Work hour sheet 23/05/2023 - 07/06/2023

Student Name: **Zeke Zhang**

date	start-time	finish-time	work-time(hr)	Comment
23/05/2023	11:30	20:30	9:00	1. A **MAJOR CHANGE** introducing a new C# class library, TimberAssembly.dll, in Visual Studio, improving code flexibility, modularity, and maintainability. https://github.com/sean1832/Research-Assistance-ML-Assembly/commit/2697398b424408313183884fda4c049ae4124a6e 2. Fixes to SecondMatch for issues causing incorrect return values and SecondMatch not skipping the matched subject. https://github.com/sean1832/Research-Assistance-ML-Assembly/commit/970d07df2f898cbd70382cf35a11cd7bc24291e1 3.The introduction of the 'SecondMatchFast' method, an optimization using HashSets for faster comparisons and reduced time complexity. https://github.com/sean1832/Research-Assistance-ML-Assembly/commit/bf98e92b4663b01eadc3355927f3248c0efaf175 4. A fix for IndexOutOfRangeException occurring when there are more Targets than Subjects. https://github.com/sean1832/Research-Assistance-ML-Assembly/commit/45e11ae3a4113fcb241848efb4d09c818e50c9b0 5. The OffCuts handling in MatchPair and Subjects list was revised to improve data organization. https://github.com/sean1832/Research-Assistance-ML-Assembly/commit/122b22d5de83571a80d829ab9dc406720df79f0f 6. The implementation of serialization for matched pairs, enhancing readability. https://github.com/sean1832/Research-Assistance-ML-Assembly/commit/5bba6c9590b9c81eb9bba7030000206d983fb264
24/05/2023	11:00	14:00	3:00	1. A fix for a false match occurring when the target dimension is smaller than a single subject. https://github.com/sean1832/Research-Assistance-ML-Assembly/commit/5d2e5c1e1ed998012b6ab55fbb751067ff9663ae 2. A fix to ensure RemainMatch doesn't return empty when the subject's dimension is larger than the targets. https://github.com/sean1832/Research-Assistance-ML-Assembly/commit/bf2a20fc7b6b2d1fb9f2dfde79ca2ba29dfd9c07
26/05/2023	19:00	23:30	4:30	1. A **MAJOR CHANGE** introducing a greedy 3D bin-unpacking algorithm method, 'CutToTarget'. Accompanying this, a new 'Processor' class has been added. https://github.com/sean1832/Research-Assistance-ML-Assembly/commit/980edd8240bdeedce6d2628c1cb8890ae32ad83a 2. Tests for 'CutToTarget' have been added, covering situations when the subject is smaller than the target, multiple subjects and targets, and when the subject is smaller than the target. 3. A refactor renaming 'Namespace Component' to 'Entities' and breaking down entities into 'Agent', 'Dimension', 'Pair', and 'Remain'. The 'Utilities' has been renamed to 'ComputeMatch'. 4. A refactor to modify entities methods, and match main function for improved readability. https://github.com/sean1832/Research-Assistance-ML-Assembly/commit/3639518e3a3c04438e660d02c7216c96c9f5d89d
28/05/2023	9:25	9:30	0:05	1. Modifies the visibility of the 'ComputeMatch' class, changing it to internal for better encapsulation in the build process. https://github.com/sean1832/Research-Assistance-ML-Assembly/commit/9c0792c4dfc1ac4bbe7ec4bc9749a5567d1c305f
6/6/2023	16:00	23:30	7:30	1. A **MAJOR CHANGE** involving the modification of the structure of entities. https://github.com/sean1832/Research-Assistance-ML-Assembly/commit/642a05e23f9be895492117c9f619a463665c90d2 2. A chore task to add 'todo' for 'thirdMatch' and 'fourthMatch' for future development. https://github.com/sean1832/Research-Assistance-ML-Assembly/commit/75f88528ae90151c55448b1a9fac6b0dfcb299d5 3. A chore task moving 'ComputeMatch' and 'Processor' to the Helper folder. https://github.com/sean1832/Research-Assistance-ML-Assembly/commit/fafc2e5550eec8bd3450d14d8131500e138404dd 4. A refactor updating the unit test name from 'UtilitiesTest' to 'ComputeMatchTest' for consistency. https://github.com/sean1832/Research-Assistance-ML-Assembly/commit/a0e7fbeb9b67a34e742b3b2bf64ad0e4b86ffe9d 5. The addition of new evaluation methods. https://github.com/sean1832/Research-Assistance-ML-Assembly/commit/a42220cc66ca393b74c7d959a435aba84be2b2c6 6. A feature introducing new methods to extract result data, with additions like 'GetUsedSubjectVolume', 'GetWasteVolume', 'GetSubjectInitVolume', and a refactor of 'GetWasteRateByVolume'. https://github.com/sean1832/Research-Assistance-ML-Assembly/commit/72f2327b716de0d0d831c01a5440eb25b330283d 7. The introduction of the 'ExtendToTarget' method, adding new timber when the salvage timber isn't long enough. https://github.com/sean1832/Research-Assistance-ML-Assembly/commit/0475871d2520689ebd0ba15074177c8be9723f6d 8. A build update to include XML documentation for builds. https://github.com/sean1832/Research-Assistance-ML-Assembly/commit/a2835b5a01b4e1c8085aae911935070021a1fad1 9. The addition of the 'GetNewSubjectVolume' method to calculate the total volume of new timbers. https://github.com/sean1832/Research-Assistance-ML-Assembly/commit/4449caf8d6038afd212ae66b8e1d4e7b76914507
7/6/2023	0:10	1:10	1:00	1. A fix for the 'ExtendToTarget' function where the new timber dimension was not matching the target orientation. https://github.com/sean1832/Research-Assistance-ML-Assembly/commit/c7624da1f786e8ad27e01022293c23d9650a2022 2. A feature update to the Unity script to accommodate new evaluation parameters. https://github.com/sean1832/Research-Assistance-ML-Assembly/commit/a746f549fa02a1978239ff178b6041e4ff97f0c1 3. A chore to set up for Unity UDP. https://github.com/sean1832/Research-Assistance-ML-Assembly/commit/b84e31355720d2ea445c7d2ad0e85d97097ca1a9
7/6/2023	17:00	18:00	1:00	1. A documentation update to add XML documentation, a chore to deprecate the 'RemainMatch' function, and a fix to 'ExtendToTarget' for correct handling of shared dimensions in the subject and target. https://github.com/sean1832/Research-Assistance-ML-Assembly/commit/916b868cfa30c22339ece43ea035396fefd4f720 2. A refactor to modify all Match methods' signatures in the 'Remain' class by replacing the 'out' parameter with 'ref' for better usage flexibility. https://github.com/sean1832/Research-Assistance-ML-Assembly/commit/45a6d95b88429f64c133626d1ed95f45bb5d6b1d
Total Hours			**26:05**	