CPLEX Optimization example

from Alex Fleischer

300 kids need to travel to the London zoo

The school may rent buses:

- 40 seats = 600€
- 30 seats = 400€

How many buses of each to minimize the cost?

In [1]:

```
from docplex.mp.model import Model
```

In [2]:

```
mdl = Model(name="buses")
```

Define variables to optimize

In [3]:

```
nbbus40 = mdl.integer_var(name="nbBus40")
nbbus30 = mdl.integer_var(name="nbBus30")
```

Add a constraint

In [4]:

```
mdl.add_constraint(nbbus40*40+nbbus30*30>=300, "kids")
```

Out[4]:

```
docplex.mp.LinearConstraint[kids](40nbBus40+30nbBus30,GE,300)
```

Goal

In [5]:

```
mdl.minimize(nbbus40*600+nbbus30*480)
```

Solve

In [6]:

```
mdl.solve()
```

Out[6]:

```
docplex.mp.solution.SolveSolution(obj=4560,values={nbBus40:6,nbBus30:2})
```

Solution

In [7]:

```
print("Bus 40 = ", nbbus40.solution_value)
print("Bus 30 = ", nbbus30.solution_value)
```

```
Bus 40 =  6.0
Bus 30 =  2.0
```