Assignment [Mid-Term]

CSC 2211 – Algorithms

Spring 2020-21

Deadline: 13th March 2021 [before 11 PM]

- You will solve 2 problems in total each worth **5 marks**.
- Look at your AIUB student ID. It has the pattern **xy-abcde-z**.
- In your student ID if…
- Both **y** and **e** are even numbers, you will do Question **1(ii) & 2(ii)**
- Both **y** and **e** are odd numbers, you will do Question **1(i) & 2(i)**
- **y** is even and **e** is odd number, you will do Question **1(ii) & 2(i)**
- **y** is odd and **e** is even number, you will do Question **1(i) & 2(ii)**
- Failure to follow the above requirements will result into not grading the assignment.

Question 1:

Using recursion tree method for the recurrence given below where **c** is a constant. Find its run time complexity from its solution. Show the step by step procedure.

i. $T(n) = 4T(n/3) + cn^2$
ii. $T(n) = 2T(n/2) + cn^2$

Question 2:

Use the master method to find run time complexity for the following recurrences.

i. $T(n) = 4T(n/2) + n$
ii. $T(n) = 9T(n/3) + n^2$

Submission instructions:

You will solve both problems by hand on pen and paper with clear and concise hand-writing. If it is not understandable from your solution what steps/ method you used to get to your solution, full grade is not guaranteed.

Take photos of the pages with solutions. Use all those photos chronologically to make a single pdf file. Name that file with your AIUB student ID.

Upload that file in the following directory in your AIUB student portal before the aforementioned deadline.

Courses & Results ➔ Algorithms ➔ Mid-term ➔Assignments ➔ FileSubmission ➔ Upload

One thing to keep in mind that the AIUB student portal does not allow file size more than 4 or 5 MB. Therefore, if you find your pdf file size is exceeding more than that, try compressing it with available tools online to reduce its size. You can follow the below-given online tools for that purpose. There are lots of other similar resources online. You are welcome to explore and use any of them.

1. https://smallpdf.com/compress-pdf
2. https://pdfcompressor.com/

Finally, if you have any queries, do not hesitate to contact me.

GOOD LUCK