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

$\triangleright$ –Variables–

$firstNum \leftarrow$ $\triangleright$ Needs user input
$secondNum \leftarrow$ $\triangleright$ Needs user input
        $\triangleright$ –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

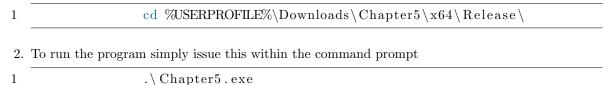The following are instructions with two use cases:

- 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