Lab on Integer Programming

Write program separately for solving integer programming with branch and bound & cutting plane method. Cutting Plane program should generate the menu with the following items.

1. Equation of cutting plane in each iteration.
2. Incoming variable in each iteration.
3. Outgoing variable in each iteration.
4. Print the pivot element.

Check the solution of the problem using the program of branch and bound method.

Problem 1. $Minimize\ 3x_1 - 4x_2$

$$Subject\ to\ 3x_1 - x_2 + x_3 = 12,$$

$$3x_1 + 11x_2 + x_4 = 66,$$

$$all\ x_i s\ are\ integers.$$

Problem 2. Solve problem 1 again with x_2 only restricted to take integer values.