# Class 6 (28.02.2017)

Make a **menu driven program** using Revised / Dual Simplex with the following options (a) initial table (b) List of basic & non-basic variables for ith iteration (c) table of $i^{th}$ iteration (f) optimal solution (if exists otherwise generate report for infeasibility, unboundedness, alternative optimum etc.)

1. Minimize $Z = 20x_1 + 16x_2$, Subject to $x_1 \geq 2.5$, $x_2 \geq 6, 2x_1 + x_2 \geq 17, x_1 + x_2 \geq 12, x_1, x_2 \geq 0$.
   (Ans. $x_1 = 5, x_2 = 7, Z = 212$)

2. Minimize $Z = 4x_1 + 8x_2 + 3x_3$, Subject to $x_1 + x_2 \geq 2, 2x_1 + x_3 \leq 5, , x_1, x_2, x_3 \geq 0$.
   (Ans. $x_1 = 2, x_2 = 0, x_3 = 0, Z = 8$)

3. Maximize $Z = 15x_1 + 6x_2 + 9x_3 + 2x_4$, Subject to $10x_1 + 5x_2 + 25x_3 + 3x_4 \leq 50, 12x_1 + 4x_2 + 12x_3 + x_4 \leq 48, 7x_1 + x_4 \leq 35, x_1, x_2, x_3, x_4 \geq 0$.
   (Ans. $x_1 = 2, x_2 = 6 \ x_3 = 0, x_4 = 0, Z = 66$)

4. Maximize $Z = 5x_1 - 2x_2 + 3x_3$, Subject to $2x_1 + 2x_2 - x_3 \geq 2$, $3x_1 - 4x_2 \leq 3$ , $x_2 + 3x_3 \leq 3, x_1, x_2, x_3 \geq 0$.
   (Ans. $x_1 = \frac{23}{3}, x_2 = 5, x_3 = 0, Z = \frac{85}{3}$)