LAB 1
Introduction to AMPL

1. Install AMPL and solvers.

2. Open the AMPL IDE application and get familiar with the boxes it displays: Current directory, Console, opened file.

3. ***Case chemicals* in particular form.**
   a) Implement a code in AMPL for the particular model of *Case chemicals* that we formulated in lecture 2. Call your file *chemicals.mod*.
   b) Run it.
   c) Display the optimal objective value.
   d) Display the optimal value of the decision variables.

4. ***Case chemicals* in general form.**
   a) Implement a code in AMPL for *Case chemicals* organized in three files:
      1) *generalchemicals.mod* file with a model in general form.
      2) *datachemicals.dat* file with the data.
      3) *solvingfile.run* file with the running commands.
   b) Run it.
   c) Display the optimal objective value.
   d) Display the optimal value of the decision variables.
   f) Create a file called *report.txt* which contains the optimal objective value and the optimal value of the decision variables.
   g) Modify your files in such a way that only the constraints on working hours at the departments is written in general form but the constraint on the demand limit is formulated in particular for product CS02.

5. **Transportation problem.**
   a) Implement a code in AMPL for the transportation model in general form. Call your file *transp.mod*.
   b) Implement a data file called *datatransp.dat* with the instance of the milk company that we studied in lecture 2.
   c) Implement a commands file called *runtransp.run* to run the model for this data instance and report the results to a file called *soltransp.txt*.
   d) Suppose the unit transportation cost (per litre) between facility F3 and customer K1 changes from 3.00 to 4.00. Solve the new problem. How do your new results differ from the previous ones?