

## Specifications

### Ultimate Optimizer

Provide a file input and a textarea web or stand-alone interface (not via command line) where the user can specify the **objective function**, the **goal** (to minimize or to maximize) and the allowable **constraints**. The necessary syntax for the different inputs of the system will be provided in the next chapter. After specifying all the necessary information, the user will instruct the system to start solving (by pressing a button, etc.). This is by calling an R executable file, which reads the file and solves the input via the simplex method.

**Note on the R Executable:** I am not teaching this. You are free to consult the web for help.

Implement a program that solves the optimization problem using the simplex method. The tableau and the basic solution for each iteration must be placed in **comma separated files** in a folder named `iterations`, with each file named `iteration_<number>.csv` (e.g. `iteration_1.csv`). The **final solution** and **resulting value** of the objective function must be identified. **You should only use R as the programming language in doing the simplex method.** Incentives shall be given if the solution is displayed

In the event that the simplex method will generate an error due to incorrect inputs, the program should generate a file named `error.txt`, identifying the error.

In the event that the simplex method did not converge based on the given inputs, the program should generate a file named `diverge.txt`, telling that the simplex method has diverged.