

Class Workbook (JavaScript)

Web Technologies

Version 3

August 29, 2023

Installations

Visual Studio Code

For this workbook I recommend you install Visual Studio Code. Especially if you decide to watch the youtube tutorials it will be easier to follow along. You can either search for Visual Studio Code on google or go to code.visualstudio.com.

There will be a button on the home page that will allow you to download for Windows or Mac. Follow the step by step prompts as you install the program. In the process it will ask you if you want to “add to path” make sure this is checkmarked. This will just make it easier for you if you have to run more command lines in the future.

Node.js

You will need to download node.js in order to run the javascript file in the terminal. Please go to nodejs.org/en or you can get to the site by just searching for node.js on google.

Then you can download the LTS version just by clicking on the button. Follow the prompts in order to install it on your computer.

Git

In order to use some git commands on your computer you will need to download git. You can do this by google Git or going to git-scm.com. Then on the right side there should be a button to download for Windows or Mac. When you click on this button it will download the latest version.

Additional Resources

YouTube Channel:

Developer Resources

<https://www.youtube.com/channel/UC8agilh8FVOHDiS7BJq6kfw>

1-Adding Comments

1-1-0 Single line

1-1-1 How do we write single line comments?

1-2-0 Multiline

1-2-1 How do we write multiline comments?

2-Case Styles

2-1-0 camelCase

2-1-1 Declare a variable called **number cables** and initialise it to the value **22**

2-1-2 Declare a variable called **electronic devices** and initialise it to the value **5**

2-1-3 Declare a variable called **school supplies** and initialise it to the value **34**

2-1-4 Declare a variable called **study hours** and initialise it to the value **8**

2-1-5 Declare a variable called **power packs** and initialise it to the value **72**

2-2-0 PascalCase

2-2-1 Declare a variable called **number cables** and initialise it to the value **22**

2-2-2 Declare a variable called **electronic devices** and initialise it to the value **5**

2-2-3 Declare a variable called **school supplies** and initialise it to the value **34**

2-2-4 Declare a variable called **study hours** and initialise it to the value **8**

2-2-5 Declare a variable called **power packs** and initialise it to the value **72**

2-3-0 snake_case

2-3-1 Declare a variable called **number cables** and initialise it to the value **22**

2-3-2 Declare a variable called **electronic devices** and initialise it to the value **5**

2-3-3 Declare a variable called **school supplies** and initialise it to the value **3**

2-3-4 Declare a variable called **study hours** and initialise it to the value **8**

2-3-5 Declare a variable called **power packs** and initialise it to the value **72**

3-Declaring variables:

3-1. Declare a variable called **number**

3-2 Declare a variable called **baseball**

3-3 Declare a variable called **car**

3-4 Declare a variable called **school**

4-Initialise and Assigning

4-1-0 Initialise

4-1-1 Initialise a variable called **seeds** to the value **3**

4-1-2 Initialise a variable called **oranges** to the value **10**

4-1-3 Initialise a variable called **laptops** to the value **1**

4-1-4 Initialise a variable called **fan** to the value **40**

4-1-5 Initialise a variable called **speakers** to the value **22**

4-2-0 Declare then assign

4-2-1 Declare a variable called **seeds**. Then assign it to the value **3**

4-2-2 Declare a variable called **oranges**. Then assign it to the value **10**

4-2-3 Declare a variable called **laptops**. Then assign it to the value **1**

4-2-4 Declare a variable called **fan**. Then assign it to the value **40**

4-2-5 Declare a variable called **speakers**. Then assign it to the value **22**

5-String Formatting

5-1-0 Curly Brace / Backticks / Template Literals

5-1-1 Initialise a variable called **x** to the value **12**. Initialise another variable called **sentence** to the sentence “**There were __ candies in the jar.**”. Use backticks. The underscore is where you should add the variable in the curly brace. Then console log out the sentence.

5-1-2 Initialise a variable called **age** to the value **45**. Initialise another variable called **sentence** to the sentence “**The adult was ____ years old**”. Use backticks. The underscore is where you should add the variable in the curly brace. Then console log out the sentence.

5-1-3 Initialise a variable called **first name** to the value **Mark**. Initialise a variable called **last name** to the value **Jameson**. Initialise the variable **job** to the value **graphic designer**. Initialise another variable called **sentence** to the sentence “**__first__ __last__ was hired as a __job__**”. Use curly braces. The underscore is where you should add the variable in the curly brace. Then console log out the sentence.

5-1-4 Initialise a variable called **pet name** to the value **Sandy**. Initialise a variable called **age** to the value **2**. Initialise a variable **pet type** to the value **dog**. Initialise another variable called **sentence** to the sentence “**__pet name__ is a __pet type__. She is __age__ years old.**”. Use curly braces. The underscore is where you should add the variable in the curly brace. The console log out the sentence.

5-1-5 Initialise the variable called **text** to the sentence **It's sunny outside today**. Then console log out the variable text. Use backticks.

3-1-6 Initialise the variable called **text** to the sentence **I don't have a pet dog**. Use backticks. Then console log out the variable text.

5-1-7 Initialise the variable called **number** to the number **3**. Initialise the variable **text** to the sentence **What are the __3__ Good Design Goals?** Use backticks. Then console log out the variable text.

5-1-8 Initialise the variable called **text** to the sentence **The title of the book is called "Design Patterns."** Use backticks. Then console log out the variable text.

5-1-9 Initialise the variable called **symbol** to the variable containing ****. Initialise the variable called **text** to the sentence **The symbol of the backslash is \.** Then console log out the variable text. Use backticks.

5-2-0 Concatenation

5-2-1 Initialise a variable called **x** to the value **12**. Initialise another variable called **sentence** to the sentence “**There were __ candies in the jar**”. The underscore is where you should add the variable with the number using concatenation. Then console log out the sentence.

5-2-2 Initialise a variable called **age** to the value **45**. Initialise another variable called **sentence** to the sentence “**The adult was ____ years old**”. The underscore is where you should add the variable with the number using concatenation. Then console log out the sentence.

5-2-3 Initialise a variable called **first name** to the value **Mark**. Initialise a variable called **last name** to the value **Jameson**. Initialise a variable called **job** to the value **graphic designer**. Initialise another variable called **sentence** to the sentence “**__first__ __last__ was hired as a __job__**”. The underscore is where you should add the variables using concatenation. Then console log out the sentence.

5-2-4 Initialise a variable called **pet name** to the value **Sandy**. Initialise a variable called **age** to the value **2**. Initialise a variable **pet type** to the value **dog**. Initialise another variable called **sentence** to the sentence “__pet name__ is a __pet type__. **She is __age__ years old.**”. The underscore is where you need to add the variables using concatenation. The console log out the sentence.

5-3-0 Double quotes

5-3-1 Initialise the variable called **text** to the sentence **It's sunny outside today**. Use double quotes. Then console log out the variable text.

5-3-2 Initialise the variable called **text** to the sentence **I don't have a pet dog**. Use double quotes. Then console log out the variable text.

5-3-3 Initialise the variable called **text** to the sentence **What are the 3 Good Design Goals?** Use double quotes. Then console log out the variable text.

5-3-4 Initialise the variable called **text** to the sentence **The title of the book is called "Design Patterns."** Use double quotes. Then console log out the variable text.

5-3-5 Initialise the variable called **text** to the sentence **The symbol of the backslash is \.** Use double quotes. Then console log out the variable text.

5-4-0 Single quotes

5-4-1 Initialise the variable called **text** to the sentence **It's sunny outside today**. Use single quotes. Then console log out the variable text.

5-4-2 Initialise the variable called **text** to the sentence **I don't have a pet dog**. Use single quotes. Then console log out the variable text.

5-4-3 Initialise the variable called **text** to the sentence **What are the 3 Good Design Goals?** Use single quotes. Then console log out the variable text.

5-4-4 Initialise the variable called **text** to the sentence **The title of the book is called 'Design Patterns.'** Use single quotes. Then console log out the variable text.

5-4-5 Initialise the variable called **text** to the sentence **The symbol of the backslash is \.** Use single quotes. Then console log out the variable text.

5-5-0 Format Specifiers

5-5-1

Format the value as a string.

Have the name **Tom** formatted in the console log directly using the specifier to format a string. The string will say **Tom will be buying a car today.**

5-5-2

Format the value as a string.

Have the place **Vancouver** formatted in the console log directly using the specifier to format a string. The string will say **Vancouver is an expensive place.**

5-5-3

Format the value as an integer.

Have the year **1975** formatted in the console log directly using the specifier to format an integer. The string will say: **Microsoft started in 1975.**

5-5-4

Format the value as an integer.

Have the age **35** formatted in the console log directly using the specifier to format an integer. The string will say: **John is 35 years old.**

5-5-5

Format the value as a floating point

Have the cups **3.5** formatted in the console log directly using the specifier to format a floating point. The string will say: **I drank 3.5 cups of water.**

5-5-6

Format the value as a floating point

Have the value of PI, **3.14** formatted in the console log directly using the specifier to format a floating point. The string will say: **The value of PI is 3.14.**

5-5-7

Format the sentence using a string and integer.

Have the name of **Sara** and age **50** formatted in the console log directly using the specifier to format the string and integer. The string will say: **Sara is 50 years old.**

5-5-8

Format the sentence using a string and integer.

Have the name of **John** and age **45** formatted in the console log directly using the specifier to format the string and integer. The string will say: **John is 45 years old.**

6-Arithmetics

6-1-0 Addition

6-1-1 Have a **variable x** equal to **2** and a **variable y** equal to **2**. Then add the two variables together and initialise it to the **variable z**. Initialise all the variables.

Console log the variable z.

6-1-2 Have a **variable x** equal to **4** and a **variable y** equal to **10**. Then add the two variables together and initialise it to the **variable z**. Initialise all the variables.

Console log the variable z.

6-1-3 Have a **variable apples** equal to **20** and a **variable oranges** equal to **20**. Then add the two variables together and initialise it to the **variable fruits**. Initialise all the variables.

Console log fruits.

6-1-4 Have a **variable laptops** equal to **5** and a **variable tablets** equal to **2**. Then add the two variables together and initialise it to the **variable electronics**. Initialise all the variables.

Console log electronics.

6-1-5 Have a **variable chips** equal to **10** and a **variable cookies** equal to **10**. Then add the two variables together and initialise it to the **variable snacks**. Initialise all the variables.

Console log snacks.

6-2-0 Subtraction

6-2-1 Have a **variable x** equal to **3** and a **variable y** equal to **1**. Then subtract y from x and initialise it to the **variable z**. Initialise all the variables. Console log out the variable z.

6-2-2 Have a **variable a** equal to **10** and a **variable b** equal to **20**. Then subtract b from a and initialise it to the **variable c**. Initialise all the variables. Console log out the variable c.

6-2-3 We start with **10** chips in our hand. Then we eat **3**. Have the first **variable** be **start** and the second **variable** be **eat**. Then initialise it to the **variable new total**. See how many pieces are left to eat. Initialise all the variables. Console log out the variable new total.

6-2-4 We start with **100** legos in our hand. Then throw away **30** pieces. Have the first **variable** be **lego start** and the second **variable** be **lego thrown**. Then initialise it to the **variable new lego total**. Initialise all the variables. Console log out the variable new lego total.

6-2-5 We start with **15** laptops at our store. Then we sell **7** laptops. Have the first **variable** be **initial laptops** and the second **variable** be **sold laptops**. Then initialise it to the **variable available**. Initialise all the variables. Console log out the variable available.

6-3-0 Multiplication

6-3-1 Have a **variable x** equal to **4** and a **variable y** equal to **5**. Then multiply x and y and initialise it to the **variable z**. Initialise all the variables. Console log out the variable z.

6-3-2 Have a **variable rock** equal to **10** and a **variable paper** equal to **20**. Then multiply rock and paper and initialise it to the **variable scissors**. Initialise the variables. Console log out the variable scissors.

6-3-3 Have a **variable subtotal** equal to **30** and a **variable adjustment** equal to **12**. Then multiply subtotal and adjustment. Initialise it to the **variable total**. Console log out total.

6-3-4 Have a **variable pens** equal to **7** and a **variable erasers** equal to **7**. Then multiply pens and erasers and initialise it to the **variable supplies**. Console log out supplies.

6-3-5 Have a **variable flowers** equal to **4** and a **variable grass** equal to **3**. Then multiply flowers and grass and initialise it to the variable **gardening items**. Console log out gardening items.

6-4-0 Division

6-4-1 Have a **variable pie** equal to **10** and we sell half of the pies. Second **variable** is equal to **2**. Call it divided number. Take the number of pies and divide it in half and initialise it to the **variable total**.

6-4-2 Have a **variable soups** equal to **30** and have the second variable be a **variable sold** equal to **3**. Take the number of soups and divide it by the variable eaten. Initialise it to the **variable new total**.

6-4-3 Have a **variable papers** equal to **100** and have the second variable be a **variable dissolved** equal to **10**. Take the number of papers and divide it by the variable dissolved. Initialise it to the **variable new total**.

6-4-4 Have a **variable j** equal to **40** and have the second variable be a **variable k** equal to **4**. Take j and divide it by k. Initialise it to the **variable m**.

6-4-5 Have a **variable p** equal to **20** and have the second variable be a **variable q** equal to **10**. Take p and divide it by q. Initialise it to the **variable r**.

6-5-0 Equations

6-5-1

Use the equation and initialise it to the variable **y**:

$2x$

The value of **x** is equal to **5**.

Solve the equation and determine the value of **y**. Make sure to use BEDMAS to properly write the equation in JavaScript.

Console log out the variable **y**. Add a single line comment as to what the answer will be.

6-5-2

Use the equation and initialise it to the variable **y**:

$5x + 2$

The value of **x** is equal to **3**.

Solve the equation and determine the value of **y**. Make sure to use BEDMAS to properly write the equation in JavaScript.

Console log out the variable **y**. Add a single line comment as to what the answer will be.

6-5-3

Use the equation and initialise it to the variable **y**:

$$3x + 1$$

The value of **x** is equal to **2**.

Solve the equation and determine the value of **y**. Make sure to use BEDMAS to properly write the equation in JavaScript.

Console log out the variable **y**. Add a single line comment as to what the answer will be.

6-5-4

Use the equation and initialise it to the variable **area**:

$$\pi r^2$$

Round the value of PI to two decimal places. Make this a magic number.

The value of the **radius, r**, is equal to **5**.

Solve the equation and determine the value of **y**. Make sure to use BEDMAS to properly write the equation in JavaScript.

Console log out the variable **area**. Add a single line comment as to what the answer will be. Round this answer to one decimal place.

6-5-5

Using the equation below:

speed = distance travelled / time taken

Calculate the speed of the car if the distance travelled is **25** metres. The time it takes to get to that distance is **5** seconds.

Console log out the speed at the end and make sure it shows up with the number and its units. Write the answer displayed in the console log in a single line comment.

7-Calculating Averages

7-1 We want to calculate the average number of pies that the groups have. The first variable will be **groupOne** which will have **5** pies. The second variable will be **groupTwo** which will have **8** pies. The third variable will be **groupThree** which will have **14** pies. Calculate the average between the three groups. Initialise the answer to the variable **average pies**.

7-2 We want to calculate the average number of car mileages that the cars have. The first variable will be **carOne** which will have **50,000** miles. The second variable will be **carTwo** which will have **25,000** miles. The third variable will be **carThree** which will have **60,000** miles. Calculate the average between the three cars. Then initialise the result to the variable **average miles**.

7-3 We want to calculate the average number of running steps within a 5 day period.
dayOne equals 15,000
dayTwo equals 20,000
dayThree equals 10,000
dayFour equals 12,000
dayFive equals 25,000
Calculate the average number of steps within the 5 day period. Initialise the result to the variable **average steps**.

7-4 We want to calculate the average number of candies we have.

bagOne equals 100

bagTwo equals 150

bagThree equals 50

bagFour equals 75

bagFive equals 150

Calculate the average number of candies. Initialise the variable **average number candies**.

7-5 We want to calculate the average number of laptops we have at 4 different inventory locations. We have.

laptops inventory one equals 40

laptops inventory two equals 50

laptops inventory three equals 65

laptops inventory four equals 45

Calculate the average number of laptops. Initialise the variable **average inventory**.

8-Incrementing and Decrementing

8-1-0 Incrementing

8-1-1 Initialise the variable **i** to the value **1**. Add the **incrementing operator** right after. Then console log i. Write the display output using a single line comment.

8-1-2 Initialise the variable **k** to the value **100**. Add the **incrementing operator** right after. Then console log k. Write the display output using a single line comment.

8-2-0 Decrementing

8-2-1 Initialise the variable **i** to the value **1**. Add the **decrementing operator** right after. Then console log out i. Write the display output using a single line comment.

8-2-2 Initialise the variable **i** to the value **100**. Add the **decrementing operator** right after. Then console log out i. Write the display output using a single line comment.

9-Data Types

9-1-0 String

9-1-1 Initialise a variable **name** to your name. Use camelCase.

9-1-2 Initialise the variable **dog name** to the name **Jake**. Use camelCase.

9-1-3 Initialise the variable **bird** to the word **budgie**. Use camelCase.

9-1-4 Initialise the variable **electronics box** to the word **cpu**. Use camelCase.

9-1-5 Initialise the variable **slogan** to the phrase **I'm Lovin' it**. Use camelCase.

9-2-0 Numbers

9-2-1-0 Integers/Whole Numbers

9-2-1-1 Initialise the variable **age** to the value to **14**. Use camelCase.

9-2-1-2 Initialise the variable **metres** to the value **100**. Use camelCase.

9-2-1-3 For the first one initialise **a** to the value of **12**. Then for the second initialise **b** to the value **3**. Then create a final variable called **total** to calculate this. Calculate the values of a divide by b. Then use console log to display the answer. Use camelCase.

9-2-1-4 For the first one initialise the variable **x** to the value of **10**. Then for the second one initialise **y** to the value of **2**. Initialise the variable total to calculate the values of x divided by y. Then use console log to display the answer. Use camelCase.

9-2-2-0 Decimal Numbers/Float

9-2-2-1 Initialise the variable **screen size** to the value to **13.5**. Use camelCase. Console log screen size.

9-2-2-2 Initialize the variable **diameter** to the value of 2.5. Console log diameter.

9-2-3-0 Magic Numbers

9-2-3-1

Initialise the variable PI to 3.14

Initialise radius to the value of 2.

Calculate the area of the circle. Console log the area.

9-2-3-2

Initialise the **number days of the week** to **7** using magic number notation.

Initialise **hours a day** to **5**.

Initialise **worked number weeks** to **3**.

Initialise **salary** to **25.50**;

Initialise **total** by multiplying all the values you just initialised above.

Console log **total** and make sure two decimals are showing.

9-3-0 Boolean

9-3-1 Initialise the variable called **proceed** to the value true.

9-3-2 Initialise the variable called **proceed** to the value false.

9-4-0 Object

9-4-1 Create a variable called **grannySmith** and add the following values (use camelCase):

- **colour** of the apple is **green**
- **origin location** is **australia**
- **origin date** is **1868**

Then console log out the colour from the object.

9-4-2 Create a variable called **german shepard** and add the following values (use camelCase):

- **Weight kilograms** is **30**
- **colour** is **tan**
- **Eye colour** is **brown**

Then console log out the eye colour from the object

9-4-3 Create a variable called **person** and add the following values (use camelCase)

- **eye colour** is **brown**
- **hair colour** is **red**
- **age** is **30**

Then console log out the hair colour from the object.

9-5-0 Function

9-5-1 Initialise the variable **x** to a function called **myFunction** with the values **1** and **3**. Multiply the two numbers. Console log the variable **x** afterwards. Add a single line comment with the displayed output.

9-5-2 Initialise the variable **addition** to a function called **addition function** with the values **3** and **4**. Add the two numbers in a function called **addition function** and return the calculated value. Console log the variable **addition** afterwards. Add a single line comment with the displayed output.

9-5-3 Initialise the variable **subtraction** to a function called **subtraction function** with the values **10** and **4**. Subtract 4 from 10. Console log the variable **subtraction** afterwards. Add a single line comment with the displayed output.

9-5-4 Initialise the variable **divide** to a function called **divide function** with the parameters of **12** and **4**. Calculate 12 divided by 4 in the function created. Console log the variable **divide** afterwards. Add a single line comment with the displayed output.

9-6-0 No Values

9-6-1-0 Undefined

9-6-1-1 Declare the variable to the word **summer**. Then console log it. Add a single line comment with the displayed output..

9-6-1-2 Declare the variable to the word **printer**. Then console log it. Add a single line comment with the displayed output.

9-6-2-0 Empty Values

9-6-2-1 Initialise the variable to the word **bcit** and give it an empty string. Then console log it. Add a single line comment with the displayed output.

10 Comparison Operators

10-1-0 equal to ==

10-1-1 Initialise the variable called **number** to the number **12**. Then check to see if number is **equal to 5** by console logging it. Add a single line comment with the displayed output.

10-1-2 Initialise the variable called **number** to the number **12**. Then check to see if number is **equal to the string data type of 12** by console logging it. Add a single line comment with the displayed output.

10-1-3 Initialise the variable called **number** to the number **12**. Then check to see if number is **equal to 20** by console logging it. Add a single line comment with the displayed output.

10-1-4 Initialise the variable called **number** to the number **12**. Then check to see if number is **equal to the string data type of 20** by console logging it. Add a single line comment with the displayed output.

10-2-0 strictly equal to ===

10-2-1 Initialise the variable called **number** to the number **12**. Then check to see if number is **strictly equal** to the **string data type of 5** by console logging it. Add a single line comment with the displayed output.

10-2-2 Initialise the variable **number** to the number **12**. Then check to see if number is **strictly equal** to the **string data type of 12** by console logging it. Add a single line comment with the displayed output.

10-2-3 Initialise the variable **x** to the number **12**. Then check to see if num is **strictly equal** to the **number 20** by console logging it. Add a single line comment with the displayed output.

10-2-4 Initialise the variable **x** to the number **12**. Then check to see if num is **strictly equal** to the **number 12** by console logging it. Add a single line comment with the displayed output.

10-3-0 not equal !=

10-3-1 Initialise the variable called **x** to the number **12**. Then check to see if x is **not equal** to the **string data type of 5** by console logging it. Add a single line comment with the displayed output.

10-3-2 Initialise the variable **x** to the number **12**. Then check to see if x is **not equal** to the **string data type of 12** by console logging it. Add a single line comment with the displayed output.

10-3-3 Initialise the variable **x** to the number **12**. Then check to see if x is **not equal** to the **number 20** by console logging it. Add a single line comment with the displayed output.

10-3-4 Initialise the variable **x** to the number **12**. Then check to see if x is **not equal** to the **number 12** by console logging it. Add a single line comment with the displayed output.

10-4-0 greater than >

10-4-1 Initialise the variable **x** to the value **15**. Initialise the variable **y** to the value **25**. First console log out **x greater than y**. Second console log out **y greater than x**. Add a single line comment with the displayed output to each one.

10-4-2 Initialise the variable **x** to the value **3**. Initialise the variable **y** to the value **5**. Then console log out each of the variables. First console log out **x greater than y**. Second console log out **y greater than x**. Add a single line comment with the displayed output to each one.

10-4-3 Initialise the variable **x** to the value **16**. Initialise the variable **y** to the value **8**. Then console log out each of the variables. First console log out **x greater than y**. Second console log out **y greater than x**. Add a single line comment with the displayed output to each one.

10-4-4 Initialise the variable **x** to the value **21**. Initialise the variable **y** to the value **21**. Then console log out each of the variables. First console log out **x greater than y**. Second console log out **y greater than x**. Add a single line comment with the displayed output for each one.

10-5-0 greater than or equal to >=

10-5-1 Initialise the variable **x** to the value **15**. Initialise the variable **y** to the value **25**. First console log out **x greater than or equal to y**. Second console log out **y greater than or equal to x**. Add a single line comment with the displayed output for each one.

8-5-2 Initialise the variable **x** to the value **3**. Initialise the variable **y** to the value **5**. Then console log out each of the variables. First console log out **x greater than or equal to y**. Second console log out **y greater than or equal to x**. Add a single line comment with the displayed output for each one.

8-5-3 Initialise the variable **x** to the value **16**. Initialise the variable **y** to the value **8**. Then console log out each of the variables. First console log out **x greater than or equal to y**. Second console log out **y greater than or equal to x**. Add a single line comment with the displayed output for each one.

8-5-4 Initialise the variable **x** to the value **21**. Initialise the variable **y** to the value **21**. Then console log out each of the variables. First console log out **x greater than or equal to y**. Second console log out **y greater than or equal to x**. Add a single line comment with the displayed output for each one.

10-6-0 less than <

10-6-1 Initialise the variable **x** to the value **15**. Initialise the variable **y** to the value **25**. First console log out **x less than y**. Second console log out **y less than x**. Add a single line comment with the displayed output.

10-6-2 Initialise the variable **x** to the value **3**. Initialise the variable **y** to the value **5**. First console log out **x less than y**. Second console log out **y less than to x**. Add a single line comment with the displayed output for each one.

10-6-3 Initialise the variable **x** to the value **16**. Initialise the variable **y** to the value **8**. First console log out **x less than y**. Second console log out **y less than to x**. Add a single line comment with the displayed output for each one.

10-6-4 Initialise the variable **x** to the value **21**. Initialise the variable **y** to the value **21**. First console log out **x less than y**. Second console log out **y less than to x**. Add a single line comment with the displayed output for each one.

10-7-0 less than or equal to <=

10-7-1 Initialise the variable **x** to the value **15**. Initialise the variable **y** to the value **25**. First console log out **x less than or equal to y**. Second console log out **y less than or equal to x**. Add a single line comment with the displayed output for each one.

10-7-2 Initialise the variable **x** to the value **3**. Initialise the variable **y** to the value **5**. First console log out **x less than or equal to y**. Second console log out **y less than or equal to x**. Add a single line comment with the displayed output for each one.

10-7-3 Initialise the variable **x** to the value **16**. Initialise the variable **y** to the value **8**. First console log out **x less than or equal to y**. Second console log out **y less than or equal to x**. Add a single line comment with the displayed output for each one.

10-7-4 Initialise the variable **x** to the value **21**. Initialise the variable **y** to the value **21**. First console log out **x less than or equal to y**. Second console log out **y less than or equal to x**. Add a single line comment with the displayed output for each one.

11 Logical Operators

11-1-0 AND

11-1-1 Initialise the variable **x** to the value **10**. Initialise the variable **y** to the value **6**. First console log out **x greater than 5 AND y less than 11**. Add a single line comment with the displayed output.

11-1-2 Initialise the variable **x** to the value **10**. Initialise the variable **y** to the value **6**. First console log out **x greater than 11 AND y less than 11**. Add a single line comment with the displayed output.

11-1-3 Initialise the variable **x** to the value **10**. Initialise the variable **y** to the value **6**. First console log out **x greater than 15 AND y less than 8**. Add a single line comment with the displayed output.

11-1-4 Initialise the variable **x** to the value **10**. Initialise the variable **y** to the value **6**. First console log out **x greater than 18 AND y less than 3**. Add a single line comment with the displayed output.

11-2-0 OR

11-2-1 Initialise the variable **x** to the value **10**. Initialise the variable **y** to the value **6**. First console log out **x greater than 5 OR y less than 11**. Add a single line comment with the displayed output.

11-2-2 Initialise the variable **x** to the value **10**. Initialise the variable **y** to the value **6**. First console log out **x greater than 11 OR y less than 11**. Add a single line comment with the displayed output.

11-2-3 Initialise the variable **x** to the value **10**. Initialise the variable **y** to the value **6**. First console log out **x greater than 15 OR y less than 8**. Add a single line comment with the displayed output.

11-2-4 Initialise the variable **x** to the value **10**. Initialise the variable **y** to the value **6**. First console log out **x greater than 18 OR y less than 3**. Add a single line comment with the displayed output.

11-3-0 NOT

11-3-1 Initialise the variable **x** to the value **10**. Initialise the variable **y** to the value **6**. First console log out **x greater than 5 AND not y less than 11**. Add a single line comment with the displayed output.

11-3-2 Initialise the variable **x** to the value **10**. Initialise the variable **y** to the value **6**. First console log out **not x greater than 11 AND y less than 11**. Add a single line comment with the displayed output.

11-3-3 Initialise the variable **x** to the value **10**. Initialise the variable **y** to the value **6**. First console log out **not x greater than 15 OR y less than 8**. Add a single line comment with the displayed output.

11-3-4 Initialise the variable **x** to the value **10**. Initialise the variable **y** to the value **6**. First console log out **x greater than 18 OR not y less than 3**. Add a single line comment with the displayed output.

12 If/else

12-1 Initialise the variable **x** to the value **10**. Use a if statement to check if **x is strictly equal to 10**. Console log the the message to say **It is a match** if it is true.

12-2 Initialise the variable **x** to the value **10**. Use a if statement to check if **x is greater than 5**. Console log the message to say **The value is larger than 5** if it is true.

12-3 Initialise the variable **x** to the value **10**. Use a if statement to check if **x is greater than 5**. This time make sure to eliminate the magic number **5** by making its own variable called **VALIDATION**. Console log the message to say **The value is larger than _VALIDATION_**. if it is true.

12-4 Initialise the variable **guess** to the value **2**. Use a if statement to check if **guess is equal to 2**. If it is equal to 2 then have the message console log out **You guessed __2__ and you are right**. Else have the console log say **You guessed wrong**.

12-5 Initialise the variable **guess** to the value **5**. Use an if statement to check if **guess is equal to 2**. If it is equal to 2 then have the message console log out **You guessed 2 and you are right**. Else have the console log say **You guessed wrong**.

12-6 Create a variable called **chosen value** and use **Math.random()** to make a random number **below 3** and greater or equal to 0. Make sure to use **Math.floor** to round the random integer to the nearest whole number. Initialise a sentence to an empty string.

Then check to see **if the chosen value is 0**. Console.log out the answer by assigning sentence to **This is the zero value**.

Then check to see if the chosen value is **1**. Console.log out the answer by assigning sentence to **This is the one value**.

Then check to see **if the chosen value is 2**. Console.log out the answer by assigning sentence to **This is the second value**.

Else make the sentence say **This is not a number between 0 and 2 inclusive**. Console log out the sentence.

12-7 Initialise the variable **date** to the value of **Date**. Then create another variable called **hour** and assign it to **date.getHours()**. Create another variable called **sentence** and make it an **empty string**.

Use a if statement to check if **hours is less than 12**. If it is then assign sentence to **Good Morning**.

Use else if to check if hour is **less than 18**. If it is then assign sentence to **Good Afternoon**.

Use else if to check if hour is **less than 24**. If it is then assign sentence to **Good Evening**.

Else just assign sentence to **Error in time**.

Console log out the sentence at the bottom to display the answer.

12-8 Initialise the variable **guess** to the value of **2**. Use a if statement to see **if the guess is equal to 2 OR guess is equal to 3**. If it is then console log out the message **You guessed ____ and you are right**. **Else**, console log out **You guessed wrong**.

12-9 Create one variable called **guess one** and give it the value **2**. Initialise another variable and call it **guess two** to the value **3**.

If both of the numbers match then console log out the message **Your first guess is __2__. Your second guess is __3__. You got it right.**

Else, console log out the message **You guessed wrong.**

12-10

Initialise one variable called **guess one** to the value of **2**. Then initialise another variable called **guess two** to the value **Math.random**. Make sure to only allow numbers **below 3**. Also only accept whole numbers using **Math.floor**. Initialise another variable called sentence to an empty string.

Then use an if statement to see if **guess one** is **equal to 2 AND NOT guess two equal to 1**. If it is true then assign sentence to the message: **Your first guess is __. Your second guess is __. You got it right.**

Else assign sentence to the message: **You guessed wrong.** Then console log the sentence.

12-11

Initialise the values:

first name to **Steve**

age to **14**

country to **Canada**

message to an **empty string**

Create magic numbers and initialise:

MINIMUM AGE to the value of **16**.

LAW_IN_COUNTRY to **Canada**.

Use a if statement to check if the age is above or equal to the **minimum age** AND is in the **country** law in country. If it is then assign the message to say **You are able to get your licence**.

Else then say that you are too young.

Then console log out the message.

13 Functions

13-1-0 Functional Commenting

13-1-1

Initialise a variable called **chips** to a function called **chip box**. Use camel case where needed. The first parameter is **Doritos**. The second parameter is **5**. The third parameter is **Pringles**. The fourth parameter is **4**.

Initialise a variable called calculation to the value of zero.

Set up the function of chip box to contain the default parameters of **option one, number of option one, option two, number of option two**. Inside the function add number of option one and number of option two together which is assigned to those values that are added.

Then return a sentence to say:

I have 5 Doritos and 4 pringles. This gives me a total of 9 chips.

Write the **description, four parameters and the return in documentation notes** above the function.

Then console log out the chips at the end.

13-2-0 Functions with returns

13-2-1

Initialise the variable `x` to the function called **my function**. Multiply **a** times **b** in the **function**. Return the answer. Then console log the value below the function. Add the answer as a single line comment. Write a multiline comment above the function to describe it.

13-2-2

Initialise the variable **shopping** to the function called **my shopping list**. Have parameter values be **12** and **4**. Multiply **quantity** time **price** in the function. Return the answer. Then console log the value below the function. Add the answer as a comment. Write a multiline comment above the function to describe it.

13-2-3 Initialise the variable **x** to the function called **myFunction**. Have the function take in the **numbers 5 and 6**. Return the answer **a multiplied by b**. Then console log the value below the function. Add the answer as a single line comment. Write a comment above the function to describe it.

Next, create a variable **d** and give it the value of **5**. Initialise another variable **z** to the function called **addingFive**. Make addingFive take in the variables **x** and **d**. Then inside the function add the variables **g** and **h**. After the function console log out the variable **z**. Write a comment above the function to describe it. Add a comment to give the answer.

13-2-4 Take the question 15-3 we just did above and organise it in terms of having the variables at the top, then the function followed by the console log each time.

13-2-5 Take the question 15-5 we just did above and organise it in terms of having both the functions at the top then the variables after. Lastly, have the console logs display the answer.

13-2-6 Initialise a function called **sentence function** that takes in the **name** and **age**. This will return the sentence **My name is _name_ and I am _age_ years old**.

Write a variable called **person one** and make it equal to the **sentence function** that has the values **George Smith** and **25**.

Then console log out person one.

13-2-7 Initialise a function in one line using the variable **first name**. This function should be called **name fix**. This will take in the value **george** which is all lowercase.

Initialise the second function to the variable **person one**. This function should be called **sentence function**. This will take in the value of the **first name** we just created and also the number **25**.

Below the variables just created write the function for sentence function which takes in the values **first name** and **age**. Then have it return the sentence saying: **My name is _firstName_ and I am _age_ years old**. Write functional comments.

Initialise the second function that is called **name fix** and have it take in the **first name**. Then have it return the name formatted the proper way with the **first letter being capitalised**. Write functional comments.

Lastly, at the bottom console log out **person one**. Write the output in a single line comment.

13-3-0 Functions without returns

13-3-1

Initialise the variable **number** to the value of **10**

Initialise the variable **sentence** to an empty string

Setup a function that is called **info** and has the parameter **digit**.

Inside the if statement add a if statement that checks to see if **digit** is equal to **10**. If it is then console log out the sentence: **You guessed right**

Else then console log out: **You did not guess correctly**

Call the function **info** and pass the variable **number** in the brackets.

Write a single line comment as to what will be displayed.

13-3-2

Initialise the variable **hobby** to the value of **gardening**

Initialise the variable **city** to the value of **vancouver**

The word vancouver will be all lowercase.

Setup a function called **sentence** that has the parameters of **activity** and **location**

Inside the function setup an if statement that will check if **activity** is equal to **gardening**. If it is true then console log out(use concatenation and make sure the first letter of the location is capitalized):

I live in __location__ and I like __activity__.

Else then console log out:

Not the right hobby.

Call the function sentence under the function that passes the variables hobby and city.

13-3-3

Initialise the variable **first name** to the value of **Steven**

Initialise the variable **age** to the value of **14**

Initialise the variable **country** to the value of **Canada**

Initialise the variable **minimum age** as a magic number to the value of **16**

Initialise the variable **law in country** as a magic number to the value of **Canada**

Setup a function called **drive** that takes in the parameters of **name**, **year** and **location**.

Inside the function add an if statement that checks if **year is greater than or equal to minimum age AND location is equal to law in country**. If it is then console log out the sentence:

__name__ you are able to get your licence.

Else then console log out:

__name__ you are too young.

Call the function called **drive** that passes the values of **first name**, **age** and **country**

13-3-4

Setup a function called **find grade** that has the parameters of **name** and **marks**

Setup the following if/else statements (Use backticks)

If **marks** are **greater than or equal to 85 AND less than or equal to 100**. Then console log out the message: **__name__ you got an A.**

Else If **marks** are **greater than or equal to 70 AND less than 85**. Then console log out the message: **__name__ you got a B.**

Else If **marks** are **greater than or equal to 50 AND less than 70**. Then console log out the message: **__name__ you got a C.**

Else If **marks** are **greater than or equal to 0 AND less than 50**. Then console log out the message: **__name__ you have failed.**

Else then console log out the sentence: **Invalid mark of __marks__.**

Then under the function call the function with the following values (write a single line comment beside each one of them once you run it):

Sarah, 91

George, 85

Sam, 73

Emily, 53

Tom, 20

Wilson, 120

13-3-5

Setup a function that is called **evaluate numbers** that has the parameters of **num1**, **num2**, and **operator**

Inside the function add the following if/else statements

If the **operator** is equal to **add** then console log out the sentence:

Sum of __num1__ and __num2__ is ____.

Else if the **operator** is equal to **subtract** then console log out the sentence:

Difference of __num1__ and __num2__ is ____.

Else if the **operator** is equal to **multiply** then console log out the sentence:

Product of __num1__ and __num2__ is ____.

Else if the **operator** is equal to **divide** then console log out the sentence:

Division of __num1__ and __num2__ is ____.

Else if the **operator** is equal to **modulus** then console log out the sentence:

Modulus of __num1__ and __num2__ is ____.

Else then console log out the sentence:

__operator__ is a invalid operation.

Call the function evaluate numbers with the following parameters (write a single line as to what will be displayed for each of them):

15,10, add

20, 8 , subtract

12, 4, multiply

28, 7, divide

22, 3, modulus

31, 3, square

13-3-6

13-3-7

13-3-8

14 Arrays

14-1 Create an array with the different pet types **bird**, **cat**, **dog**. Initialise it to the variable **pets**. Console log out pets.

14-2 Create an array with the different cellphone types types **iphone** and **samsung** and initialise it to the variable **cell phones**.

14-3 Create an empty array called **school programs**. Then provide the elements needed inside the array in this specific order: **computer science**, **business**, **arts**. Then console log the school programs.

14-4 Create an empty array called **supplies**. Then provide the elements needed inside the array in this specific order: **erasers**, <empty item>, **pens**, <empty item>, **paper**. Then console log the supplies.

14-5 Create an array with the different pet types **bird**, **cat**, **dog**. Then remove the last item in the array using **pop**. Console log out pets.

14-6 Create an array called **school programs** with the different program types **computer science, business, arts**. Then remove the last item in the array using **pop**. Console log out school programs.

14-7 Create an array called **school programs** with the different program types **computer science, business, arts**. Then add an item called **medicine** at the end of the array using **push**. Console log out school programs.

14-8 Create an array called **school programs** with the different program types **computer science, business, arts**. Then replace business with medicine. Console log out school programs.

14-9 Create a **new Array** that is initialised to the variable **cars**. Add the different car brands **Toyota, Ford, BMW, Nissan**. Then console log out the array.

14-10 Create a **new Array** that is initialised to the variable **starbucks hot drinks**. Add the different drinks: **Hot Chocolate, Caramel Apple spice, Steamed Milk, Vanilla Steamer**. Then console log out the array.

14-11 Initialise a variable called **school programs** to an **empty** array.

Then in the **zeroth** position add another array of items as follows: **Computer Systems (Database)**, **Computer Systems (Human Computer Interface)**, **Computer Systems (Network Security Administration)**.

Then in the **first** position add **business**. Then in the **second** position add **arts**.

14-12 Initialise a variable called **school programs** to the values: **computer science**, **business**, **arts**.

Then Initialise a variable called **school programs two** to the values **medicine**, **construction**.

Then concatenate the two arrays with the **school programs first** then the **school programs two**.

14-13 Initialise a variable called **school programs one** to the values: **computer science, business, arts**.

Initialise a variable called **school programs two** to the values **medicine, construction**.

Then concatenate the two arrays in the variable called **total school programs** with the **school programs one** then the **school programs two**.

Then take out the items in the **total school programs** array that only contain: **business, arts, medicine**

15 Objects

15-1

Create a **student** object that has the:

first name value of **John**

last name value as **Doe**

age as **22**

gpa as **4.0**

Then initialise the word **sentence** to say the following:

John Doe is 22 years old and has a 4.0 GPA.

Then console log the sentence.

15-2 Create a **employee** object that has the:

first name value of **Mark**

last name value as **Jacob**

age as **31**

id as **A001234**

Then initialise the word first to the variable **sentence**. Then assign it on another line to say the following:

The new employee __first name__ __last name__ is __age__ years old. The employee ID is __employee ID__.

Then console log the sentence.

15-3 Initialise the variable **p2** to a **new Object**.

Add items to the new object that contain:

name equal to **Steve**

age equal to **12**

Then **console dir** out p2.

15-4 Initialise the variable **toyota corolla** to a **new Object**.

Add items to the new object that contain:

mode one equal to **Sport**

mode two equal to **EV**

litre equal to **1.8**

Then **console dir** out **toyota corolla**.

15-5 Initialise the variable **microsoft** to a **new Object**.

Add items to the new object that contain:

laptop equal to **Surface Laptop 4**

screen inches equal to **13.4**

memory GB equal to **16**

Battery life hours equal to **19**

Processor equal to **Quad Core 11th Intel Core i7-1185G7 processor**

Then **console.dir** out **microsoft** and **console.log** out the **processor**.

15-6 Initialise the variable **pet** to a **new Object**.

Add items to the new object that contain:

name equal to **Max**

age equal to **6**

type equal to **Guinea pig**

life span equal to **8**

Then **console.dir** out **pet** and **console.log** out the **age**.

15-7 Initialise the variable **toyota corolla hybrid** to a **new Object**.

Add items to the new object that contain:

mode to equal an **array** containing **Sport** and **EV**

litre to equal **1.8**

valve to equal **16**

cylinder to equal **4**

Then **console dir** out the **toyota corolla hybrid** variable.

Then initialise the variable **sentence** to say:

The Toyota Corolla Hybrid is in Sport mode and can carry up to 1.8 litres of gas.

Then **console log** out the sentence.

15-8 Initialise the variable **home** to an **empty object**.

Add items to the new object that contain:

1. Create a **pets** array that contains two objects
 - a. First Object will be called **pet one** and will contain:
 - i. **name** to have the value **Max**
 - ii. **type** to have the value **guinea pig**
 - iii. **age** to have the value **6**
 - iv. **life span** to have the value **8**
 - b. Second Object will be called **pet two** will contain:
 - i. **Name** to have the value **Micky**
 - ii. **Type** to have the value **budgie**
 - iii. **Age** to have the value of **4**
 - iv. **Life span** to have the value of **8**

Then **console dir** out the object home.

Then **console log** out the sentence saying:

The second pet's name is Micky and he is 4 years old.

15-9 Initialise the variable **home** to a **new Object**.

Add an array to this object called **textbooks**. Within this array add two objects. One allied **textbook one** and the other called **textbook two**.

In textbook one add:

title contains **Design Pattern Elements of Reusable Object-Oriented Software**

author contains a list called **list** which contains an array of names as follows: **Erich Gamma, Richard Helm, Ralph Johnson, John Vlissides**.

release date contains **1994**

In textbook two add:

title contains **Step by Step**

author equal to a list called **list** which contained an array of the names as follows: **Steve Suehring**

release date equal to **2010**

Console dir out the textbooks.

Then console log out the first textbook.

Then console log out the authors of the first textbook.

Then console log out the second person in the list of authors of the first textbook.

Then console log out this sentence using the second textbook:

I will read JavaScript Step by Step. The author of the textbook is Erich Gamma. It was released in 1994.

15-10

Initialise a object called **work** that has the key value pairs of:

title = Software Developer

year started = 2010

Then console log out the **title** in the object.

Write a **single line comment** as to what will be outputted

then console log out the **information > salary()** function with optional chaining.

Write a **single line comment** as to what will be outputted

15-11

Initialise a object called bag that has the key value pairs of:

keys = 5

id = Bob Joe

Then console log out the **mirror** in the object.

Write a **single line comment** as to what will be outputted

then console log out the **wallet > salary()** function with optional chaining.

Write a **single line comment** as to what will be outputted

16 Arrow Function/ .Map Method

16-1

Initialise the variable **container** to an array containing the values **1, 4, 9, 16**

Initialise the variable **check** to **map** the values from **container**. Use the variable **x** with an **arrow function** inside the map to then **console log out x**.

Write a multiline comment to show what will be outputted.

16-2

Initialise the variable **container** to an array containing the values **1, 4, 9, 16**

Map the values from **container**. Use the variable **x** with an **arrow function** inside the map to then **console log out x multiplied by 2**.

Write a multiline comment to show what will be outputted.

16-3

Initialise the variable **electronics** to an array containing the values **keyboard**, **mouse**, **monitor**

Then **map** the values from **electronics**. Use the variable **x** with an **arrow function** inside the map to then **console log out x**.

Write a multiline comment to show what will be outputted.

16-4

Initialise the variable **container** to an array containing the values **1, 4, 9, 16**

Then **map** the values from **container**. In the map use the variable **x** and **index** followed by an **arrow function**. Then **console log out** the sentence:

The number is _x_. Then index is _index_.

Write a multiline comment to show what will be outputted.

16-5

Initialise the variable **numbers** to an array containing **1, 2, 3, 4**

Initialise a variable **filtered numbers** to a **map** with the values from **numbers**. In the map use the variable **value** and **index** followed by an **arrow function**.

Use a **if statement** inside the map method to then check if the **index is less than 3**. If so, return **value**.

Then **console log out** the item.

Using **single line comments** write what the output would display.

16-6

Initialise a **new map** to the variable **electronics**.

Then add (**set**) the following **key value** pairs.

laptop to **1000**

mouse to **5**

keyboard to **10**

Then console log out what the JSON Object will look like with the map.

Delete keyboard from the electronics.

Then console log out electronics.

17 Error Handling

17-1

Initialise **person** to an **empty string**. Initialise **message** to an **empty string**.

Set up try/catch. Inside the try block check to see **if** the **length** of the **person** is equal to **0**. If it is then **throw** a sentence saying **empty**. If the **person** is equal to **bob** then console log the message **matched**.

Make the catch block take the property **err**. Then inside the block console log:
The person variable is _err_.

17-2

Initialise **person** to **bob**. Initialise **message** to an **empty string**.

Set up try/catch. Inside the try block check to see **if** the **length** of the **person** is equal to **0**. If it is then **throw** a sentence saying **empty**. If the **person** is **bob** then console log the **message matched**.

Make the catch block take the property **err**. Then inside the block console log:
The person variable is _err_.

Add **finally** at the end to console log out **Finished checking**.

17-3

17-4

Check the answer key and type out the example in a .html file to see how the code works.

18 For Loop

18-1

Create a for loop that initialises the variable **i** at **0**. Then checks to see if the number is **less than 10**. **Increments**. Console log out the variable **i** as it loops through. At the end write a console log saying **finished**. Write a comment on the outputs.

18-2

Create a for loop that initialises the variable **k** at **0**. Then checks to see if the number is **less than or equal to 5**. **Increments**. Console log out the variable **k** as it loops through. At the end console log out **finished**. Write a comment on the outputs.

18-3

Create a for loop that initialises the variable **k** at **0**. Then checks to see if the number is **less than or equal to 4**. **Increments by 2**. Console log out the variable **k** as it loops through. At the end console log out **finished**. Write a comment on the outputs.

18-4

Create a for loop that initialises the variable **k** at **2**. Then checks to see if the number is **less than or equal to 4**. **Increments**. Console log out the variable **k** as it loops through. At the end console log out **finished**. Write a comment on the outputs.

18-5

Initialise a variable called **text** to an empty string.

Create a for loop that initialises the variable **i** at **0**. Then checks to see if the number is **less than 7**. **Increments**. Use an if statement inside to check if **i** is equal to 5 then add on the text **finished** to the text variable. Then break out of that loop. Under the for loops console log out this sentence:

Finished at the number 5.

Write a comment on the outputs.

19 Switch

19-1

Initialise a variable called **number** to the value **4**.

Initialise a variable called **text** to an **empty string**.

Create a **switch statement**. To check num and if the **cases are 4, 2 or default**.

If it is 3 or 2 then assign text to say:

You guessed number _num_.

Default say:

Try again next time!

Then console log out the text.

19-2

Initialise a variable called **person** to the value **Jim**.

Initialise a variable called **text** to an **empty string**.

Create a **switch statement**. To check person and if the **cases are Peter, Jim or default**.

If it is Peter or Jim then assign text to say:

You guessed _person_.

Default say:

Try again next time!

Then console log out the text.

19-3

Declare a variable called **text**.

*Reminder Date functionality has a order of:

// 0 = Sunday

// 1 = Monday

// 2 = Tuesday

// 3 = Wednesday

// 4 = Thursday

// 5 = Friday

// 6 = Saturday

Create a switch statement that checks the current day of the week.

Case day 4 or 5 then assign the text to say:

Soon it is the Weekend.

Case 0 or 6 then assign the text to say:

It is the weekend.

Default:

I cannot wait to sleep in on the weekend.

Then console log out the text.

19-4

Initialise the variable **light** to **0**.

Declare **text**.

Create a switch statement to check the light.

Case **0** then assign the text to say **off**

Case **1** then assign the text to say **on**

Then default the text to **No value found**

Then console log **the light is _value_**.

20-While/break and do/while

20-1-0 While/break

20-1-1

Initialise the variable **i** to a value of **0**.

The setup a **while loop** that checks to see if **i** is **less than 3**. Inside the while loop console log out the variable **i**. Then **increment the value i by 1**.

Write the output of the console logs in a multiline comment under the while loop.

20-1-2

Initialise the variable **i** to a value of **0**.

The setup a **while loop** that checks to see if **i** is **less than or equal to 5**. Inside the while loop console log out the variable **i**. Then **increment the value i by 1**.

Write the output of the console logs in multiline comment under the while loop

20-1-3

Initialise the variable **i** to a value of **0**.

The setup a **while loop** that checks to see if **i** is **less than or equal to 5**. Inside the while loop console log out the variable **i**. Then **increment the value i by 2**.

Write the output of the console logs in multiline comment under the while loop

20-1-4

Initialise the variable **i** to a value of **0**.

The setup a **while loop** that checks to see if **i** is **less than or equal to 6**. Inside the while loop console log out the variable **i** first then **increment the value i by 2**.

Write the output of the console logs in multiline comment under the while loop

20-1-5

Initialise the variable **i** to a value of **0**.

The setup a **while loop** that checks to see if **i** is **less than or equal to 6**. Inside the while loop use a if else statement to check if **i** is **divisible by 2_and the remainder is 0** then **console log** out the word **Even**. Else it gives a remainder of 1 then **console log** out the word **Odd**.

Write the output of the console logs in multiline comment under the while loop

20-1-6

Initialise the variable **i** to a value of **0**.

Initialise the variable **proceed** to equal to **true**.

Console log the sentence:

Start. The value is ____.

The setup a **while loop** that continues if the value is **true**. Inside the while loop check to see if **i** is equal to the number **3**. If it is then change proceed to **false**. Above the if statement **increment i by 1**.

After the while loop console log out the sentence:

Done. The value is __false__ and the number ended at __number__.

Write a single line comment for each of the outputs.

20-1-7

Initialise the variable **i** to a value of **0**.

Initialise the variable **proceed** to equal to **true**.

Console log the sentence:

Start. The value is ____.

Then setup a **while loop** that continues if the value is **true**. Inside the while loop check to see if **i** is equal to **3**. If it is then change **proceed** to **false**. Below the if statement **increment i by 1**.

After the while loop console log out the sentence:

Done. The value is __false__ and the number ended at ____.

Write a single line comment for each of the outputs.

20-1-8

Initialise the variable **i** to a value of **0**.

Initialise the variable **proceed** to equal to **true**.

Console log the sentence:

Start. The value is __true__.

The setup a **while loop** that continues if the value is **true**. Inside the while loop check to see if **i** is equal to the number **3**. If it is then change proceed to **false**. Once false then **break** out of the loop. Add another if statement to check if the number is 2. If it is then increment **i** by 1. Below the if statement **increment i by 1**.

After the while loop console log out the sentence:

Done. The value is __false__ and the number ended at __number__.

Write a single line comment for each of the outputs.

20-2-0 Do-While/Break

20-2-1

Initialise the variable **i** to a value of **0**.

The setup a **do-while loop** that checks to see if **i** is **less than 5**. Inside the while loop console log out the variable **i**. Then increment **i** by **1** underneath the console log.

Write the output of the console logs in a **multiline comment**.

20-2-2

Initialise the variable **i** to a value of **0**.

The setup a **do-while loop** that checks to see if **i** is **less than 5**. Inside the while loop console log out the variable **i**. Then increment **i** by **2** underneath the console log.

Write the output of the console logs in a **multiline comment**.

20-2-3

Initialise the variable **i** to a value of **1**.

The setup a **do-while loop** that checks while **i** is **less than 5**. Inside the while loop console log out the variable **i**. Then increment **i** by **2** underneath the console log.

Write the output of the console logs in a **multiline comment**.

20-2-4

Initialise the variable **i** to a value of **1**.

Initialise the variable **proceed** to a value of **true**.

The setup a **do-while loop** that starts if **proceed** is true. Inside the while loop console log out the variable **i**. Then add a if statement to check if **i** is equal to **3**. If it is then **break** out of the loop. Under the if statement increment **i** by 1.

Write the output of the console logs in a **multiline comment**.

20-2-5

Initialise the variable **i** to the value of **1**.

Initialise the variable **j** to the value of **0**.

The setup a **do-while loop** that checks while **i** is **less than 5**.

Inside the while loop console log out the variable **i**. It should say:

The value of i is ____.

Next console log out the variable **j**.

The value of j is ____.

Then add a if statement to check if **i** is equal to **j**. If it is then **break** out of the loop.

Under the if statement **increment** **i** by 1. Then **increment** **j** by 2 on the next line.

21 Ternary operator

21-1

Initialise a variable called **name** to the value of **George**.

Initialise a variable called **beverage** to check if **name** is **strictly equal** to **Fred**. Use **ternary operator** to check if **True** or **False**.

Then console log out the variable **beverage** to display the answer. Use a single line comment to display the answer.

21-2

Initialise a variable called **name** to the value of **Fred**.

Initialise a variable called **beverage** to check if **name** is **strictly equal** to **Fred**. Use **ternary operator** to check if **True** or **False**.

Then console log out the variable **beverage** to display the answer. Use a single line comment to display the answer.

21-3

Initialise a variable called **age** to the value of **20**.

Initialise a variable called **beverage** to check if **age** is **strictly equal** to **21**. If the person is 21 then they will get **beer**. If the person is not 21 then they will drink **Juice**. Use **ternary operator** to check.

Then console log out the variable **beverage** to display the answer. Use a single line comment to display the answer.

21-4

Create two functions first.

One function called **hello** with no parameters. Inside the first function console log out the message **Hello person**.

Second function called **goodbye** with no parameters. Inside the second function console log out the message **Goodbye person**.

Initialise a variable called **authenticated** to the value of **true**.

Create a ternary operator that will check if the authenticated is true or false. If true it will call the hello function. If false it will call the goodbye function.

21-4

Create a function first that is called **get fee**. This function takes in a parameter called **isMember**. Have it check if the person is a member or not and return the value. If true it will return \$3.00 and if false it will return \$15.00

Set a console log to call the function with the parameter value of **true**. Then write the expected output answer in a single line comment.

Set a console log to call the function with the parameter value of **false**. Then write the expected output answer in a single line comment.

Set a console log to call the function with the parameter value of **null**. Then write the expected output answer in a single line comment.

22-JSON

22-1

Create a JSON that has the value **employees**. Within employees have an array of three employee records (objects).

First record is the **first name** of **George** and **last name** of **Rod**.

First record is the **first name** of **Wilson** and **last name** of **Quan**.

First record is the **first name** of **Tim** and **last name** of **Bern**.

22-2

Create a JSON that has the value **pets**. Within employees have an array of three employee records (objects).

First record is the **name** of **Tim** and **type** of **dog**.

First record is the **name** of **Sally** and **type** of **cat**.

First record is the **name** of **Fred** and **type** of **bird**.

22-3

Create a JSON that has the value **term one**. Within employees have an array of three employee records (objects).

department of **COMM** and **class name** of **Communication for Digital Design and Development**.

department of **COMP** and **class name** of **Fundamental Frontend Web Technologies**.

department of **MDIA** and **class name** of **Vector Graphics 1**.

22-4

Initialise a variable called **container** with the value wrapped in single quotes. The JSON will contain the values:

Name to **Peter**

Age to **22**

Country to **United States**

Initialise a variable called **obj** and use **JSON.parse** to convert the string.

Then console log out the name **Peter** by grabbing the value from the JSON-encoded string.

22-5

Initialise a variable called **container** with the value wrapped in single quotes. The JSON will contain the values:

Name to Kelly

Age to 20

Country to United States

Initialise a variable called **obj** and use **JSON.parse** to convert the string.

Then console log out the sentence saying:

Kelly is 20 and he lives in the United States.

22-6

Initialise a variable called **container** with the value wrapped in single quotes. The JSON will contain the values:

First name to **John**

Last name to **Franco**

Employee id to **A0012345**

Initialise a variable called **obj** and use **JSON.parse** to convert the string.

Then console log out the sentence using backticks saying:

John Franco's employee ID is A0012345.

22-7

Initialise a variable called **json** with the value wrapped in single quotes. The JSON will contain the values:

name to **Kelly**

age to **18**

country to **United States**

Initialise a variable called **obj** and use **JSON.parse** to convert the string.

First use an if/else statement to check if the persons age is greater than 20 years older. If so then console log out the message saying **Kelly lives on his own**. Else console log out the message saying **Kelly lives with his parents**.

Formulas

$$\text{Average Formula} = \frac{\text{Total Sum of All Numbers}}{\text{Number of Item in the Set}}$$

CELSIUS
C -> F
Convert Celsius to Fahrenheit

$$F = \frac{9}{5} (\text{Celsius}) + 32$$

FAHRENHEIT
F -> C
Convert Fahrenheit to Celsius

$$C = \frac{5}{9} (\text{Fahrenheit} - 32)$$

Answers

1-Adding Comments

1-1-0 Single line

1-1-1

```
//
```

1-2-0 Multiline

1-2-1

```
/**
```

```
*
```

```
*/
```

2-Case Styles

2-1-0 camelCase

2-1-1 var numberCables = 22;	2-1-2 var electronicDevices = 5;	2-1-3 var schoolSupplies = 34;
2-1-4 var studyHours = 8;	2-1-5 var powerPacks = 72;	

2-2-0 PascalCase

2-2-1 var NumberCables = 22;	2-2-2 var ElectronicDevices = 5;	2-2-3 var SchoolSupplies = 34;
2-2-4 var StudyHours = 8;	2-2-5 var PowerPacks = 72;	

5-3-0 snake_case

2-3-1 var number_cables = 22;	2-3-2 var electronic_devices = 5;	2-3-3 var school_supplies = 3;
2-3-4 var study_hours = 8;	2-3-5 var power_packs = 72;	

3-Declaring variables:

3-1 var number;
 3-2 var baseball;
 3-3 var car;
 3-4 var school;

4-Initialise and Assigning

4-1-0 Initialise

4-1-1 var seeds = 3;
 4-1-2 var oranges = 10;
 4-1-3 var laptops = 1;
 4-1-4 var fan = 40;
 4-1-5 var speakers = 22;

4-2-0 Declare then assign

4-2-1 var seeds; seeds = 3;	4-2-2 var oranges; oranges = 10;	4-2-3 var laptops; laptops = 1;
4-2-4 var fan; fan = 40;	4-2-5 var speakers; speakers = 22;	

5-String Formatting

5-1-0 Curly Brace / Backticks / Template Literals

5-1-1

```
var x = 12;  
var sentence = `There were ${x} candies in the jar.`;  
console.log(sentence);
```

5-1-2

```
var age = 45;  
var sentence = `The adult was ${age} years old`;  
console.log(sentence);
```

5-1-3

```
var firstName = "Mark";  
var lastName = "Jameson";  
var job = "graphic designer"  
var sentence = `${firstName} ${lastName} was hired as a ${job}.`;   
console.log(sentence);
```

5-1-4

```
var petName = "Sandy";  
var age = 2;  
var petType = "dog"  
var sentence = `${petName} is a ${petType}. She is ${age} years old.`;  
console.log(sentence);
```

5-1-5

```
var text = `It's sunny outside today.`;  
console.log(text);
```

5-1-6

```
var text = `I don't have a pet dog.`;  
console.log(text);
```

5-1-7

```
var number = 3;  
var text = `What are the ${number} Good Design Goals?`;  
console.log(text);
```

5-1-8

```
var text = `The title of the book is called "Design Patterns".`;   
console.log(text);
```

5-1-9

```
var symbol = "\\";  
var text = `The symbol of the backslash is ${symbol}.`;   
console.log(text);
```

5-2-0 Concatenation

5-2-1

```
var x = 12;  
var sentence = "There were " + x + " candies in the jar.";   
console.log(sentence);
```

5-2-2

```
var age = 45;  
var sentence = "The adult was " + age + " years old.";   
console.log(sentence);
```

5-2-3

```
var firstName = "Mark";  
var lastName = "Jameson";  
var job = "graphic designer"  
var sentence = firstName + " " + lastName + " was hired as a " + job + ".";   
console.log(sentence);
```

5-2-4

```
var petName = "Sandy";  
var age = 2;  
var petType = "dog"  
var sentence = petName + " is a " + petType + ". She is " + age + " years old.";   
console.log(sentence);
```

5-3-0 Double quotes

5-3-1

```
var text = "It's sunny outside today.";   
console.log(text);
```

5-3-2

```
var text = "I don't have a pet dog.";   
console.log(text);
```

5-3-3

```
var text = "What are the 3 Good Design Goals?";  
console.log(text);
```

5-3-4

```
var text = "The title of the book is called \"Design Patterns.\"";  
console.log(text);
```

5-3-5

```
var text = "The symbol of the backslash is \\"";  
console.log(text);
```

5-4-0 Single quotes

5-4-1

```
var text = 'It's sunny outside today.';  
console.log(text);
```

5-4-2

```
var text = 'I don't have a pet dog.';  
console.log(text);
```

5-4-3

```
var text = 'What are the 3 Good Design Goals?';  
console.log(text);
```

5-4-4

```
var text = 'The title of the book is called \"Design Patterns\".';  
console.log(text);
```

5-4-5

```
var text = 'The symbol of the backslash is \\"';  
console.log(text);
```

5-5-0 Format Specifiers

5-5-1

```
console.log('%s will be buying a car today', "Tom");
```

5-5-2

```
console.log('%s is an expensive place.', "Vancouver");
```

5-5-3

```
console.log('Microsoft started in %d.', 1975);
```

5-5-4

```
console.log('John is %d years old.', 35);
```

5-5-5

```
console.log('I drank %f cups of water.', 3.5);
```

5-5-6

```
console.log('The value of PI is %f.', 3.14);
```

5-5-7

```
console.log('%s is %d years old.', "Sara", 50);
```

5-5-8

```
console.log('%s is %d years old.', 'John', 45);
```


6-Arithmetics

6-1-0 Addition

6-1-1

```
var x = 2;
var y = 2;
var z = x + y;
console.log(z);
```

6-1-2

```
var x = 4;
var y = 10;
var z = x + y;
console.log(z);
```

6-1-3

```
var apples = 20;
var oranges = 20;
var fruits = apples + oranges;
console.log(fruits);
```

6-1-4

```
var laptops = 5;
var tablets = 2;
var electronics = laptops + tablets;
console.log(electronics);
```

6-1-5

```
var chips = 10;
var cookies = 10;
var snacks = chips + cookies;
console.log(snacks);
```

6-2-0 Subtraction

6-2-1

```
var x = 3;
var y = 1;
var z = x - y;
console.log(z);
```

6-2-2

```
var a = 10;
var b = 20;
var c = a - b;
console.log(x);
```

6-2-3

```
var start = 10;
var eat = 3;
var newTotal = start - eat;
console.log(newTotal);
```

6-2-4

```
var legoStart = 100;
var legoThrown = 30;
var newLegoTotal = legoStart - legoThrown;
console.log(newLegoTotal);
```

6-2-5

```
var initialLaptop = 15;
var soldLaptops = 7;
var available = initialLaptop - soldLaptops;
console.log(available);
```

6-3-0 Multiplication

6-3-1 <pre>var x = 4; var y = 5; var z = x * y; console.log(z);</pre>	6-3-2 <pre>var rock = 10; var paper = 20; var scissors = rock * paper; console.log(scissors);</pre>
6-3-3 <pre>var subtotal = 30; var adjustment = 12; var total = subtotal * adjustment; console.log(total);</pre>	6-3-4 <pre>var pens = 7; var erasers = 7; var supplies = pens * erasers; console.log(supplies);</pre>
6-3-5 <pre>var flowers = 4; var grass = 3; var gardeningItems = flowers * grass;</pre>	

6-4-0 Division

6-4-1 <pre>var pie = 10; var dividedNumber = 2; var total = pie / dividedNumber;</pre>	6-4-2 <pre>var soups = 30; var sold = 3; var newTotal = soups / sold;</pre>
6-4-3 <pre>var papers = 100; var dissolved = 10; var newTotal = papers / dissolved;</pre>	6-4-4 <pre>var j = 40; var k = 4; var m = j / k;</pre>
6-4-5 <pre>var p = 20; var q = 10; var r = p / q;</pre>	

6-5-0 Equations

6-5-1

```
var x = 5;  
var y = 2*x;  
console.log(y); // 10
```

6-5-2

```
var x = 3;  
var y = 5*x + 2;  
console.log(y); // 17
```

6-5-3

```
var x = 2;  
var y = 3x + 1;  
console.log(y); // 7
```

6-5-4

```
var PI = 3.14;  
var area = PI * (5**2);  
console.log(area); // 78.5
```

6-5-5

```
var distanceTravelled = 25;  
var timeTaken = 5;  
var speed = distanceTravelled / timeTaken;  
console.log(speed + "m/s") // 5m/s
```

7-Calculating Averages

7-1

```
var groupOne = 5;  
var groupTwo = 8;  
var groupThree = 14;  
var averagePies = (groupOne + groupTwo + groupThree)/3;
```

7-2

```
var carOne = 50000;  
var carTwo = 25000;  
var carThree = 60000;  
var averageMiles = (carOne + carTwo + carThree)/3;
```

7-3

```
var dayOne = 15000;  
var dayTwo = 20000;  
var dayThree = 10000;  
var dayFour = 12000;  
var dayFive = 25000;  
var averageSteps = (dayOne + dayTwo + dayThree + dayFour + dayFive)/5;
```

7-4

```
var bagOne = 100;  
var bagTwo = 150;  
var bagThree = 50;  
var bagFour = 75;  
var bagFive = 150;  
var averageNumberCandies = (bagOne + bagTwo + bagThree + bagFour + bagFive)/5;
```

7-5

```
var laptopsInventoryOne = 40;  
var laptopsInventoryTwo = 50;  
var laptopsInventoryThree = 65;  
var laptopsInventoryFour = 45;  
var averageInventory = (laptopsInventoryOne + laptopsInventoryTwo +  
laptopsInventoryThree + laptopsInventoryFour)/4;
```

8-Incrementing and Decrementing

8-1-0 Incrementing

8-1-1

```
var i = 1;  
i++;  
console.log(i); // 2
```

8-1-2

```
var k = 100;  
k++;  
console.log(k); // 101
```

8-2-0 Decrementing

8-2-1

```
var i = 1;  
i--;  
console.log(i); // 0
```

8-2-2

```
var i = 100;  
i--;  
console.log(i); // 99
```

9-Data Types

9-1-0 String

9-1-1 var name = "Monika";	9-1-2 var dogName = "Jake";	9-1-3 var bird = "budgie";
9-1-4 var electronicsBox = "cpu";	9-1-5 var slogan= "I'm Lovin' it"; Or var slogan = 'I\'m Lovin\' it';	

9-2-0 Numbers

9-2-1-0 Integers/Whole Numbers

9-2-1-1 var age = 14;	9-2-1-2 var metres = 100;
9-2-1-3 var a = 12; var b = 3; var total = a / b; console.log(total);	9-2-1-4 var x = 10; var y = 2; var total = x/y; console.log(total);

9-2-2-0 Decimal Numbers

9-2-2-1

```
var screenSize = 13.5;  
console.log(screenSize);
```

9-2-2-2

```
var diameter = 2.5;  
console.log(diameter);
```

9-2-3-0 Magic Numbers

9-2-3-1

```
var PI = 3.14;  
var radius = 2;  
var area = PI * (radius ** 2);  
console.log(area);
```

9-2-3-2

Assume this person works 7 days a week

```
var NUMBER_DAYS_OF_THE_WEEK = 7;  
var hoursADay = 5;  
var workedNumberWeeks = 3;  
var salary = 25.50;
```

```
var total = NUMBER_DAYS_OF_THE_WEEK * hoursADay * workedNumberWeeks * salary;  
console.log(total.toFixed(2));
```

9-3-0 Boolean

9-3-1

```
var proceed = true;
```

9-3-2.

```
var proceed = false;
```

9-4-0 Object

9-4-1

```
var grannySmith = {  
  colour: "green",  
  originLocation: "australia",  
  originDate: 1868  
}
```

```
console.log(grannySmith.colour);
```

9-4-2

```
var germanShepard = {  
  weightKilograms: 30,  
  colour: "tan",  
  eyeColour: "brown"  
}
```

```
console.log(germanShepard.eyeColour);
```

9-4-3

```
var person = {  
  eyeColour: "brown",  
  hairColour: "red",  
  age: 30  
}
```

```
console.log(person.hairColour);
```


9-5-0 Function

9-5-1

```
var x = myFunction(1, 3);
```

```
function myFunction(a, b) {  
    return a * b;  
}  
console.log(x); // 3
```

9-5-2

```
var addition = additionFunction(3, 4);
```

```
function additionFunction(variableOne, variableTwo) {  
    return variableOne + variableTwo;  
}  
console.log(addition); // 7
```

9-5-3

```
var subtraction = subtractionFunction(10, 4);
```

```
function subtractionFunction(varOne, varTwo) {  
    return varOne - varTwo;  
};
```

```
console.log(subtraction); // 6
```

6-5-4

```
var divide = divideFunction(12, 4);
```

```
function divideFunction(x, y) {  
    return x / y;  
};
```

```
console.log(divide); //3
```

9-6-0 No Values

9-1-0 Undefined

9-1-1

```
var summer;  
console.log(summer); // undefined
```

9-1-2

```
var printer;  
console.log(printer); // undefined
```

9-2-0 Empty Values

9-2-1.

```
var bcit = "";  
console.log(bcit); //
```

10-Comparison Operators

10-1-0 equal to

10-1-1

```
var number = 12;  
console.log(number == 5); // false
```

10-1-2

```
var number = 12;  
console.log(number == "12"); // true
```

10-1-3

```
var number = 12;  
console.log(number == 20); // false
```

10-1-4

```
var number = 12;  
console.log(number == "20"); // false
```

10-2-0 Strictly equal to

10-2-1

```
var number = 12;  
console.log(number === "5"); // false
```

10-2-2

```
var number = 12;  
console.log(number === "12"); // false
```

10-2-3

```
var x = 12;  
console.log(x === 20); // false
```

10-2-4

```
var x = 12;  
console.log(x === 12); // true
```

10-3-0 Not equal

10-3-1

```
var x = 12;  
console.log(x != "5"); // true
```

10-3-2

```
var x = 12;  
console.log(x != "12"); // false
```

10-3-3

```
var x = 12;  
console.log(x != 20); // true
```

10-3-4

```
var x = 12;  
console.log(x != 12); // false
```

10-4-0 Greater than >

10-4-1

```
var x = 15;  
var y = 25;  
console.log(x > y); // false  
console.log(y > x); // true
```

10-4-2

```
var x = 3;  
var y = 5;  
console.log(x > y); // false  
console.log(y > x); // true
```

10-4-3

```
var x = 16;  
var y = 8;  
console.log(x > y); // true  
console.log(y > x); // false
```

10-4-4

```
var x = 21;  
var y = 21;  
console.log(x > y); // false  
console.log(y > x); // false
```

10-5-0 Greater than or equal to >=

10-5-1

```
var x = 15;  
var y = 25;  
console.log(x >= y); // false  
console.log(y >= x); // true
```

10-5-2

```
var x = 3;  
var y = 5;  
console.log(x >= y); // false  
console.log(y >= x); // true
```

10-5-3

```
var x = 16;  
var y = 8;  
console.log(x >= y); // true  
console.log(y >= x); // false
```

10-5-4

```
var x = 21;  
var y = 21;  
console.log(x >= y); // true  
console.log(y >= x); // true
```

10-6-0 Less than <

10-6-1

```
var x = 15;  
var y = 25;  
console.log(x < y); // true  
console.log(y < x); // false
```

10-6-2

```
var x = 3;  
var y = 5;  
console.log(x < y); // true  
console.log(y < x); // false
```

10-6-3

```
var x = 16;  
var y = 8;  
console.log(x < y); // false  
console.log(y < x); // true
```

10-6-4

```
var x = 21;  
var y = 21;  
console.log(x < y); // false  
console.log(y < x); // false
```

10-7-0 Less than or equal to <=

10-7-1

```
var x = 15;  
var y = 25;  
console.log(x <= y); // true  
console.log(y <= x); // false
```

10-7-2

```
var x = 3;  
var y = 5;  
console.log(x <= y); // true  
console.log(y <= x); // false
```

10-7-3

```
var x = 16;  
var y = 8;  
console.log(x <= y); // false  
console.log(y <= x); // true
```

10-7-4

```
var x = 21;  
var y = 21;  
console.log(x <= y); // true  
console.log(y <= x); // true
```

11-Logical Operators

11-1-0 AND

11-1-1

```
var x = 10;  
var y = 6;  
console.log(x > 5 && y < 11); // true
```

11-1-2

```
var x = 10;  
var y = 6;  
console.log(x > 11 && y < 11); // false
```

11-1-3

```
var x = 10;  
var y = 6;  
console.log(x > 15 && y < 8); // false
```

11-1-4

```
var x = 10;  
var y = 6;  
console.log(x > 18 && y < 3); // false
```

11-2-0 OR

11-2-1

```
var x = 10;  
var y = 6;  
console.log(x > 5 || y < 11); // true
```

11-2-2

```
var x = 10;  
var y = 6;  
console.log(x > 11 || y < 11); // true
```

11-2-3

```
var x = 10;  
var y = 6;  
console.log(x > 15 || y < 8); // true
```

11-2-4

```
var x = 10;  
var y = 6;  
console.log(x > 18 || y < 3); // false
```

11-3-0 NOT

11-3-1

```
var x = 10;  
var y = 6;  
console.log(x > 5 && !(y < 11)); // false
```

11-3-2

```
var x = 10;  
var y = 6;  
console.log(!(x > 11) && y < 11); // true
```

11-3-3

```
var x = 10;  
var y = 6;  
console.log(!(x > 15) || y < 8); // true
```

11-3-4

```
var x = 10;  
var y = 6;  
console.log(x > 18 || !(y < 3)); // true
```


12 If Else

12-1

```
var x = 10;
```

```
if (x === 10) {  
    console.log("It is a match");  
}
```

12-2

```
var x = 10;
```

```
if (x > 5) {  
    console.log("The value is larger than 5");  
}
```

12-3

```
var x = 10;
```

```
var VALIDATION = 5;
```

```
if (x > VALIDATION) {  
    console.log("The value is larger than " + VALIDATION);  
}
```

12-4

```
var guess = 2;
```

```
if (guess === 2) {  
    console.log("You guessed " + guess + " and you are right");  
} else {  
    console.log("You guessed wrong");  
}
```

12-5

```
var guess = 5;
```

```
if (guess === 2) {  
    console.log("you guessed 2 and you are right");  
} else {  
    console.log("You guessed wrong");  
}
```

12-6

```
// Random number between 0 and 2 inclusive
var chosenValue = Math.floor(Math.random() * 3);
var sentence = "";

if (chosenValue == 0) {
    sentence = "This is the zero value";
} else if (chosenValue == 1) {
    sentence = "This is the one value";
} else if (chosenValue == 2) {
    sentence = "This is the second value";
} else {
    sentence = "This is not a number between 0 and 2 inclusive";
}

console.log(sentence);
```

12-7

```
var date = new Date;
var hour = date.getHours();
var sentence = "";

if (hour < 12) {
    sentence = "Good Morning";
} else if (hour < 18) {
    sentence = "Good Afternoon";
} else if (hour < 24) {
    sentence = "Good Evening";
} else {
    sentence = "Error in time";
}

console.log(sentence);
```

12-8

```
var guess = 2;

if (guess == 2 || guess == 3) {
    console.log("You guessed " + guess + " and you are right.");
} else {
    console.log("You guessed wrong");
}
```

12-9

```
var guessOne = 2;
var guessTwo = 3;

if (guessOne == 2 && guessTwo == 3) {
    console.log("Your first guess is " + guessOne + ". Your second guess is " + guessTwo + ".
    You got it right.");
} else {
    console.log("You guessed wrong");
}
```

12-10

```
var guessOne = 2;
var guessTwo = Math.floor(Math.random() * 3);
var sentence = "";

if (guessOne == 2 && !(guessTwo == 1)) {
    sentence = "Your first guess is " + guessOne + ". Your second guess is " + guessTwo + ".
    You got it right.";
} else {
    sentence = "You guessed wrong";
}

console.log(sentence);
```

12-11

```
var firstName = "Steve";
var age = 14;
var country = "Canada";
var message = "";

var MINIMUM_AGE = 16;
var LAW_IN_COUNTRY = "Canada";

if (age >= MINIMUM_AGE && country == LAW_IN_COUNTRY) {
    message = "You are able to get your licence."
} else {
    message = "You are too young";
}

console.log(message);
```

13-Functions

13-1-0 Functional Commenting

13-1-1

```
var chips = chipBox("Doritos", 5, "Pringles", 4);
var calculation = 0;

/**
 * @desc seeing how many doritos and pringles we have in our bag
 * @param {*} optionOne is the doritos
 * @param {*} numberOfOptionOne the number of dorito bags we have
 * @param {*} OptionTwo is the pringles
 * @param {*} numberOfOptionTwo the number of pringle bags we have
 * @returns a String that tells us what chips we have, how many of each and what the total
is.
 */
function chipBox(optionOne, numberOfOptionOne, OptionTwo, numberOfOptionTwo) {
    calculation = numberOfOptionOne + numberOfOptionTwo;

    return "I have " + numberOfOptionOne + " " + optionOne + " and " + numberOfOptionTwo
+ " " + OptionTwo + ". This gives me a total of " + calculation + " chips.";
};

console.log(chips);
```

13-2-0 Functions with returns

13-2-1

```
var x = myFunction(5, 6);

/**
 * @desc Multiplying two numbers together
 * @param {*} a parameter of a
 * @param {*} b parameter of b
 * @returns the multiplied value
 */
function myFunction(a, b) {
  return a * b;
};

console.log(x); // 30
```

13-2-2

```
var shopping = myShoppingList(12,4);

/**
 * @desc calculating the shopping list bill
 * @param {*} quantity the number of items to buy
 * @param {*} price the price of the product
 * @returns the cost of the shopping list
 */
function myShoppingList(quantity, price) {
  return quantity * price;
};

console.log(shopping); //48
```

13-2-3

```
var x = myFunction(5, 6);
```

```
/**
 * @desc the function that multiplies two values
 * @param {*} a the value of a
 * @param {*} b the value of b
 * @returns the multiplied value of a and b
 */
function myFunction(a, b) {
  return a * b;
};
```

```
console.log(x); // 30
```

```
var d = 5;
var z = addingFive(x, d);
```

```
/**
 * @desc the function that multiplies two values
 * @param {*} g the value of g
 * @param {*} h the value of h
 * @returns the multiplied value of g and h
 */
function addingFive(g, h) {
  return g + h;
};
```

```
console.log(z); // 35
```

13-2-4

```
var d = 5;
```

```
var x = myFunction(5, 6);
```

```
var z = addingFive(x, d);
```

```
/**
 * @desc the function that multiplies two values
 * @param {*} a the value of a
 * @param {*} b the value of b
 * @returns the multiplied value of a and b
 */
function myFunction(a, b) {
  return a * b;
};
```

```
console.log(x); // 30
```

```
/**
 * @desc the function that multiplies two values
 * @param {*} g the value of g
 * @param {*} h the value of h
 * @returns the multiplied value of g and h
 */
function addingFive(g, h) {
  return g + h;
};
```

```
console.log(z); // 35
```

13-2-5

```
/**
 * @desc the function that multiplies two values
 * @param {*} a the value of a
 * @param {*} b the value of b
 * @returns the multiplied value of a and b
 */
function myFunction(a, b) {
  return a * b;
};
```

```
/**
 * @desc the function that multiplies two values
 * @param {*} g the value of g
 * @param {*} h the value of h
 * @returns the multiplied value of g and h
 */
function addingFive(g, h) {
  return g + h;
};
```

```
var d = 5;
```

```
var x = myFunction(5, 6);
var z = addingFive(x, d);
```

```
console.log(x); // 30
console.log(z); // 35
```


13-2-6.

```

/**
 * @desc providing a description about the person
 * @param {*} name the first and last name of the person
 * @param {*} age the age in years of the person
 * @returns a sentence about the person
 */
function sentenceFunction(name, age) {
  return "My name is " + name + " and I am " + age + " years old.";
};

var personOne = sentenceFunction("George Smith", 25);

console.log(personOne);

```

13-2-7

```

var firstName = nameFix("george");
var personOne = sentenceFunction(firstName, 25);

/**
 * @desc providing a description of the person
 * @param {*} firstName the first name of the person
 * @param {*} age how old the person is in years
 * @returns a sentence that describes the person
 */
function sentenceFunction(firstName, age) {
  return "My name is " + firstName + " and I am " + age + " years old.";
};

/**
 * @desc a function used to properly format the name of the person
 * @param {*} firstName the first name of the person
 * @returns the first name with the first letter capitalised
 */
function nameFix(firstName) {
  return firstName[0].toUpperCase() + firstName.substring(1);
};

console.log(personOne); // My name is George and I am 25 years old.

```

13-3-0 Functions without returns

13-3-1

```
var number = 10;
var sentence = "";

/**
 * @desc Seeing if the number guess is right
 * @param {*} digit a number guessed
 */
function info(digit) {
  if(digit == 10) {
    console.log("You guessed right");
  } else {
    console.log("You did not guess correctly");
  }
}

info(number); // You guessed right
```

13-3-2

```
var hobby = "gardening";
var city = "vancouver";

/**
 * @desc setting up a sentence to see if the activity is the right one at a location
 * @param {*} activity a persons hobby
 * @param {*} location the location where a person lives
 */
function sentence(activity, location){
  if(activity == "gardening") {
    console.log("I live in " + location[0].toUpperCase() + location.slice(1) + " and I like " +
activity + ".");
  } else {
    console.log("Not the right hobby.");
  }
}

sentence(hobby, city); // I live in Vancouver and I like gardening.
```

13-3-3

```
var firstName = "Steve";
```

```
var age = 14;
```

```
var country = "Canada";
```

```
var MINIMUM_AGE = 16;
```

```
var LAW_IN_COUNTRY = "Canada";
```

```
/**
 * @desc checking to see if the person is able to drive based on where they live
 * @param {*} name the first name of the person
 * @param {*} year the age of the person
 * @param {*} location the location where the person is
 */
function drive(name, year, location) {
  if (year >= MINIMUM_AGE && location == LAW_IN_COUNTRY) {
    console.log(name + " you are able to get your licence.");
  } else {
    console.log(name + " you are too young.");
  }
}
```

```
drive(firstName, age, country); // Steve you are too young.
```

13-3-4

```
/**
 * @desc checking to see what letter grade should be given to the student
 * @param {*} name the first name of the person
 * @param {*} marks the number letter grade for the person
 */
function findGrade(name, marks) {
  if(marks >= 85 && marks <= 100){
    console.log(`${name} you got an A.`)
  }
  else if(marks >= 70 && marks < 85){
    console.log(`${name} you got a B.`)
  }
  else if(marks >= 50 && marks < 70){
    console.log(`${name} you got a C.`)
  }
  else if(marks >= 0 && marks <50){
    console.log(`${name} you have failed.`)
  }
}
```

```

    else{
        console.log(`Invalid mark of ${marks}.`)
    }
}

```

```

findGrade("Sarah", 91) //"Sarah you got an A."
findGrade("George", 85) //"George you got an A."
findGrade("Sam", 73) //"Sam you got a B."
findGrade("Emily", 53) //"Emily you got a C."
findGrade("Tom", 20) //"Tom you have Failed"
findGrade("Wilson", 120) //"Invalid marks of 120"

```

13-3-5

```

/**
 * @desc performing a operation based on what operator is passed
 * @param {*} num1 the first number
 * @param {*} num2 the second number
 * @param {*} operator the type of operation performed
 */
function evaluateNumbers(num1, num2, operator) {
    if(operator == "add"){
        console.log(`Sum of ${num1} and ${num2} is ${num1+num2}.`)
    }
    else if(operator == "subtract"){
        console.log(`Difference of ${num1} and ${num2} is ${num1-num2}.`)
    }
    else if(operator == "multiply"){
        console.log(`Product of ${num1} and ${num2} is ${num1*num2}.`)
    }
    else if(operator == "divide"){
        console.log(`Division of ${num1} and ${num2} is ${num1/num2}.`)
    }
    else if(operator == "modulus"){
        console.log(`Modulus of ${num1} and ${num2} is ${num1%num2}.`)
    }
    else{
        console.log(`${operator} is an invalid operation.`)
    }
}

```

```

evaluateNumbers(15,10,"add") //"Sum of 15 and 10 is 25"
evaluateNumbers(20,8,"subtract") //"Difference of 20 and 8 is 12"
evaluateNumbers(12,4,"multiply") //"Product of 12 and 4 is 48"
evaluateNumbers(28,7,"divide") //"Division of 28 and 7 is 4"
evaluateNumbers(22,3,"modulus") //"Modulus of 22 and 3 is 1"
evaluateNumbers(31,3,"square") //"square is an invalid operation"

```

13-3-6

```

var number = 12;
var message = "";

/**
 * @desc guessing the number
 * @param {*} number a number
 */
function guess(number) {
  if(number > 12) {
    console.log("Your number is too high");
  } else if(number == 12) {
    console.log("You guessed correct!");
  } else {
    console.log("Your number is too low.");
  }
}

guess(number); // You guessed correct!

```

13-3-7

```

var number = Math.floor(Math.random() * 20);
var message = "";

/**
 * @desc guessing the number based on the random number generated
 * @param {*} digit a number
 * @param {*} text the sentence to display
 */
function info(digit, text) {
  if(digit > 12) {
    text = "Your number is too high.";
  } else if(digit == 12) {
    text = "You guessed correct!";
  } else {
    text = "Your number is too low.";
  }
  console.log("The number you guessed was: " + digit + ". " + text); // The number you
  guessed was: __. Your number is too high/low/correct
}

info(number, message);

```

13-3-8

```
/**
 * @desc checking to see if the value passed is a number or not
 * @param {*} check a value passed
 */
function isValidNumber(check) {
  if(isNaN(check)){
    console.log(`${check} is not a number`)
  }
  else{
    console.log(`${check} is a valid number`)
  }
}
```

```
isValidNumber(21) // 21 is a valid number
isValidNumber("7") // 7 is a valid number
isValidNumber("abc") // abc is not a number
isValidNumber("12.5") // 12.5 is a valid number
isValidNumber("21M") // 21M is not a number
```

14-Arrays

14-1

```
var pets = ["bird", "cat", "dog"];  
console.log(pets);
```

14-2

```
var cellPhones = ["iphone", "samsung"];  
console.log(cellPhones);
```

14-3

```
var schoolPrograms = [];  
  
schoolPrograms[0] = "computer science";  
schoolPrograms[1] = "business";  
schoolPrograms[2] = "arts";  
  
console.log(schoolPrograms);
```

14-4

```
var supplies = [];  
  
supplies[0] = "erasers";  
supplies[2] = "pens";  
supplies[4] = "paper";  
  
console.log(supplies);
```

14-5

```
var pets = ["bird", "cat", "dog"];  
pets.pop();  
  
console.log(pets);
```

14-6

```
var schoolPrograms = ["computer science", "business", "arts"];  
schoolPrograms.pop();  
  
console.log(schoolPrograms);
```

14-7

```
var schoolPrograms = ["computer science", "business", "arts"];  
schoolPrograms.push("medicine");  
  
console.log(schoolPrograms);
```

14-8

```
var schoolPrograms = ["computer science", "business", "arts"];  
schoolPrograms[1] = "medicine";
```

```
console.log(schoolPrograms);
```

14-9

```
var cars = new Array("Toyota", "Ford", "BMW", "Nissan");  
console.log(cars);
```

14-10

```
var starbucksHotDrinks = new Array("Hot Chocolate", "Caramel Apple Spice", "Steamed  
Milk", "Vanilla Steamer");  
console.log(starbucksHotDrinks);
```

14-11

```
var schoolPrograms = [];
```

```
schoolPrograms[0] = ["Computer Systems (Database)", "Computer Systems (Human  
Computer Interface)", "Computer Systems (Network Security Administration)"];  
schoolPrograms[1] = "business";  
schoolPrograms[2] = "arts";
```

```
console.log(schoolPrograms);  
console.log(schoolPrograms[0]);
```

14-12

```
var schoolPrograms = ["computer science", "business", "arts"];  
var schoolProgramsTwo = ["medicine", "construction"]
```

```
console.log(schoolPrograms.concat(schoolProgramsTwo));
```

14-13

```
var schoolProgramsOne = ["computer science", "business", "arts"];  
var schoolProgramsTwo = ["medicine", "construction"]
```

```
var totalSchoolPrograms = schoolProgramsOne.concat(schoolProgramsTwo);
```

```
console.log(totalSchoolPrograms);  
console.log(totalSchoolPrograms.slice(1,4));
```


15-Objects + console log

15-1

```
var student = {  
  firstName: "John",  
  lastName: "Doe",  
  age: 22,  
  gpa: 4.0  
};  
  
var sentence;  
sentence = student.firstName + " " + student.lastName + " is " + student.age + " years old  
and has a " + student.gpa.toFixed(1) + " GPA.";  
  
console.log(sentence);
```

15-2

```
var employee = {  
  firstName: "Mark",  
  lastName: "Jacob",  
  age: 31,  
  id: "A001234"  
};  
  
var sentence;  
sentence = "The new employee " + employee.firstName + " " + employee.lastName + " is " +  
employee.age + " years old. The employee ID is " + employee.id + ".";  
  
console.log(sentence);
```

15-3

```
var p2 = new Object();  
  
p2.name = "Steve";  
p2.age = 12;  
  
console.dir(p2);
```

15-4

```
var toyotaCorolla = new Object();
```

```
toyotaCorolla.modeOne = "Sport";
```

```
toyotaCorolla.modeTwo = "EV";
```

```
toyotaCorolla.litre = 1.8;
```

```
console.dir(toyotaCorolla);
```

15-5

```
var microsoft = new Object();
```

```
microsoft.laptop = "Surface Laptop 4";
```

```
microsoft.screenInches = 13.4;
```

```
microsoft.memoryGB = 16;
```

```
microsoft.batteryLifeHours = 19;
```

```
microsoft.processor = "Quad Core 11th Intel Core i7-1185G7 processor";
```

```
console.dir(microsoft);
```

```
console.log(microsoft.processor);
```

15-6

```
var pet = new Object();
```

```
pet.name = "Max";
```

```
pet.age = 6;
```

```
pet.type = "Guinea pig";
```

```
pet.lifeSpan = 8;
```

```
console.dir(pet);
```

```
console.log(pet.age);
```

15-7

```
var toyotaCorollaHybrid = new Object();
```

```
toyotaCorollaHybrid.mode = ["Sport", "EV"];
```

```
toyotaCorollaHybrid.litre = 1.8;
```

```
toyotaCorollaHybrid.valve = 16;
```

```
toyotaCorollaHybrid.cylinder = 4;
```

```
console.dir(toyotaCorollaHybrid);
```

```
var sentence = "The Toyota Corolla Hybrid is in " + toyotaCorollaHybrid.mode[0] + " mode  
and can carry up to " + toyotaCorollaHybrid.litre + " litres of gas.";
```

```
console.log(sentence);
```

15-8

```
var home = {};
```

```
home.pets = [
```

```
  petOne = {
```

```
    name: "Max",
```

```
    type: "guinea pig",
```

```
    age: 6,
```

```
    lifespan: 8
```

```
  },
```

```
  petTwo = {
```

```
    name: "Micky",
```

```
    type: "budgie",
```

```
    age: 4,
```

```
    lifespan: 8
```

```
  }
```

```
];
```

```
console.dir(home);
```

```
console.log("The second pet's name is " + home.pets[1].name + " and he is " +  
home.pets[1].age + " years old.");
```

15-9

```
var home = new Object();

home.textbooks = [
  textbookOne = {
    title: "Design Patterns Elements of Reusable Object-Oriented Software",
    authors: {"list": ["Erich Gamma", "Richard Helm", "Ralph Johnson", "John Vlissides"]},
    releaseDate: 1994,
  },
  textbookTwo = {
    title: "JavaScript Step by Step",
    authors: {"list": ["Steve Suehring"]},
    releaseDate: 2010,
  }
];

console.dir(home.textbooks);
console.log(home.textbooks[0]);
console.log(home.textbooks[0]["authors"]);
console.log(home.textbooks[0]["authors"]["list"][1]);
console.log("I will read " + home.textbooks[1]["title"] + ". The author of the textbook is " +
home.textbooks[0]["authors"]["list"][0] +
". It was released in " + home.textbooks[0]["releaseDate"] + ".")
```

15-10

```
var work = {  
  title: 'Software Developer',  
  yearStarted: 2010  
}
```

```
console.log(work.title); // Software Developer  
console.log(user.information?.salary()); // undefined
```

15-11

```
var bag = {  
  mirror: 1,  
  keys: 5,  
  id: "Bob Joe"  
}
```

```
console.log(bag.mirror); // 1  
console.log(user.wallet?.salary()); // undefined
```

16 - Arrow Function/ .Map Method

16-1

```
var container = [1, 4, 9, 16];
```

```
// pass a function to map
```

```
var check = container.map(x => console.log(x));
```

```
/**  
 * 1  
 * 4  
 * 9  
 * 16  
 */
```

16-2

```
var container = [1, 4, 9, 16];
```

```
// pass a function to map
```

```
var check = container.map(x => console.log(x * 2));
```

```
/**  
 * 2  
 * 8  
 * 18  
 * 32  
 */
```

16-3

```
var electronics = ["keyboard", "mouse", "monitor"];
```

```
// pass a function to map
```

```
electronics.map(x => console.log(x));
```

```
/**  
 * keyboard  
 * mouse  
 * monitor  
 */
```

16-4

```
var container = [1, 4, 9, 16];
```

```
// pass a function to map
```

```
container.map((x, index) => console.log("The number is " + x + ". The index is " + index));
```

```
/**
```

```
 * The number is 1. The index is 0
```

```
 * The number is 4. The index is 1
```

```
 * The number is 9. The index is 2
```

```
 * The number is 16. The index is 3
```

```
 */
```

16-5

```
var numbers = [1, 2, 3, 4];
```

```
var filteredNumbers = numbers.map((value, index) => {
```

```
  if (index < 3) {
```

```
    return value;
```

```
  }
```

```
});
```

16-6

```
var electronics = new Map();
```

```
electronics.set('laptop', 1000);
```

```
electronics.set('mouse', 5);
```

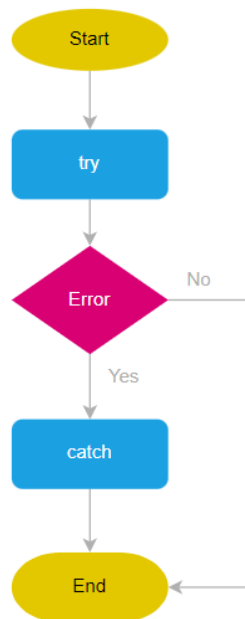
```
electronics.set('keyboard', 10);
```

```
console.log(electronics)
```

```
electronics.delete('keyboard')
```

```
console.log(electronics)
```

17 - Error Handling



17-1

```
var person = "";  
var message = "";
```

```
try {  
    if(person.length == 0) throw "empty";  
    if(person == "bob") console.log("matched");  
}  
catch(err) {  
    console.log("The person variable is " + err);  
}
```

17-2

```
var person = "bob";  
var message = "";
```

```
try {  
    if(person.length == 0) throw "empty";  
    if(person == "bob") console.log("matched");  
}  
catch(err) {  
    console.log("The person variable is " + err);  
} finally {  
    console.log("Finished checking.")  
}
```


17-3 Try it out:

```
<!DOCTYPE html>
```

```
<html>
```

```
<body>
```

```
<h2>JavaScript try catch</h2>
```

```
<p>Please input a number between 5 and 10:</p>
```

```
<input id="grabbingNumber" type="number">
```

```
<button type="button" onclick="personInformation()">Test Input</button>
```

```
<p id="personName"></p>
```

```
<p id="personAge"></p>
```

```
<script>
```

```
let json = '{"name": "Peter", "age": 35}';
```

```
//let json = "{ bad json }";
```

```
function personInformation() {
```

```
    var num = document.getElementById("grabbingNumber").value;
```

```
    if(num >= 5 && num <= 10) {
```

```
        try {
```

```
            let user = JSON.parse(json); // <-- when an error occurs...
```

```
            alert( user.name ); // doesn't work
```

```
            alert( user.age );
```

```
            document.getElementById("personName").innerHTML = user.name;
```

```
            document.getElementById("personAge").innerHTML = user.age;
```

```
        } catch (err) {
```

```
            // ...the execution jumps here
```

```
            alert( "Our apologies, the data has errors, we'll try to request it one more time." );
```

```
            alert( err.name );
```

```
            alert( err.age );
```

```
        }
```

```
    } else {
```

```
        throw "Not a valid number";
```

```
    }
```

```
}
```

```
</script>
```

```
</body></html>
```

17-4 Try it out:

```
<!DOCTYPE html>
```

```
<html>
```

```
<style>
```

```
  #color {
    width: 50px;
    height: 50px;
    justify-items: center;
    background-color: bisque;
  }
```

```
</style>
```

```
<body>
```

```
<h2>JavaScript try catch</h2>
```

```
<p>Please input a number between 5 and 10:</p>
```

```
<input id="grabbingNumber" type="number">
```

```
<button type="button" onclick="personInformation()">Test Input</button>
```

```
<p id="personName"></p>
```

```
<p id="personAge"></p>
```

```
<p id="color"></p>
```

```
<script>
```

```
let json = '{"name": "Peter", "age": 35}';
```

```
//let json = "{ bad json }";
```

```
function personInformation() {
```

```
  var num = document.getElementById("grabbingNumber").value;
```

```
  if(num >= 5 && num <= 10) {
```

```
    try {
```

```
      let user = JSON.parse(json); // <-- when an error occurs...
```

```
      alert( user.name ); // doesn't work
```

```
      alert( user.age );
```

```
      document.getElementById("personName").innerHTML = user.name;
```

```
      document.getElementById("personAge").innerHTML = user.age;
```

```
      document.getElementById("color").style.backgroundColor = "red";
```

```
    } catch (err) {
```

```
      // ...the execution jumps here
```

```
      alert( "Our apologies, the data has errors, we'll try to request it one more time." );
```

```
      alert( err.name );
```

```
      alert( err.age );
```

```
    }
```

```
  } else {
```

```
    throw "Not a valid number";
```

```
}  
  
}  
  
</script>  
  
</body></html>
```

18 - For Loop

18-1

```
for(var i = 0; i < 10; i++) {  
    console.log(i);  
}  
/**  
* 0  
* 1  
* 2  
* 3  
* 4  
* 5  
* 6  
* 7  
* 8  
* 9  
*/  
console.log("finished"); // finished
```

18-2

```
for(var k = 0; k <= 5; k++) {  
    console.log(k);  
}  
/**  
* 0  
* 1  
* 2  
* 3  
* 4  
* 5  
*/  
  
console.log("finished"); // finished
```

18-3

```
for(var k = 0; k <= 4; k += 2) {  
    console.log(k);  
}
```

```
/**  
 * 0  
 * 2  
 * 4  
 */  
console.log("finished"); // finished
```

18-4

```
for(var k = 2; k <= 4; k++) {  
    console.log(k);  
}
```

```
/**  
 * 2  
 * 3  
 * 4  
 */  
  
console.log("finished"); // finished
```

18-5

```
var text = "";  
  
for (var i = 0; i < 7; i++) {  
    if(i == 5) {  
        text += "Finished";  
        break;  
    }  
}  
console.log(text + " at the number " + i + "."); // Finished at the number 5.
```

19 - Switch

19-1

```
var number = 4;
```

```
var text = "";
```

```
switch (number) {  
  case 4:  
    text = "You guessed number " + number;  
    break;  
  case 2:  
    text = "you guessed number " +number;  
    break;  
  default:  
    text = "Try again next time!";  
}
```

```
console.log(text);
```

19-2

```
var person = "Jim";
```

```
var text = "";
```

```
switch (person) {  
  case "Peter":  
    text = "You guessed " + person;  
    break;  
  case "Jim":  
    text = "You guessed " + person;  
    break;  
  default:  
    text = "Try again next time!";  
}
```

```
console.log(text);
```

19-3

```
var text;
// 0 = Sunday
// 1 = Monday
// 2 = Tuesday
// 3 = Wednesday
// 4 = Thursday
// 5 = Friday
// 6 = Saturday

switch (new Date().getDay()) {
  case 4:
  case 5:
    text = "Soon it is Weekend";
    break;
  case 0:
  case 6:
    text = "It is Weekend";
    break;
  default:
    text = "I can't wait to sleep in on the weekend";
}

console.log(text);
```

19-4

```
var light = 0;
var text;

switch (light) {
  case 0:
    text = "Off";
    break;
  case 1:
    text = "On";
    break;
  default:
    text = "No value found";
}

console.log("The light is " + text)
```

20 - While/break and do/while

20-1 While/break

20-1-1

var i = 0;

```
while (i < 3) {  
    console.log(i);  
    i++;  
}  
/**  
 * 0  
 * 1  
 * 2  
 */
```

20-1-2

var i = 0;

```
while (i <= 5) {  
    console.log(i);  
    i++;  
}  
/**  
 * 0  
 * 1  
 * 2  
 * 3  
 * 4  
 * 5  
 */
```

20-1-3

var i = 0;

```
while (i <= 5) {  
    console.log(i);  
    i += 2;  
}  
/**  
 * 0  
 * 2  
 * 4  
 */
```


20-1-4

```
var i = 0;
```

```
while (i <= 6) {  
    console.log(i);  
    i += 2;  
}  
/**  
 * 0  
 * 2  
 * 4  
 * 6  
 */
```

20-1-5

```
var i = 0;
```

```
while (i <= 6) {  
    if(i % 2 == 0) {  
        console.log("Even");  
    } else {  
        console.log("Odd");  
    }  
    i++;  
}  
/**  
 * Even  
 * Odd  
 * Even  
 * Odd  
 * Even  
 * Odd  
 * Even  
 */
```

20-1-6

```
var i = 0;
```

```
var proceed = true;
```

```
console.log("Start. The value is " + proceed);
```

```
// Start. The value is true
```

```
while (proceed) {
```

```
    i++;
```

```
    if(i == 3) {
```

```
        proceed = false;
```

```
    }
```

```
}
```

```
console.log("Done. The value is " + proceed + " and the number ended at " + i);
```

```
// Done. The value is false and the number ended at 3
```

20-1-7

```
var i = 0;
```

```
var proceed = true;
```

```
console.log("Start. The value is " + proceed); // Start. The value is true
```

```
while (proceed) {
```

```
    if(i == 3) {
```

```
        break;
```

```
    }
```

```
    i++;
```

```
}
```

```
console.log("Done. The value is " + proceed + " and the number ended at " + i);
```

```
// Done. The value is false and the number ended at 3
```

20-1-8

```
var i = 0;
```

```
var proceed = true;
```

```
console.log("Start. The value is " + proceed); // Start. The value is true.
```

```
while (proceed) {
```

```
    if(i == 3) {
```

```
        proceed = false;
```

```
        break;
```

```
    } if(i == 2) {
```

```
        i++;
```

```
    }
```

```
    i++;
```

```
}
```

```
console.log("Done. The value is " + proceed + " and the number ended at " + i);
```

```
// infinite loop
```

20-2 Do/While

20-2-1

```
var i = 0;
do {
  console.log(i)
  i++;
} while (i < 5);
/**
 * 0
 * 1
 * 2
 * 3
 * 4
 */
```

20-2-2

```
var i = 0;
do {
  console.log(i)
  i += 2;
} while (i < 5);
/**
 * 0
 * 2
 * 4
 */
```

20-2-3

```
var i = 1;
do {
  console.log(i)
  i += 2;
} while (i < 5);
/**
 * 1
 * 3
 */
```

20-2-4

```
var i = 1;
var proceed = true;
do {
  console.log(i)
  if(i == 3) {
    break;
  }
  i += 1;
} while (proceed);
/**
 * 1
 * 2
 * 3
 */
```

20-2-5

```
var i = 1;
var j = 0;
do {
  console.log("The value of i is: " + i);
  console.log("The value of j is: " + j);
  if(i == j) {
    break;
  }
  i += 1;
  j += 2;
} while (i < 5);
```

21 - Ternary operator

21-1

```
var name = "George";  
var beverage = name === "Fred" ? "True" : "False";  
console.log(beverage); // False
```

21-2

```
var name = "Fred";  
var beverage = name === "Fred" ? "True" : "False";  
console.log(beverage); // True
```

21-3

```
var age = 20;  
var beverage = age === 21 ? "Beer" : "Juice";  
console.log(beverage); // Juice
```

21-4

```
function hello() {  
    console.log("Hello person");  
}  
  
function goodbye() {  
    console.log("Goodbye person")  
}
```

```
var authenticated = true;  
  
authenticated ? hello() : goodbye();  
  
// Hello person
```

21-4

```
function getFee(isMember) {  
  // ifTrue : ifFalse  
  return (isMember ? '$3.00' : '$15.00');  
}
```

```
console.log(getFee(true));  
// expected output: "$3.00"
```

```
console.log(getFee(false));  
// expected output: "$15.00"
```

```
console.log(getFee(null));  
// expected output: "$15.00"
```

22 - JSON

22-1

```
{
  "employees":[
    {"firstName":"George", "lastName":"Rod"},
    {"firstName":"Wilson", "lastName":"Quan"},
    {"firstName":"Tim", "lastName":"Bern"}
  ]
}
```

22-2

```
{
  "pets":[
    {"name":"Tim", "type":"dog"},
    {"name":"Sally", "type":"cat"},
    {"name":"Fred", "type":"bird"}
  ]
}
```

22-3

```
{
  "termOne":[
    {"department":"COMM", "className":"Communication for Digital Design and Development"},
    {"department":"COMP", "className":"Fundamental Frontend Web Technologies"},
    {"department":"MDIA", "className":"Vector Graphics 1"}
  ]
}
```

22-4

```
var container = '{"name": "Peter", "age": 22, "country": "United States"}';
```

```
// Converting JSON-encoded string to JS object
```

```
var obj = JSON.parse(container);
```

```
console.log(obj.name);
```


22-5

```
var container = '{"name": "Kelly", "age": 20, "country": "United States"}';

// Converting JSON-encoded string to JS object
var obj = JSON.parse(container);

console.log(obj.name + " is " + obj.age + " and he lives in the " + obj.country + ".");
```

22-6

```
var container = '{"firstName": "John", "lastName": "Franco", "employeeId": "A0012345"}';

// Converting JSON-encoded string to JS object
var obj = JSON.parse(container);

console.log(`${obj.firstName} ${obj.lastName}'s employee ID is ${obj.employeeId}.`);
```

22-7

```
var json = '{"name": "Kelly", "age": 18, "country": "United States"}';

// Converting JSON-encoded string to JS object
var obj = JSON.parse(json);

if(obj.age > 20) {
    console.log(obj.name + " lives on his own.");
} else {
    console.log(obj.name + " lives with his parents");
}
```