Day 4

# Project Heartcode

Hands-on Workshop: Javascript & Github

Whiteboard				
1	10			
2	11			
3	12			
4	13			
5	14			
6	15			
7	16			
8	17			
9	18			

#### **Table of contents**

Recap of Day 3

Quick Recap on Bootstrap



**Javascript** 

Introduction, Demonstration & Exercises



Wooclap!

Javascript



Github & Github Pages

Walkthrough









# **Workshop Materials**



https://tinyurl.com/heartcodews

## Wooclap



https://app.wooclap.com/heartcode22

# 01 RECAP



## **Bootstrap**

 It is a front-end development framework that enables developers to quickly build fully responsive websites

https://getbootstrap.com/



# Using Bootstrap – CDN

**Using BootstrapCDN** - Include the following in the **<head>** and **<body>** of the webpage



NOTE: This will load the libraries through the CDN – not from your server

# **Bootstrap Template**

```
Exercises > day3 > samplepages > ⇔ sample1.html > ...
       <!DOCTYPE html>
       <html lang="en">
       <head>
          <!-- Required meta tags -->
          <meta charset="utf-8">
          <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">
          <title>Project Heartcode</title>
          <!-- CSS only -->
          <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.2.1/dist/css/bootstrap.min.css" rel="stylesheet"</pre>
          integrity="sha384-iYQeCzEYFbKjA/T2uDLTpkwGzCiq6soy8tYaI1GyVh/UjpbCx/TYkiZhlZB6+fzT" crossorigin="anonymous">
       </head>
       <body>
          <!-- JavaScript Bundle with Popper -->
          <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.2.1/dist/js/bootstrap.bundle.min.js"</pre>
          integrity="sha384-u10knCvxWvY5kfmNBILK2hRnQC3Pr17a+RTT6rIHI7NnikvbZlHqTP00mMi466C8" crossorigin="anonymous"></script>
       </body>
```



# **Bootstrap Features: Grid System**

 Use our powerful mobile-first flexbox grid to build layouts of all shapes and sizes thanks to a twelve column system, six default responsive tiers, Sass variables and mixins, and dozens of predefined classes

COL-3 COL-3				COL-3		COL-3					
COL-4			COL-4		COL-4						
COL-6			COL-6								
COL-2										COL-2	
COL-1	COL-1	COL-1	COL-1	COL-1	COL-1	COL-1	COL-1	COL-1	COL-1	COL-1	COL-1



# **Bootstrap Features: Grid System**

**Container**: most basic layout element in bootstrap; required for using bootstrap's grid system

**Responsive breakpoints**: scale up / down elements as the viewpoints (browser width) changes

#### **Six Responsive Breakpoints**

- Extra small (.xs)
- Small (.sm)
- Medium (.md)
- Large (.lg)
- Extra large (.xl)
- Extra extra large (.xxl)

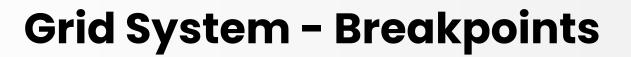
#### <div class="container">

 Responsive, fixed-width container, meaning its max-width changes at each breakpoint

#### <div class="container-fluid">

 Full width container, spanning the entire width of the viewport

https://getbootstrap.com/docs/5.2/layout/breakpoints/



Breakpoint	Class infix	Dimensions
X-Small	None	<576px
Small	sm	≥576px
Medium	md	≥768px
Large	lg	≥992px
Extra large	xl	≥1200px
Extra extra large	xxl	≥1400px



- Nav <a href="https://getbootstrap.com/docs/5.2/components/navs-tabs/">https://getbootstrap.com/docs/5.2/components/navs-tabs/</a>
- NavBars <a href="https://getbootstrap.com/docs/5.2/components/navbar/">https://getbootstrap.com/docs/5.2/components/navbar/</a>
- Jumbotron <a href="https://getbootstrap.com/docs/4.5/components/jumbotron/">https://getbootstrap.com/docs/4.5/components/jumbotron/</a>
- Carousel <a href="https://getbootstrap.com/docs/5.2/components/carousel/">https://getbootstrap.com/docs/5.2/components/carousel/</a>
- Cards <a href="https://getbootstrap.com/docs/5.2/components/card/">https://getbootstrap.com/docs/5.2/components/card/</a>
- Forms <a href="https://getbootstrap.com/docs/5.2/forms/overview/">https://getbootstrap.com/docs/5.2/forms/overview/</a>
- Modal <a href="https://getbootstrap.com/docs/5.1/components/modal/">https://getbootstrap.com/docs/5.1/components/modal/</a>



LottieFiles consists of two elements for it to work:

- 1. **Script** for Lottiefiles to run
- 2. **Lottiefiles tag** to designate where to place the Lottiefile and how you want to run it

```
# Lottiefiles Script - do not change
<script src="https://unpkg.com/@lottiefiles/lottie-player@latest/dist/lottie-player.js"></script>

# Lottiefiles Tag - change src to your own animation link
<lottie-player src="<<LINK TO ANIMATION>>" background="transparent" speed="1" style="width: 300px; height: 300px;" hover loop controls autoplay></lottie-player>
```



JS

# Javascript

#### Javascript allows for:

- Operations
- Logic
- Loops
- Interactiveness

# How to use Javascript

#### Note:

'type="text/javascript" is optional

https://www.w3schools.com/js/default.asp

# How to use Javascript

- Javascript code can be placed in both HTML <head> and <body> sections
- Ideally, placing javascript code in <head> section only if it needs to be executed before the page is rendered
- Best practice is to put it at the bottom of <body>

#### **Variables**

- var [var x = 5]
- **let** [let y = 10]
- const [const z = "hello"]

#### **Notice:**

- console.log()
- alert()

sample2.html

# Variables - Naming Conventions

• Underscore

E.g first\_name, last\_name, heart\_code

Upper Camel Case (Pascal Case)

FirstName, LastName, HeartCode

Lower Camel Case

firstName, lastName, heartCode

#### **Variables**

console.log()



alert()



## **Data Types**

```
// Number
let length = 16;
// String
let lastName = "Johnson";
// Object
let x = {firstName:"John", lastName:"Doe"};
```

## **String Methods**

- 1. Length
- 2. Slice / Substring / Substr
- 3. Replace
- 4. Uppercase and Lowercase
- 5. Concat
- 6. Trim

## Exercise 1 - String Methods

Given var a = "Project Heartcode is the best CSP in SMU!",

Determine the log output without running the codes in console:

a.length

a.slice(25, 29)

a.replace('SMU', 'The World')

a.toUpperCase()

#### **Number Methods**

- 1. toString
- 2. toExponential
- 3. toFixed
- 4. Number
- 5. parseInt/parseFloat

### **Javascript Dates**

```
var d = new Date();
```

7 numbers specify year, month, day, hour, minute, second, and millisecond (in that order)

var d = new Date(2022, 10, 6, 10, 30, 0, 0)

## **Javascript Dates**

#### 6 5 4 3 2 Date Formats

- 6 year, month, day, hour, minute, second
- 5 year, month, day, hour, minute
- 4 year, month, day, hour
- ... and so on

# Javascript - Logic

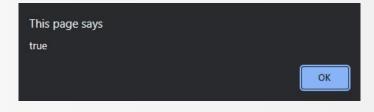
• == [Checks whether its two operands are equal]

```
<script>
   var x = "heartcode";
   var y = "heartcode";

   alert (x == y)
</script>
```

```
<script>
    var x = "heartcode";
    var y = "codeheart";

    alert (x == y)
</script>
```



```
This page says
false

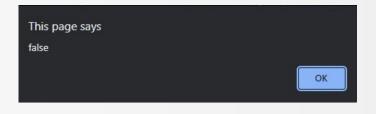
OK
```

# Javascript - Logic

• === [Checks if the type is the same and then if the value is the same]

```
<script>
    var x = 2;
    var y = "2";

    alert (x === y)
</script>
```





# Javascript - Logic

```
var fruit = "apple" // can only be either apple, orange or grape

if (fruit == "apple") {
    alert("red")
} else if (fruit == "orange") {
    alert("orange")
} else {
    alert("purple")
}
</script>
```

#### sample3.html



# **Prompt**

The **prompt(question, predefined answer)** method displays a dialog box that prompts the user for input.

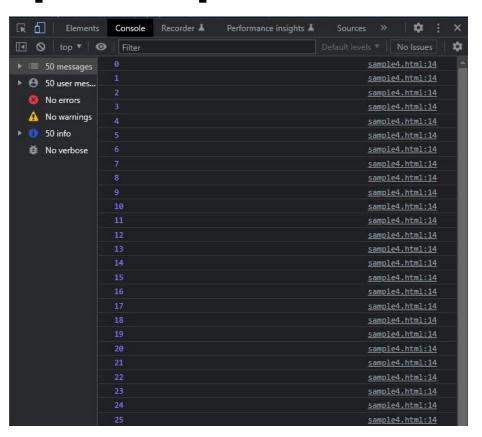
var name = prompt('What is your age?', 24)

## Exercise 2 - Date and Prompt

Prompt a user for their **name, age, birthday** in Javascript's date format, and display them in the webpage

# Javascript - Loops

sample4.html



## Javascript - Functions

Function allows you to define a block of code, giving it a name and then executing it as many times as you want

```
<input type="button" onclick="show(25)" value="Click Me">

<script>
    function show(number) {
        for (var i = 0; i < number; i++){
            console.log(i)
        }
    }
</script>
```

#### sample5.html

Click Me

0	sample5.html:18
1	sample5.html:18
2	sample5.html:18
3	sample5.html:18
4	sample5.html:18
5	<pre>sample5.html:18</pre>
6	sample5.html:18
7	<pre>sample5.html:18</pre>
8	<pre>sample5.html:18</pre>
9	<pre>sample5.html:18</pre>
10	<pre>sample5.html:18</pre>
11	<pre>sample5.html:18</pre>
12	sample5.html:18
13	sample5.html:18
14	sample5.html:18
15	<pre>sample5.html:18</pre>
16	<pre>sample5.html:18</pre>
17	<pre>sample5.html:18</pre>
18	<pre>sample5.html:18</pre>
19	sample5.html:18
20	<pre>sample5.html:18</pre>
21	sample5.html:18
22	sample5.html:18
23	<pre>sample5.html:18</pre>
24	sample5.html:18

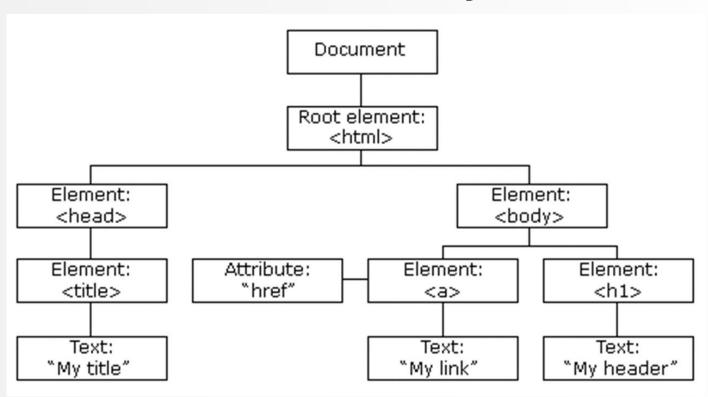
#### **Exercise 3 - Odd Numbers**

Code a function that will print the **ODD NUMBERS from 0 to 50** in the console and a **button** that will run the function

# DOM - Document Object Model

- Browser represents an HTML document as DOM
- Represents the page so that program can change the document structure, style and content
- HTML entities are represented as nodes (object) in a hierarchical data structure
- All these objects are accessible using Javascript

## DOM - Document Object Model



## **Event Handling**

- Javascript can be used to listen to events and react based on the user's action
- Examples of events
  - Clicking a mouse
  - Hovering over an image
  - Typing something in a search bar

## **Events**

Event	Description			
onclick	The user clicks an HTML element			
onchange	An HTML element has been changed			
oninput	The user inputs something in an HTML element			
onmouseover	The user moves the mouse over an HTML element			
onmouseout	The user moves the mouse away from an HTML element			
onkeydown	The user pushes a keyboard key			
onload	The browser has finished loading the page			

#### **Events - onclick**

• onclick() - The user clicks on an HTML element

Say Hello



## Events - onchange

onchange - An HTML element has been changed

```
Select your favourite bubble tea store from the list
<select id="mySelect" onchange="myFunction()">
   <option value="Liho">Liho</option>
   <option value="Gongcha">Gongcha</option>
   <option value="Koi">Koi</option>
   <option value="Bober">Bober</option>
</select>
<script>
   function myFunction() {
       var x = document.getElementById("mySelect").value;
       document.getElementById("demo").innerHTML = "You selected: " + x;
</script>
```

Select your favourite bubble tea store from the list

Liho

Select your favourite bubble tea store from the list

Koi

You selected: Koi

## **Events - oninput**

oninput - The user inputs something into an HTML element

```
<!-- ONINPUT -->
                                                                             Write down your favourite bubble tea store
Write down your favourite bubbletea store
<input type="text" id="myInput" oninput="myFunction()">
<script>
                                                                             Write down your favourite bubble tea store
   function myFunction() {
       var x = document.getElementById("myInput").value;
       document.getElementById("demo2").innerHTML = "You selected: " + x;
                                                                             bober tea
</script>
```

You selected: bober tea

## Events - onmouseover / onmouseout

- onmouseover The user moves the mouse over an HTML element
- onmouseout The user moves the mouse away from an HTML element

```
<!-- ONMOUSEOVER & ONMOUSEOUT-->
<img onmouseover="smallThis(this)" onmouseout="normalImg(this)" src="image1.jpg">

<script>
    function smallThis(image) {
        image.style.height = "500px";
        image.style.width = "500px";
    }
    function normalImg(image) {
        image.style.height = "700px";
        image.style.width = "700px";
        image.style.width = "700px";
    }
</script>
```

## **Events - onkeydown**

onkeydown - The user presses a key on the keyboard

```
This page says

You have entered something in the input field

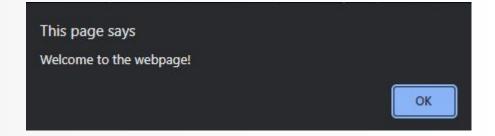
OK
```

#### **Events - onload**

onload - The browser has finished loading the page

```
<body onload="welcome()">
```

```
<!-- ONLOAD -->
<script>
    function welcome() {
        alert("Welcome to the webpage!")
    }
</script>
```



## DOM - getElementByID

```
<div id="intro">Welcome to HeartCode</div>
<script>
    console.log(document.getElementById("intro"))
</script>
```

```
▼<div id="intro">
  Welcome to HeartCode
</div>
```

```
<div id="intro">Welcome to HeartCode</div>
<script>
    console.log(document.getElementById("intro").innerText)
</script>
```

Welcome to HeartCode

#### InnerText vs InnerHTML

**InnerText -** Retrieve and sets the content of the tag as plain text

```
<div id="intro">Welcome to HeartCode</div>
<script>
    console.log(document.getElementById("intro").innerText)
</script>
```

Welcome to HeartCode

**InnerHTML -** Retrieve all the content within the element

Welcome to HeartCode

## DOM - getElementsByTagName

Find elements by tag name [Returns HTML collection Obj]

```
<div id="intro">Welcome to HeartCode</div>
<script>
    console.log(document.getElementsByTagName("p"))
</script>
```

```
▼HTMLCollection [p] 1
▶0: p
length: 1
▶[[Prototype]]: HTMLCollection
```

```
<div id="intro">Welcome to HeartCode</div>
<script>
    var data = document.getElementsByTagName("p")
    for (i of data) {
        console.log(i)
    }
</script>
```

Welcome to HeartCode

## DOM - getElementsByClassName

Find elements by class name [Returns HTML collection Obj]

```
sample6.html:18

▼HTMLCollection(4) [div.intro, div.intro, div.intro, div.intro] 

▶ 0: div.intro

▶ 1: div.intro

▶ 2: div.intro

▶ 3: div.intro

length: 4

▶ [[Prototype]]: HTMLCollection
```

#### Collection

Heartcode1	Heartcode2	Heartcode3	Heartcode4
0	1	2	3

## DOM - getElementsByClassName

```
<div class="intro">Heartcode1</div>
     <div class="intro">Heartcode2</div>
     <div class="intro">Heartcode3</div>
                                                                        ▼ <div class="intro">
     <div class="intro">Heartcode4</div>
                                                                          Heartcode3
     <script>
                                                                         </div>
        console.log(document.getElementsByClassName("intro")[2])
     </script>
<div class="intro">Heartcode1</div>
<div class="intro">Heartcode2</div>
<div class="intro">Heartcode3</div>
<div class="intro">Heartcode4</div>
                                                                            Heartcode3
(script)
   console.log(document.getElementsByClassName("intro")[2].innerText)
</script>
                                               Collection
                         Heartcode1
                                       Heartcode2
                                                      Heartcode3
                                                                     Heartcode4
```

## DOM - getElementsByName

Find elements by name [Returns Collection of Elements]

```
<form>
   What day is it today?
       <label for="Tuesday">Tuesday</label>
                                                                                          NodeList
       <input type="radio" id="Tuesday" name="day" value="Tuesday"><br>
       <label for="Wednesday">Wednesday</label>
                                                                                                  Array-like collection (list) of
       <input type="radio" id="Wednesday" name="day" value="Wednesday"><br>
                                                                                                  nodes
       <label for="Thursday">Thursday</label>
                                                                                                  Can be assessed by index
       <input type="radio" id="Thursday" name="day" value="Thursday" checked><br>
       <label for="Friday">Friday</label>
       <input type="radio" id="Friday" name="day" value="Friday"><br>
</form>
<script>
                                                                                                                              test3.html:26
                                                        ▼ NodeList(4) [input#Tuesday, input#Wednesday, input#Thursday, input#Friday] 
   var value = document.getElementsByName('day')
                                                          ▶ 0: input#Tuesday
   console.log(value)
                                                          ▶1: input#Wednesday
</script>
                                                          ▶ 2: input#Thursday
                                                          ▶ 3: input#Friday
                                                            length: 4
                                                          ▶ [[Prototype]]: NodeList
```

## DOM - getElementsByName

```
What day is it today?
       <label for="Tuesday">Tuesday</label>
       <input type="radio" id="Tuesday" name="day" value="Tuesday"><br>
       <label for="Wednesday">Wednesday</label>
       <input type="radio" id="Wednesday" name="day" value="Wednesday"><br>
      <label for="Thursday">Thursday</label>
      <input type="radio" id="Thursday" name="day" value="Thursday" checked><br>
      <label for="Friday">Friday</label>
       <input type="radio" id="Friday" name="day" value="Friday"><br>
                                                          <input type="radio" id="Thursday" name="day" value="Thursday" checked>
                                                                                                                                           test3.html:29
   var value = document.getElementsByName('day')
                                                        Thursday
                                                                                                                                           test3.html:30
   for(i = 0; i < value.length; i++) {</pre>
           if(value[i].checked) {
              console.log(value[i]);
              console.log(value[i].value)
</script>
```

## **DOM - Adding Element**

 document.write() can be used to write directly to the HTML output stream

Heartcode1

Heartcode2

Heartcode3

Heartcode4

NEW Heartcode4

#### **DOM - Create New HTML Elements**

- Create a header element and append it to an existing element.
- This can be used to dynamically modify your HTML element

```
<div id="test">
   Heartcode1
   Heartcode2
   Heartcode3
   Heartcode4
</div>
<script>
   var new element = document.createElement("h2")
   var content = document.createTextNode("This is a new line")
   new element.appendChild(content)
   document.getElementById("test").appendChild(new element)
</script>
```

Heartcode1

Heartcode2

Heartcode3

Heartcode4

This is a new line

#### **DOM - Create New HTML Elements**

Create a new line at a specific location

Heartcode1

This is a new line

Heartcode2

Heartcode3

Heartcode4

sample7.html

#### Collection



## **DOM - Adding Elements**

```
<div id="test">
</div>

<script>
    for(var i = 0; i < 5; i++) {
         document.getElementById("test").innerHTML += "<p> Number " + i + ""
    }
</script>
```

Number 0

Number 1

Number 2

Number 3

Number 4

#### **DOM - Remove HTML Elements**

- Retrieve the element node and use remove()
  - lastElementChild
  - childNodes[index]

sample8.html

Heartcode1

Heartcode2

Heartcode3

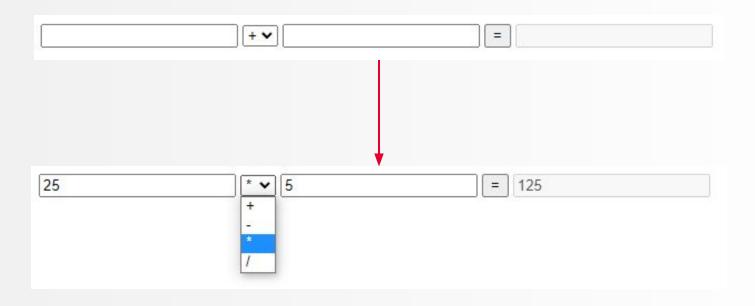
#### **DOM - Obtain Value**

• Using .value

Heartcode

22 + 44 = 66

## Exercise 1 - Calculator



## **Exercise 2 - Food Order**

Food Order			
Add your food order to list		Add!	
	<b>↓</b>		

#### **Food Order**

Add your food order to list Add!

- burger
- 2. fries
- 3. hashbrowns

## Theme Toggler

- Toggle the theme of a webpage using a checkbox
- When checkbox is unchecked:
  - o Background color: white
  - o Text color: black
  - Words displayed: "Current Theme: Light"

- When checkbox is checked:
  - o Background color: black
  - o Text color: white
  - Words displayed: "Current Theme: Dark"

Theme Toggler:

**Current Theme: Light** 

Theme Toggler: <

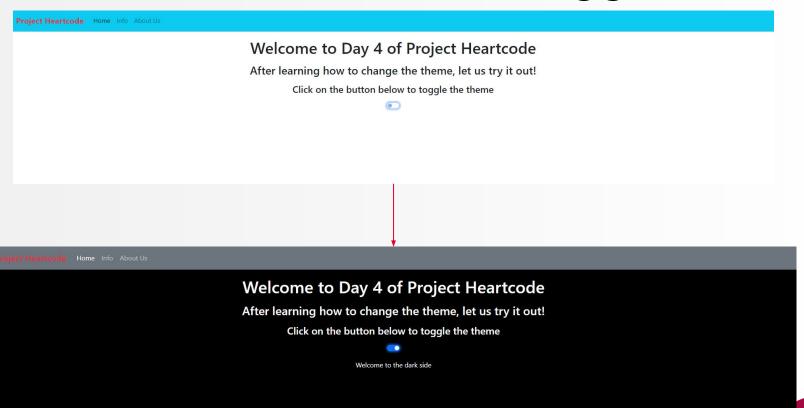
**Current Theme: Dark** 

## Theme Toggler

```
function changeTheme() {
    var checkbox = document.getElementById("checkbox");
    if (checkbox.checked) {
        document.body.classList.add("dark");
        document.body.classList.remove("light");
        document.getElementById("theme-indicator").innerText = "Current Theme: Dark";
    } else {
        document.body.classList.add("light");
        document.body.classList.remove("dark");
        document.getElementById("theme-indicator").innerText = "Current Theme: Light";
    }
}
</script>
```

**CSS** Javascript

# Exercise 3 - Theme Toggler



# Woodlap



https://wooclap.com HEARTCODE3



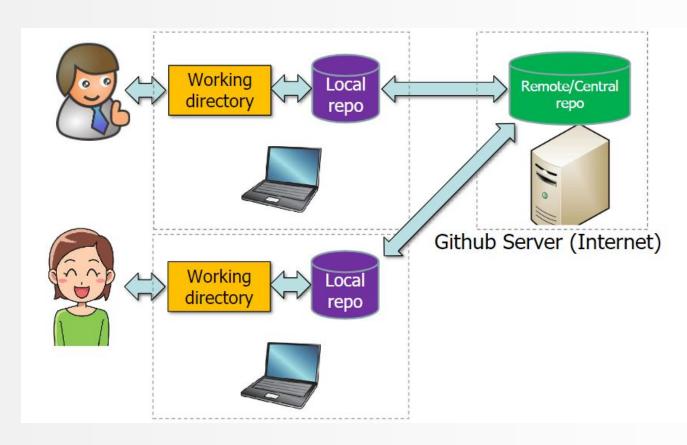
#### Git

- Git is a distributed version control system
- Mechanisms to share source code and project materials
- Full control over when and what you 'publish' to the central code repository
- Systematically tracks history of changes
  - Allows you to revert to an earlier version

## Git



## Git - Collaboration

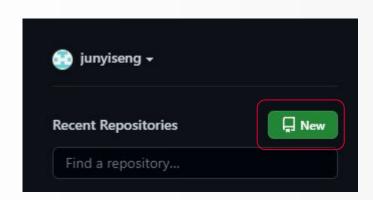


## **Key Acronyms for Github**

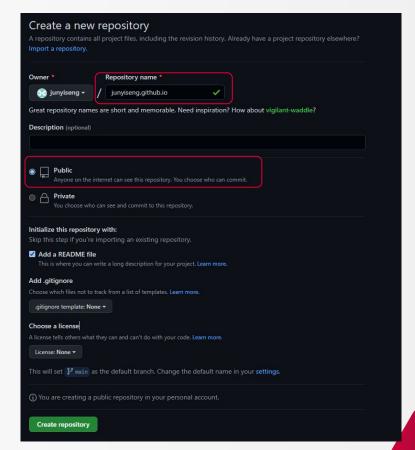
- Git Clone Getting a full local copy of the central repository
- Git Pull Retrieves up-to-date copy of remote repo
- Git Add Mark files to be staged for next commit
- **Git Commit** Creates Snapshot of project's staged changes
- Git Push All committed / staged changes in local repository are sent to remote repository

# Github Demo

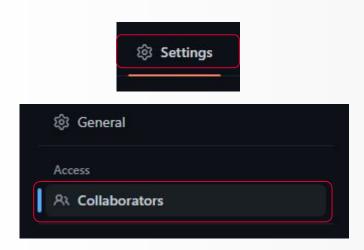
## Create a New Repository

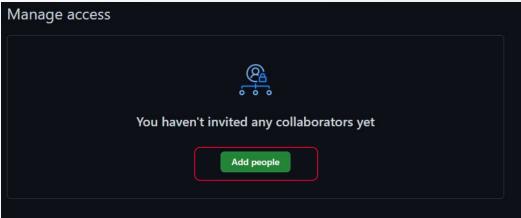


- 1. Click on **New**
- 2. Enter the relevant information
  - Repository Name (username.github.io)
  - Select "Public"
- 3. Click on **Create Repository**



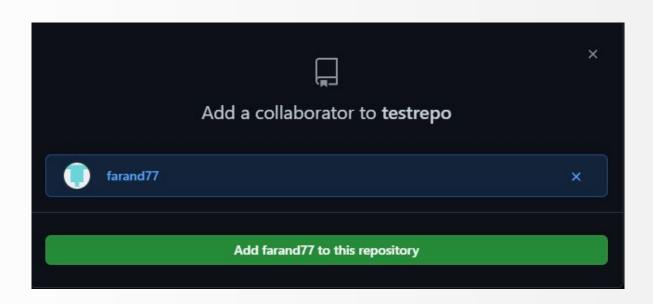
# **Adding Team Members (Collaborators)**



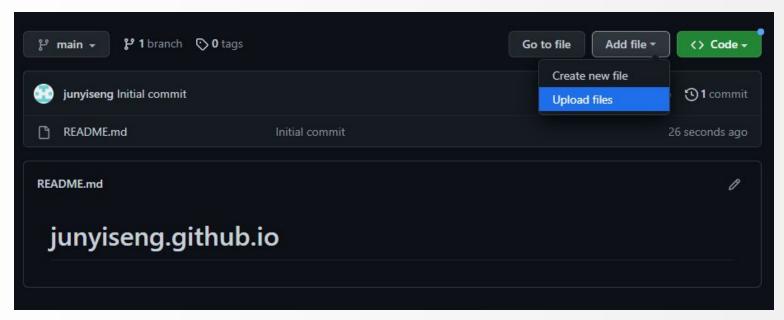


- 1. Click on **Settings**
- 2. Under General, click on Collaborators
- 3. Under Manage Access, click on Add People

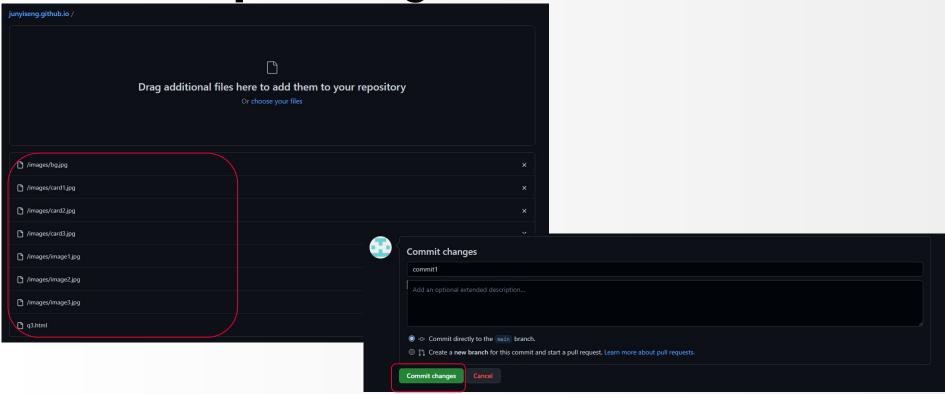
### **Adding Team Members (Collaborators)**



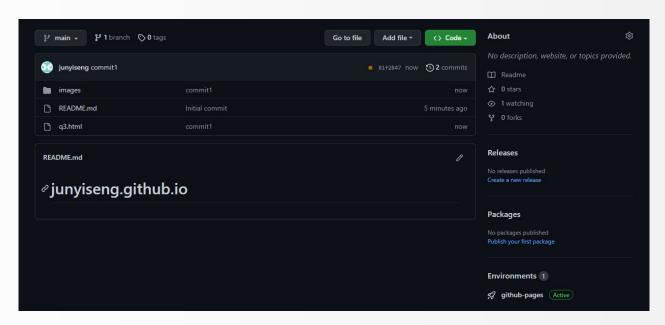
- 1. Search for the username of the team member you wish to add
- 2. Click on "Add \_\_\_ to this repository"
- 3. Added team members will receive the invitation via email



1. On the homepage of the repo, click Add File → Upload Files

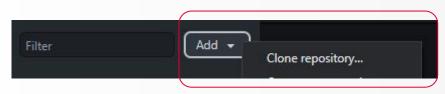


- 1. Drag the files you wish to upload
- 2. Click on Commit Changes

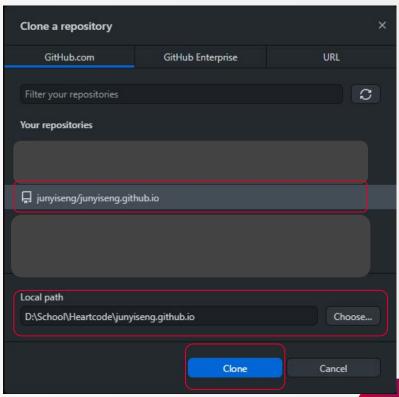


1. The uploaded files will appear in the main repo page

### **Cloning GIT Repository**

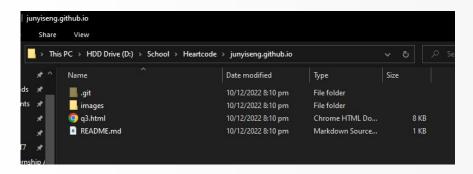


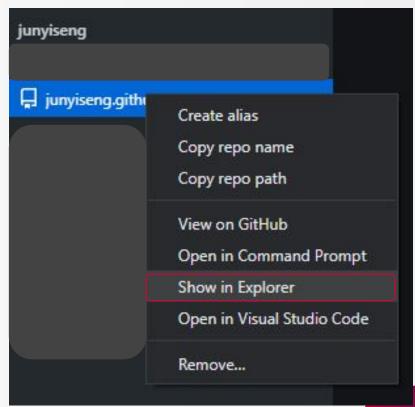
- 1. Open Github Desktop
- 2. Click on Add → Clone Repository
- 3. Choose the repository you wish to clone
- 4. Select the path to store the cloned repository in your laptop
- 5. Click on Clone



### **Cloning GIT Repository**

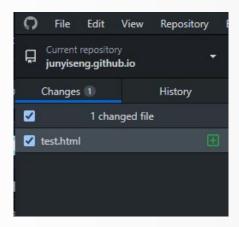
- You should see the cloned repository on the left panel
- 2. Right click on it  $\rightarrow$  Show in Explorer
- 3. The whole repository will appear in the path you have defined earlier on

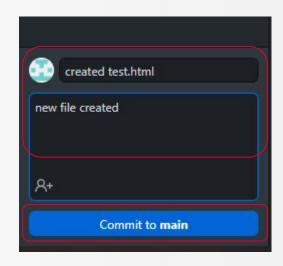




### **Pushing Updates into Github**

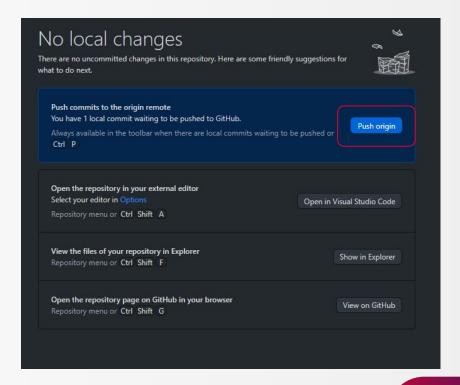
- Changes done to files can be seen on the left panel
- Write a description of the changes made
- 3. Click on Commit to Main





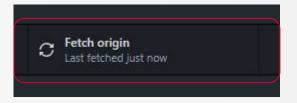
### **Pushing Updates into Github**

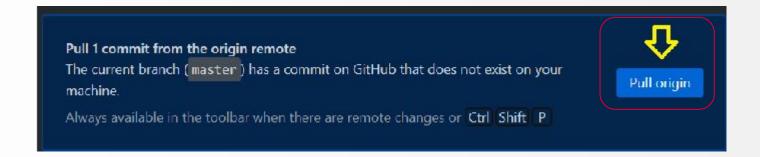
 Once the changes are confirm, you can push the commits to the Github Server



### Pulling Updates from Github

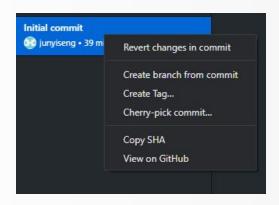
- Click on Fetch Origin
- 2. If there is any updates, the below notification will appear
- 3. Click on Pull Origin

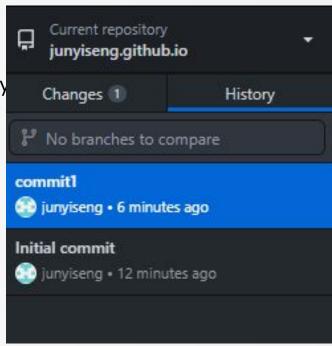




### **Looking at History**

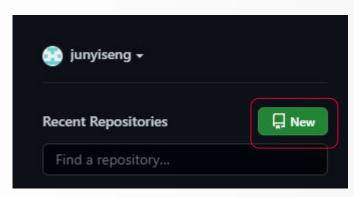
- On the History Tab, can view what changes has been made recently
- From this tab, you are able to revert to any previous history versions





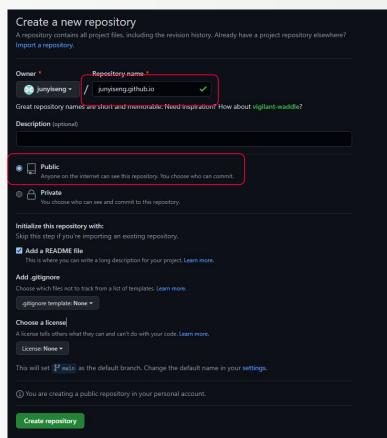
## Deployment - Github Page

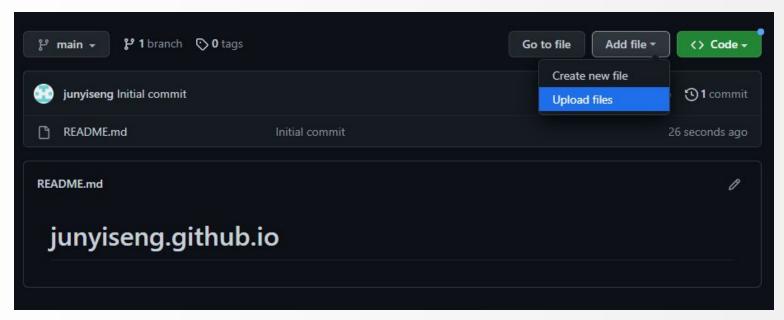
### Create a New Repository



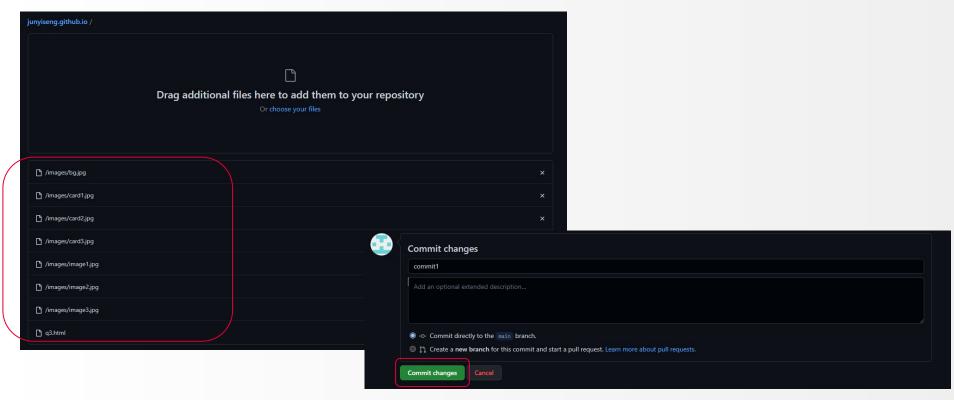
- Click on New
- 2. Enter the relevant information
  - Repository Name (username.github.io)
  - Select "Public"
- 3. Click on Create Repository

Note: It is a must to follow the repository name of (username.github.io)

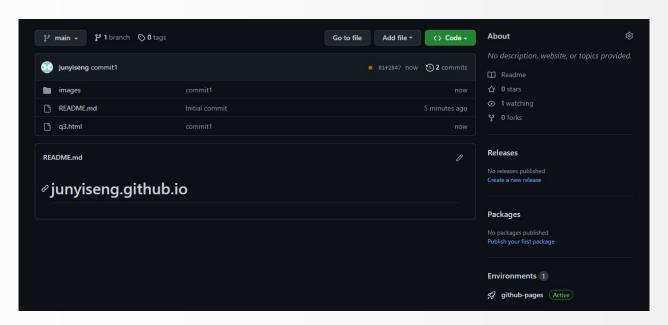




On the homepage of the repo, click Add File → Upload Files



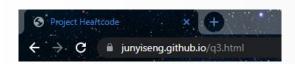
- 1. Drag the files you wish to upload
- 2. Click on Commit Changes

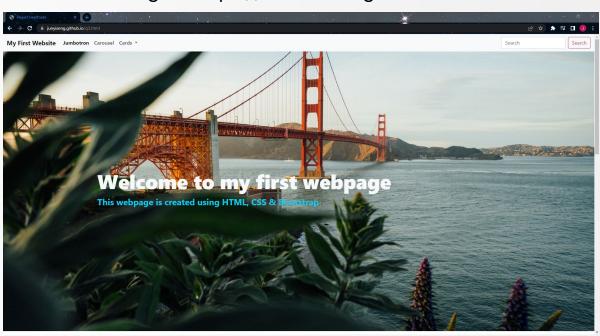


The uploaded files will appear in the main repo page

### **Accessing the Website**

1. On your browser, enter the following url https://username.github.io





#### **Submit ART**

Include Name, Date, Time of taking ART on your ART kit and send the image to this google form! Test before coming daily!





# Thank You!

Do you have any questions?

