In-class exercise 06

Write a C code to find the integrations of

$$\int_a^b (x^3 + 3x + 1)\, dx$$

For (a=0, b=1), (a=1, b=2), (a=2, b=3), (a=3, b=4), and (a=4, b=5). Use the Simpson's method.

For this excise, you can simply modify the code of EX06.c

In this exercise, you will need to first read values of a and b from a file 'EX06.input.dat'. After you calculate the integrations, you will need to write data to a file 'EX06.output.dat' with the following format:

a=#.##, b=#.##, area=#.##

Save 2 digital numbers for a, b and area.

Formular for Simpson's method:

$$\int_a^b f(x)dx = \frac{h}{6}\sum_{i=1}^{n-1}\left[f(x_i) + 4f\left(x_i + \frac{h}{2}\right) + f(x_{i+1})\right]$$

where n is the number of nodes, and $h = (b-a)/\,(n-1)$ is the width for each column (or the spacing between 2 neighboring nodes), x_i is the x for the ith node.

You can share your codes, questions, and bugs in the following google slides:

https://docs.google.com/presentation/d/1-Fh5DwOrNTT7TiC4Gzd4YfiBvOPx9M0NrTL8lmnWKXY/edit?usp=sharing