Programming Assignment 2:
Convex Optimization

Instructor: Jun Moon

Due Date: November 29 (Tue) at the beginning of the class

Note

- Due: June 13, Sunday, 11:00(am), Course Website
- You must submit your MATLAB codes and the numerical results.
- You should use LaTeXto write your report.

Problem 1

Consider the following matrix zero-sum game where the player 1 (row) maximizes A and player 2 (column) minimizes A:

$$A = \begin{pmatrix} 4 & 3 & 1 & 4 \\ 2 & 5 & 6 & 3 \\ 1 & 0 & 7 & 0 \end{pmatrix}.$$

- Formulate the problem as linear programs. Find a saddle point and the value of the game by using "linprog" in MATLAB

Problem 2

Repeat Problem 1 for the following matrix

$$\begin{pmatrix} 0 & 5 & -2 \\ -3 & 0 & 4 \\ 6 & -4 & 0 \end{pmatrix}$$

Problem 3

Repeat Problem 1 for the following matrix

$$\begin{pmatrix} 5 & 8 & 3 & 1 & 6 \\ 4 & 2 & 6 & 3 & 5 \\ 2 & 4 & 6 & 4 & 1 \\ 1 & 3 & 2 & 5 & 3 \end{pmatrix}$$