

## Lab on basic solutions

Write C/C++ code for solving  $m$  simultaneous equations with  $n$  unknowns ( $m < n$ ) to obtain basic solutions.

Requirement: knowledge on Basic Solution, Basic Feasible Solution,

Assume non-negativity constraints for solving the following.

- **Write a menu-driven program** for obtaining Basic Solution, Basic Feasible Solution
- **Using your code get the results of the following problems.**

1. Find all basic solutions for the system of simultaneous equations. Determine basic solutions and basic feasible solutions separately.;

a.  $x_1 + x_2 \leq 450, 2x_1 + x_2 \leq 600$

b.  $x_1 + 4x_2 \leq 24, 3x_1 + x_2 \leq 21, x_1 + x_2 \leq 9$

c.  $2x_1 + 3x_2 + 2x_3 \leq 440, 4x_1 + 3x_3 \leq 470, 2x_1 + 5x_2 \leq 430$

d.  $3x_1 - x_2 + 2x_3 \leq 7, 2x_1 + 4x_2 \geq -12, -4x_1 + 3x_2 + 8x_3 \leq 10$

**DO IT MANUALLY FIRST**