

Exam Stats

Mean: 82.5

Median: 85

Cutoffs

A: 90-100

B: 80-89

C: 60-79

D: 50-59

F: <50

#2 on exam)

Average of 9 students = 85

10th student : 65

$$\text{New average : } \frac{85(9) + 65}{10} = 83$$

8 on exam) $x \geq 0$
 $y \geq 0$

Space in freezer $22x + 33y \leq 15000$

Budget $5x + 8y \leq 900$

Doc's orders $\boxed{x \geq 3y}$ $x - 3y \geq 0$ $y = 1$

~~$3x \geq y$~~

a

3)

Recall: Two player games

Payoff matrix:

$$\begin{array}{cc} & \text{C} \\ & \begin{array}{cc} c_1 & c_2 \end{array} \\ \begin{array}{c} R \\ r_1 \\ r_2 \end{array} & \begin{bmatrix} 4 & -9 \\ 6 & 8 \end{bmatrix} \end{array}$$

C chose c_1 , R chose r_2 : C pays R 6 dollars

C chose c_2 , R chose r_1 : R pays C 9 dollars

Strategy:

	c_1	c_2	Row Min
r_1	4	-9	-9
r_2	6	8	6
Col Max	6	8	

If (largest row min) = (smallest col max),
game is called strictly determined (players should
play same strat every single time).

Example:

	C_1	C_2	<u>Row Min</u>
r_1	1	2	1
r_2	3	4	3
r_3	7	5	<u>5</u>
<u>Col Max</u>	7	<u>5</u>	

Strictly determined: Yes

Value: 5

Saddle point: (3, 2)

Solution: r_3, C_2

Example:

$$\begin{array}{ccccc} & & & & \text{Row} \\ & & & & \text{Min} \\ & & & & \hline & & & & 3 \\ \left[\begin{array}{ccc} 3 & 4 & 11 \\ -5 & 2 & -3 \\ 6 & 6 & 9 \end{array} \right] & & & & -5 \\ & & & & \boxed{6} \\ & & & & \\ \text{Col} & & & & \\ \text{Max} & | & \boxed{6} & \boxed{6} & 11 \end{array}$$

Strictly determined: No

Value: 6

Saddle point: (3,1) and (3,2)

Solution: r_3 , c_1 or c_2

Example:

	c_1	c_2	Row Min
r_1	3	-2	-2
r_2	-5	4	-5
Col. Max	3	4	

Strictly determined: No

Value: DNE

Saddle points: None

Solution: None

R picks $r_1 \rightarrow$ C picks c_2

$\rightarrow$ R picks r_2

Example: Two stores, A-Mart + B-Mart fighting for business. A-Mart has 55% of business, B-Mart has 45%. Both consider building new store

- Both build neither build: Market share stays same
- A-Mart build/B-Mart doesn't: A-Mart gets 65% of business
- B-Mart build/A-Mart doesn't: B-Mart gets 50% of business

Payoff matrix:

		B	
		B	NB
A	B	0	10
	NB	-5	0

$$\begin{array}{cc}
 & \begin{array}{cc} B & NB \end{array} \\
 \begin{array}{c} A \\ B \\ NB \end{array} & \begin{bmatrix} 0 & 10 \\ -5 & 0 \end{bmatrix}
 \end{array}
 \begin{array}{c}
 \text{Row} \\
 \text{Min} \\
 \hline
 \boxed{0} \\
 -5
 \end{array}$$

$$\begin{array}{c}
 \text{Col} \\
 \text{Max}
 \end{array}
 \left| \begin{array}{cc}
 \boxed{0} & 10
 \end{array} \right.$$

Game is strictly-determined.
Both should build