Modeling and Simulation, CS302

Lab-10

Due Date: April 20, 2021 (Tuesday)

In this lab the objective is to model the forest fire spread model (Module-10.3 of the book) and systematically analyze the different scenarios.

1. Read the chapter carefully and implement all the functions in the chapter *i.e* initialization, initial conditions etc.

   (a) First consider the simple model, where there is an initial density of trees with a small fraction burning. What happens to the forest as the density of tree is increased? Identify the correct observable and see if there tipping point (phase transition) in the model. You may include question 9 under the project section in the module for your analysis.

   (b) Include Exercise 1 and 2 in your model. How is your result in (a) influenced by this.

   (c) **(extra credit)** Including wind direction in your code do questions $10(a) - (d)$.

Note

- Like the previous lab make a short presentation of your study and share it as submission of the report. There is no need to submit a lab report.
- There is no need to submit a latex report.