Assignment-1

CS F364

Design and Analysis of Algorithms

Weightage: 8% Total Marks= 24 Submission Date: 23rd April 2022 midnight.

Objective: The objective of this assignment is to implement the RNA secondary structure prediction algorithm described in the class.

You will test your code on the different datasets available on the following website.

http://ndbserver.rutgers.edu/service/ndb/atlas/gallery/rna?polType=all&rnaFunc=all&protFunc=all&strGalType=rna&expMeth=all&seqType=all&galType=table&start=0&limit=50

Click on the **NDB ID** hyperlink of a RNA molecule and then click on the **link exposing the nucleic acid sequence**.

Task 1: Implementing the algorithm ensuring that all the constraints of secondary structure as mentioned in the slides/lecture are addressed.

Task 2: Test your code on many data sets with different kinds of RNA molecules. Report the outputs and analysis of your implementation. Develop HTML pages for this report.

Task 3: Use Doxygen to generate the documentation of your code automatically. Learn the commenting rules required for Doxygen.

Pay attention to the way you design your code. Use Object Oriented Language C++ for this assignment. You are not supposed to use any kind of library functions or STL classes. Refrain from using codes available on the internet.

Marking will be based on

- Code Design. [4 Marks]
- Correctness of Implementation of the data structures and the actual algorithm. [10 Marks]
- Indentation and Comments. [2 Marks]
- Presentation skills in the Report (HTML pages). [6 Marks]
- Generation of code documentation using Doxygen. [2 Marks]