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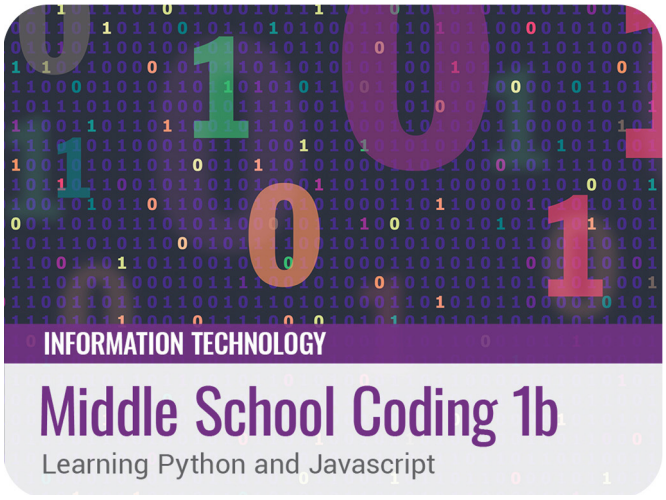
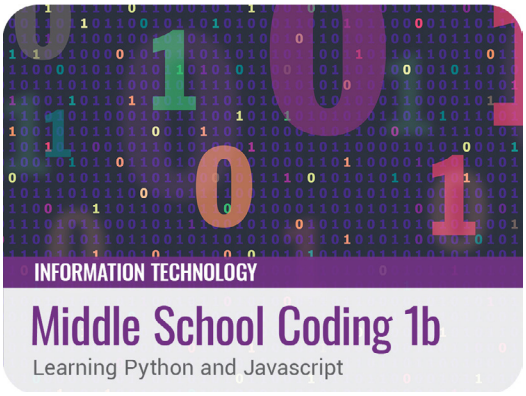
CAREER & ELECTIVE COURSES



Course Syllabus



Middle School Coding 1b: Learning Python and Javascript

Course Code: EDL109

Course Description

We don't always think about the role technology plays in our world but the truth is technology influences our everyday lives and affects how we relate to our friends, family, and even complete strangers. For those wanting to develop a greater understanding of this technology comes Middle School Coding 1b. Building on what you learned in Middle School Coding 1a, you'll expand your knowledge of programming languages and web development and further explore Advanced Python, HTML, and JavaScript. You will also learn the difference between web development and web application development and continue to grow your portfolio, which will serve to highlight everything you have learned and created in the course.

Required Materials

Browser-based software that may need a login

- Repl.it: https://repl.it/

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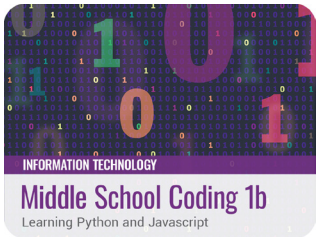

Unit 1: How to Train Your Python

Unit Summary

Python is a great language for beginners to learn the ins and outs of programming. Now that you've written a few programs and learned the basics, you're no longer a newbie! It's time to start learning some more intermediate Python skills. We will investigate how lists help keep us organized in real life as well as in our programs. And we'll keep our skills functioning smoothly by learning how to use Python functions. Get ready to train your Python!

Learning Objectives

- Define and use the list data structure in Python
- Iterate over a list in Python using for and while loops
- Write user-defined functions in Python
- Re-structure programs to use functions for greater efficiency

Assignments

Unit 1 Text Questions	Homework	10 points
Unit 1 Online Lab Questions	Homework	10 points
Unit 1 Activity	Homework	15 points
Unit 1 Discussion Assignment 1	Discussion	5 points
Unit 1 Discussion Assignment 2	Discussion	5 points
Unit 1 Quiz	Quiz	15 points

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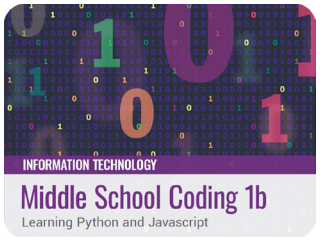

Unit 2: Plan the Code, Code the Plan

Unit Summary

When it comes to weekends, life goals, and code, planning is quite important! In fact, planning is so essential in programming that it may just save lives. One of the most common ways to plan code is to use a tool called pseudocode. You'll get to see some examples and then start writing your own pseudocode for a text-based adventure game. We're going to plan the code and then code the plan!

Learning Objectives

- Write a basic, high-level, structured plan for a program
- Convert a high-level plan to pseudocode
- Define and apply the iterative process to pseudocode and coding
- Write Python code for a basic text-based adventure game

Assignments

Unit 2 Text Questions	Homework	10 points
Unit 2 Online Lab Questions	Homework	10 points
Unit 2 Activity	Homework	15 points
Unit 2 Discussion Assignment 1	Discussion	5 points
Unit 2 Discussion Assignment 2	Discussion	5 points
Unit 2 Quiz	Quiz	15 points

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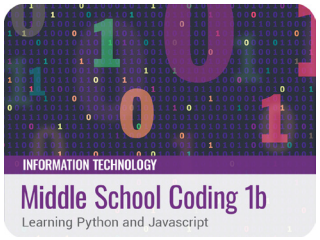

Unit 3: Build a Webpage

Unit Summary

We all use the internet, but what is it, exactly? How do all of your favorite webpages work behind the scenes? And what does it take to be a web programmer? All of these questions (and more) will be answered! You'll learn two new languages, HTML and CSS, and use them to make your very own webpage. Get ready to take your coding skills in a new direction!

Learning Objectives

- Explain the difference between the internet and the World Wide Web
- Understand how websites are transferred from servers to computers
- Identify and use common HTML tags to build a basic webpage
- Use CSS to apply style to an HTML document

Assignments

Unit 3 Text Questions	Homework	10 points
Unit 3 Online Lab Questions	Homework	10 points
Unit 3 Activity	Homework	15 points
Unit 3 Discussion Assignment 1	Discussion	5 points
Unit 3 Discussion Assignment 2	Discussion	5 points
Unit 3 Quiz	Quiz	15 points

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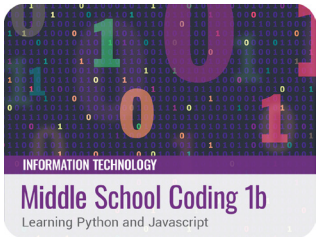

Midterm Exam

Learning Objectives

- Review information acquired and mastered from this course up to this point.
- Take a course exam based on material from the first three units in this course (Note: You will be able to open this exam only one time.)

Assignments

Midterm Exam	Exam	50 points
Midterm Discussion Assignment	Discussion	5 points

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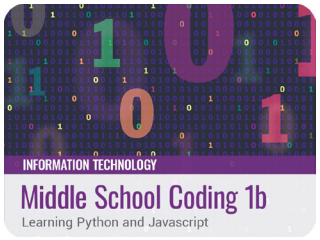

Unit 4: Give Your Webpage Some Style

Unit Summary

HTML and CSS are markup languages that help us format webpages. It's time to take our skills to the next level by dividing a webpage into sections and applying some interesting styles to them. And then, we'll play a fun hide-and-seek game…with red pandas! Bet you didn't see that coming! Finally, we'll interact with our webpage by using a bit of JavaScript. Bring on the fun!

Learning Objectives

- Understand and apply the div tag to section-off webpages
- Apply new CSS properties to div elements by using an id
- Use a variety of HTML and CSS to create a webpage with pictures that appear when clicked on or hovered over
- Write a basic JavaScript function
- Use JavaScript event listeners to trigger an alert box

Assignments

Unit 4 Text Questions	Homework	10 points
Unit 4 Online Lab Questions	Homework	10 points
Unit 4 Activity	Homework	15 points
Unit 4 Discussion Assignment 1	Discussion	5 points
Unit 4 Discussion Assignment 2	Discussion	5 points
Unit 4 Quiz	Quiz	15 points

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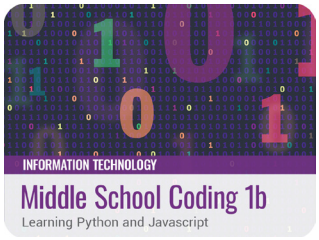

Unit 5: Buttons and Gadgets

Unit Summary

HTML and CSS are great for making static webpages, but by adding JavaScript into the mix, we open up a whole new range of possibilities! Did you ever think you'd be making your very own calculator? We will use JavaScript to create buttons that display the date, calculate the product or quotient of two numbers, and submit passwords. We'll also explore how to use if/else statements and while/for loops in this language. And what do shoulders and surfing have to do with any of this? Let's find out!

Learning Objectives

- Implement buttons in HTML that trigger a JavaScript function when clicked
- Write user-defined JavaScript functions
- Implement HTML web forms with text fields and buttons
- Understand and use if/else statements in JavaScript
- Understand and use while/for loops in JavaScript

Assignments

Unit 5 Text Questions	Homework	10 points
Unit 5 Online Lab Questions	Homework	10 points
Unit 5 Activity	Homework	15 points
Unit 5 Discussion Assignment 1	Discussion	5 points
Unit 5 Discussion Assignment 2	Discussion	5 points
Unit 5 Quiz	Quiz	15 points

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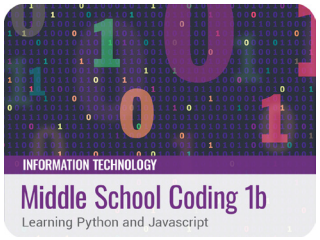

Unit 6: Become a Master Exterminator!

Unit Summary

Bugs are all around us! No, we're not talking about insects outside—we're talking about bugs (errors) in our code! No matter how much of an expert programmer you are, you will always have to deal with mistakes in your code. Some may be the equivalent of ladybugs—totally harmless and maybe even a tad adorable—while others may be catastrophically huge actaeon beetles. (Have you ever seen one? You'll never forget it if you have!) Once you've learned the tips and tricks in this unit, you will be better equipped to find and fix those annoying bugs in your programs, regardless of the language you're coding in. Don't worry—no repellent will be needed. These bugs won't bite or sting! But maybe you'd better bring your swatter, just in case…

Learning Objectives

- Define and complete a trace table to find errors
- Use the debugger tool in REPL.it
- Identify common mistakes in Python and JavaScript
- Use a try except statement to anticipate errors in Python
- Use a try catch statement to anticipate errors in JavaScript

Assignments

Unit 6 Text Questions	Homework	10 points
Unit 6 Online Lab Questions	Homework	10 points
Unit 6 Activity	Homework	15 points
Unit 6 Discussion Assignment 1	Discussion	5 points
Unit 6 Discussion Assignment 2	Discussion	5 points
Unit 6 Quiz	Quiz	15 points

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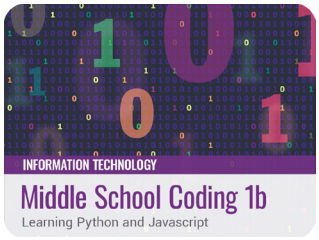

Final Exam

Learning Objectives

- Review information acquired and mastered from this course up to this point.
- Take a course exam based on material from all units in this course. (Note: You will be able to open this exam only one time.)

Assignments

Final Exam	Exam	50 points
Class Reflection Discussion Assignment	Discussion	10 points

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