CS 403 Algorithm Design & Analysis
Lab Assignment 6

- Submit a report (with full explanation of your algorithm's running time and complexity) along with the codes and readme file in a zipped folder. The report should be in PDF format as a single document. If you want to assume something during coding, then mention in your report.

- The last date of submission is 27th May, 2017. You are advised to understand and read assignment questions and if you have any query then post it on moodle forum so that we all can have a good discussion.
- Late submissions will have penalty of 15% per day (that is 15% per day will be reduced on the score you achieve as the late submission penalty).
- You have to do code for all questions and give a good explanation in your report. Your reports would be evaluated thoroughly. Please provide pseudo-codes in report.
- We will provide test datasets at the time of evaluation. In that case, you code should be well generalized. Analyze your codes with different test sets during implementations of algorithms.
- Submit your assignment to:

  jyoti_nigam@students.iitmandi.ac.in / krati_gupta@students.iitmandi.ac.in

(1) Cast the max-flow problem as a linear programming problem. Implement the algorithm and show how to obtain max-flow assignment by using the solution of LP.

(2) Cast the vertex cover problem as an integer programming problem. Implement LP algorithm to find approximate solution to the vertex cover problem.

(3) Implement the randomized contraction algorithm to find global min-cut with probability of correct answer at least 1-(1/n^3).

Note : For (1) and (2), you can directly use simplex algorithm routine to perform LP optimization.