Lab 3

A flowchart/pseudo-code indicates the procedure/recipe to ‘solve’ a ‘problem’. Make flowcharts and pseudo-code for the following situations in your journal

Problem 1: Digits Problem

Part A: User has provided a number as an input, your job is to separate the number into its individual digits and print the digits separated from one another by a space. [Hint: Use combinations of integer division and the remainder operation.]. For example, if the user types in 42139, the program should print 4 2 1 3 9 as output

Part B: User has provided a number as an input, your job is to sum the digits and display the total value. E.g. if the number user entered is 12390 then the output will be 15 (i.e. 1+2+3+9+0 = 15)

Part C: User has provided a number as an input, your job is to increment each digit by 1 and display the new value. For example if the number that is input is 12390 then the output should be displayed as 23401 (i.e. 9 is incremented to 0)

Problem 2: Shapes with Asterisks

Part A

* * * * * * * * * * *
*       *       *   *
*       *       *   *
*       *       *   *
*       *       *   *
*       *       *   *
*       *       *   *
*       *       *   *
*       *       *   *
*       *       *   *
*       *       *   *

Part B

* * * * * * * * * * *
*       *       *   *
*       *       *   *
*       *       *   *
*       *       *   *
*       *       *   *
*       *       *   *
*       *       *   *

Part C

* * * * * * * * * * *
*       *       *   *
*       *       *   *
*       *       *   *
*       *       *   *
*       *       *   *
*       *       *   *
*       *       *   *
*       *       *   *
*       *       *   *

* * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
## Problem 3: Shapes with Numbers, Asterisks and Alphabets

<table>
<thead>
<tr>
<th>Part A</th>
<th>Part B</th>
<th>Part C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>*</td>
<td>1</td>
</tr>
<tr>
<td>1 2</td>
<td>1 2</td>
<td>a b</td>
</tr>
<tr>
<td>1 2 3</td>
<td>* * *</td>
<td>1 2 3</td>
</tr>
<tr>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
<td>a b c d</td>
</tr>
<tr>
<td>1 2 3 4 5</td>
<td>* * * *</td>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>