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Math170: Mathematical Methods for Optimization
Term Project I

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1. There is an interactive LP solver you can download from the class website. It automatically generates a random LP with a basic feasible solution from the given numbers of constraints and variables. Modify this code so it can solve any given LP with the **Phase I** and **Phase II** solution process. Your program should take A, b, and c as input and report

   - **Failure:** Your code had failed without producing any meaningful result. Report in which phase does the code fail and whether this is due to *degeneracy* or *unknown problem*.
   - **Success:** Your code has come to a successful stop. Report whether the LP is
     - **Infeasible:** In this case report the optimal solution and objective value in the **Phase I** calculations.
     - **Feasible with unbounded objective value:** In this case report the set of feasible solutions that leads to $-\infty$ in the objective value.
     - **Feasible with bounded objective value:** In this case report the optimal primal and dual solutions and the optimal objective value.

2. Use your code to solve George Stigler's Diet Problem as developed in his paper, accessible on the class website. Take your input data from Table 1 and Table A.

Email your code and your Diet Problem solution to the instructor by 23:59PM, Nov. 3, 2013.