MACHINE PROBLEM/PROJECT (MP) MECHANICS **[for CCPROG2 sections under F. R. Salvador]**

The Machine Problem/Project (MP) is a learning activity that lets you (students) apply what you learned in developing algorithms/programs that will provide answers to *real-life questions* about *real-life problems* based on *real-life data*. The MP is bigger in scope and may require several hours or days to complete compared with the short exercises and programming problems given in the hands-on exam. We'll apply a technique known as divide-and-conquer to handle a big-problem by subdividing and solving it as smaller sub-problems. The MP will be segmented into 4 parts (to be referred to as MP1 to MP4) each with a set of challenges. You will submit C source file(s) and representative output file(s) for each challenge on designated days within the term.

STAGE 0: Find a partner/buddy: You are **encouraged** to work on the MP in pairs, i.e., with another student who will serve as your partner/buddy. You and your partner may be from two different sections. Note, however, that you are NOT prohibited from working individually on your own if that is your choice. Just make sure that you are determined and very much capable of finishing the MP by yourself. Note that you will no longer be allowed to partner up with another student once you have made a prior decision to go solo. Moreover, you cannot use it as an excuse and complain later that the scope of the MP is "too big" and that you cannot finish it by yourself.

Sign up in Canvas Groups named **MPGROUP** regardless of whether you choose to work with a partner or on your own.

STAGE 1: Pre-requisite -- develop your own individual solution first. Even if it is a partnership (group) project, you are still REQUIRED to create your own INITIAL solution to the MP Challenges -- individually without discussing and relying on another person. This will help ensure that you have experienced the entire process of reading, understanding, solving the problem, testing, debugging and documenting your solution. The individual solution should not have any syntax error, and warnings. It may not be 100% perfect. It is possible that it may contain a logical error – which hopefully will be debugged after completing the collaborative stage of the project.

BEWARE: a student who did not produce and submit an individual solution will automatically be disqualified in the Collaborative Stage (see next box). Without his/her own solution, the student does NOT have anything to contribute to the partnership. **A grade of ZERO will be recorded for the MP part of concern in such a case.**

STAGE 2: Collaborate with and learn from your partner: Swap codes/solutions with your partner. You'll need to first comprehend, test and debug your partner's codes. Thereafter, set aside time to discuss the merits and demerits of your solutions with each other. Try to suggest improvements on your partner's solution. Share techniques and exchange know-how. Note that learning with a peer is the objective here -- to see a possibly different or better way of solving a problem.

Once you have examined, tested and discussed each other's codes, you should agree on the Group Solution that you'll submit as your MP deliverable. The Group Solution may be your solution or that of your partner. Alternatively, it may be a combination or an improvement of one or both solutions. Aside from the source codes, you will also need to submit a documentation of your MP. You will be provided a Word template or a shared google docs for this purpose.

Submit your MP deliverables before the specified deadline. Decide and agree with your partner who will be in-charge of the submission.

STAGE 3: Do an MP Demo: Each student will do a demo for a particular set of MP challenges. For example, you will do the demo for Challenge 4 to 7, while your partner will do the demo for Challenges 8 to 10. In case you worked on the MP without a partner, then you'll have to do all the demo by yourself.

Grading: The individual solutions will be compiled/tested and "inspected" but will NOT be graded. It serves as a PRE-REQUISITE for the student to enter and participate in the Collaborative Stage as discussed above. It is the Group Solution that will be checked/assessed/graded.

The MP grade will be the same for both students -- UNLESS there is a compelling and glaring reason as to why one student should get a different grade from the other (example reason: unequal contribution to the MP).

Questions? Post your questions in the Canvas Discussion thread dedicated to the MP.

Do NOT email me about the MP if your concern is not of a personal nature.

Please email me if the nature of your concern is personal, for example, you cannot submit the MP because you are sick.

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