Chapter 5 Program Documentation

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1 Problem Analysis

The problem states:

> Write a program that uses **while** loops to perform the following:
>
> 1. Prompt the user to input two integers: firstNum and secondNum (firstNum must be less than secondNum).
> 2. Output all odd numbers between firstNum and secondNum.
> 3. Output the sum of all even numbers between firstNum and secondNum.
> 4. Output the numbers and their squares between 1 and 10.
> 5. Output the sum of the square of the odd numbers between firstNum and secondNum.
> 6. Output all uppercase letters.

1.1 Data

Available data includes:

1. There are two variables: `firstNum` and `secondNum`
2. `firstNum` must always be less than `secondNum`

1.2 Desired Output

Figure 1: main.cpp output

```
1 Odd numbers between firstNum and secondNum:
2 Sum of even numbers between firstNum and secondNum:
3 firstNum =
4 \tfirstNumSquares between 1 and 10:
5 secondNum =
6 \tsecondNumSquares between 1 and 10:
7 The sum of the square of the odd numbers between firstNum and secondNum =
8 All uppercase letters used were:
```

2 Algorithm

Below is the algorithm for the program.

Figure 2: Chapter 5 Program Algorithm

▷ –Variables–

$firstNum \leftarrow$ ▷ Needs user input
$secondNum \leftarrow$ ▷ Needs user input

▷ –Prompt Lines–

toOutput "Please enter the values for firstNum"
$firstNum \leftarrow input$
toOutput "Please enter the values for secondNum"
$secondNum \leftarrow input$

3 User Documentation

3.1 Build

The following are instructions with two use cases:

- Within Visual Studio 2017
- Bundled Release
- with GNU G++

3.1.1 Within Visual Studio

Simply load `Chapter5.sln` in Microsoft Visual Studio and build/run the `release` version. If you require debugging information, switch the configuration to `debug`.

3.1.2 Bundled Release

1. Navigate to the unziped folder containing the binary, **with a terminal emulator or command prompt**, this will (most likely) mean running:

```
1 cd %USERPROFILE%\Downloads\Chapter5\x64\Release\
```

2. To run the program simply issue this within the command prompt

```
1 .\Chapter5.exe
```

Of course if preferred, you may also navigate to the release folder in file explorer and double click the executable (`Chapter4.exe`)

3.2 With g++

If you prefer to use an open source debugger and compiler then I assume the following:

1. You have installed MinGW and it is in your `$PATH`
2. You have installed the MSYS Tools and they are in your `$PATH`

A Appendix A