MA5710: Assignment-4

Course Teacher: Prof. S Sundar

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Instructions :

- Please do not copy. Any sign of copy will lead to zero marks only.
- Submit all your findings as report in a single .pdf file to **ma19d201@smail.iitm.ac.in** within **27th October**

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1. Implement **Gudanov Method** to numerically solve the first order hyperbolic partial differential equation, that is the scalar conservation law. Assume different **speed density relations** and initial values as mentioned in the slide provided, on case by case basis(when the signal is red, then red to green and then red again, with and without speed breaker before and after the signal). Generate the tables provided in the slide for each case and subcases.
2. Implement Gudanov Method to numerically solve the same PDE equation when the speed density relation follows the **car following model**, that is the traffic microscopic model. Generate the same tables as in **Question no 1** for each case. This creates a bridge between traffic macroscopic and microscopic model.
3. How will you formulate the traffic flow modelling problem as a black box model?