

# Higher Diploma in Computer Science



Waterford Institute *of* Technology

INSTITIÚID TEICNEOLAÍOCHTA PHORT LÁIRGE

# Higher Diploma is Computer Science

- Context & Objectives
- Online Experience

Guides

- Programme Introduction
- Schedules & Handbooks
- Learning to Learn Online

Semester 1

- Programming Fundamentals
- Web Development
- ICT Skills
- June Onsite

Semester 2

- Computer Systems & Networks
- Databases

Semester 3

Semester 4

Higher Diploma in Computer Science 2018  
Department of Computing & Mathematics, WIT

Guides

Programme Introduction

Schedules & Handbooks

Learning to Learn Online

Semester 1

Programming Fundamentals

Web Development

ICT Skills

June Onsite

10 Credits

5 Credits

3 Credits

Industry Partners · Computer Systems & Database Introductions · git workshop

algorithms · data structures · processing · java · classes · libraries

html · css · layout · web apps · web frameworks · deployment

javascript · node · express · git · github · glitch

# Higher Diploma in Computer Science

## 2013-2017

- Launched in 2013 in Traditional Mode Initial focus on upskilling unemployed candidates
- 12 month Tuition + 6 months work placement
- Specific focus on Modern Software Developer Skill Set
- Approx. 70 graduates over 2012-2018 – majority now working in Technology sector in South East & Nationally.



# Higher Diploma in Computer Science

## 2018

- Programme now completely online – all candidates at work in diverse fields
- All candidates must have level 8 Degree
- 24 months part time, including 6 months full time work placement
- 30 students enrolled in January 2018
- 50 places approved for January 2019



# Highest Quality Online Experience

- Instructional Resources
- Live Webinars
- Recorded Lectures
- Community Interaction
- Assessment & Feedback
- Onsite Sessions



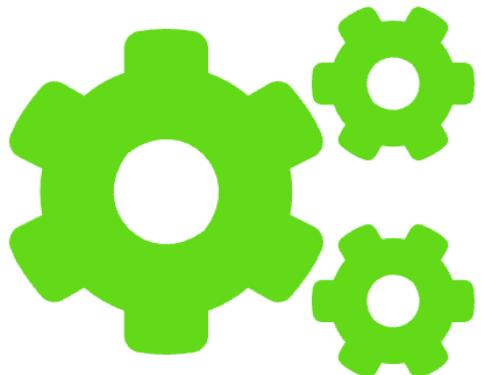
The collage includes:

- A navigation sidebar with sections like "0: Assignments", "1: Introducing HTML", and "2: Introducing CSS".
- A "Web Development" module page featuring Eamonn de Leistar, WIT.
- A "Conditional statements and boolean expressions" step in a sequence from "2a: Selection and Events".
- A Processing sketch titled "1a: Introduction to Processing" showing code and a video feed of Colm Dunphy.
- A GitHub repository page for "#web-development" with a commit history and issues.
- A Processing code editor with a semi-colon note.

# Programme Structure

## Semester 1

**Programming Fundamentals** 



algorithms · data structures · processing · java · classes · libraries

10 Credits

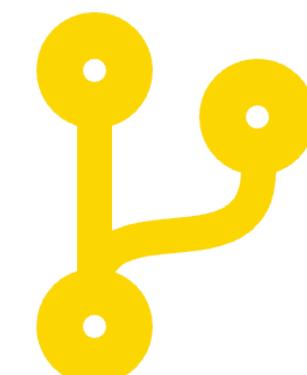
**Web Development** 



html · css · layout · web apps · web frameworks · deployment

5 Credits

**ICT Skills** 

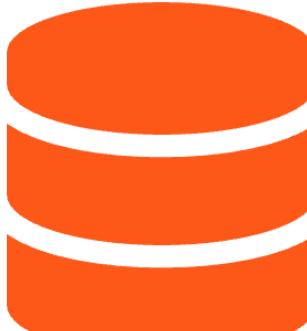


javascript · node · express · git · github · glitch

3 Credits

## Semester 2

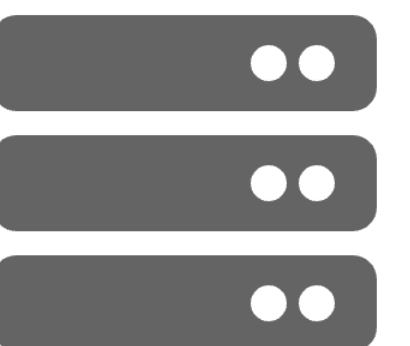
**Databases** 



entities · tables · rows · sql · er · nosql

5 Credits

**Enterprise Web Development** 



mvc · node · security · apis · tdd · frameworks

10 Credits

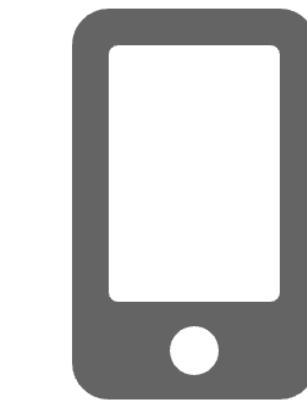
**Developer Operations** 



cloud computing · scripting · scaling · automation · monitoring

5 Credits

**Mobile App Development** 



layouts · activities · resources · lifecycle · widgets · ux

10 Credits

**Front End Development** 



frameworks · events · mv\* · responsive · esnext · less/sass

10 Credits

## Semester 3

**Project Proposal** 



proposal · scope · plan · mock up · prototype

5 Credits

**Work Placement** 



industry partner · mentor · developer · experience · project

25 Credits

## Semester 4

Higher Diploma in Computer Science 2018

Department of Computing & Mathematics, WIT

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Semester 1

- Programming Fundamentals
- Web Development
- ICT Skills
- June Onsite

Semester 2

- Computer Systems & Networks
- Databases

Semester 3

Semester 4

Guides

- Programme Introduction
- Schedules & Handbooks
- Learning to Learn Online

Programme Introduction

Schedules & Handbooks

Learning to Learn Online

structure · philosophy · materials · module introductions

timetables · assessment schedules · programme handbooks

learning resources · guides · tools · howtos

Semester 1

- Programming Fundamentals
- Web Development
- ICT Skills
- June Onsite

Programming Fundamentals

Web Development

ICT Skills

June Onsite

algorithms · data structures · processing · java · classes · libraries

html · css · layout · web apps · web frameworks · deployment

javascript · node · express · git · github · glitch

Industry Partners · Computer Systems & Database Introductions · git workshop

10 Credits

5 Credits

3 Credits

# Open Course Portal

[wit-hdip-comp-sci.github.io](https://wit-hdip-comp-sci.github.io)

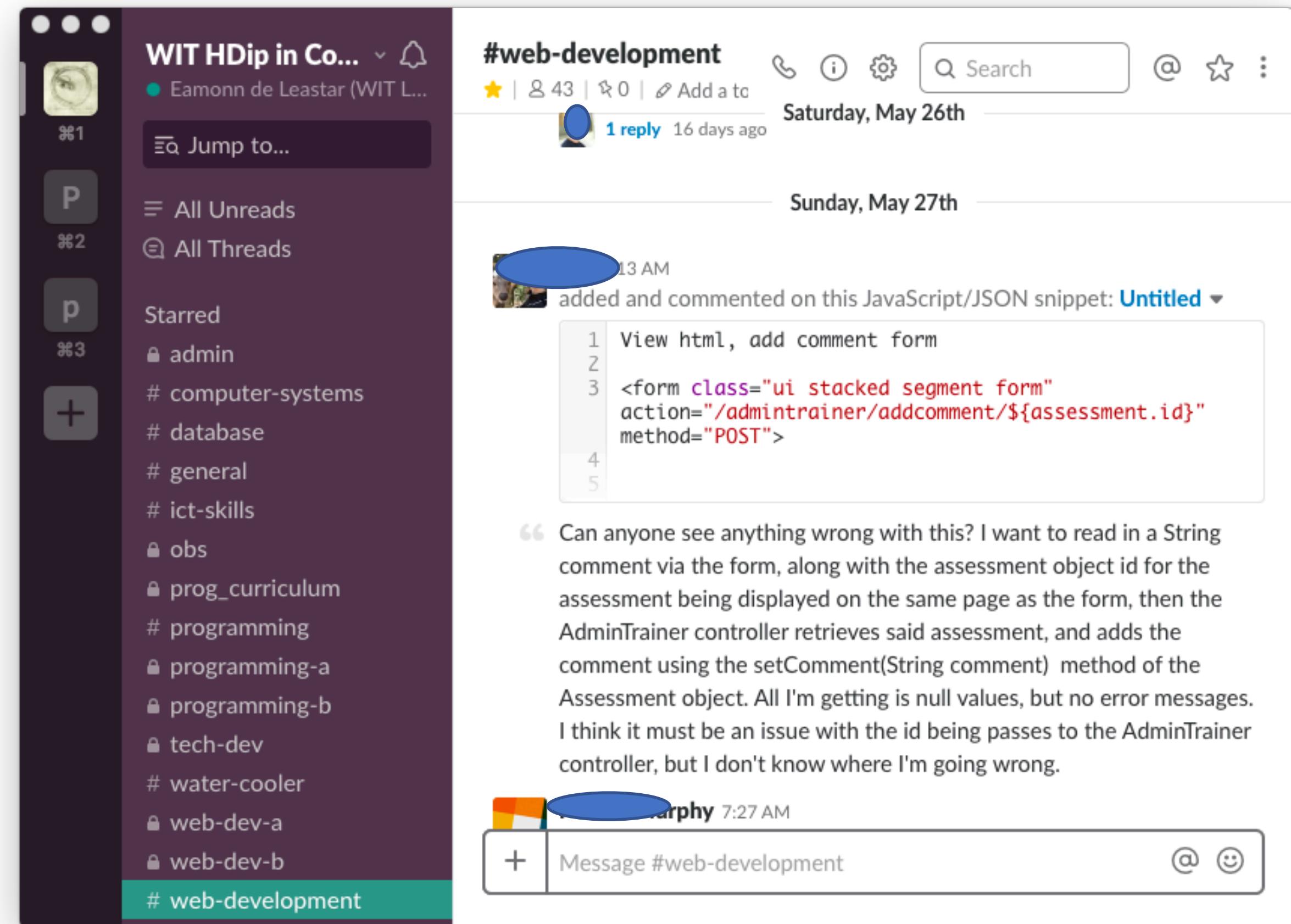
[wit-hdip-comp-sci-2018.github.io](https://wit-hdip-comp-sci-2018.github.io)

# Weekly Timetable

MONDAY	TUESDAY	WEDNESDAY	THURSDAY
10:45			
12:15	Programming Webinar 12:15-2:00 A&B	Programming Webinar 12:15-2:00 A&B	Web Development Webinar 12:15-2:00 A&B
2:00			

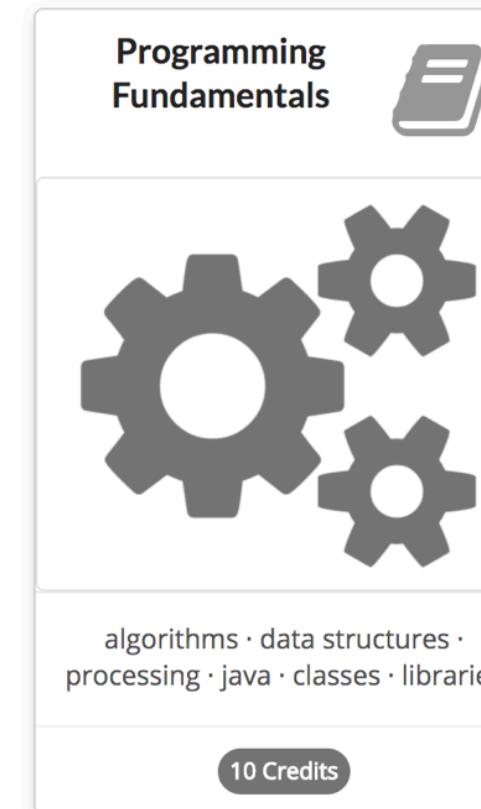
Weekly  
Webinars

+ Self Directed Labs  
+ Slack Channels



Semester 1		S	M	T	W	T	F	S	Modules	
January	Week	0	14	15	16	17	18	19	20	prog & web
	1	21	22	23	24	25	26	27	28	prog & web
February	2	28	29	30	31	1	2	3	4	prog & web
	3	4	5	6	7	8	9	10	11	prog & web
	4	11	12	13	14	15	16	17	18	prog & web
	reading-week	18	19	20	21	22	23	24	25	
March	5	25	26	27	28	1	2	3	4	prog & web
	6	4	5	6	7	8	9	10	11	prog & web
	7	11	12	13	14	15	16	17	18	prog & web
	8	18	19	20	21	22	23	24	25	prog & web
	easter-break	25	26	27	28	29	30	31	32	
April	1	2	3	4	5	6	7	8	9	
	9	8	9	10	11	12	13	14	15	prog & web
	10	15	16	17	18	19	20	21	22	prog & web
	11	22	23	24	25	26	27	28	29	prog & web
May	12	29	30	1	2	3	4	5	6	prog & web
	reading-weeks	6	7	8	9	10	11	12	13	
		13	14	15	16	17	18	19	20	
June	1	20	21	22	23	24	25	26	27	ict skills
	2	27	28	29	30	31	1	2	3	ict skills
	3	3	4	5	6	7	8	9	10	ict skills
	4	10	11	12	13	14	15	16	17	ict skills
	5	17	18	19	20	21	22	23	24	ict skills
	6	24	25	26	27	28	29	30	31	ict skills

2018	Onsite Sessions
18	January
14-15	June



# Module Calendar

	Jan	February				March				April				May				June						September
week no.	1	2	3	4	rd.	5	6	7	8	easter	9	10	11	12	rd.	1	2	3	4	5				
Programming								A1			A2				A3									
Web Development									A1										A2					
ICT Skills																								A

Programming	A1	spec:	18-Feb
		submit:	10-Mar
	A2	spec:	18 Mar
		submit:	8 Apr
	A3	spec:	18 Apr
		submit:	21 May
Web Development	A1	spec:	9-Feb
		submit:	11 Mar
	A2	spec:	18 Apr
		submit:	21 May
ICT Skills	A	spec:	11-Jun
		submit:	2-Sep

# Assessment Calendar

- Links to:
  - Live Webinar
  - Assessment
  - Slack
  - Youtube Chan

# Weekly Topics

# Module Structure

Computer Systems - TCP/IP Protocol Suite

## Example: Layered Model Network Comms

Protocol Stack

- Web Server
- Application
- Transport
- Ethernet
- Internet Protocol (IP)
- Transmission Control Protocol (TCP)
- Hypertext Tranfer Protocol (HTTP)

Layers

Playlist Sessions

```

classDiagram
    class Member
    class Playlist
    class Song
    Member "1..>" Playlist
    Playlist --> Song
  
```

Introduce session management into the Playlist 4 Application

Playlist Models

```

graph LR
    m1 --- p1
    m1 --- p2
    p1 --- s1
    p1 --- s2
    p1 --- s3
    p2 --- s4
    p2 --- s5
  
```

Review the structure and manipulation of the Playlist Model

Lab-11a Playlist Review

TIME FOR REVIEW

Review the Playlist Application

Lab-11b Playlist 5

KTLA MORNING NEWS PLAYLIST

Incorporate Sessions into the latest Playlist Application

- Weekly Video Recording
- Slides
- Labs

## Topic Structure

## Conditional statements and boolean expressions

In this step, we will implement an example from your lecture.

If the x coordinate of the mouse pointer is on the:

- left half of the display window, draw a rectangle on the left hand side.
- right half of the display window, draw a rectangle on the right hand side.

### Conditional Example 2.1

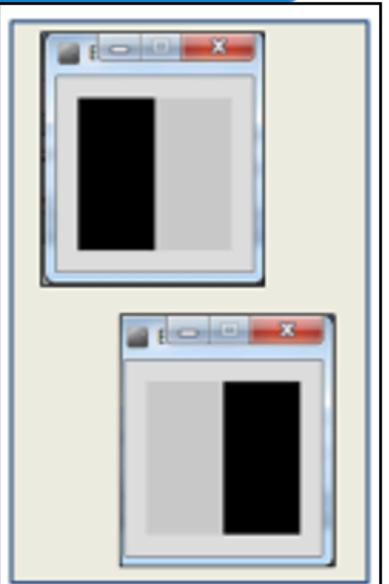
Create a new Processing sketch in your workspace and call it `Example_2_1`.

Enter the following code into your sketchbook (avoid the temptation to copy and paste it...you learn more by writing the code out):

```
void setup() {  
    size(100, 100);  
    noStroke();  
    fill(0);  
}  
  
void draw() {  
    background(204);  
    if (mouseX < 50)  
    {  
        rect(0, 0, 50, 100);  
    }  
    else  
    {  
        rect(50, 0, 50, 100);  
    }  
}
```

- Run your code. Does it work as you would expect?

#### Expected output



- Self-paced lab steps

- Clear, simple instructions

- Syntax highlighted code fragments

- Illustrations

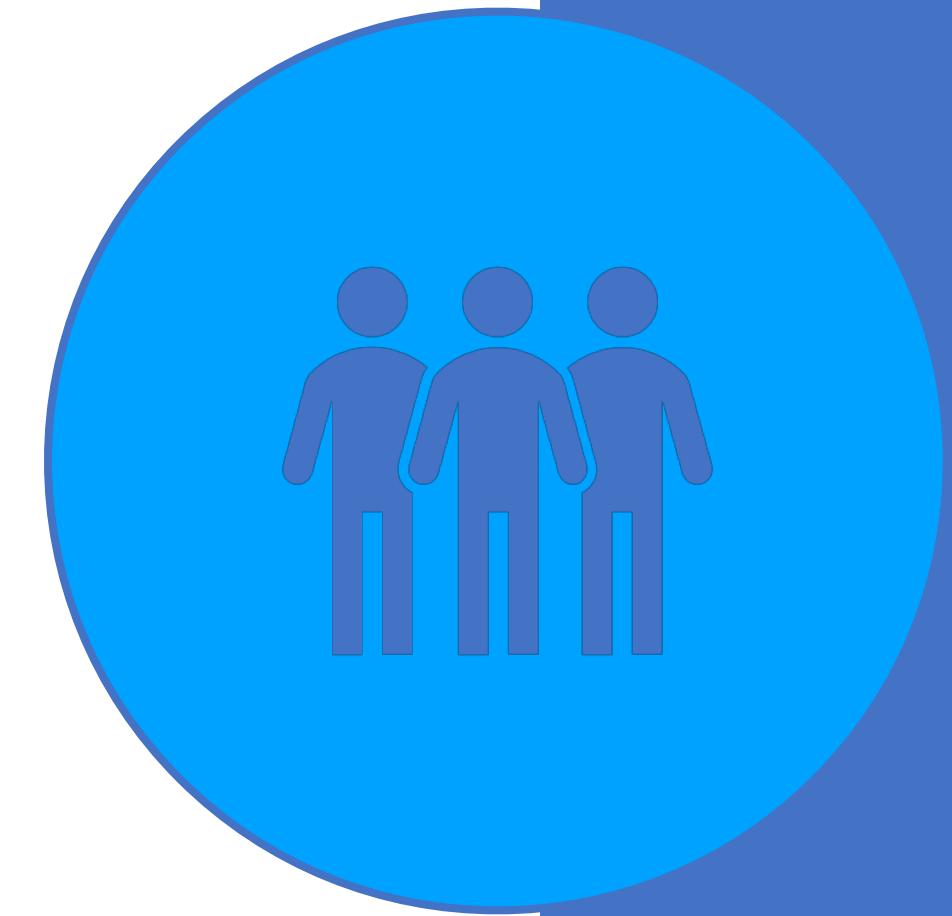
# Lab Structure

# Lab Support via



**“Leading Messaging & Communication Application for Teams”**

- **ALL** communications in one place
  - One Stop Shop
- Fully **SEARCHable**
  - Including within documents
- **Integrates** with existing tools
  - E.g. Google, DropBox, Git
- **Fosters Collaboration**
- **No More Emails!**



# WORKSPACES

## CHANNELS

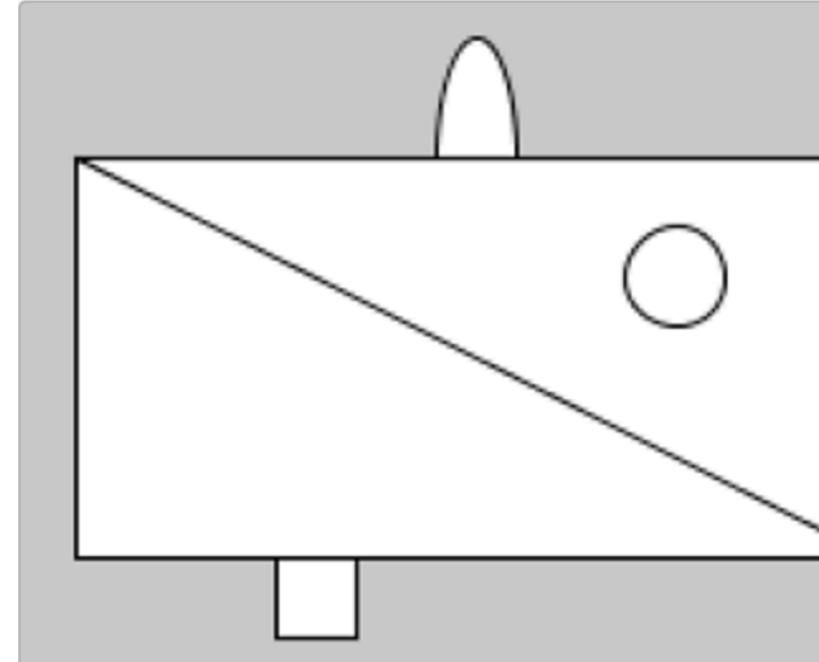
## DIRECT MESSAGES (DM)

The screenshot shows the Slack workspace interface. On the left, there's a sidebar with a red border containing the following sections:

- Channels**: A list of channels including # admin, # general, # hdip-programming, # hdip-webdev, # prog\_curriculum, and # programming\_test. # programming\_test is highlighted with a green background.
- Direct Messages**: A list of users including slackbot, Colm Dunphy (WIT Lecturer), Des O'Donovan, Diarmuid (WIT Lecturer), Eamonn de Leastar (WI...), Ken McCarthy, Martina Mullally, Pete (WIT Support), and Siobhán Drohan. There is also an option to "+ Invite People".
- Apps**: A list of available apps.

The main workspace area shows a channel named # programming\_test. The messages tab is selected, showing the following conversation:

- Diarmuid (WIT Lecturer) at 1:59 PM: //Drawing an circle  
ellipse(250,130,25,25);  
Here it is - "syntax error"
- Colm Dunphy (WIT Lecturer) at 1:59 PM: i got it ... let me have a look ... 1 sec
- Diarmuid (WIT Lecturer) at 2:04 PM: Their is a small syntax error on line 12 - missing semicolon. see if that fixes it
- Colm Dunphy (WIT Lecturer) at 2:04 PM: let me try.thanks
- Colm Dunphy (WIT Lecturer) at 2:06 PM: Yes that got rid of the error
- Colm Dunphy (WIT Lecturer) at 2:06 PM: uploaded and commented on this image: [image.png](#)



Is this what the program should produce?

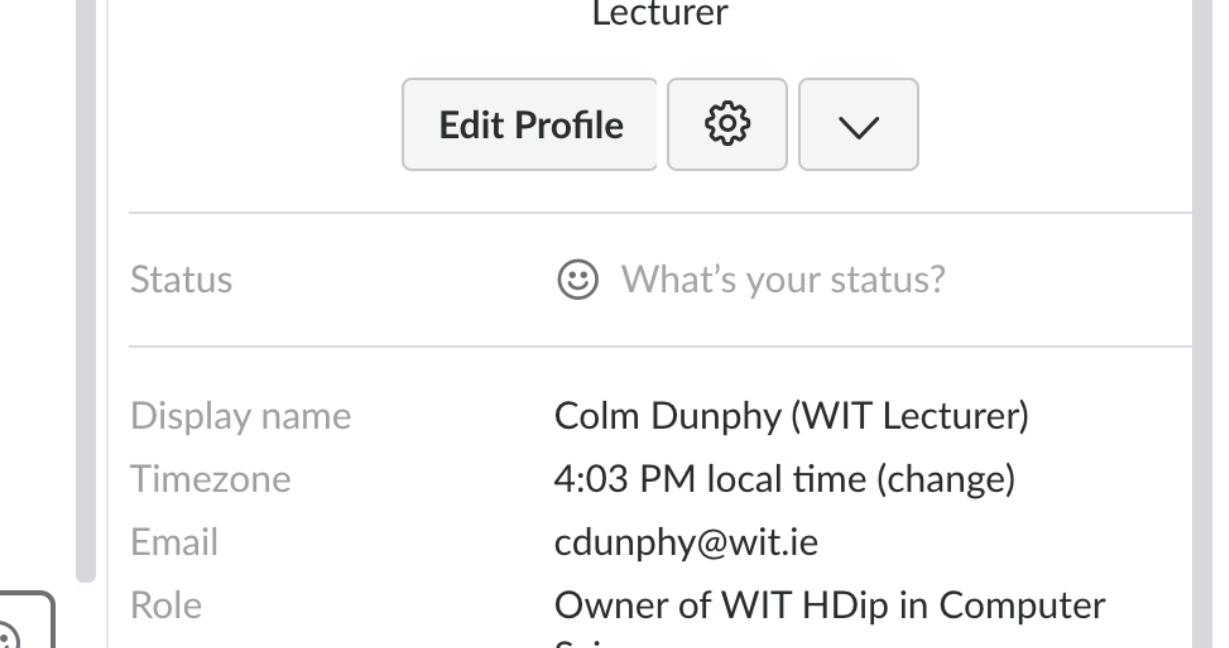
Diarmuid (WIT Lecturer) at 2:09 PM: Lets continue this on DM. ok?

Colm Dunphy (WIT Lecturer) at 2:09 PM: Yes

The message input field at the bottom has a red border and a red arrow pointing to the "+" icon. It contains the text "Message programming\_test".

TYPE HERE

CLICK TO UPLOAD – files / content



Status	What's your status?
Display name	Colm Dunphy (WIT Lecturer)
Timezone	4:03 PM local time (change)
Email	cdunphy@wit.ie
Role	Owner of WIT HDip in Computer Science



Slack needs your permission to enable desktop notifications.

**#programming**

Pete (WIT Support) | 44 | 16 | Add a topic

Wednesday, May 9th

3:42 PM this is my implementation, less code and works 😊

3:43 PM added this Plain Text snippet: Untitled ▾

```
1 public Member searchMembersByEmail(String emailEntered) {  
2     for (Member m : members) {  
3         if (emailEntered.equals(m.getEmail())) return m;  
4     }  
5     return null;  
6 }
```

1 thumbs up

4:21 PM commented on Untitled snippet Untitled

“ Spot on almost identical to mine only I used a for each loop

9:29 PM added and commented on this Plain Text snippet: Untitled ▾

```
1 public int numberOfMembers() {  
2     if (members.size() == 0) {  
3         System.out.println("No Members");  
4         return 0;  
5     } else {  
6 }
```

“ Hi guys - I'm failing the unit test for when there is members - it says that even when there is that it is returning 0. any ideas? probably really straight forward but just

Google shotgur My Home WIT CT Community WIT CT Module Dashb reddit HDip In 35 EXAM focus

https://wit-hdip-comp-sci.slack.com/messages/C84S2LQSC/convo/C84S2LQSC-1525796138.000000

Slack needs your permission to enable desktop notifications.

**#programming**

44 | 16 | Add a topic

Tuesday, May 8th but it does seem odd that in an ArrayList or String when the method returns a member object!

Diarmuid (WIT Lecturer) 3:02 PM uploaded and commented on this image: searchByName.png

Assignments Assignment 3 Data Model Gym API Utility Class MenuController Unit Tests Grading Spectrum

index for the member's array list.  
• public boolean isValidTrainerIndex(int index) - Dots for trainers array list.  
• public Member searchMembersByEmail(String emailEntered) - Returns the member object that matches the email entered. If no member matches, return null.  
• public ArrayList<String> searchMembersByName(String nameEntered) - Returns a list of member names that partially or entirely matches the entered name. An empty array is returned when there are no matches.  
• public Trainer searchTrainerByEmail(String emailEntered) - Returns the trainer object that matches the email entered. If no

Hi @Joe, is this the method you are referencing? The return type is an array of Strings.

5:15 PM Hi the assignment mentions this : see Assessment object later- can anyone point me to where this is ?? thanks

2 replies

2 replies View thread

Wednesday, May 9th

Joe 7:08 AM commented on Diarmuid (WIT Lecturer)'s file searchByName.png Well I'm an idiot, for some reason I kept misreading it as returning a member object like the searchByEmail() method! Thanks Diarmuid

Diarmuid (WIT Lecturer) 9:45 AM Message #programming

2 replies

6 days ago It is the last line on the same page "Data Model": The last model class is Assessment. It stores weight, thigh, waist, comment and a Trainer that entered the member's assessment (i.e. personal trainer). This class just has the standard constructor, accessor and mutator method with no validation on any fields.

6 days ago Thanks Peter

Reply... ☺

# Threads

# Peer Support

# Replicating Social & Community Interactions

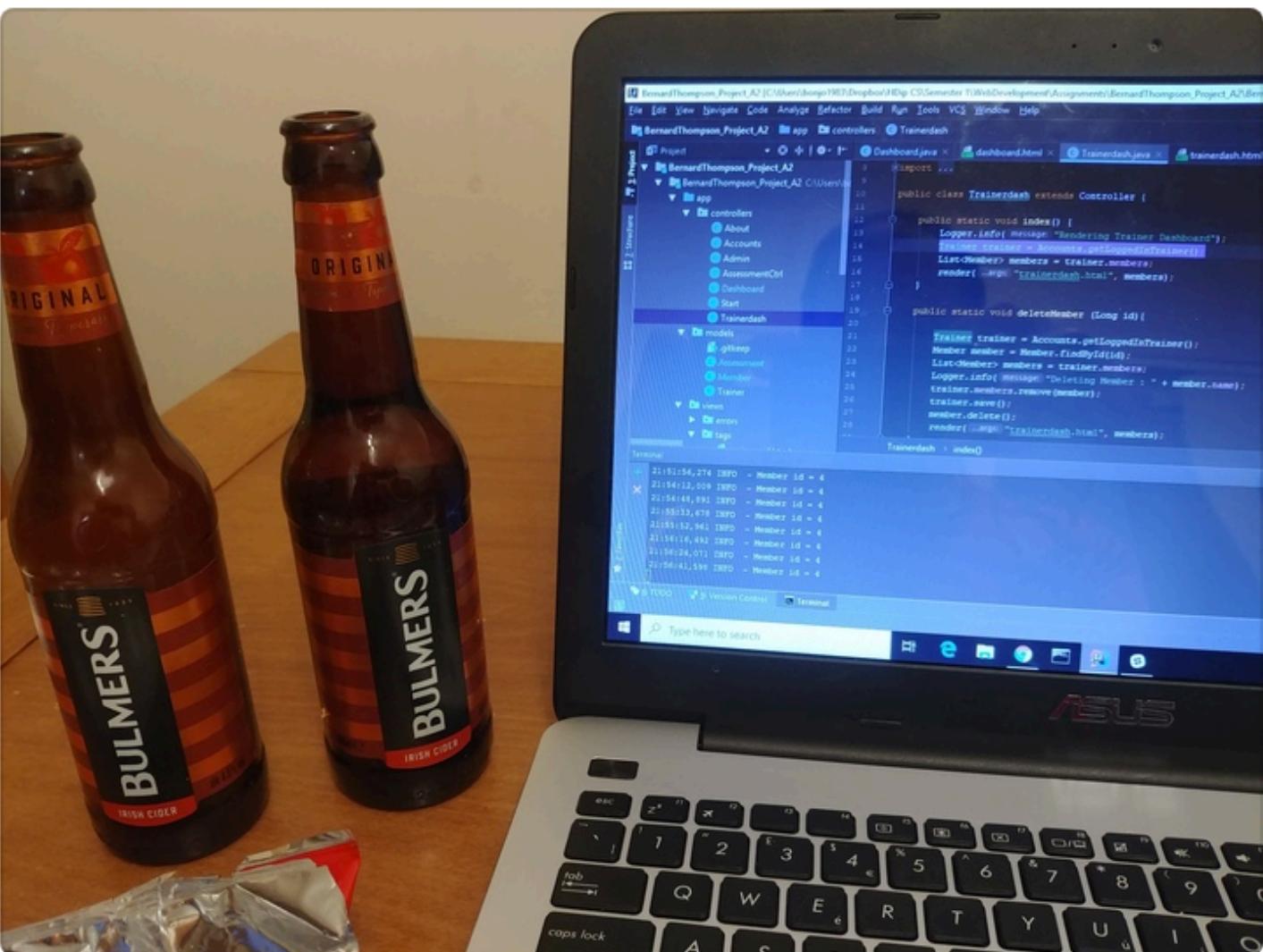
## Water Cooler

#water-cooler

☆ | ♀ 37 | ⚡ 0 | Add a topic



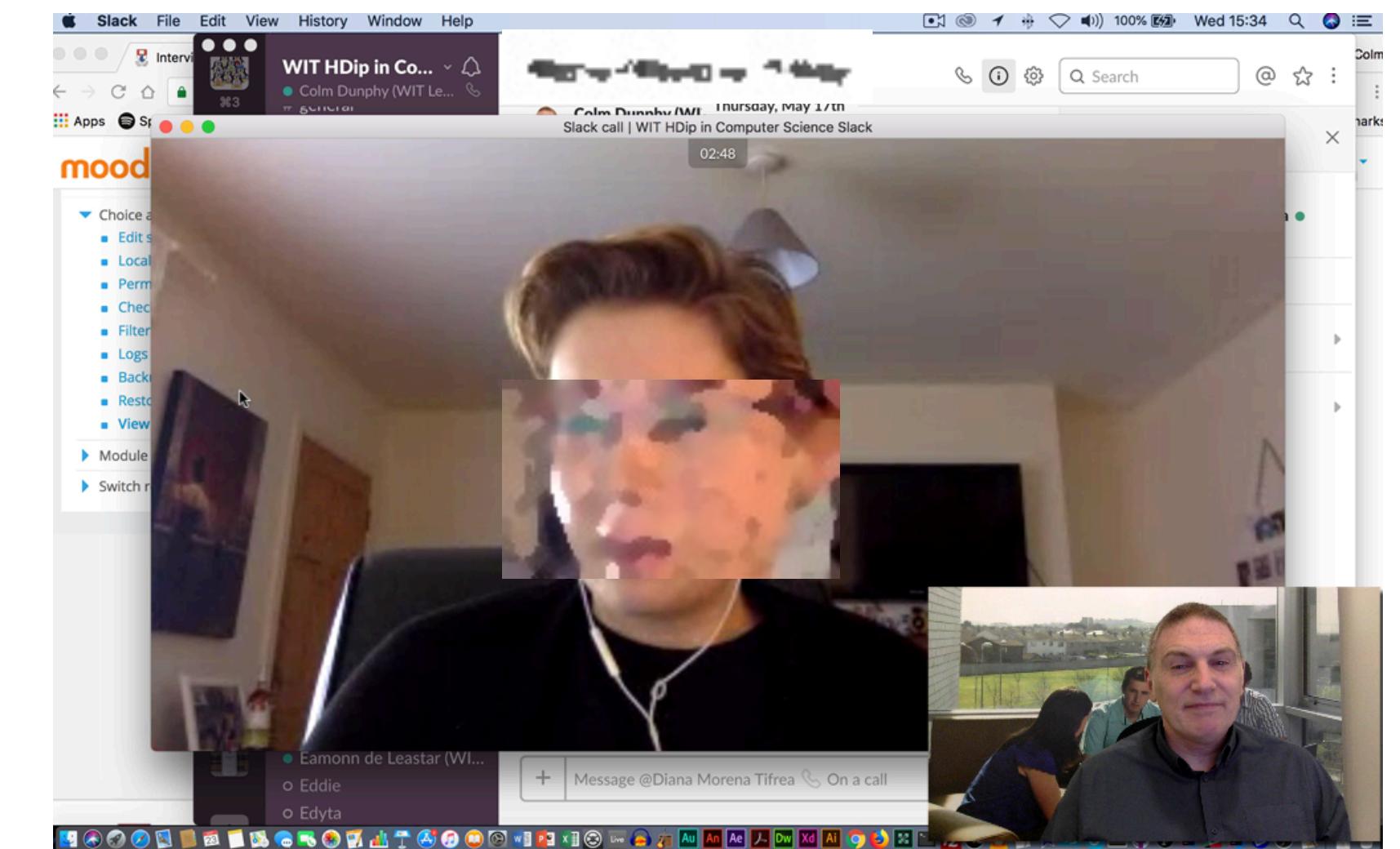
:01 PM  
uploaded and commented on this image: [IMG\\_20180523\\_220048.jpg](#)



🤣 3 🥺 1

“ Things are getting bad with these assessments! I've hit the bottle!

## Interviews



## Reactions



👍 1 ❤️ 1 💯 1 🔥 1 😥 1 🏳️ 1 🤗 1



Mic  
(on by default)

Video  
Webcam

Share  
Screen

(desktop client only)

Enable others to  
draw on your screen

Give others **Full Control**  
of your computer

Stop  
Sharing

*“For me this course captures  
the Essence and Ethos  
of what adult education should be”*

*“Everything is easily accessible (great website),  
everyone is so helpful  
and generous with their knowledge,  
it is very refreshing”*

*“The course is clear, precise,  
exceptionally well laid out  
and so professionally run”*

*“Everything is easily accessible (great website),  
everyone is so helpful  
and generous with their knowledge,  
it is very refreshing”*

*“All the options available to play back, notes etc.  
really have enhanced my learning experience...”*

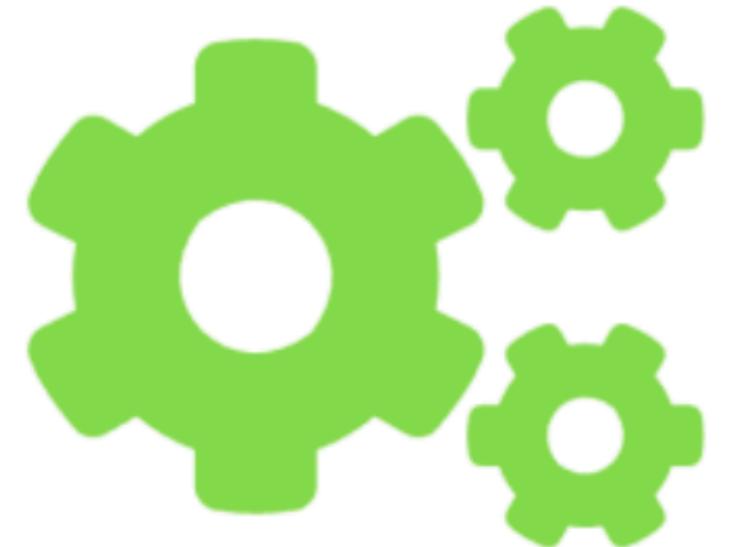
Sample a few lessons ...

## Web Development



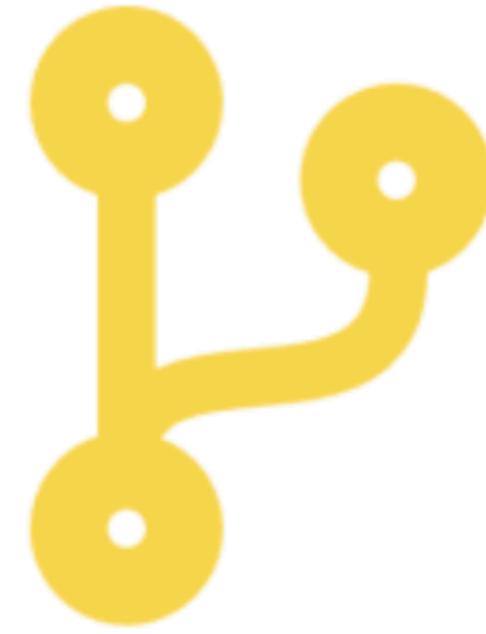
Introduce the fundamentals  
of web development in  
HTML, CSS and Java

## Programming Fundamentals



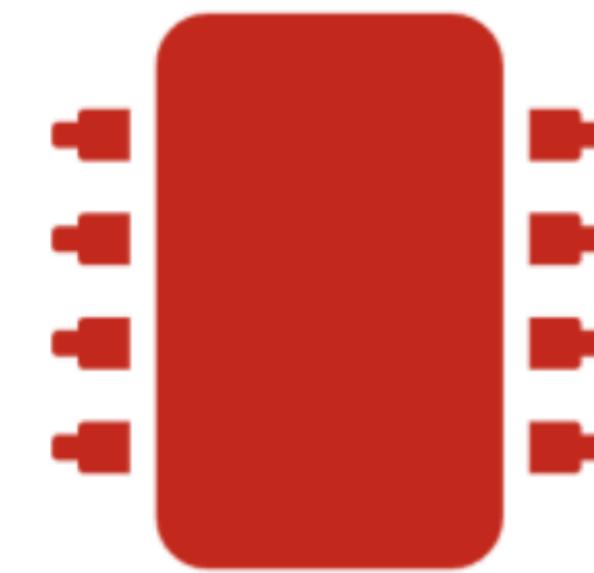
Introduction to the  
fundamentals of  
programming in the Java.

## Programming in Javascript



Using javascript to build web  
applications

## Computer Systems



Fundamentals of computer  
networks and computer  
systems

