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| DUE | MATERIALS | OBJECTIVE | EVALUATION |
| 16 December 2017 11:59pm | Student Laptop with Python | Demonstrate an understanding of file handling, sorting lists, GUI design. | 14 marks maximum. |

Background

Within the BI field, there is often a need to analyze non structured data which requires the ability to both read, manipulate and write to documents. In this lab you will create a program that inserts YOUR NAME into a document containing a list of names using some python syntax you have not used before.. In addition, you will extend you GUI layout skills by making your GUI more dynamic.

Note: For file handling (opening, reading, writing, closing) refer to the Python library or the tutorial section 7.2 <https://docs.python.org/3/tutorial/inputoutput.html>. It would also be helpful to review sections relating to lists. Other resources such as the official wiki has some helpful examples on topics such as sorting.<https://wiki.python.org/moin/HowTo/Sorting>. Be careful when using unofficial sources as some may be using Python 2 syntax or methods that may have changed or improved in Python 3. For example, this link has some good easy to read examples but is fairly old <http://effbot.org/tkinterbook/>.

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| Marks | INSTRUCTIONS |
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| 2 marks | Create an “INITIAL” GUI grid layout in excel with the following requirements:   * Insert a label entitled “Enter Your First Name” in the second column and THIRD row and align the text to the right. * Insert an appropriate wigdget that allow the user to enter their first name in the third column and THIRD row. * Insert a label entitled “Enter Your Last Name” in the second column and FOURTH row and align the text to the right. * Insert an appropriate wigdget that allow the user to enter their last name in the third column and FOURTH row. * Pad all the widgets on the THIRD and FOURTH row by 20. * Insert an “Add Me” button in the FIFTH row that extends and fills across three columns * Put any bitmap image (32 x32) in the four corners of your layout consisting of two rows and one column. The images must not be in a column or row that contain any widgets. Make the images fill the entire height of the block.   **Name the worksheet INITIAL and save the files as GUI.xls.** |

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| 1 mark | | | **Add a worksheet named “RESULT” to your GUI.xls file.**  Create a “RESULT” GUI layout in excel with the following changes:   * Replace the wigets in second and third row with an appropriate widget to display your results. This widget should take the same space as all the existing widgets, and have the same padding. * Replace the button on the fourth row with an “Exit” button. * Make the AREA of corner images twice their size | | | |
| 2 marks | | | Using the Sample5a from the course material as an example, create a design for you program incorporating any GUI, class structures, methods, logic that  **Required Program Logic (not necessarily in order)**   * On start up the GUI displays the Initial GUI * When the user clicks on “Add Me” then   1. Open the text file “WithoutMe.txt”   2. Put the file contents in a List   3. Add “Your Name” to the list   4. Sort the list by Last Name, First Name   5. Change the diplay to the “RESULT” layout and display the list   6. Write the new list to a new file “WithMe.txt * When the user clicks on “Exit” the close the program.   **Optional Program Logic (no points added/deducted)**   * Exception handling if the user does not enter a first name or last name. * Allow the user to enter more than one name without changing the GUI.   **Save the file as Design.py** | | | |
| 6 marks | | | Coding for the lab is marked as follows:  (0.5 marks) - Correct header and inline documentation - header documentation must include your name, date, course ID, and lab number.  (1 mark) – Initial GUI Layout matches specification  (1 mark) – Result GUI Layout matches specification.  (1 mark) – Basic functionality including: user data entry, processing, results display.  (1 mark) – Correct use of list functionality for the capturing and sorting data.  (1 mark) – Correct use of file handling methods.  (0.5 marks) – No runtime errors, or logic errors.  Save the program as **DocumentMe.py** | | | |
| 2 mark | | | Identify two GUI design improvements you would recommend if this program was for a client and provide your rationale. (one or two sentences for each)  **Save the file as Improvement.doc** | | | |
| 1 mark | | | Correct and complete submission. | | | |
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| **II** | | **SUBMIT YOUR WORK** | |
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|  | | Submit your ALL your lab files compressed in a 7-zip file, with a filename of LastName\_FirstName\_CST2101\_Lab4.7z | |