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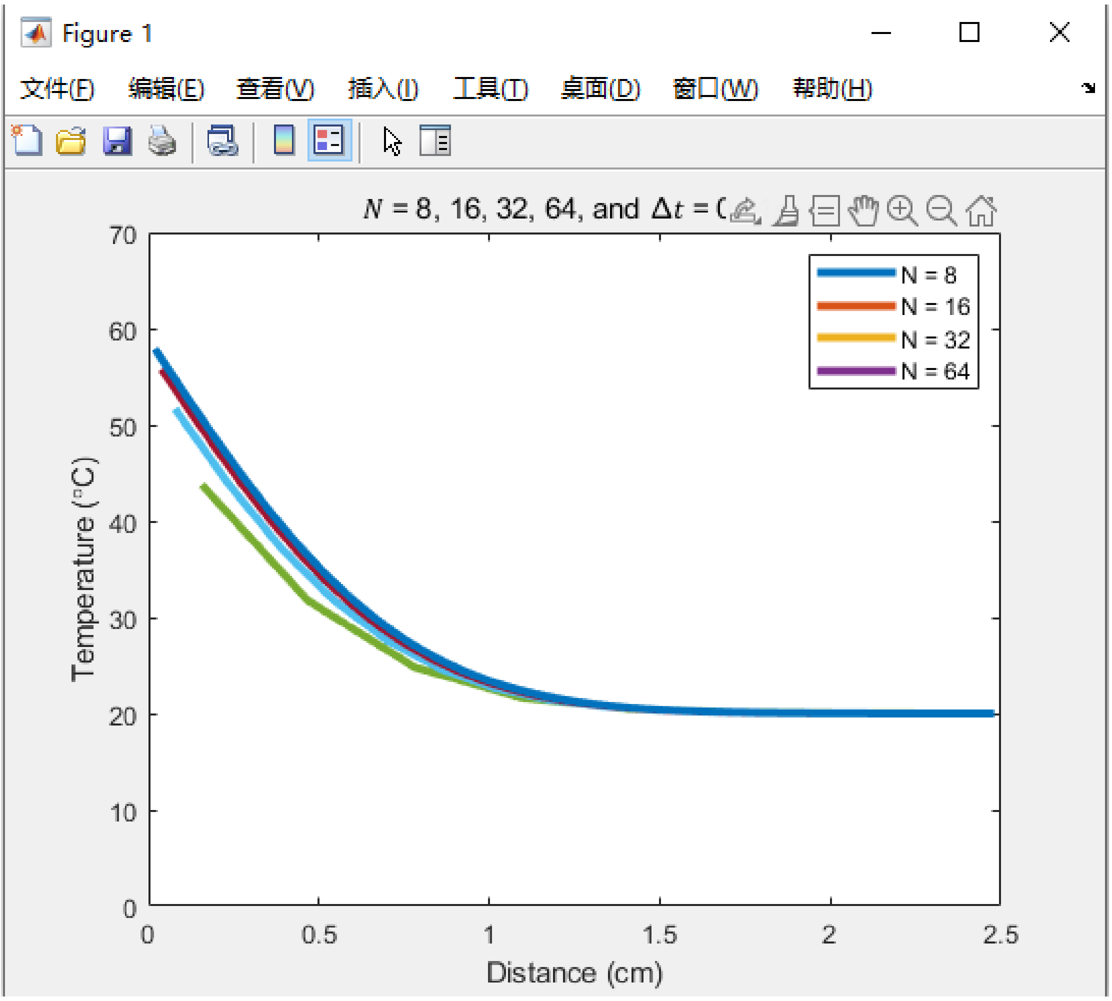
CS 3200
U1327012

Assignment 5

Source: https://www.youtube.com/watch?v=uLkuEr6M40o

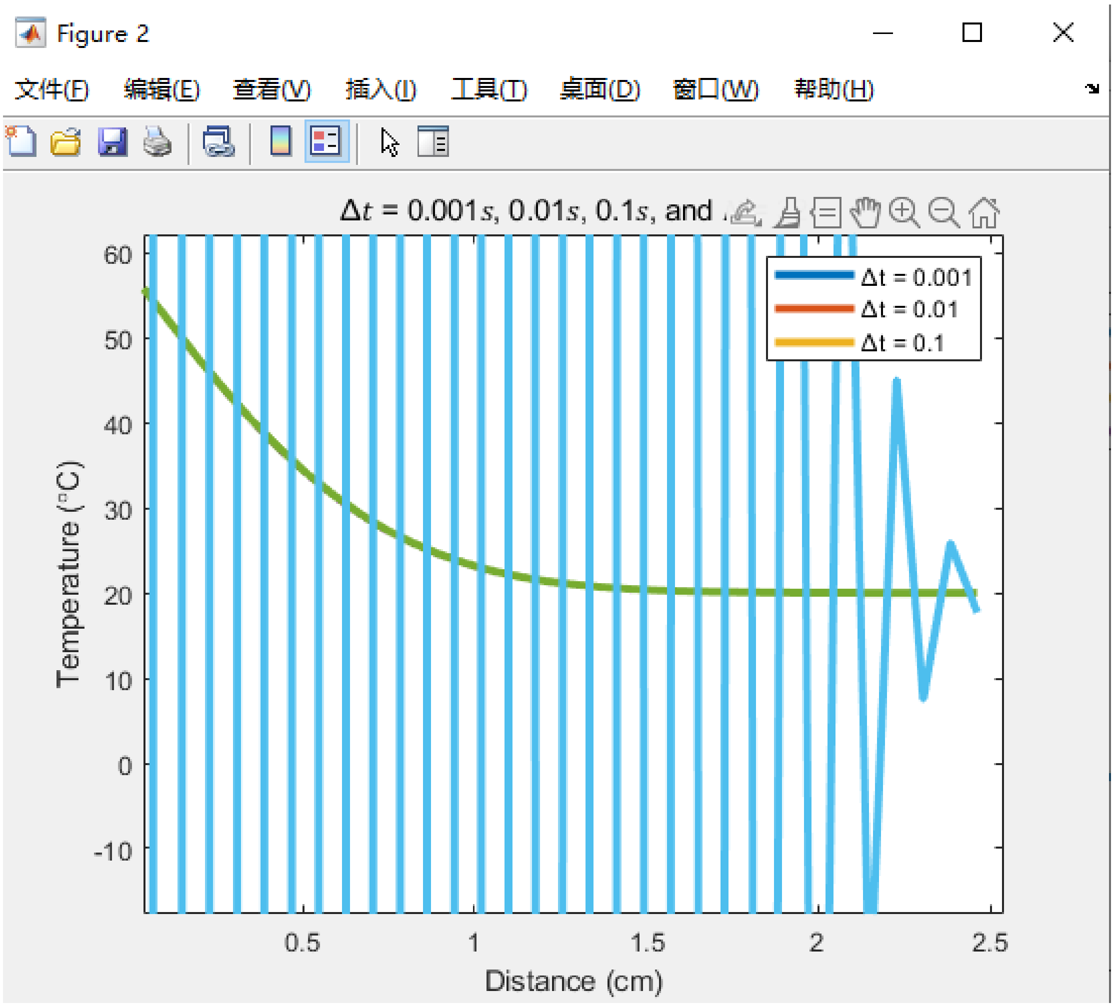


(N= 8,16,32,64, and Δt = 0.01s)

We use the method from ppt like this

$$\frac{\partial u}{\partial t} = a\frac{\partial^2 u}{\partial x^2}$$

to compute each instance temperature i for different N but same Δt. As you can see above, we plot a figure which are N= 8,16,32,64 when Δt = 0.01s.



(Δt = 0.001s, 0.01s, 0.1s, and N = 32)

We use the method from ppt like this $$\frac{\partial u}{\partial t} = a\frac{\partial^2 u}{\partial x^2}$$ to compute each instance temperature i for different Δt but same N. As you can see above, we plot a figure which are Δt = 0.001s, 0.01s, 0.1s when N = 32.

Question: Describe how the result changes for different values of N and Δt.

If N is various but Δt is same like N= 8,16,32,64 and Δt = 0.01s, the results tend to have similar arcs. If Δt is various but N is same like $\Delta t = 0.001s, 0.01s, 0.1s$, and N=32, the results would tend to have similar arcs when Δt is smaller than 0.1(like 0.01 and 0.001). But when Δt is 0.1, the result fluctuates a lot.