Lab basic optimality

Write C/C++ code for solving LPP with *m* simultaneous equations with *n* unknowns (*m* < *n*) to obtain optimal solution.

Requirement: knowledge on Basic Solution, Basic Feasible Solution, optimal solution, slack and surplus variable.

Assume non-negativity constraints for solving the following.

- **Extend the previous menu-driven program** for obtaining Basic Solution, Basic Feasible Solution(BFS), optimal solution. Introduce slack or surplus variables needed.
- **Using your code get the results of the following problems**

1. Find optimal solution for the LPPs. Determine basic solutions and basic feasible solutions separately.;
   a. $Maximize\ 5x_1 + 3x_2, s.t.\ x_1 + x_2 \leq 450, 2x_1 + x_2 \leq 600$
   b. $Maximize\ 2a - 6c\ s.t.\ a + b - c \leq 7, 3a - b \geq 8, -a + 2b + 2c \geq 0$
   c. $Maximize\ a + b\ s.t.\ 4a - b \leq 8, 2a + b \leq 10, 5a - 2b \geq -2$
   d. $Minimize\ a + b + c, s.t.\ a - b - c \leq 0, a + b + c \geq 4, a + b - c = 2$