PHY453 Computational Physics | Assignment 6

Anantha Rao | Reg no: 20181044

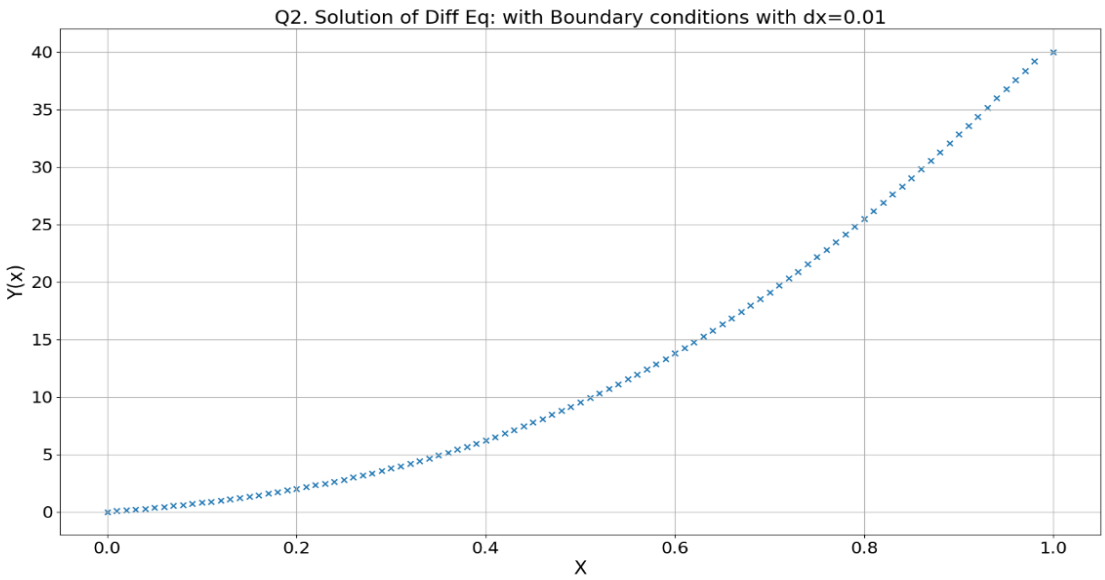
8 Nov 2021 (Differential Equations)

Q1.

- The position of the 4th particle after 2000 iterations (ie t=40) is 3.4185*10^{-2}
- The simulation results are in `*./Q1/ coupled_DE_positions.csv*`

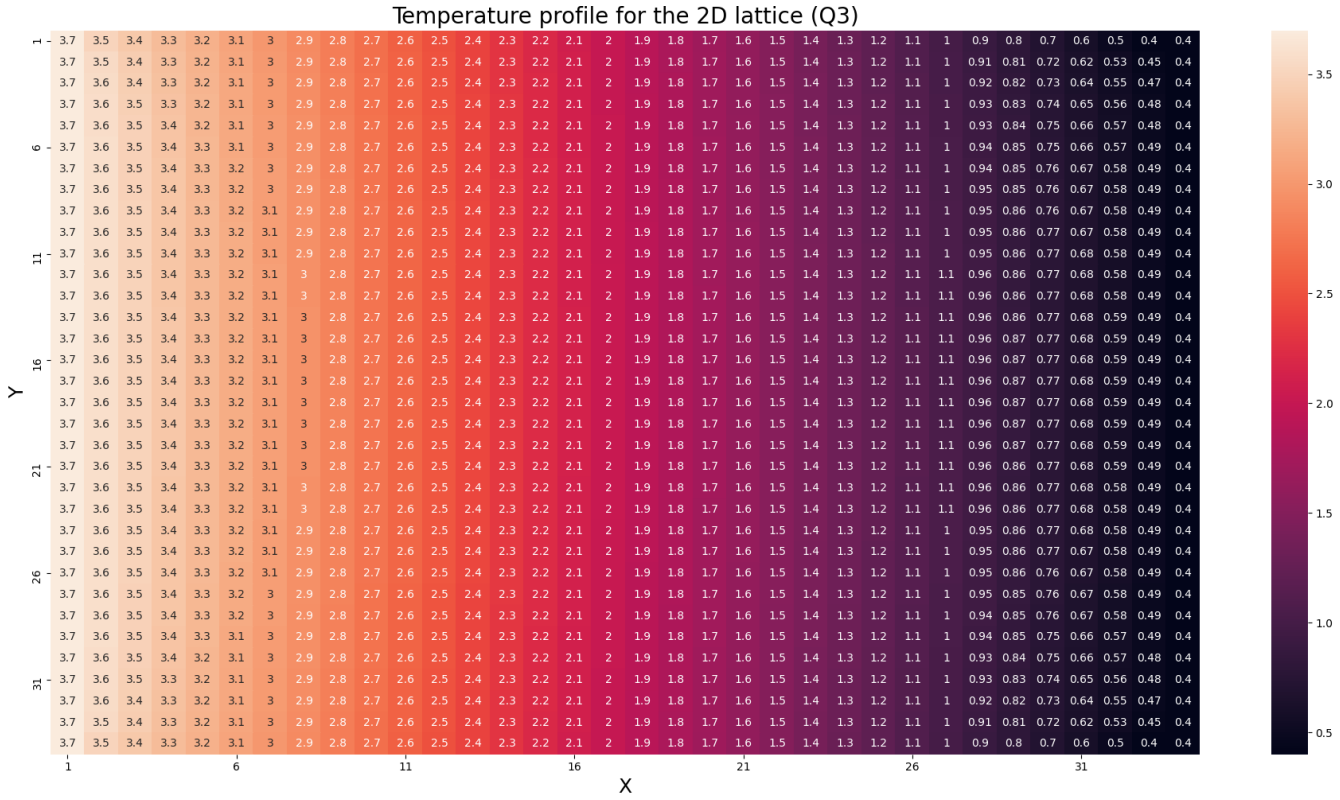
Q2.

- The value y(x=0.78) is approximately **24.124** (`*./Q2/ b_value_dx_01_limit_0001.dat*`)



Q3.

- The temperature at point (20,20) is approximately **1.7**.
- If an arithmetic progression ie Tn = A + (n-1)d is used for the linear boundary condition then it is T(20,20) = **1.779**
- If we use Tn = A + (n-2)d [as done in the lecture], we get **1.729**
- The results are used in `*./Q3/ initialize_10000.dat*`



Q4.

The temperature at point (10,10) is **1550.001** *(`./Q4/data.dat`)*