

## Overview

My Word Problem Generator implementation makes use of several different classes to create word problems. The **Main** function begins by prompting the user for input via the **UserInput** class. It asks the user for names of people and items to be used in the word problems. It also prompts for information about how many problems it should generate as well as the range in which the operands are. Once the user input has been received, the **UserInput** class passes that information to the **Worksheet** class, which stores these names in separate arrays. This class stores the problems that are generated. When all user input is collected, the **Worksheet** class uses the **ProblemGenerator** class to generate problems.

Each instance of **Problem** stores its own problem string and correct answer. The **ProblemGenerator.generateProblem()** method uses a few different classes to create a word problem. First it utilizes a **Operation** interface, which represents all the different operations supported by the generator, which in the current version is limited to addition, subtraction, multiplication, and division. Since each different type of problem has a different problem template structure, the **Template** class is associated with every instance of an **Operation** to ensure the appropriate template is used. And since each of the different operations compute differently, they must have a custom implementation of how to calculate their answers.

## Expandability

In order to keep the Word Problem Generator expandable, the **Operation** interface is able to accept other types of operations. If in the future a new operation were to be included, for example inequalities, they would be added and implemented similarly. Also if more templates for problems are desired, the **Template** class can have multiple templates per operation which adds to its choices.

