CSM 2670 Lab 2

Submit Java files and snapshots of programs output

4. Write a program that prompts for two people's birthdays (month and day), along with today's month and day. The program should figure out how many days remain until each user's birthday and which birthday is sooner. Hint: It is much easier to solve this problem if you convert each date into an "absolute day" of year, from 1 through 365.

20. Write a method called `digitRange` that accepts an integer as a parameter and returns the range of values of its digits. The range is defined as 1 more than the difference between the largest and smallest digit value. For example, the call of `digitRange(68437)` would return `6` because the largest digit value is 8 and the smallest is 3, so $8 - 3 + 1 = 6$. If the number contains only one digit, return `1`. You should solve this problem without using a `String`.

4. Write a program that plays a reverse guessing game with the user. The user thinks of a number between `1` and `10`, and the computer repeatedly tries to guess it by guessing random numbers. It's fine for the computer to guess the same random number more than once. At the end of the game, the program reports how many guesses it made. Here is a sample execution:

```
This program has you, the user, choose a number
between 1 and 10. Then I, the computer, will try
my best to guess it.
Is it 8? (y/n) n
Is it 7? (y/n) n
Is it 5? (y/n) n
Is it 1? (y/n) n
Is it 8? (y/n) n
Is it 1? (y/n) n
Is it 9? (y/n) y
I got your number of 9 correct in 7 guesses.
```

10. Write a method called `printGPA` that accepts a `Scanner` for the console as a parameter and calculates a student's grade point average. The user will type a line of input containing the student's name, then a number that represents the number of scores, followed by that many integer scores. Here are two example dialogues:

```
Enter a student record: Maria 5 72 91 84 89 78
Maria's grade is 82.8

Enter a student record: Jordan 4 86 71 62 90
Jordan's grade is 77.25
```

    Maria's grade is 82.8 because her average of $(72 + 91 + 84 + 89 + 78)/5$ equals 82.8.

11. Write a method called `longestName` that accepts a `Scanner` for the console and an integer n as parameters and prompts for n names, then prints the longest name (the name that contains the most characters) in the format shown below, which might result from a call of `longestName(console, 4)`:

```
name #1? Roy
name #2? DANE
name #3? sTeFaNiE
name #4? Mariana
Stefanie's name is longest
```