Welcome to Code Fox website. This is a self-directed instructional module to provide introductory coding experience with game development. Access to this site is currently restricted to invited users only. Please contact withhawaii@gmail.com if you are interested in this module.

If you have received your account, please click the button below to log in.
Introduction

Welcome to Code Fox, an instructional module to introduce a wonderful world of coding. Have you ever done any coding before? Are you scared about it? Don’t worry, it will be fun!

Throughout this module, we are going to create a simple 2D game like the below.

What you can see in this game?
This game has five components:
1. Background – There is a blue background image on the screen.
2. Platforms – There are four platforms including the ground.
3. Player Character – You can move around this guy.
4. Rewards – Player can collect gems.
5. Enemy – Player will die when touching the ghost.
6. Score – You will get points when you collect a star.

Code Fox has six stages, and you will add a game component on each stage one by one. The following table shows a title and estimated time to complete each stage. If you cannot finish all stages today, You can come back anytime to continue the module before 02/10/2019... Please don’t forget to submit the survey once you completed the lessons.

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How to work on this Module?
Each module includes an instructional video and it shows you what code should be entered in a step-by-step process. You will type the code on the coding editor and preview what you wrote. Each video is short and provides a concise explanation. The newly introduced code highlighted in the video, you need to pause the video as needed. If you cannot see the code clearly in the video, please click a full-screen button to make the video screen bigger. When you are happy with your code and game preview, you can move on to the next stage by clicking “Go to Next”.

What if I’m completely stuck?
If you are completely stuck, you can use “Show me the answer” button. This button will compare your code and the answer layout and point out what’s missing or lines need to be corrected. However, you will only get partial scores for the lesson if you used this feature.

If you have any technical issues or questions, please feel free to contact Genta (genta@hawaii.edu). Are you ready to code? Let’s get started!

Proceed to Stage 1
Stage 1 – Getting Started with Game Development Tasks

Welcome to the first stage! In this stage, let's familiarize yourself now with the coding tool used in this module. Our first coding is adding a background image to the game.

Estimated Time: 10 minutes

Video Tutorial

Tips and Hints

- If you did not see the blue background image, something must be wrong with the code. Please check the line you entered and try one more time.
- I know it is very overwhelming to see lots of unfamiliar programming code. Most of the pre-written code is coming from Phaser Game engine, and as you become familiar with the function of Phaser, it will start making sense. So for now, please focus on adding code in the create function.
Stage 2 – Building Platforms Tasks

In this stage, you will build the game world. For basic setup of this platform game, we need to add the ground, platforms, and a player character (fox). I am going to show you how to add these assets using pre-loaded images.

Estimated Time: 10 minutes

Video Tutorial

```
var config = {
  type: Phaser.AUTO,
  width: 800,
  height: 600,
  physics: {
    default: 'arcade',
    arcade: {
      gravity: { y: 380 },
      debug: false
    }
  },
  scene: {
    preload: preload,
    create: create,
    update: update
  }
};

var game = new Phaser.Game(config);
```

---

Tips and Hints

- Programming is providing instructions to a computer in order to perform a task. This is called a command, and the order of commands is called sequence.
- **Command**: A specific action for a computer to perform.
- **Sequence**: The order in which the command is given.
- The platform group must be defined first in order to define each platform because the sequence of commands impacts a program behavior.

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Stage 3 – Controlling the Fox Tasks

Now, it's a time to make the player character moving. A movable image is called “sprite”. In this stage, I am going to show you how to make a sprite move around by a keyboard. We will use Javascript IF statement to identify which cursor key is pressed.

Estimated Time: 15 minutes

Video Tutorial

Tips and Hints

- Conditional statements (IF statements) are used to perform different actions based on different conditions, and this is a fundamental coding concept. Please check the following W3C website for a more detailed explanation.
- JavaScript if else and else if
Stage 4 – Adding Animations Tasks

In this stage, we are going to add the animation to the fox using a sprite sheet. A sprite sheet is a special image file like the below image that contains multiple patterns of a game character.

Estimated Time: 10 minutes

Tips and Hints

- A sprite is a graphic used in a game to represent moving characters on a screen, and a sprite sheet contains multiple sprites graphics in a file.
- What you need to do for making fox running is that defining animations, i.e., specifying sprite images in the sprite sheet in the create function; then, calling the animations in the update function.
Stage 5 – Creating a Ghost and Gems Tasks

Now, we have a basic structure of the game, let's make it more fun. How about adding some rewards and enemy in the game? In this stage, we are adding a ghost and gems into the game. A ghost is a character randomly bouncing on platforms. For creating multiple gems, we are going to use FOR loop.

Estimated Time: 15 minutes

Video Tutorial

Tips and Hints

- In this lesson, we used FOR loop to define multiple gems. Looping is running a block of code over and over, and this will save us lots of time to creating similar sprites like gems. This is one of fundamental coding concept, so please review the following explanation about FOR loop.
- JavaScript For Loop

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Stage 6 – Defining Game Rules Tasks

We are almost done with this game development! In this final stage, let's define rules of this game. First, I am going to show you how to keep track of a score and display on the screen. Second, we will update the code so that the player gets 10 points for collecting gems. Finally, we will make the game to stop when the player touches the ghost. These can be achieved by defining FUNCTIONS.

Estimated Time: 10 minutes

Video Tutorial

Tips and Hints

- In this lesson, we will define two functions: touch and collect to implement additional behavior of the game. A FUNCTION is a collection of commands grouped together and given a name. Please check the detailed explanation of FUNCTION in W3C website when you have a chance.
- JavaScript Functions
Congratulations!!!

You have successfully completed this module! I hope you enjoyed creating a platform game with Javascript programming language. I am sure that you experienced the essence of coding and will be able to develop a wonderful game in the future.

Please take a moment and complete the following survey so that we know you compelled this module. The information you gave us will make a valuable contribution to the study so that I can build a better instructional module for more students to interested in computer programming.

TAKE A SURVEY