In [3]:
```
import pulp
```

In [4]:
```
prob = pulp.LpProblem("Ham_Deng",pulp.LpMinimize)

x1 = pulp.LpVariable('x1',lowBound=0,cat='Integer')
x2 = pulp.LpVariable('x2',lowBound=0,cat='Integer')
x3 = pulp.LpVariable('x3',lowBound=0,cat='Integer')
x4 = pulp.LpVariable('x4',lowBound=0,cat='Integer')
x5 = pulp.LpVariable('x5',lowBound=0,cat='Integer')
x6 = pulp.LpVariable('x6',lowBound=0,cat='Integer')
y = pulp.LpVariable('y',lowBound=0,cat='Binary')

#obj
prob += 1000*x1+10000*x2+10000*x3+25000*x4+50000*x5+600000*x6

#st
prob += 1000*x1+50000*x2+20000*x3+150000*x4+50000*x5+500000*x6>=1000000
prob += x1<=30
prob += x2<=30
prob += x3<=30
prob += x4<=2
prob += x5<=6
prob += x6<=15
prob += x5<=100000000*y
prob += x6<=100000000*(1-y)

prob.solve()
print(f"Optimal value of x1: {x1.varValue}")
print(f"Optimal value of x2: {x2.varValue}")
print(f"Optimal value of x3: {x3.varValue}")
print(f"Optimal value of x4: {x4.varValue}")
print(f"Optimal value of x5: {x5.varValue}")
print(f"Optimal value of x6: {x6.varValue}")
print("objective value",pulp.value(prob.objective))
```

```
Optimal value of x1: 0.0
Optimal value of x2: 14.0
Optimal value of x3: 0.0
Optimal value of x4: 2.0
Optimal value of x5: 0.0
Optimal value of x6: 0.0
objective value 190000.0
```