Assignment 2: While loops

CSCI 110 Section 1

Due Thursday Sept 8, 2016 at 11:59 pm

Part 1: Music [50 points]

Write a program that asks the user for the name of their favorite music genre (once) and up to 5 songs from that genre. The program will stop asking the user for song names **when the user has given 5 answers** or **when the user types "done"**.

You will need to use the Scanner class to read user input. A Scanner named "reader" has already been set up for you in the starter code. Please refer to Assignment 1 for more information on Scanners.

Here's an example of what the program might output when run (user input in bold):

```
What's the name of your favorite genre? bluegrass
What's a song from that genre? Blue Moon of Kentucky
One of your favorite bluegrass songs is Blue Moon of Kentucky
What's a song from that genre? The Fox
One of your favorite bluegrass songs is The Fox
What's a song from that genre? done
```

Starter code is in Music.java.

Part 2: Food [50 points]

Write a program that asks the user for the name of **at least 4** of their favorite foods. The program will keep asking the user for food names until the user has typed "done". If the user has entered at least 4 foods at this point, then the program will quit.

However, if the user types done without reaching the minimum number of answers, the program will keep asking the user to enter X number of foods (4 minimum - # already entered) until the user has responded at least 4 times total. Then it will automatically quit.

Here's an example of what the program might output when run (input from an extremely healthy user in bold):

```
What are at least four of your favorite foods?
Give me the name of a food: kale
One of your favorite foods is kale.
Give me the name of a food: quinoa
One of your favorite foods is quinoa.
```

```
Give me the name of a food: done
Give me the name of a food: sweet potato
One of your favorite foods is sweet potato.
Give me the name of a food: butternut squash
One of your favorite foods is butternut squash.
```

Starter code is in Food.java.

Part 3: Food with recommendations [extra credit, 20 points]

Reuse your code from Part 2. In this part, after each food, ask the user for up to 3 places to get it. If the user types "done", move on to the next food. You don't need to print anything for the places. Example:

```
What are four of your favorite foods?
Give me the name of a food: kale
One of your favorite foods is kale.
What's a good place to get it? done
Give me the name of a food: quinoa
One of your favorite foods is quinoa.
What's a good place to get it? walmart
What's a good place to get it? done
Give me the name of a food: done
Give me the name of a food: sweet potato
One of your favorite foods is sweet potato.
What's a good place to get it? home
What's a good place to get it? bbq places
What's a good place to get it? farms
Give me the name of a food: butternut squash
One of your favorite foods is butternut squash.
What's a good place to get it? done

Your first favorite food is kale.
Your second favorite food is quinoa. Good places to get it are walmart.
Your third favorite food is sweet potato. Good places to get it are home,
bbq places, and farms.
Your fourth favorite food is butternut squash.
```

Put this in Food2.java so mistakes in this program won't affect your grade for Part 2.

Testing your code

It's possible to test programs like handle user input, but the tests to do so are complicated since they have to generate their own inputs and handle a variety of different programs that could be correct.

Since there are no unit tests for this assignment, you must think of all possible combinations of inputs (e.g. for Part 2: ten foods + done, three foods + done + one food, and so on) and make sure that your programs can handle them.

Using a Scanner to ask for input (from Assignment 1)

The Scanner class can be used to ask the user for information. For example, here's a simple program that reads in an integer and doubles it. Save it as Doubler.java and compile and run it to see how it works.

```
import java.util.Scanner;
class Doubler {
    /**
     * Takes an integer and returns that integer times two.
     */
    public static int doubleNumber(int n) {
        // this is where the magic happens
        return n * 2;
    }

    public static void main(String[] args) {
        Scanner reader = new Scanner(System.in);
        System.out.print("Enter a number: ");
        int n = reader.nextInt();
        System.out.println("Here's the number times two: " + doubleNumber(n));
    }
}
```

You can search "java scanner" on the web to find the official documentation for the Scanner class. It's a lot to read but if you scroll down, you'll see a table called "Method summary" containing all of the things that a Scanner can do. We use the nextInt() method in the example above to read an integer that the user types in. There are also methods called nextFloat(), nextBoolean(), and next() to read in floats, booleans, and Strings.

Submission instructions

Submit your implementations on Canvas for Assignment 2. These are the files you should submit:

- Music.java
- Food.java
- Food2.java (if done for extra credit)

Make sure your programs compile before submitting! Programs that don't compile will receive an automatic 50% deduction - it's your job to debug your code.