IA Section B

B.2 Record of Tasks:

Task Number/Sub Task Number	Date	Action	Outcome	Criteria	Time	Examples/Work Cited/Results
1. Pre-Design Research						
1.1	2022/04/21-2022/04/27	Identify the Problem and Potential Solutions	Discovered contemporary methods for boarding optimization and seating optimization. Read, compared, contrasted literature relating to the topic.	A	5 days	(See Appendix 1 Section 1- Literature Reference)
1.2	2022/04/29	Statement of purpose	Written a state of what the problem is, and how does the product solve the problem.	A	3 Hours	(See Criteria A)
1.3	2022/04/30	Email with Client	Used email to communicate our statement of purpose with the client. Received positive response with potential of product. Added him on WeChat for communication purposes.	A	2 hours	(See Appendix 1 Section 3)
2. Design and Feed-Back						
2.1	2022/6/30	Windows Hierarchy	Composed the initial windows Hierarchy plan for the product. It demonstrates the basic relationship between the planned windows	B	2 Hours	(See Criteria B – Design - Interface Visualization (old))

			of the application and the buttons.			
2.2	2022/7/1	Discussion with Client regarding Windows Hierarchy	Through WeChat messages, the client was shown the Windows Hierarchy, and approved it. The success criteria, based on the windows hierarchy was also made, presented, and approved.	A/B	40 minutes	(See Appendix 1-3 Excerpts from WeChat [1])
2.3	2022/7/6	Algorithm Hierarchy: Genetic Algorithm	Based on resources collected in task 1.1 the planning of and a diagram for the Genetic Algorithm was made. The theory behind the algorithm was comprehensively understood from literature.	B	3 Hours	(See Criteria B – Design - Genetic Algorithm)
2.4	2022/7/13	Algorithm Hierarchy: Cellular Automata	Created simulation rules for Cellular automate. Planned the functions within the algorithm.	B	12 hours	(See rules in appendix)
2.5	2022/07/18	Class/ Program Hierarchy	The Class hierarchy diagram (UML diagram was made. The overall software structure was decided.	B	12 hours	(See Criteria B- Design- UML Diagram)
3. Implementation						
3.1	2022/08/01	Genetic Algorithm Implementation	Based on the design, the first attempt of implementing the genetic algorithm was conducted in python.	C	4 hours	
3.2	2022/08/02	Fixing bugs/ testing aircrafts	Fixed Specific bug within the implemented algorithms. Tested the	C	6 hours	(See commented code in appendix 2)

			validity of the algorithm of different aircraft and decided on the 6*32 narrow aircraft.			
3.3	2022/08/04	Cellular Automata Implementation	Based on the rules designed previously, the Cellular automata simulation algorithm was implemented in python. The raw algorithm implementation was completed.	C	6 hours	
3.4	2022/08/12	Chatting app implementation	Programed a direct messaging app for passengers and airline companies for efficient communication.	NA	12 hours	(See appendix-2 client.py/serve.py)
3.5	2022/08/20	Feedback From Client	After communicating with the client, he suggested that the visualization function of the program should have been done another way: he wasn't able to access it on his own computer without a PyCharm ide. He also suggested that the chatting function was not necessary, there are replacements unlike the other two functions. He also explained that there need to be error checking for the inputs of the parameters, because the app crashes otherwise.	B/C	20 min	(See Appendix 1-3 Excerpts from WeChat [2])
4. Design 2.0						

4.1	2022/08/21	Redesign of Interface	The GUI was redesigned to fit the client's previous suggestions on the removal of the chatting function. The diagram for the interface was redesigned, and the success criteria was changed.	A/B	4 hours	(See success criteria in IA-Criteria-A and diagram in IA-Criteria B)
5. Finalization						
5.1	2022/10/1	GUI implementation	The designed GUI was implemented in code by the Tkinter Library.	C	5 hours	
5.2	2022/10/3	GUI integration with Algorithm	The Genetic Algorithm and cellular automata were converted into Object oriented structure. They were then bound to buttons and entry boxes in the GUI.	C	10 hours	
5.3	2022/10/3	Visualization using Libraries	The libraries MatPlotLib and MoviePy were integrated in order to provide a better user experience.	C	6 hours	(See Appendix 1-2)
5.4	2022/10/08	Final Client Feedback	The Client was invited to provide feedback to the finalized product. It included appraisal of work and the extensibility of the product in the future.	E	10 min	(See Appendix 1-3 Excerpts from WeChat)