Delta College

CST 283
Programming Assignment 7

Winter 2024
Instructor: T. Klingler

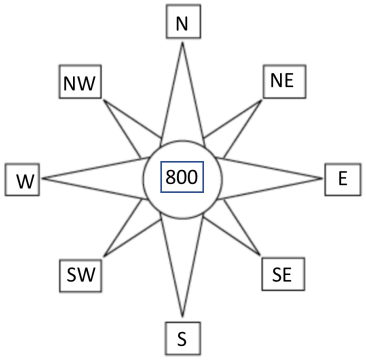
Objective

This program will provide an opportunity to solve a problem using stack operations.

Overview & Instructions

Write a program that will track your pathway on a hike and they allow you to reverse your steps to find your way home.

Build a **JavaFX** user interface that includes 8 general buttons (for the directions you see below) and a text field for entering the distance you walk (in feet). You will use these during the hike to document the track of your hike. Your interface does not have to be as elaborate as the one below, you simply need a distribution of the eight buttons in a meaningful and useful configuration.



The "800" in this graphic is an example of what the user would key in. If they then pressed "NE" it implies the most recent segment of their hike was a walk 800 feet to the northeast. Provide error checking to be sure there is a meaningful distance in the text field when a direction is pressed.

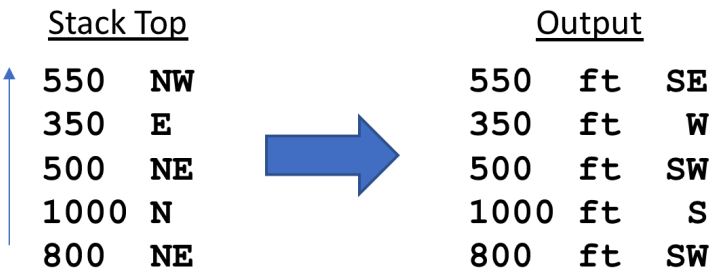
Your program should then "stack up" all hiking segments for the entire hike. Utilize a stack for this. You can choose a stack of strings, or perhaps a stack of "segment" objects, but be sure to utilize a version of the `Stack` class created as part of the course (or a variant of the class with a change of the primary element data type).

An example of a hike could be:

```
550  NW
350  E
500  NE
1000 N
800  NE
```

Include two additional buttons: A "Reset" button will clear the stack and allow for entry of a new hike.

A "Done" button will retrieve the complete set of segments of your hiking track and provide a sequence of directions and distances to return to your starting point (note that the directions are converted to what is *reciprocal* to the original direction. Use a JavaFX `Alert` dialog box or text area for this (no `JOptionPane` dialogs, please). For example, if your stack has stored the segments above, your output should produce what you see below:



Deliverables

Demonstrate the development steps of your program with at least two version commits to the assignment Git repository.

Deliver the following to the eLearning system **Assignment Dropbox** as your final product:

- **Upload** your **source code** (.java) file(s); preferably zipped in more than one file

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