

**Matlab programming exercises**  
**ME345 – Modeling and Simulation**

**Problem 1.**

Write a MATLAB code that will function as a “cash register”. The program should prompt the user to select items from a menu (be creative) and calculate the cost of the meal. The program should then total the bill and ask the user how they will pay for it. Once the user enters the amount they will pay, the program should figure out *both* the correct change *and* the manner that the change should be distributed. (For example, if the change is \$2.36, the user should get back two \$1’s, a quarter, a dime, and a penny – NOT 236 pennies!)

**Problem 1 (extended)**

Once you have a working code for PROBLEM 1, try to improve upon it. For instance, be able to track each of the orders, the cost of each order, a tax, how many of each item was purchased during the day, the average cost of each meal, etc. (and display as an array at the end of the program).

**Problem 2**

This problem is related to Problem 1, but more complicated. Now assume that at the beginning of the day the cash register is stocked with a certain number of each denomination of currency (see Table below). After each transaction, your program should track the amount of each currency remaining in the register, taking into account both money paid out and money received. If the register runs out of a certain denomination, the program should take this into account when determining the manner in which the change is to be distributed. (For example, if the change is \$1.85 and the register is out of \$1’s, the change should be given as 7 quarters and 1 dime.)

<b>Currency</b>	<b>Initial count in register</b>
\$10	5
\$5	5
\$1	5
quarter	5
dime	5
nickel	5
penny	5

**Table 1. Initial holdings of cash drawer for register at beginning of shift.**