Code:

```
<h1 onclick="innerHTML='is awesome'">JavaScript</h1>
```



## Lesson 6

### Functions Continued



In this lesson, we take things up a notch by using functions in conjunction with conditionals.

While using JavaScript's built in functions are incredibly useful, very often you would need to create your own functions for a more specific task. So in this lesson you will also learn how to develop and use our own functions.

### HTML:



```
<h1 id="heading" onclick="changeText()">JavaScript</h1>
```

**JS:**

```
function changeText(){
  if(document.getElementById("heading").innerHTML == 'JavaScript'){
    document.getElementById("heading").innerHTML = 'is awesome';
  }else{
    document.getElementById("heading").innerHTML = 'JavaScript'
  }
}
```



## Lesson 7

### Function Parameters



In this lesson, you're going to learn about function parameters. Parameters allow you to feed data into a function to be processed.

**Code:**

```
addNumbers(10, 7)
function addNumbers(num1, num2){
  document.getElementById("addition").innerHTML = num1 + num2;
}
```



## Lesson 8

### Function return



In the previous lesson you learnt how to feed data into a function. The function then processed that data and displayed it as a paragraph. Functions are also capable of processing data and then send back the processed data to be used somewhere else.

#### Code:

```
document.getElementById("addition").innerHTML = addNumbers(10, 7);  
function addNumbers(num1, num2){  
  return num1 + num2;  
}
```



## Lesson 9

### Variable Scope



In this lesson, you are going to learn about variable scope. Basically variable scope is where a variable is usable and where it is inaccessible.



## Lesson 10

### Mini Project: Login Form Part 1



In this lesson, we're going to start putting everything you've learned so far and create a simple login form.

#### HTML:

HTML :  
<form>

```
<label for="usernameInput">Username:</label><input type="text"
id="usernameInput"/><br/>
<label for="passwordInput">Password:</label><input type="password"
id="passwordInput"/><br/>
</form>
```

## JS:

```
function verifyUser(){
var username = document.getElementById("usernameInput").value;
var password = document.getElementById("passwordInput").value;
}
```



# Lesson 11

## Mini Project: Login Form Part 2



In this lesson we continue building our login form. We make use of a combination of conditionals and functions to verify the details entered by the user.

## Code:

```
function verifyUser(){
var username = document.getElementById("usernameInput").value;
var password = document.getElementById("passwordInput").value;
checkUserCreds(username, password);
}
function checkUserCreds(username, password {
var systemUsername = "Bond";
```

```
var systemPassword = "007";
if(username == systemUsername && password == systemPassword){
document.getElementById("message").innerHTML = "Correct. Loggin you in...";
} else {
document.getElementById("message").innerHTML = "Username or password are
incorrect";
}
}
```



## Lesson 12

### The SWITCH statement



In this lesson, you're going to learn how to use the "switch" statement in JavaScript. The switch statement works very similarly to the "if" statement, except the "switch" statement can handle multiple options.

#### HTML:

```
HTML:
<select id="weather">
<option value="sunny">Sunny</option>
<option value="windy">Windy</option>
</select>
```

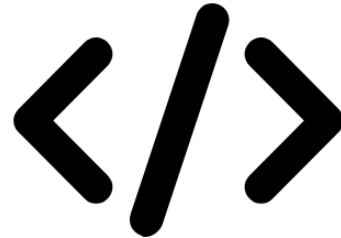
#### JS:

```
switch(weatherSelected){
case "sunny":
advise = "Wear your sunglasses";
```

```
break;  
case "windy":  
  advise = "Wear a jacket";  
break;  
}
```

## SECTION 1

# NUMBERS AND STRINGS



## Lesson 13

### Number and Strings Part 1



In this lesson, we go into the different ways JavaScript handles text and numbers and how to properly use them to avoid error in your code



# Lesson 14

## Numbers and Strings Part 2: Converting Text to Numbers



When developing, you'll often find that you need to convert a text input into a number for it to be used in calculations. This can be accomplished using a JavaScript function.



# Lesson 15

## Numbers and Strings Part 3: Avoiding Conversion Errors



In this lesson we are going to fix our menus by making all our hyperlinks work properly.  
We are going to change the hash character # in all the animals pages to the direct page.

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That's a wrap for this week. Until next week, keep embracing the power of technology!

If you have any questions or need assistance, please don't hesitate to reach out to our support team at [AppAcademy@itvarsity.org](mailto:AppAcademy@itvarsity.org)

**Happy learning.**  
*IT varsity Team*

## What's Happening next in the world of tech 🌐 ?

Be sure to check out your inbox next week to find out.



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