CS385 Mobile Application Development
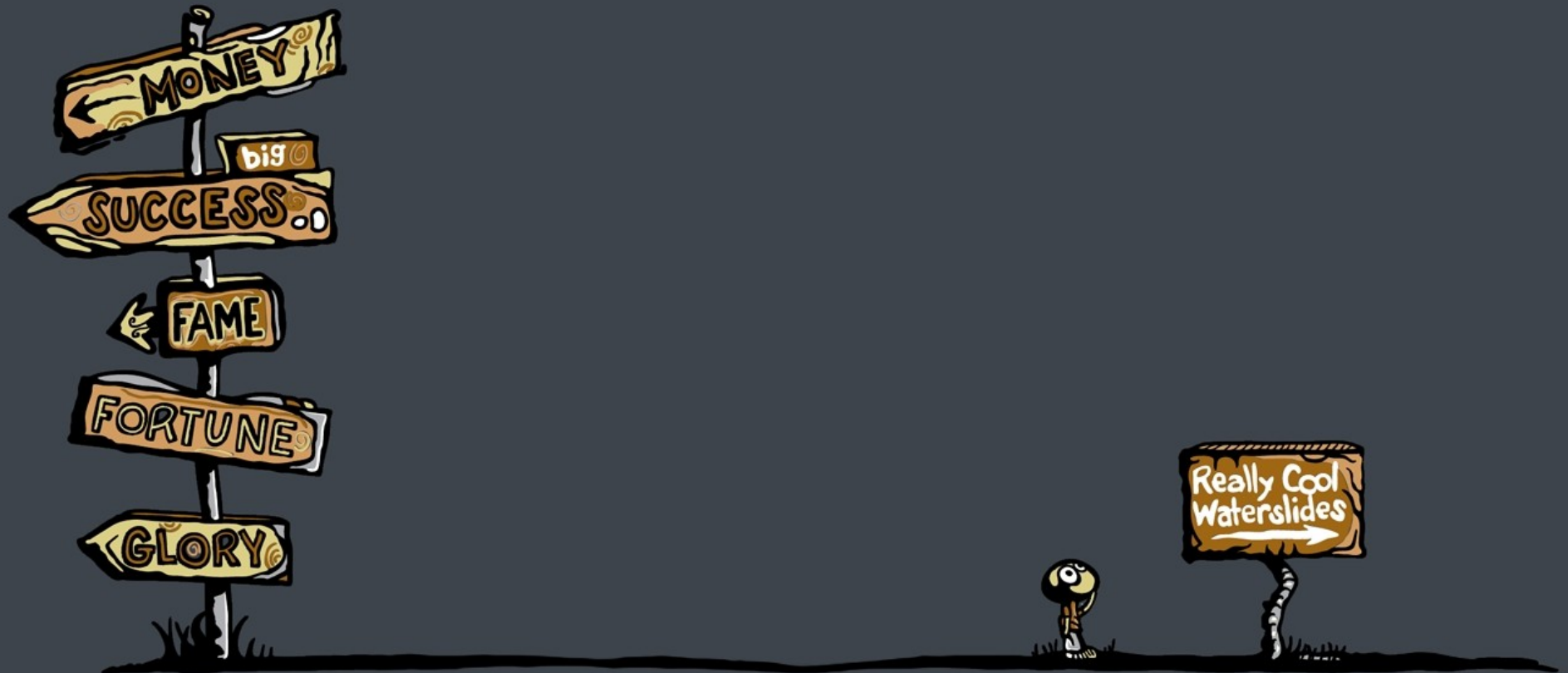

Peter Mooney

CS385 … Many Choices.....

We could do Android App Development in CS385 ....

We could do iOS App Development ....

iOS Application Development

We could do Windows Phone App Development ....

We could have done Responsive Web Development and Design

Desktop

Laptop

Tablet

Phone

We WILL do HYBRID or CROSS PLATFORM App Development in CS385

HYBRID mobile applications

- **The problems of multiple platform development can be overcome by using hybrid mobile applications.**

- These are solutions based on HTML, CSS, and Javascript.

- These hybrid applications are created once and after packing they can be deployed on multiple devices (Android, IOS and Windows Phone)

Key Advantages of Hybrid Application Development

- This kind of development has an advantage over "native" application development.

- Predictions indicate 50% of mobile applications deployed on the Internet are hybrid

  - **Rapid development**

  - **Lower Cost**

  - **Less Development Effort**

  - **Common set of technical expertise required**

Disadvantages of Hybrid Application Development

- **A limited user interface:** hybrid apps have a design that doesn't have a native feel.

- **The difficulty or impossibility to exploit the platforms' capacities in full.** Each platform, iOS or Android, has unique capacities that a developer may wish to exploit.

- **Slower performance and transition between pages**.

- **Dependency on the browser's speed**.
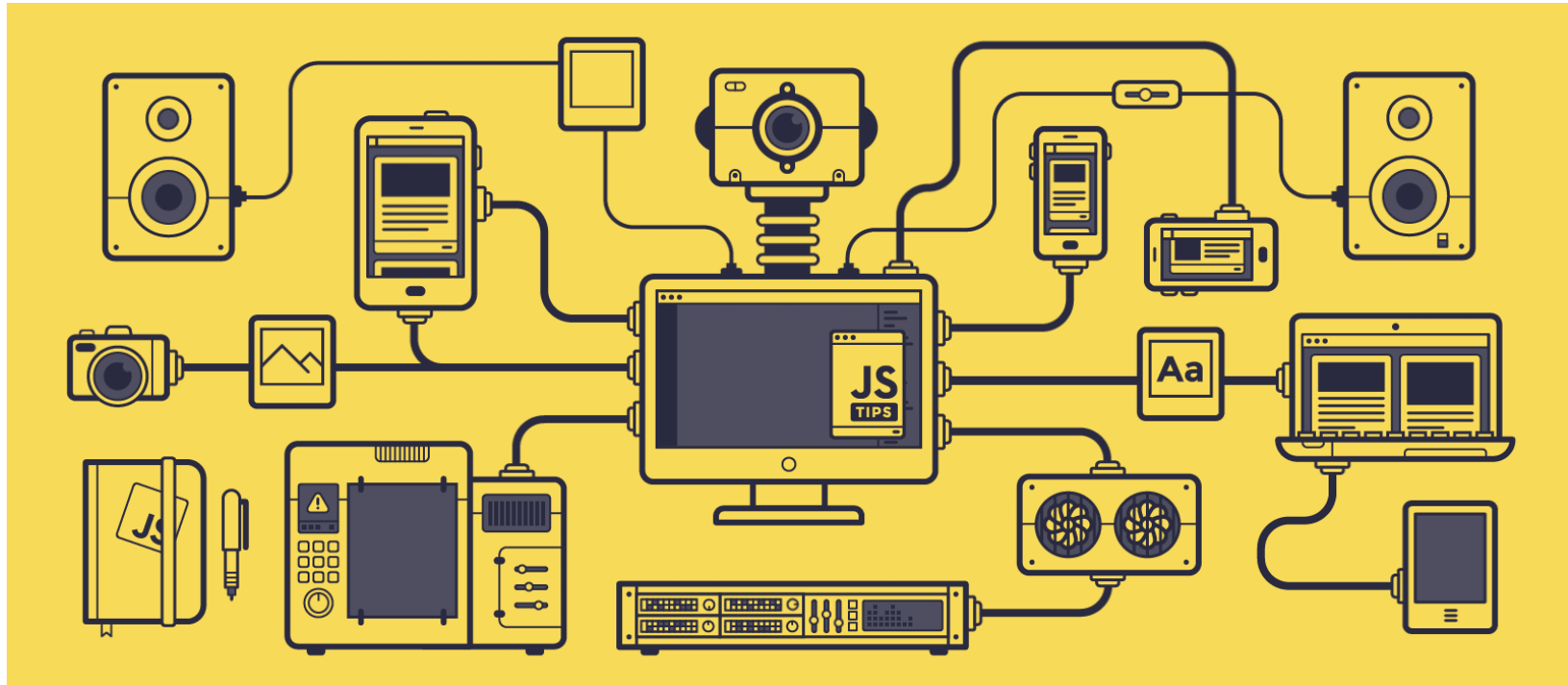
But I wanted to do ....

- We only have 24 lectures

- We only have 12 labs

- Many students do not have previous programming and software development experience

- So, **from an educational and training viewpoint, a hybrid approach allows you** <mark>to learn the principles</mark> of mobile application development

- Then, in the future, you can expand on these skills or concentrate on native or hybrid

Let's add Javascript to the mix

But is Javascript just a type of Java?

JAVA *is to* JAVASCRIPT as HAM *is to* HAMSTER

First Code Academy

*Source: Softtech Methodology

What is Javascript?

- Javascript executes within the Web Browser

- **JavaScript is a scripting or programming language** that allows you to implement complex things on web pages — every time a web page does more than just sit there and display static information for you to look at — displaying timely content updates, interactive maps, animated 2D/3D graphics, scrolling video jukeboxes, etc. — you can bet that JavaScript is probably involved.

- **It is the third layer of the layer cake of standard web technologies, two of which (HTML and CSS)**

Some important points about my Teaching and your Learning in CS385

All information about changes in timetabling, labs, etc will be communicated via Moodle and your official MU Email.

VERY IMPORTANT

All content will be delivered via Moodle

- In CS385 you will be provided with the following:

  - **Short video screencasts of important topics and concepts**.

  - **Full lecture notes in PDF format** (printable) – in advance of all lectures

  - **All code samples and snippets** used in the lectures or tutorials.

  - **Solutions to assessment questions** (where appropriate)

- **You will be able to install ALL software on your own computers. All personal laptops will be able to run the required software.**

- I'll outline what software is required as we start developing.

Labs and demonstrators

- **The two hour lab session are critical to your learning in CS385**

- **Demonstrators are there to HELP YOU LEARN** – help them by being polite, understanding and showing work that you have done.

- **Demonstrators are NOT in the lab to write code for you. They are there to faciliate you learning.**

- Any complaints or issues about labs should be addressed to me. Issues regarding assessment, scheduling, etc should also be directed only to me. Do not involve demonstrators.

CS385 Assessment

100% CA Module – No Final Exam

- **3** Lab-based Exams – each worth **15% CA**

- **4** Lab submissions – each worth **2.5% CA**

- A Group-based Project (**45% CA**)

- **You MUST achieve an overall CA of 40% to pass the module for Credits.**

3 Lab-based exams

- **Exam conditions** Open Book

- Moodle-based Multiple Choice Quiz

- Sample quiz will be provided.

- **Each exam is worth 15%.**

- 10 – 12 questions per exam [50 mins]

- You'll know your result immediately

- **We'll talk more about MCQ content in due course**

4 x Lab Submissions

- **You must upload your ATTEMPT at the solution to Lab 1 to Lab 4 (inclusive) on Moodle (before the lectures on the following week).**

- Example

  – Lab: Friday 6th October 10:00-12:00

  – Submit your attempted solution – before Tuesday 10th October at 16:00

- I will review your lab submissions AT THE END OF THE SEMESTER – NOT WEEKLY

Scheduling

SCAN ME

Date	CS385
Tue, September 26, 2023	Lecture 1 + 2
Tue, October 3, 2023	Lecture 3 + 4
Fri, October 6, 2023	*Lab 1*
Tue, October 10, 2023	Lectures 5 + 6
Fri, October 13, 2023	*Lab 2*
Tue, October 17, 2023	Lectures 7 + 8
Fri, October 20, 2023	*Lab 3*
Tue, October 24, 2023	Lectures 9 + 10
Fri, October 27, 2023	*Lab 4*
Tue, November 7, 2023	Lectures 11 + 12
Fri, November 10, 2023	*Lab 5 – Lab Exam 1*
Tue, November 14, 2023	Lectures 13 + 14
Fri, November 17, 2023	*Lab 6 Project Lab*
Tue, November 21, 2023	Lectures 15 + 16
Fri, November 24, 2023	*Lab 7 Project Lab*
Tue, November 28, 2023	Lectures 17 + 18
Fri, December 1, 2023	*Lab 8 – Lab Exam 2*
Tue, December 5, 2023	Lectures 19 + 20
Fri, December 8, 2023	*Lab 9 – Project Lab*
Tue, December 12, 2023	Lectures 21 + 22
Fri, December 15, 2023	*Lab 10 – Lab Exam 3*
Tue, December 17, 2023	Project space
Fri, December 22, 2023	PROJECT DUE

DATES – Lab Exams (MCQ)

- Exam 1:
  - Friday 10th Nov 11:00 – 12:00
- Exam 2:
  - Friday 1st Dec 11:00 – 12:00
- Exam 3:
  - Friday 15th Dec 11:00 – 12:00

DATES – Lab Exams (MCQ)

- **Exam 1:**
  - **Friday**
- **Exam 2:**
  - **Friday**
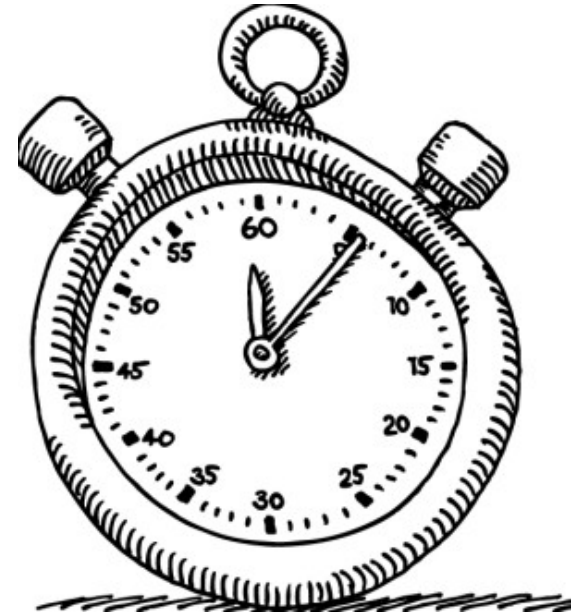- **Exam 3:**
  - **Friday 15th Dec 11:00 – 12:00**

I kindly reserve the right to move these exams based on timetabling, course progress, public health guidelines etc. **Do not schedule any other activities during your timetabled CS385 Lab or Lectures**
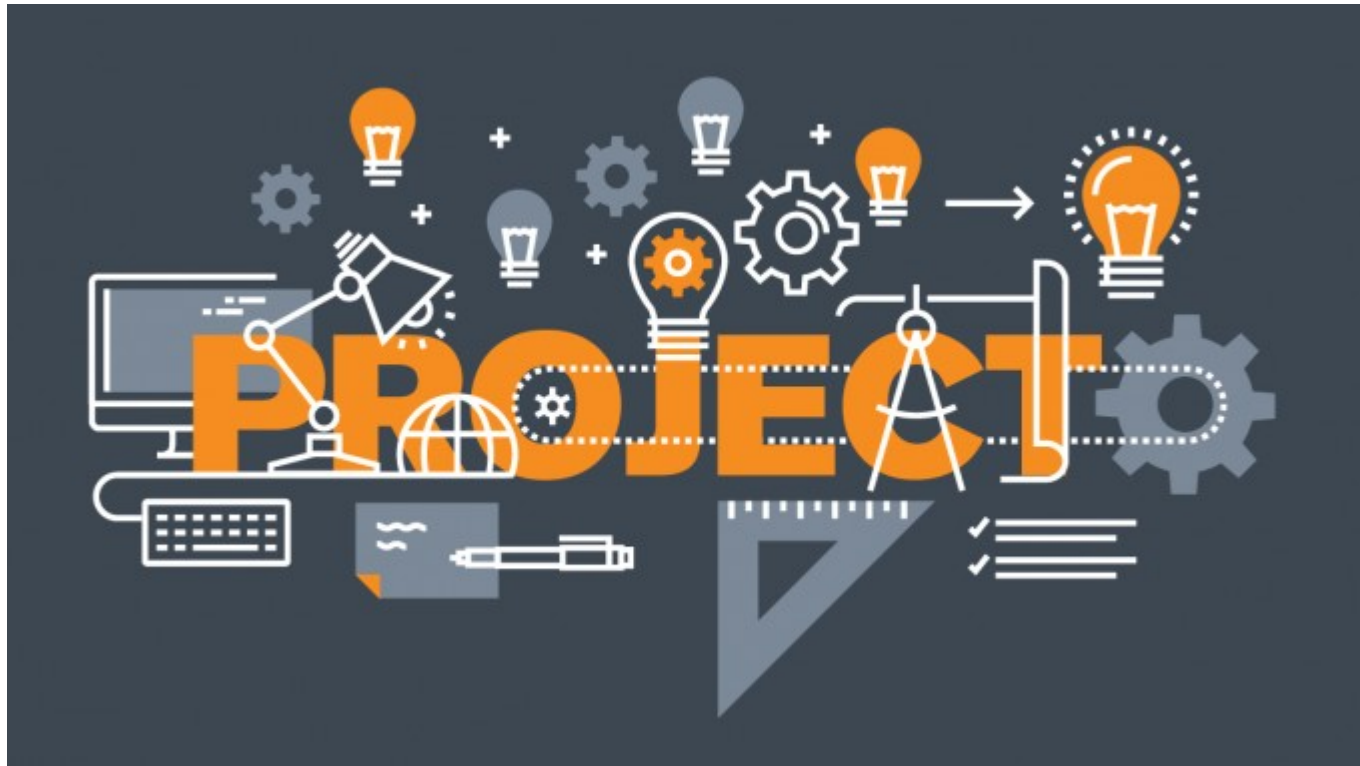
So what time is my CS385 lab?

- **Every Friday 10 – 12 (starting 6th-October-2023)**
- Always 10:00 start

Group Project (45%)

- **After the mid-term break, all labs will become dedicated to the the Group Project.**

There are 6 labs dedicated to your project

- You will be able to work on your project, ask me questions, ask the demonstrators questions, etc etc

- The lab sessions will become DEVELOPMENT SPACES

Group Project - DEADLINE

- **ALL students will need to submit their project before Friday December 22nd 2023 @ noon Maynooth time**

- **CS385 finishes at the end of the semester and will not be carried on over the Christmas break**

The Group Project will develop a mobile application of your choice

- **It must fall under the CS385 'theme'**

- You must supply all of **your source code** (commented properly)

- You must supply **a short screencast video** of your application working (a working demo)
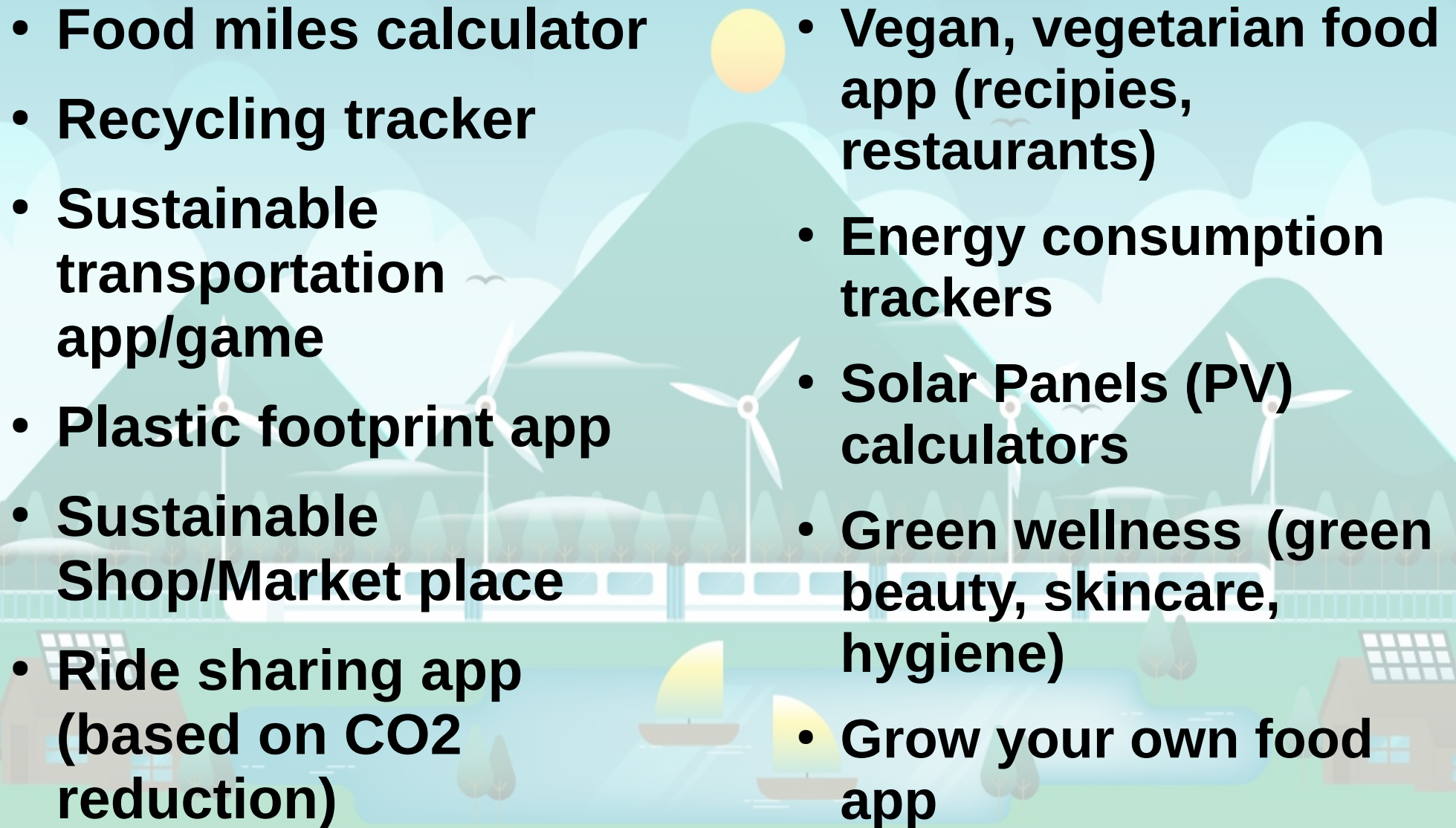
More details next week

Develop your CS385 project topic around the specified theme

- Your idea should fit, in a broad sense, into the specified theme "*A sustainable environment*"

- Final allocation of projects is at the discretion of the lecturer (to ensure balance of projects)

Some potential projects .... to help you start planning and thinking

- **Food miles calculator**
- **Recycling tracker**
- **Sustainable transportation app/game**
- **Plastic footprint app**
- **Sustainable Shop/Market place**
- **Ride sharing app (based on CO2 reduction)**
- **Vegan, vegetarian food app (recipies, restaurants)**
- **Energy consumption trackers**
- **Solar Panels (PV) calculators**
- **Green wellness (green beauty, skincare, hygiene)**
- **Grow your own food app**

Engagement Element – Group Project

- I, as the lecturer, am very involved in the group project process.

- I will frequently meet with ALL groups over the course of 6 project labs.

- **Engagement in the Group Project will be demonstrating to me that YOU as an individual are working as part of your GROUP. YOU as an active participant in your GROUP.**

The "free rider" problem in projects

- The CS385 marking scheme will include an "engagement element" for each individual – **individuals who are NOT engaging properly and honestly with the project will be deducted engagement marks**

CS385 Project – Week 1

- **First steps**

  – **Step 1** – **decide if you will do an individual project or be part of a group** (2, 3, or 4 students) [*I advise group projects*]

  – **Step 1a** – if you want to be part of a group – start attempting to form that group NOW.

  – **Step 2** – **start thinking of ideas** – brainstorming – you'll soon start to see how you can code up or implement those ideas.

Next week – we will talk about the CS385 project in detail!