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| **AP CSP Python with Robots**  **Mission 3 Obj 10-11 Assignment** | **Name:** | |
| **Mission 3 Introduction** | | |
| Re-read the introduction and project goals. During this assignment, you will complete the last goal.  Read the instructions in CodeSpace, but follow the steps listed below for the last two objectives. You will be required to use functions to complete the program. | | |
| **Objective 10** | | |
| 1. Create a new file **WhatIf**. 2. The first part of the code is a 2-second countdown, which gives you time to press a button on CodeBot. 3. Create a function for the countdown. It does not need a parameter, but you can include one if you want. Possible function name: **countdown()** 4. Call the countdown() function in the Main Program. 5. Follow CodeTrek to complete the rest of the code. 6. Click on “debug” and run the code at least two times. First press BTN0 or BTN1. On the second run, do not press any button. 7. Modify the countdown() function to something else. You could have flashing lights, more lights and time, different lights, etc. | | * File created * countdown() function * countdown() called * if statement added * Debug with button press * Debug without button press * countdown() function modified |
| **Objective 11** | | |
| 1. Keep the **WhatIf** program open. 2. Add a delay variable near the top. Example: delay = 2.0 3. Open the **NavSquare\_functions** program. 4. Copy motors.enable(True) and the two functions – go\_straight() and turn\_90() – from **NavSquare\_functions** to **WhatIf** just above the **countdown()** function. 5. Modify the code in if buttons.was\_pressed(0) to move the ‘bot in a square using right turns. You can use the code from NavSquare\_functions. 6. Modify the code in if buttons.was\_pressed(1) to move the ‘bot in a square using left turns. Just use a negative speed for the argument when calling turn\_90(). Example: turn\_90(-20, 0.72) will turn left, not right. 7. Modify the code in else to include two motors.run() calls and stop the motors (see below – needed to meet the goal requirements) | | * delay added * Code copied from NavSquare\_functions * Modify if statement for BTN0 * Modify if statement for BTN1 * Modify else statement * Program works correctly without bugs |
| **Possible Extensions:** | | |
| 1. Move the ‘bot in a small square and large square, instead of clockwise and counterclockwise. 2. Move the ‘bot in a square or rectangle, depending on the button pressed. | | |