# Data Networks project

**Part 1.** Find the proportionally fair rate vectors of the source rates solving the utility maximization problem with CVX.
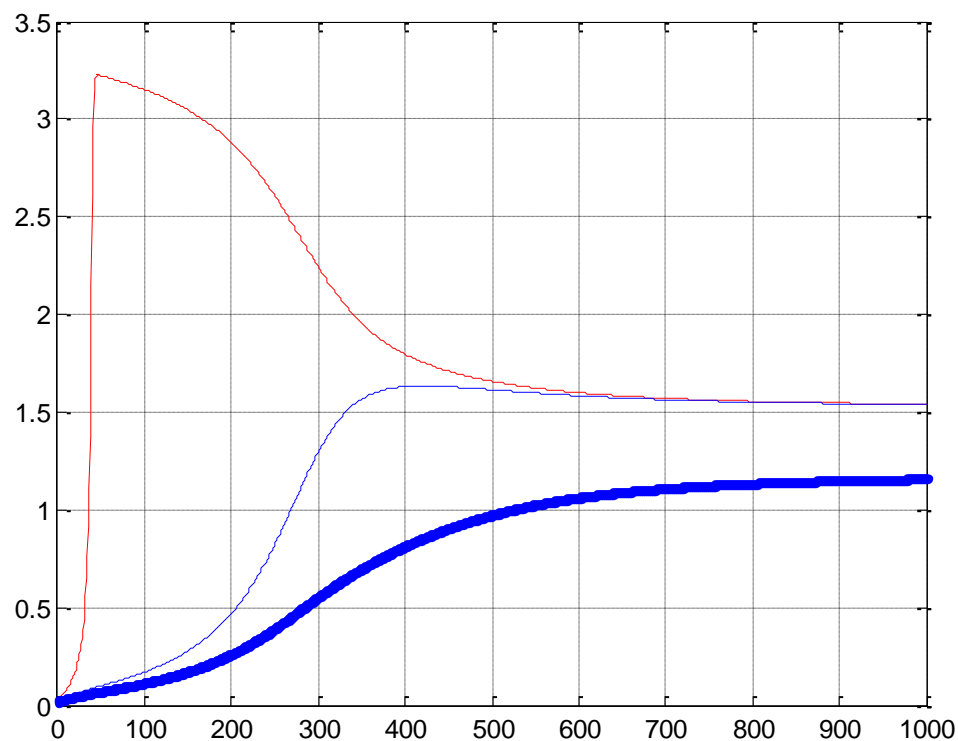
Primal = 0.6931
y= 2 , 1 , 1

**Part 2.** Solve the dual problem using the gradient descent method. Plot the source rates versus the iteration number of three sources and show the convergence.

The rates of these three sources converged to below amounts:

| rate | 1.540 | 1.1580 | 1.5396 |
|------|-------|--------|--------|

**Part 3.** Solve the problem using Kelly's algorithm.

The resulting rates are according to the following values:

| rate | 0.8583 | 0.3825 | 0.5171 |
|------|--------|--------|--------|