



## DECISION ANALYTICS.

### Lab11: Simplex Algorithm

#### BACKGROUND.

In the lectures 20 and 21 we looked at the two phases of the simplex algorithm. In this exercise you will implement the simplex algorithm to solve linear programs yourself and see if it generates the same results as the OR Tools solver you used in Lab10.

#### Task 1.

Implement a function to execute the pivoting operation on a matrix given the row and column of the pivot element.

#### Task 2.

Implement a function to execute the phase 2 of the simplex algorithm that optimises a tableau with explicit basis vectors as discussed in lecture 20.

#### Task 3.

Implement a function to execute the phase 1 of the simplex algorithm that creates a tableau with explicit basis vectors as discussed in lecture 21.

#### Task 4.

Create the input tableau for the diet problem given in the previous Lab10. Run the tableau through the algorithm for phase 1 developed in task 3, and then through the phase 2 developed in task 2. You should get the same result as in Lab10.