Optimization assignment — AMPL V3 2

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```
set Obj;
param price{i in Obj};
var useitem{i in Obj} binary;
minimize delta:
    abs((sum{i in Obj} useitem[i]*price[i]) -
        (sum{i in Obj} (1 - useitem[i]) * price[i]));
```

```
set Obj := Caillebotte Diocletian Yuan Porsche Diamonds LouisXV Sculpture
        Boat HarleyDavidson RaceDogs Cavour;
```

```
param price := Caillebotte 25000
               Diocletian 5000
               Yuan 20000
               Porsche 40000
               Diamonds 12000
               LouisXV 3000
               Sculpture 10000
               Boat 15000
               HarleyDavidson 10000
               RaceDogs 3000
               Cavour 13000
```

```
option solver couenne;
option solver_msg 0;
option display_1col 0;
option output_level         0;
model solution.mod;
data solution.dat;
solve;
display delta;
display useitem;
```

```
Couenne 0.5.6 -- an Open-Source solver for Mixed Integer Nonlinear Optimization
Mailing list: couenne@list.coin-or.org
Instructions: http://www.coin-or.org/Couenne
couenne:
ANALYSIS TEST:
        "Finished"
Total solve time:                       0.002907s (0.002906s in branch-and-bound)
Lower bound:                                   0
Upper bound:                                   0  (gap: 0.00%)
Branch-and-bound nodes:                        3
delta = 0

useitem [*] :=
          Boat 0         Diamonds 1         LouisXV 1        Sculpture 1
   Caillebotte 1       Diocletian 1         Porsche 0             Yuan 1
        Cavour 0   HarleyDavidson 0        RaceDogs 1
;
```