

ANL251
Python Programming

Group-based Assignment

July 2020 Presentation

GROUP-BASED ASSIGNMENT

This assignment is worth 20% of the final mark for ANL251 Python Programming.

The cut-off date for this assignment is 2 September 2020, 2355hrs.

This is a group-based assignment. You should form a group of **4 members** from your seminar group. Each group is required to upload a single report via your respective seminar group site in Canvas. Please elect a group leader. The responsibility of the group leader is to upload the report on behalf of the group. Those submitting individually will be given a 10 marks deduction.

It is important for each group member to contribute substantially to the final submitted work. All group members are equally responsible for the entire submitted assignment. If you feel that the work distribution is inequitable to either yourself or your group mates, please highlight this to your instructor as soon as possible. Your instructor will then investigate and decide on any action that needs to be taken. It is not necessary for all group members to be awarded the same mark.

Up to 25 marks of penalties will be imposed for inappropriate or poor paraphrasing. For serious cases, they will be investigated by the examination department. More information on effective paraphrasing strategies can be found on <https://academicguides.waldenu.edu/writingcenter/evidence/paraphrase/effective>.

Note to Students:

You are to include the following particulars in your submission: Course Code, Title of the GBA, SUSS PI No., Your Name, and Submission Date.

Question 1

Write a program named “gba.py” to track and maintain a user’s information records of houseplants and update the records in a file named “myplants.txt”. You are to download and operate on this file without changing the filename (in the same folder as the gba.py file). The file contents are records of houseplants in the following line-by-line format:

Plant name
Date and time of entry/revision of plant record
Information of the plant (multiple lines)
Blank line
...
...
...

The program should provide the following data manipulation features:

- 1) Add a new plant name and allow the user to add new information about the plant.
- 2) Search for a plant name and display the record information if the name exists.
- 3) If the houseplant name does not exist in the file, provide option (1).
- 4) If the houseplant name exists in the file, provide an option for the user to add new information as well as delete any information or the whole record about the houseplant.
- 5) Allow a display of all houseplant records according to (i) alphabetical order of their names and (ii) the latest revision time.

(Hint: You are advised to read in the file contents into a dictionary and perform the data manipulation before writing back to the file when the user chooses to exit the program, as it should be easier and faster.)

- (a) Identify a list of functions that you need to develop and explain each function using the following table template. Information given is for illustration purposes only. Provide screenshots of only the function headers (with parameters) in your code.

function name	add_plant
parameters	plant name
data type/s of parameters	string
return	True
data type/s of return	boolean

(15 marks)

- (b) Draw a detailed flowchart to describe and analyse the logic flow on the manipulation and updating of “myplants.txt”.

(15 marks)

- (c) Develop your code in “gba.py” and apply functions to organize your code. Ensure you do not change this program filename.

Note that third-party libraries are not allowed and you should only use the built-in functions documented in the python standard library. The program should also have sufficient comments to describe the corresponding data, code steps and logics.

Submit your program “gba.py” through Canvas separately from the written report. Do not submit “myplants.txt” as your program will be tested using the original file. Provide comments and include the names and PI numbers of all group members at the start of your code.

(45 marks)

- (d) Research and suggest three other features you think could be useful to help the user better maintain the information records on the houseplants. Describe your proposed solution.

(15 marks)

The remaining 10 marks will be awarded based on the quality of report writing and presentation, based on criteria such as formatting, clarity and logic of explanations, use of charts/figures and spelling/grammatical errors, etc.

Note that you will have to keep the size of your document to 4 MB or less upon submission.

---- END OF ASSIGNMENT ----