NAME: ANURAN CHAKRABORTY

CLASS ROLL: 001610501020

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RL= 20

MN = 8002 689 0000 01

FN = (65+48+85+82+65+78) = 70 = 453%, 70=33. LN = (67 + 72 + 65 + 75 + 82 + 65 + 66 + 79 + 82+84+89)% = 826% 70 = 56.

FLN = 1279 %. 70 = 19

RLM = 20 +01 = 21

MFN = 01 + 33 = 34

MLN = 01 + 56 = 57

max. Z= 342 + 572 Q1.

Subject to \$74 + 2072 = 1000 $\chi_1 + \chi_2 \leq 800$ 74+ 72 5 400.

21 5 d2 70.

Convert to canonical form by adding slack

variables. Z-3474 - 5722+05, +032 +033=0.

4+2022 + 3 = 1000.

24 + 22 + 52 = 800 24 + 22 + 53 = 400

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For amy iteration.

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mNX. $Z = C_B X_B + C_N X_N$ S.t. $\begin{bmatrix} B, N \end{bmatrix} \circ \begin{bmatrix} X_B \\ X_N \end{bmatrix} = b \quad \text{and} \quad \begin{bmatrix} X_B \\ X_N \end{bmatrix} > 0.$ $Z = C_B X_B + C_N X_N = C_B X_B = C_B B^{-1}b.$ BXB + NXN = b

BXB = b - NXN.

XB = B^{-1}b - B^{-1}NXN

XB = B^{-1}b.

Theretion 0

$$a_{B} = \begin{bmatrix} a_{3} \\ a_{4} \end{bmatrix}$$
 $B = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \end{bmatrix}$
 $B = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 0 & 1 \end{bmatrix}$
 $B = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 0 & 1 \end{bmatrix}$
 $B = \begin{bmatrix} 1 & 0 & 0 \\ 800 \\ 400 \end{bmatrix}$
 $C_{B} = \begin{bmatrix} 0 & 0 & 0 \end{bmatrix}$
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Initialization Iteration O.

$$C = [34 57] [A, I] = \begin{bmatrix} 1 & 20 & 1 & 0 & 0 \\ 1 & 1 & 0 & 0 & 1 \end{bmatrix}$$

$$b = \begin{bmatrix} 1000 \\ 800 \\ 400 \end{bmatrix} \quad \chi = \begin{bmatrix} \chi_4 \\ \chi_2 \end{bmatrix} \quad \chi_5 = \begin{bmatrix} \chi_3 \\ \chi_4 \\ \chi_5 \end{bmatrix}$$

$$\mathcal{A}_{\mathcal{B}} = \begin{bmatrix} \mathcal{A}_{\mathcal{B}} \\ \mathcal{A}_{\mathcal{B}} \end{bmatrix}, \quad \mathcal{B} = \mathbf{I} = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} = \mathbf{B}^{-1}$$

$$A_{g} = \begin{bmatrix} 23 \\ 24 \\ 25 \end{bmatrix} = \begin{bmatrix} 3 \\ 0 \end{bmatrix} = \begin{bmatrix} 1000 \\ 001 \end{bmatrix} \begin{bmatrix} 1000 \\ 800 \\ 400 \end{bmatrix} = \begin{bmatrix} 1000 \\ 800 \\ 400 \end{bmatrix}$$

$$C_{B} = [0 \ 0 \ 0]$$
 So $Z = [0 \ 0 \ 0]$ [1000] = 0

Now attempthere is at least one -ve & value. - c2= -57 < -4=-34 ... X2 is the entering

variable.

Iteration 1

72 is entering variable.

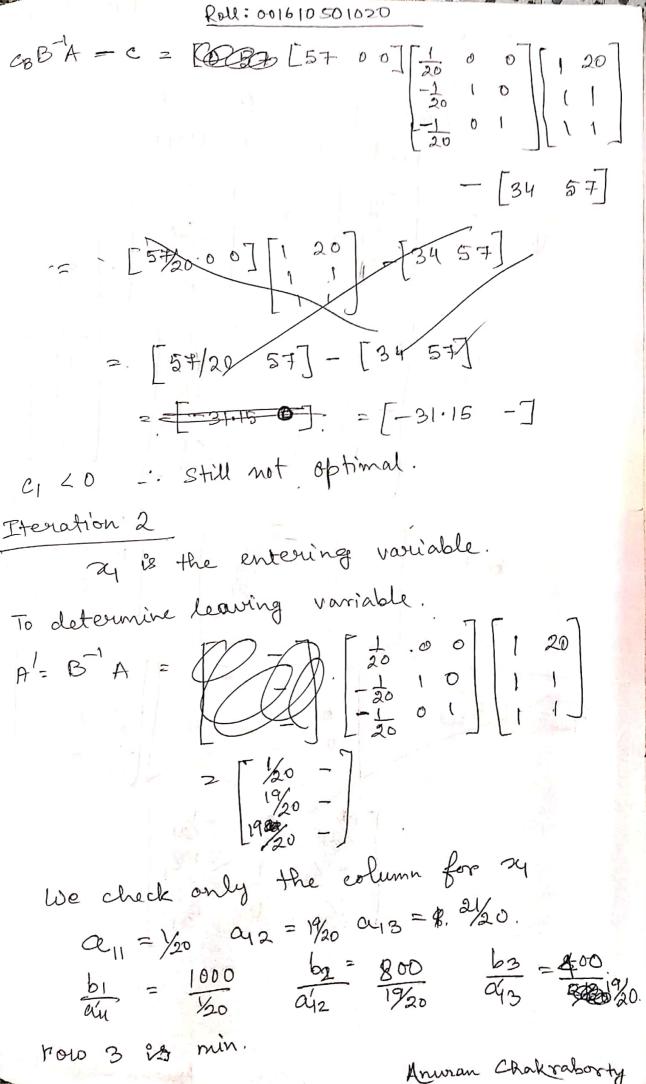
To determine leaving variable.

$$B^{-1}A = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \end{bmatrix} \begin{bmatrix} 1 & 20 \\ 1 & 1 \end{bmatrix} = \begin{bmatrix} 1 & 20 \\ 1 & 1 \end{bmatrix}$$

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We check only the column for 22. Roll: 0-016105010 a12 = 20, a22 = 1, a22 = 1. 200 by 1000 = 50., ba = 800 aga 1 400. by is min so you by is the leaving Entering: z_2 [2nd col] Leaving: z_3 [1st row] (1,2) is the pivot) Obtain new BT $E = \begin{bmatrix} \frac{1}{20} & 0 & 0 \\ -\frac{1}{20} & 1 & 0 \\ -\frac{1}{20} & 0 & 1 \end{bmatrix}$ $B_{\text{new}}^{-1} = E_{\text{old}}^{-1} = \begin{bmatrix} \frac{1}{20} & 0 & 0 \\ \frac{1}{20} & 1 & 0 \\ \frac{1}{20} & 0 & 1 \end{bmatrix}$ $78 = \begin{bmatrix} 72 \\ 24 \\ 25 \end{bmatrix} = \begin{bmatrix} 50 & 0 & 0 \\ 1 & 0 & 0 \\ 20 & 1 & 0 \\ 1 & 0 & 0 \end{bmatrix} = \begin{bmatrix} 50 \\ 450 \\ 250 \\ 1 & 0 \end{bmatrix} = \begin{bmatrix} 50 \\ 450 \\ 1 & 0 \\ 1 & 0 \end{bmatrix}$ American Chakrabost

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-: 25 is the leaving variable.

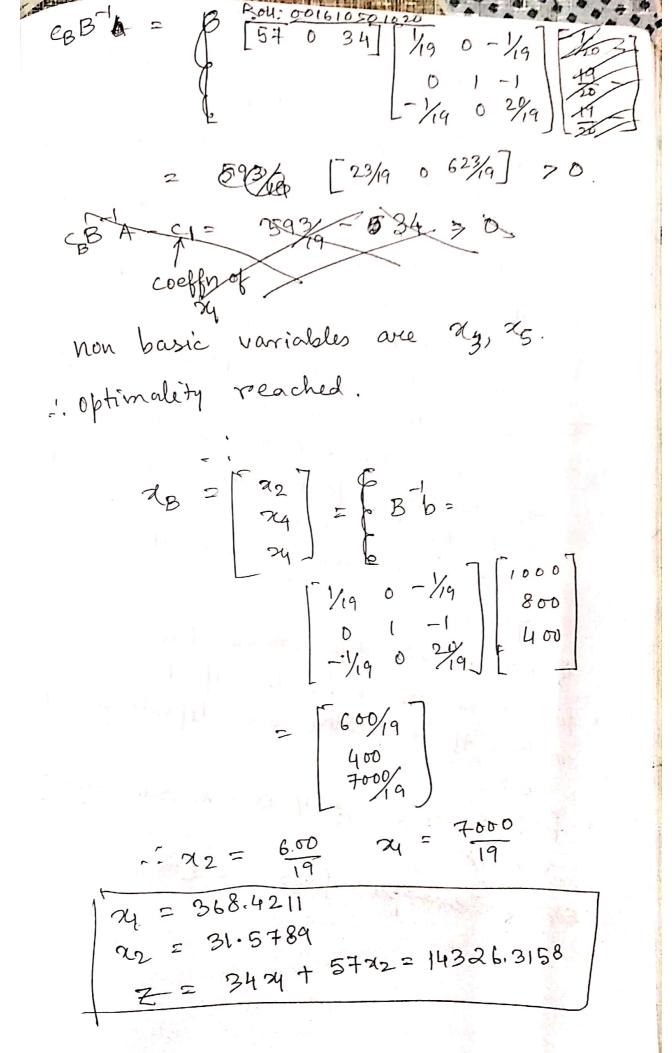
Entering: 24 (col1)

Leaving: 25 (800 3)

: Pivot element (3,1)

$$E = \begin{bmatrix} 1 & 0 & -\frac{1}{19} \\ 0 & 0 & -\frac{1}{19} \\ 0 & 0 & \frac{70}{19} \end{bmatrix}$$

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