

Part 3 (40% of final grade). Creative: propose your own contribution for a special variant of the problem, according to your choice and your original idea.

THIS IS THE “CREATIVE” PART OF THE PROJECT, REQUIRING INDIVIDUAL CONTRIBUTION.

This means that each team will have to come up with a different idea (clearly distinct from the direction chosen by all other teams) to implement and test in this stage and verify with me that no other team is working on the same direction.

- a. Extend the experiment from part 2, but this time “invent” your own variant of the problem (either biological or computational) that will either improve the biological reasoning and produce more meaningful results, or speed up the search while maintaining its accuracy.

For example: Suffix-Trie based search, identify Colinear Gene Blocks that are discriminative in terms of environment or taxonomy, your own suggestions for speeding up the search or saving memory, add new constraints such as allowing a bounded number of substitutions\deletions, a Branch-And-Bound version of the search, reporting k-best results and using this restriction to speed up the search, interesting biological direction of your choice, and more.

- b. I expect each team to select a different direction for this part. Therefore, after please schedule a brief office-hour meeting with me and announce\explain your direction for this part, this way we can plan together and verify that no two teams are working on the same direction.
- c. Implement your algorithm or bioinformatic pipeline and make sure to document your code or pipeline very clearly. Provide a “high level” description of your method\algorithm\bioinformatic pipeline in the report.
- d. Run your proposed approach on the data and describe your results in the report. If your idea was an improvement to the current algorithm in terms of time or space then report on the performance before\after. If your idea was some new variant of the problem that may be of interest to the biologists\bioinformaticians then exemplify some result\observation that can be obtained by your new implementation in comparison to the previous implementation (from part 2). If your idea is biological analysis then report clearly on your biological observations and add citations of relevant biological papers.
- e. The report can be in Hebrew, but you need to run “spellcheck” on it before submitting. Do not send me incremental versions of your report by email and ask me to give you comments again and again... instead, you are invited to schedule office hour meetings and ask me questions directly.

Submission Deadline of the report: 15\01\2021

Credit: 40 points. Points will be taken off for reports that are not clearly written or that are missing some of the information listed above. Also note that originality\creativity counts in the grade for this part and will be rewarded...each team should implement a distinct idea in this part.

Behatzlaha!