EagleIce - Lab "Putting it all together"

Write a program to compute the price of a set of King's Dominion tickets. The program should repeatedly prompt the user for the name and birthdate (month, date, and year) of each customer in the party, allowing the user to type "Done" in place of the customer's name to indicate that there are no more customers. It will should then compute the total price for the tickets as follows:

- Patrons under 2 years old: free
- Patrons between 2 and 12 years old: $35
- Patrons 55 or over: $40
- All others: $65
- Sales tax: 4.5% on the entire cost of all tickets

Your program should contain **two functions**. The first, called "age()", should take three inputs (a birth month as an integer from 1 to 12, a birth date within the month, and a 4-digit birth year) and return the age of the person as of today. For instance, if I called "age(10,11,1969)", the function would return "43". If I called "age(5,4,2011)", the function would return "1".

The second function, called "ticketPrice()", should take one input (a customer's age) and return the price of a ticket for a customer of that age. For instance, if I called "ticketPrice(22)", the function would return "65". If I called "ticketPrice(1)", the function would return "0".

Here's an example of interacting with the program:

Who's your first customer? (Enter "Done" if no more customers)
  Jeff
What month was Jeff born in? (1-12)
  7
What date was Jeff born on?
  27
What year was Jeff born in? (4 digits)
  1982
Who's your next customer? (Enter "Done" if no more customers)
  Clarice
What month was Clarice born in? (1-12)
  9
What date was Clarice born on?
  4
What year was Clarice born in? (4 digits)
  1984
Who's your next customer? (Enter "Done" if no more customers)
  Junior
What month was Junior born in? (1-12)
  3
What date was Junior born on?
  27
What year was Junior born in? (4 digits)
  2005
Who's your next customer? (Enter "Done" if no more customers)
  Done
Your 3 King's Dominion tickets will cost $172.42!
Step 1: Think about the algorithm for computing a person's age based on their birth month, date, and year. Write up a plan.
We did this example in an earlier lab. You can look up the answer from your old lab, but first try and think it through again to see if you can remember.

Note that this algorithm should not prompt the user for any input. Instead, the three inputs are given to the function as arguments to the function, on the first line (i.e., they are put through the monster room's slots.) Note also that it should not print any output directly to the screen. Instead, it should use the "return" keyword to give the output back to the code that called the function.

Step 2: Use the plan to create comments for your program, and then write the age() function. This will involve function syntax, as well as conditional statements and one (or more than one, depending on how you write it) return statement.

Step 3: Think about the algorithm for computing a customer's ticket price. Write up a plan.
We did this example in an earlier lab. You can look up the answer from your old lab, but first try and think it through again to see if you can remember.

Again, this algorithm should not prompt the user for any input or print any output. Instead, like any good monster room, it should accept one input in the parentheses and return one output.

Step 4: Use the plan to create comments for your program, and then write the ticketPrice() function. This will involve function syntax, as well as conditional statements and one (or more than one, depending on how you write it) return statement.

Step 5: Think about the algorithm for prompting the user and computing the price. Write up a plan.
You'll need to use input statements, output statements, arithmetic expressions, conditional statements, and repetition statements, as well as your two functions. Ask yourself: is this a counter-controlled loop or a condition-controlled loop?

Step 6: Use the plan to create comments for your program, and then write the main program.
Remember Dr. Anewalt's advice about condition-controlled loops: prompt the user for their initial input outside the loop, as an initialization step. Then, at the bottom of the loop, prompt them again just before it goes back up to check the condition. Your comments should look something like this:

    // Welcome the user to the program
    // Initialize variables to remember the number of customers so far, and the
    //   pre-tax ticket total so far
    // Prompt the user for the name of their first customer
    // As long as the user hasn't entered "Done":


Note that there’s more than one way to correctly write this program. If you had some additional statements, it doesn’t mean that your way of solving the problem is wrong. It might just be an alternate solution. Test out the program up to this point and make sure that your code is working as expected.

**Cool observation:** this program combines all six tools in the programming toolbox! When you've completed it, this is a great midway check on your progress for the semester. You've used all the programming vocabulary in a successfully-running program -- hooray! :)

When you’re all done, turn in your .js file and .html file on Canvas.