Year 12 Computer Science

Reflective Evidence Document

Name: Max Lee

Replit link: <https://replit.com/@maxleetsunhei/AS-27-Max-Lee>

Github link: <https://github.com/Max-Lee-1/AS-2.7-Max-Lee>

Google drive link (including Garntt Chart and Testing Log): <https://drive.google.com/drive/folders/1VY4lyq-_aFVBlcOwLfedMeVQ6nHPuGD4?usp=sharing>

2.7 Due May 5th

2.8 Due Jun 2nd

2.7 (AS91896) Use advanced programming techniques to develop a computer program (6 credits)

2.8 (AS919897) Use advanced processes to develop a digital technologies outcome(6 credits)

This document will contain all the evidence of the work you have completed in class and for your Programming Assessment. Please submit this document to OLE submission box for the Formative Feedback checkpoints and for the Summative Final Due Date.

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| Refer to the OLE/Teams for Tasks and Resources related to each of the Sections of the Assessment. |
| Declaration of authenticity and resource/image/video use  The portfolio work presented for assessment is my own. For any resources/code/images/videos that have been presented for assessment that are not my own work, I have referenced the source on this form below.  *\_\_insert information here\_\_*  Signature: |
| 1. RoadMap, ChatGPT and exploration of AI Task |
| *\_\_insert evidence of tasks/assignments you have completed\_\_*  *\_\_your assignments are in the Assignments tab in our Teams channel\_\_*    ChatGPT: |
| 1. Python Refresh Tasks |
| *\_\_insert evidence of tasks/assignments you have completed\_\_*    *\_\_links to code\_\_*  *\_\_optional links to demos/videos\_\_pls do not insert video in your document*  *\_\_snapshots of code/previews\_\_*  *Prior knowledge – please refresh/practice:*   * *Variables and data types* * *If-elif-else structures* * *For and while loops* * *Input from user and output to console or GUI*   Introduction to Python course in PyCharm:    Python Refresh Challenge:  <https://replit.com/@maxleetsunhei/MaxLeeBattlewiththeAI#main.py> |
| 1. Data stored in collections - lists, arrays, sets, tuples, dictionaries – advanced technique |
| *\_\_insert evidence of tasks/assignments you have completed\_\_*  *\_\_links to code\_\_*  *\_\_optional links to demos/videos\_\_pls do not insert video in your document*  *\_\_snapshots of code/previews\_\_*  Lists:   Dictionary: |
| Reflection & Testing |
| Reflect on how the task went:  I started off by setting up the collections - lists, tuple, sets, dictionary. A function (collection\_testing()) is also used to print required aspects:   * Collection itself * Type of collection * First & Last item of collection * First half of collection * Specific item requested by user   I've used ChatGPT to correct some problems I had during iteration:  (Collection Iteration 3 -> 4 (helped by ChatGPT))    I have also added array to the task.  In this task, I have done well in setting up the collection itself, but I have found myself lacking on how to call items in different ways - the problem with calling specific item by user has left me no choice but to ask ChatGPT for solving, due to the lack of knowledge. Therefore, I must learn and memorize more methods etc.  For the most part I did the testing for the task. For the final iteration (iteration 4&5), I have asked another person to test the program for me. |
| 1. Functions that use parameters and/or return values (advanced technique) |
| *\_\_insert evidence of tasks/assignments you have completed\_\_*  *\_\_links\_\_*  *\_\_links to demos/videos\_\_pls do not insert video in your document*  *\_\_snapshots of code/previews\_\_*  16 Mar: |
| Reflection & Testing |
| Up to 16 Mar: I have used several functions that included if statements and return values and try, except statements. Most of the functions are working properly as intended after testing except for the recommendation function. The recommendation\_fc() has results that are unexpected even when other variables are expected. This is a major problem and should be solved before formative. See problem details in Testing section |
| 1. Non-core Libraries (advanced technique) |
| *\_\_insert evidence of tasks/assignments you have completed\_\_*  *\_\_links\_\_*  *\_\_links to demos/videos\_\_pls do not insert video in your document*  *\_\_snapshots of code/previews\_\_* |
| Reflection & Testing |
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| 1. (optional extra) Graphical user interface (GUI) basics (advanced technique) |
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| Reflection & Testing |
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| 1. (optional extra) Multidimensional data (advanced technique) |
| 17Mar:  22Mar: |
| 1. 2.7 Assessment task – you can choose ‘default’ or ‘pitch’ a new brief |
| *\_\_insert brief\_\_please see default brief on OLE Due Work 2.7*  *If you are pitching a new idea, you will add the following information:*  *\_\_context\_\_*  *\_\_user stories \_\_*  *\_\_brainstorming, initial ideas, coggle.it mind maps\_\_*  *\_\_end user requirements\_\_how will users interract with the outcome\_\_*  *\_\_interviews with client/stakeholders/potential users\_\_*  *\_\_research\_\_*  *\_\_once your project has been confirmed you are not allowed to change your mind!\_\_*  Wireless Headphone/Earbuds recommendation program  As a teenager, I care for best hit brand that some other teenager friends are using  As an elderly person, I just want to have the cheapest pair of earphones that can just do the bare minimum.  As an audio geek, I'd like to have the best sounding earphones on the market  A database which provides recommendations on specific headphone models after user inserted different required targets – e.g. Price range, type, brand, overall rating etc.  Two categories: True Wireless Earbuds, Wireless Headphones  Each categories have 10-20 in collections, total less than 40  Requirements:   * Price range: $1 - $2000 * Brand: [insert selection chart] * Functions: E.g. Noise Cancelling, Ambient sound... * Support Codec: E.g. AAC, SBC, LDAC... * App support: Y/N / Both * Battery Life: [Selection time range] * Bluetooth Ver. (added from reference): 5.0 or above, 5.2 or above... * Rating (added form reference): Best overall, best in audio, best in user-friendly... [Name has change to speciality]   Users will select/type in requirements to narrow down results  (Reference link: <https://www.price.com.hk/group.php?g=89>  <https://www.price.com.hk/category.php?c=100408&gp=89>  <https://www.soundguys.com/best-wireless-earbuds-2-14313/>  <https://www.whathifi.com/best-buys/best-cheap-wireless-earbuds>  <https://www.tomsguide.com/au/best-picks/best-cheap-wireless-earbuds>  <https://www.wired.com/gallery/best-wireless-headphones/>  <https://www.rtings.com/headphones/reviews/best/wireless-gaming-headsets>) ) |
| Reflection – & has this been done before? Why this project? |
| There are basics skills such as if statements and advanced techniques like functions that are reused in this program. From the experience of last year's internal, these skills are widely used and manipulated throughout the project; On the other hand, collections and multidimensional data are new skills learnt, and which are the core for this program. |
| 1. (2.8) Decomposition |
| *\_\_ decompose the outcome into components, and trial these components \_\_* |
| Reflection |
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| 1. 2.7 Testing Strategy/Plans (Expected, Boundary, Unusual/Invalid/Unexpected) + Comprehensive Testing |
| *\_\_insert evidence of tasks/assignments you have completed\_\_*  *\_\_links to code components\_\_*  *\_\_snapshots of code/previews\_\_*  *\_\_fill in your testing table and results\_\_\_*  **For More Test Logs, please see Test Log word doc. In google link on Pg.1**  16 Mar: Result problem:  Other functions that work fine:  Category\_fc()  Price\_range\_fc():    Brand\_fc():    17Mar: |
| Reflection & Further Testing (in situ, various devices,etc.) |
| I did most of the testing by myself, but I have also asked others to try out the program and break it.  16 Mar: **Major Problem in ending results, with bug in recommendation\_fc()**:  Results are unexpected even with expected input. In this trial, I have chosen 1. Anker for 'brand' variable in previous question. However, in the results, products not included in the Anker brand variable are printed out, for instance the 'Sony WH-1000XM5'. This indicates the function is not filtering as intended, and thus the basic intention of the program is not met. Up to 16 Mar, a solution is still yet to be found.  Other Variables and functions should work fine. They have been tested with expected, boundaries and invalid values., as shown in the screenshots above.  17 Mar: Bug solved  17 Mar:  When a value error occurs, although user may re-input value, the corresponding variable assigned for the function result shows "none", causing outcome unexpected.  22Mar: Major bugs resolved |
| 1. 2.7 Flexible and Robust Program |
| 22 Mar: |
| Reflection & Testing |
| 22Mar: In functions, used ValueError for all unexpected values; In price\_range\_fc(), used round in variables to set all float values to 2 decimal places; set parameters with if statements to set boundaries;  Things to change:   * Collection needs to be updated * Try setting input into multiple options, not just 1 * Parameters in functions (if statements) can be more flexible * For Battery\_life\_fc(), try setting it to user input minimum hour range for wider range * Add guidance wordings for better user experience * Add restart option the end * When one requirement from input functions is already not meeting specs in dictionary, jump straight to end and ask user restart or not * Spend more time refining reflective document |
| 1. (2.8) Planning – Gannt Chart & Kanban – Project Management |
| 1st & 2nd Week (5 & 6) - Variables, functions and collections set-up  3rd Week (7) – make the program work the basic functions, bug solving  Week 1-3 : |
| Reflection |
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| 1. (2.8) Version Control Set up - automate |
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| Reflection & Testing |
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| 1. 2.7 Developing a Final Outcome |
| *\_\_insert evidence of working components\_\_*  *\_\_links to code\_\_*  *\_\_links to demos/videos\_\_pls do not insert video in your document*  *\_\_snapshots of code/previews\_\_*  22Mar: \*see replit/github link for result, link on Pg.1 |
| Reflection & User Testing + Feedback/Future Steps/Improvements |
| 22Mar: After solving bugs and tested by others, the following feedbacks were given:   * Need more products in the dictionaries to fit for more preferences * Better wordings and guidance on the context * Can have a question at last to go over the program again after finish * When input preferences out of range in the dictionary, instant ask for restart   (all above also mentioned in note 11.) |
| 1. (2.8) Trialling |
| *\_\_trial major components separately to confirm they are fit for pupose\_\_*  *\_\_example: menu component – trial various structure and design ideas, then make a decision which option will work best in the final version of your outcome\_\_* |
| Reflection |
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| 1. (2.8) Iterative Improvements |
| *\_\_iterative improvements are aimed at making a better product/experience, after the outcome is functioning\_\_ \_\_version 1 – user testing – next steps – code/previews\_\_reflections*  *\_\_version 2 – user testing – next steps – code/previews\_\_reflections* |
| Reflection & Testing |
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| 1. 2.7 Final Outcome |
| *\_\_insert evidence of tasks/assignments you have completed\_\_*  *\_\_links\_\_*  *\_\_links to demos/videos\_\_pls do not insert video in your document*  *\_\_snapshots of code/previews\_\_*  22Mar: see replit/github link on Pg.1 |
| Evaluation |
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| 1. (2.7) Program conventions and Best Practice Guidelines |
| *\_\_insert evidence of following your chosen programming language conventions\_\_*  *\_\_if you have used automated tools, explain how\_\_\_* |
| 1. (2.8) Relevant Implications |
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| Reflection |
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