

Skills Studio / Summer School
2017

An introduction to developing web applications using Javascript, Node.js, Express.js using a new and new development environment called Glitch

Fully online delivery - Tuesdays & Wednesdays

Attended by current and some past students of ICT Skills

Dates

	S	M	T	W	T	F	S
Week							
May	21	22	23	24	25	26	27
	28	29	30	31	1	2	3
June	4	5	6	7	8	9	10
	11	12	13	14	15	16	17
	18	19	20	21	22	23	24
	25	26	27	28	29	30	1

	Tuesday	Wednesday
9:30 - 11:00	Online Webinar (with playback)	
		2:00 - 4:00 Lab Support (Online Chatroom)

Course Structure

Front End Background
(prerequisite)

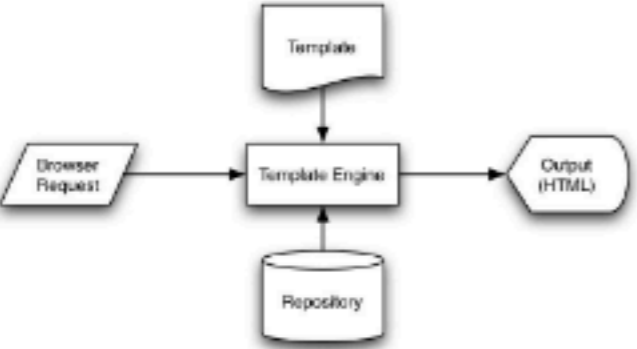
+

Glitch & Node
(this course)

Front End Background (prerequisite)

A refresher on HTML templating + CSS Frameworks




HTML Templates



```
graph LR; Request[/Browser Request/] --> Engine[Template Engine]; Template[Template] --> Engine; Repository[(Repository)] --> Engine; Engine --> Output([Output HTML]);
```

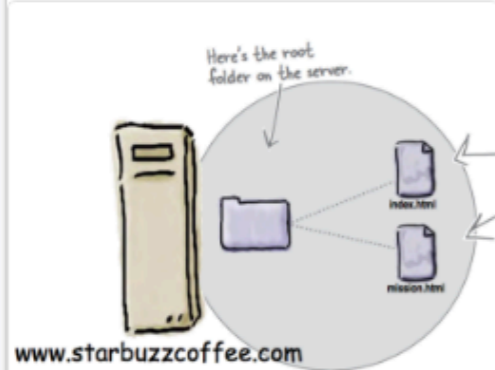
Review the HTML & CSS constructs covered so far. Introduce html templating using EJS. Refactor a site to use templating techniques.

CSS Frameworks

Programming Learn a broad range of programming and problem solving skills, including exciting new platforms, software tools and languages. Use these skills to build apps for mobile, cloud and device based IoT applications. Evolve a portfolio of fascinating applications.  	Data Science At the heart of many IoT applications is data: measurements, events alarms and other information that must be relayed, stored and ultimately turned into knowledge. Learn the fundamentals of modern approaches to data in this strand.  
Networks This strand will explore modern networks and cloud technology. Be able to configure, network and manage all categories of computer systems from simple controllers to single board board computers, mobiles and full workstations.  	Project Building exciting IoT projects in every semester of the programme. Your projects will combine skills acquired from the other strands and enable you to build a comprehensive an compelling portfolio of IoT applications and services.  

Modern web layouts are not considerably more complex and sophisticated than in the past - particularly as mobile is now considered the 'first' destination for any site. To tackle the complex issues CSS Frameworks have arisen as a convenient way to support multiple browsers and different screen sizes & resolutions.

Deployment



Deploying a site involves understanding a little more about Clients & Servers, Hosting Providers, Domain Names, Transferring the Sites Files, HTTP and Absolute & Relative Paths

Lab-00a Case Study



Explore a web site that embodies many of the techniques we have explored so far. In the lab the web is evolved from unstyled content to a reasonably elegant and clean design - using semantic html element where appropriate.

Harp & Surge



Harp servi page to a

Lab

Deploy key

There's Type St online i

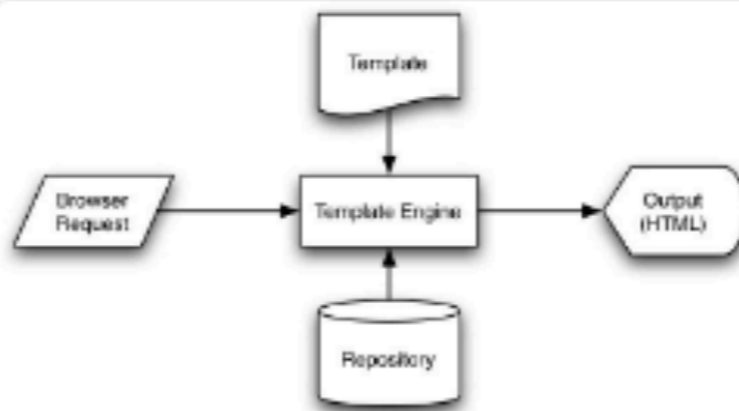


Insta web the v

Case Study



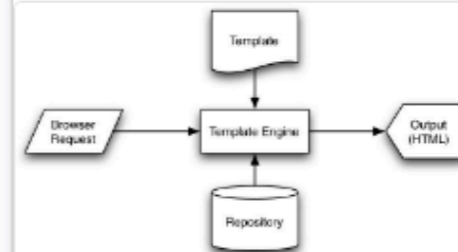
HTML Templates



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version of the site will aim to significantly reduce the content the author has to manage by reusing 'templates' containing common sections.

Templates



The EJS template system implements mechanisms for assembling sites from templates - which are called 'partials' in EJS. Additionally, there is a complimentary 'layout' mechanism for reusing entire page structures.

Lab-01d Navigation



Rework the tabbed navigation site from lab 04 to use EJS template

Semantic-UI I



	Mobile	Tablet
Width	100%	723px
Gutter Size	1em	Fluid
Responsive Visibility	mobile only	tablet only
Device Width	below 768px	768px - 991px

An overview of the container and segments styles in the framework

Lab-02a Semantic UI



Department of Computing & Mathematics
BSc (Hons) the Internet of Things

BACHELOR OF SCIENCE (HONS) APPLIED COMPUTING IN THE INTERNET OF THINGS

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<p>Programming</p> <p>Learn a broad range of programming and problem solving skills, including exciting new platforms, software tools and languages. Use these skills to build apps for mobile, cloud and device based IoT applications. Evolve a portfolio of fascinating applications.</p>	<p>Data Science</p> <p>At the heart of many IoT applications is data: measurements, events alarms and other information that must be relayed, stored and ultimately turned into knowledge. Learn the fundamentals of modern approaches to data in this strand.</p>	<p>Devices</p> <p>The 'Things' we connect to are often physical devices. These can range from simple temperature sensors to sophisticated control systems like traffic lights or cameras. Connecting to and interacting with the physical world is the subject of this strand.</p>
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Rebuild the IoT web site using semantic-ui

Semantic-UI II



An explorati
Image styles

Lab-02b S

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Continue to enhance the IoT web site with additional Semantic-UI

Semantic-UI III



CSS Frameworks



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Semantic Part IV



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Our final tour of the Semantic-UI library - with a focus on icons, variations in segments and responsive grids

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Labs

Data Strands

Locate the file `strands/data.html` and rename it to `strands/data.ejs`

Open this page in sublime - and delete the `<header>` and `<footer>` elements - replacing them with the `partials` we already include in `index.ejs`:

```
...  
<%- partial("../includes/_header.ejs") %>  
...  
<%- partial("../includes/_footer.ejs") %>  
...
```

Notice the `..` prefixes the path because the data page is in a subdirectory.

Assuming you are still `servi`ng the site, visit it now:

- <http://localhost:9000/>

... and verify that the Data Science pages renders correctly.

You may notice that it almost works - the WIT Crest seems to appear ok in the index page, but in Data Science it seems to be missing.

We can fix this now - open `_header.ejs` and change the path to the crest:

```

```

(we have just placed a `/` in front of the assets path name)

Check now that the crest appears correctly.

Schedule

Glitch & Node (this course)

Week	Lesson Plan	Javascript Topics	Web Development Topics
1	Become familiar with the Glitch Environment, build some simple apps. Review the basics of the Javascript language	Context, Variables, Boolean Logic	Glitch tour + Features
2	Discover the front-end/back-end nature of the glitch environment. Build an app routing, simple view and including templating. Explore the basics of Objects in Javascript	Objects, JSON, Storing & Retrieving Objects	Web App Introduction, Front End, Back End. Templating.
3	Review Javascript arrays in depth. Explore the MVC paradigm, and implement a simple Form in a Glitch app.	Array basics, Array methods, array iteration, arrays of strings & objects	Model View Controller, Form Design & Programming
4	Investigate the structure of Javascript Objects in more detail, particularly their dynamic nature. Incorporate sessions management into web applications	Objects in Detail	Sessions. Using Sessions in Express.
5	Review Javascript Functions in depth. Learn how to consume an external service from a web application (image storage).	Functions in Depth	APIs for Image Manipulation & Storage