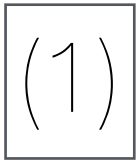# Coding Summer School 2016

Prep Tasks

⬜(1) Codecademy: JavaScript

For this task, you will be getting up to speed with basic JavaScript coding principles, using the popular online interactive Codecademy course.

code|cademy

`Codecademy link:` http://bit.ly/1QsPw7Y

This Codecademy course deals with a number of core concepts of coding, some of which you may have encountered already if you've had any experience with programming languages before. If not, not to worry though! These classes assume no prior knowledge, and take you through from the very basics.

You should aim to complete the classes on all topics you are not familiar with in JavaScript. By the start of the programme, you should be competent with all of these core topics present in the online course:

- Functions
- Loops
- Control flow
- Arrays
- Objects

In addition to these, we ask that you particularly try to gain an elementary understanding of the 'Object Oriented Programming' concepts covered in the last class of the course. This includes classes, prototyping, the 'this' keyword, inheritance, and private/public methods and variables. These ideas prove to be the foundation for creating any serious project in most programming languages, and will be built upon in the summer school, so it's important to try and get as good a grasp on them as possible.

Breakout Game

In this task, you will code a '2D Breakout' game in JSFiddle with the help of a detailed step-by-step tutorial. You are encouraged to experiment with customising and adding to your code - a prize will be given for the best entry.

2D Breakout Tutorial link: https://mzl.la/2apyHOJ
JSFiddle template link: http://bit.ly/2at9Bej

This tutorial from Mozilla, the foundation that maintains the JavaScript language, will teach you to apply the principles learned in the Codecademy course, plus a few new unfamiliar ones, in order to create a breakout game in your web browser.

You will be using **JSFiddle**, an online environment for writing, testing and sharing JavaScript projects. We've provided a template for you to 'fork' (or, in English: to copy), with HTML and CSS code already set up so that you can just concentrate on the JS.

This task will introduce you to 'E**vent-Driven Programming**'. When coding in JavaScript, we need our code to be responsive to user input, whether that be a button press, a mouse hover, or a scroll. These occurrences are called **events.**

JS deals with different events by dispatching a specific **Event object** when an event occurs, effectively sending out a signal. You, the coder, can add **event listener** objects to your code which listen (surprise, surprise) for certain types of events, and trigger an **event handler** in response. An **event handler** is just a JS function that you want to be executed in response to a certain event occurring. All of this should be explained further in the tutorial!

Throughout the tutorial, there are various 'Exercises' in yellow boxes that challenge you to add extra features to your code. Please try to have a go at these! **We also heavily encourage you to add any cool extra features** that you can think of (if they're within your abilities so

far!). The only restriction is that we ask you keep your code all in pure JavaScript - no fancy additional libraries just yet!

We will have a look at your code on JSFiddle and **a prize will be given for the best effort**. Get creative, and we look forward to seeing what you come up with!

Last thing - make sure to comment throughout your code with //double-slashes, especially if you're adding your own features, so we can better understand what's going on. And if you get stuck with understanding concepts, implementing features, or a bug in your code along the way, useful resources include the official JavaScript documentation and Stack Overflow. The latter of which is a Q&A platform for programmers of all levels, so it's likely that if you have a question about something, someone has asked it at some point in the past.

Before you get going, please make sure to follow these instructions:

Getting Started

[1]
Create an account on JSFiddle. Here's a link.

[2]
Navigate to our template. Click the 'Fork' option in the taskbar at the top of the screen - this creates a working copy in your account that you can start coding on top of.

[3]
Click your username at the top right of the screen, and navigate to 'Your public fiddles'. You should find a working copy of the template on the following screen.

[4]
Open the tutorial and start coding in the JavaScript window! You can ignore the stuff at the start about HTML, because we've set that up for you in the template. Click 'Run' to test your code. As you code, the update button will save your progress as a new version (so you can backtrack) - make sure to keep clicking it. Have fun!