ECE160 - Programming for Electrical Engineers
Fall 2022
10/26/22
Quiz #4

Name: _____ Score: ___ / 10

Trick or Treat (10 points)

During Halloween, kids go around trick-or-treating to collect candy from neighbors. In order to be inclusive to kids who are unable to go trick-or-treating, you decide to create an app to allow them to participate. Write a program to enable these kids to trick-or-treat with the following requirements.

- (1) Create a Trick structure that contains the following 2 properties:
  - name (a char array of up to 100 char or a pointer to a char)
  - isAvailable (an integer or a boolean)
- (1) Create a Treat structure that contains the following 2 properties. Choose the most appropriate types for the properties:
  - name
  - quantity
- (2) Create a TrickOrTreat structure that contains the following 2 properties:
  - tricks (an array of up to 10 tricks)
  - numOfTricks (an integer, hint: this is used to index into the tricks)
  - treats (an array of up to 10 treats)
  - numOfTreats (an integer, hint: this is used to index into the treats)
- (2) Write a function that adds a Trick to the TrickOrTreat structure with the following function prototype:
  - `void addTrick(struct Trick *t, struct TrickOrTreat *tot);`
- (2) Write a function that adds a Treat to the TrickOrTreat structure with the following function prototype:
  - `void addTreat(struct Treat *t, struct TrickOrTreat *tot);`
- (2) Write a function that uses a Trick from TrickOrTreat with the following prototype:
  - `void useTrick(struct TrickOrTreat *tot, int trickIdx);`
  - This should change the isAvailable property to false.
- (3) Write a main that does the following:
  - Create a trick with the following properties:
    - name: "Eggs", isAvailable: true
  - Create a trick with the following properties:
    - name: "Toilet Paper", isAvailable: true
  - Create a treat with the following properties:
    - name: "M&M's", quantity: 666
  - Create a treat with the following properties:
    - name: "Kit-Kat", quantity: 13
  - Create a TrickOrTreat structure and add the above tricks and treats to it using the functions you defined. Initialize the values of numOfTricks and numOfTreats to 0.
  - Use the eggs trick on a neighbor that didn't give you candy.
  - Print out all the tricks and treats (with its properties) in the structure at the end of the program.