1D unsteady diffusion equation with a constant source term.
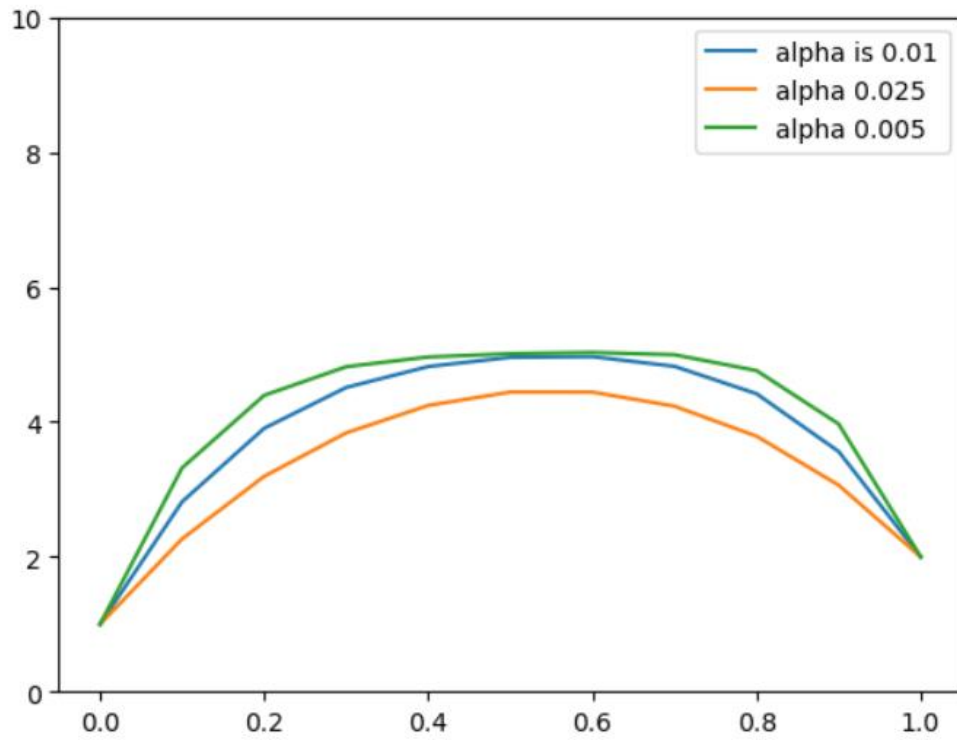
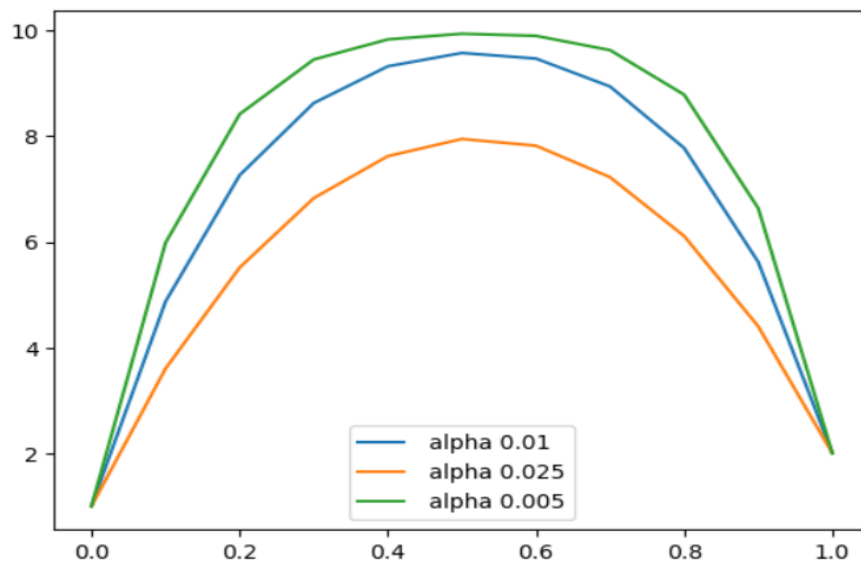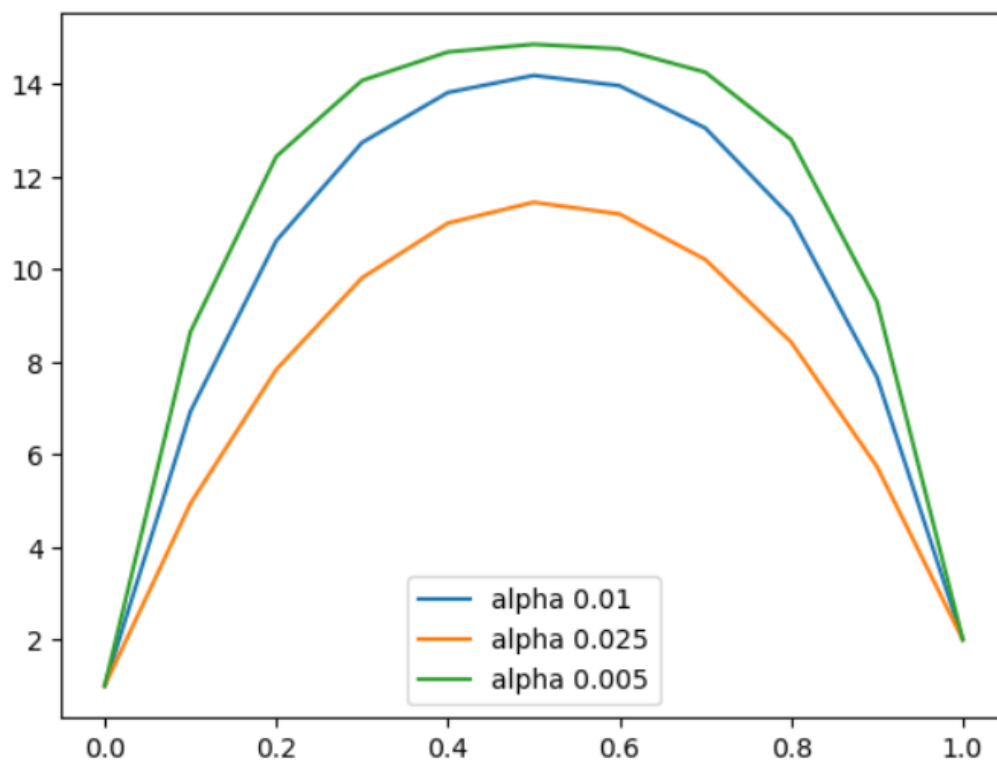Forward Time Central Space (**FTCS**) scheme:

solution at time t = 5.

S(source)= 1

S(source) = 2

For S(source) = 3

Observation:

As the increase in value of source term the gradient of temperature over the length is increasing as we can see from the above plot that the peak temperature is more.

 For the value of increasing alpha as the value of alpha increasing the peak the curve decreasing resulting in more diffusion of temperature.