

**Remix Tasks for “Employers”**

<b><u>CodeX Mission #</u></b>	<b><u>CodeX Mission Title</u></b>	<b><u>Company Task Title</u></b>	<b><u>Description of what code should do for company</u></b>	<b><u>required code components</u></b>	<b><u>Notes</u></b>
<b>3</b>	Light Show	Company Logo Comp	We are having a company logo competition and we need a way for employees to see all the different options for the company logo. Have a way for them to scroll through the 4 logo options the committee has narrowed it down to. Show different pixel colors depending on which logo they are on. Make sure each logo shows for at least 4 seconds using a variable for the delayed time. (You will need to create these yourself)	built in images(mission 2), turn on pixels, use sleep, use a variable, and use a variable for sleep time	<a href="#">Show how to create own image PPT</a>
<b>4</b>	Display Games	Reaction Timing	We need to test our employees reaction timing. Create a game that displays a heading explaining the rules, then if they hit the correct button within 3 seconds on the first try, they get green lights on the pixels and says YAY on the screen before it lgoes to the next test. If they do not get it within 3 seconds, they get red lights on the pixels and says SORRY on the screen before it goes to the next test. The next test will be within 2 seconds, then 1 second, and then half a second.	display a word, convert number to string, convert string to number, display a number, display more than one line, if/else, assign value to button (buttons is/was pressed)	
<b>5</b>	Micro Musician	Break Time Tone	We are having a company break time tone competition like the company logo one. We need a way for employees to hear all the different options for the company break time tone that will sound over the intercom each day to indicate it is break time. Have a way for them to scroll through the 4 tone options the committee has narrowed it down to. Show different pixel colors depending on which tone they are on and show different images for each tone. Make sure each tone is only about 5-15 seconds long (You will need to create these yourself)	audio clip:Show how to create and add their own sound	<a href="#">Lesson on how to make own music clip and import it video and PPT</a>
<b>6</b>	Heartbeat	Melody Museum	Our company has been tasked with creating an interactive exhibit for a music museum. The exhibit allows visitors to play with the tempo of a melody, speeding it up or slowing it down. Your task is to program the Melody Generator to respond to user inputs, adjust the tempo, and play a sequence of tones. Make sure it has the following: 1. Infinite While Loop: The program should run indefinitely until the user decides to stop it. 2. Break Command: Implement a mechanism for the user to exit the infinite loop and stop the program. 3. If Statements: Use if statements to handle user inputs for increasing or decreasing the tempo. 4. Increment/Decrement: Adjust the tempo of the melody based on user inputs by incrementing or decrementing a delay variable. 5. Play a Tone: Use the play tone function to produce sounds with the CodeX device.	infinite while loop, break command, if statement increment / decrement, play a tone	

7	Personal Billboard	Smart Inventory	<p>You are part of a team for the company developing a smart inventory management system for a local grocery store. Your task is to program a CodeX device from Firia Labs to monitor and manage the stock of essential items in real-time. The device will track the quantity of each item and alert the store manager when items are running low or have reached their expiration date. <b>**Project Requirements:**</b></p> <ol style="list-style-type: none"> <li><b>**Variable Comparison:**</b> Implement logic to compare the quantity of an item with a predefined threshold. For example, trigger an alert when the quantity of milk drops below 10 units.</li> <li><b>**List Wrap Around:**</b> Simulate the process where the list of inventory items "wraps around" after reaching the end. For instance, after checking the last item in the list, continue from the first item.</li> <li><b>**List Creation:**</b> Create a list of inventory items with their respective quantities. Initialize this list with at least five different items commonly found in a grocery store.</li> <li><b>**List Access:**</b> Implement functionality to access and update the quantity of items in the list based on real or simulated changes in inventory.</li> <li><b>**Last Index (Length):**</b> Utilize the length of the list to determine the total number of inventory items dynamically. Ensure your program adapts to changes in the number of items without hardcoding the list's size.</li> <li><b>**Data Type Identification:**</b> Include a feature to display or log the data type of a variable (e.g., quantity of an item) when queried or during debugging.</li> </ol> <p><b>**Additional Considerations:**</b></p> <ul style="list-style-type: none"> <li>- Design the user interface for the CodeX device to display the current inventory status and alerts.</li> <li>- Implement error handling for scenarios such as invalid inputs or out-of-range operations.</li> <li>- Document your code thoroughly, including comments explaining the purpose of each section and how the requirements are implemented.</li> </ul>	Compare a variable to a value, list wrap around (reach end and wrap back to beginning), create a list, access item in a list, last index (length), get data type of variable	
8	Answer Bot	Review game	<p>The company just had a Professional Development on the Cyber Security acronyms. Please make a review of these Acronyms where they choose the answer with button pushes. Make it randomize the questions and answer choices so that they cannot just memorize the answers. Have at least 10 questions. Tell them if they are correct or not with a BIG CORRECT or INCORRECT. If incorrect, give them the correct answer.</p>	import random, generate random, change size of text, select random number from list	

9	Game Spinner	Random Decision Maker	<p>You have been tasked with creating a handheld device that helps users make random decisions of who will speak and present first during our company meetings. This device will use a game spinner interface, where users press a button to spin a virtual spinner on a small screen. The spinner will land on one of several predefined options, providing a fair and random selection method. <b>**Project Requirements:**</b></p> <ol style="list-style-type: none"> <li><b>**Logical Operators:**</b> Utilize logical operators ('or', 'and') to handle conditions within your code. For example, ensuring the spinner stops spinning only when the button is pressed.</li> <li><b>**Define a Function:**</b> Define at least one function in your code that encapsulates a specific task, such as spinning the spinner or determining the outcome.</li> <li><b>**Call Function:**</b> Ensure that your main program calls the function(s) appropriately to achieve the desired functionality of the game spinner.</li> <li><b>**Finite Loop with Condition:**</b> Implement a finite loop that repeats a specific task (e.g., spinning the spinner) until a certain condition is met (e.g., when the button is pressed).</li> <li><b>**Finite Loop with Condition and List Wrapping:**</b> Use a loop that iterates through a list of options and wraps around when reaching the end of the list, simulating the spinner's motion. This will involve updating the display to show different options rapidly before settling on one.</li> </ol>	logical operator (or, and), define a function, call function, finite loop with condition, finite loop with condition and list wrapping,	<p>There actually is a way to break a long line by doing explicit line continuation. To do explicit line continuation, you use the backslash and then put the continuation of your code on the next line, the following will work correctly:</p> <pre>if buttons.is_pressed(BTN_A) or \ buttons.is_pressed(BTN_B):     spin_animation()     show_random_arrow()</pre>
10	Reaction Tester	Reaction Timing Improved	Improve Reaction Timing code you created earlier and keep a score to display to the screen depending on their reaction time. Use the colors of the pixels as the count down to button press. If have a low score, have an option for them to retry by pushing a button. Tell what a high score is (8-10) out of 10. Have an option for them to choose to increase the speed as well.	turn off pixels using list, turn pixels colors using a list, clear display, get current clock time, diff between two clock times, reset the button state	<a href="#">Example from David</a>
11	Spirit Level	Level	Our company is always hanging awards and such in the office plus we are always trying to see if floors are level or not and need a level that works in ALL directions and not just horizontally. Make a level that works in all directions and turns a different color when it is level.	math module, accelerometer values, change display color, draw a line, draw a circle,	<a href="#">Example</a> : Called spirit level because the liquid used to be alcohol so it would not freeze.
12	Night Light	Power Outage	We have a LOT of power outages around here lately and need lights that come on when they go out so that we can safely see to exit the rooms. The screen needs to be a bright green slowly flashing screen and the pixels need to become quite bright and white when lights go completely out so that we can place them along walls at intervals and be able to see when power goes out. Especially since we have no windows and it gets DARK with no power.	read light sensor, set all pixels same color, adjust brightness of pixels	
13	Sounds Fun	menu of tones	We need a menu of sounds to play depending on situations. We need one for weather alerts, one for fire, one for lockdown and one for break time. Make sure the user can see which item they are on before they click it.	play music in background, give user feedback, control pitch and loop sounds (glide), make a menu on screen, global variables, init boolean, for loop	
14	Line Art	String art concept on screen	We want artwork around the building. We want to see different forms of string art because the boss absolutely LOVES string art. Look at the examples of string art and choose two to code and they will choose those from either buttons a or b.	use console to read color values (print), horizontal/ verticle line of pixels, convert data to integers, step parameter	<a href="#">Examples:</a>
15	Handball	Basic Break time game	Sometimes we have game breaks here at our company and we need a game for the employees to play. Make the paddle change colors when you hit the ball and when they lose each life, show their score and how long they were able to keep the ball moving in the center of the screen before they were able to move to the next life.	reverse direction, return elapsed time since last time called, use angle parameter, calculate lives and score, elif functions	
16	Break Out	Advanced Break time game	We need a more advanced game for some of our employees. Maybe we need an old school game like falling bricks. Make the screen start with only one row of bricks and gradually add a row. If you clear all bricks before the next level moves down, you win and you do not lose unless bricks reach the bottom of the screen or your ball falls off the bottom and you do not paddle it back towards the bricks. Make sure the bricks are colorful.	Add bricks that when "hit" clear away and increase score, use a matrix of boolean, mute button,	

<b>FINAL</b>	Multit program function	In your programming small group, you need to create a program that each button on the left will take the user to a different program and the buttons on the right will be used to start and stop the program. They must be able to navigate back to the home screen when inside a program using button "b" and then on home screen, button b will be the way to break out and stop the program. Make the four programs useful for our company (buttons R,L,U and D) Make sure you include the pixels, sounds/music, images and accelerometer	Utilize all code have learned so far	<a href="#">Pair Programming:</a>
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