

```
In [33]: import pulp as pl
```

```
In [34]: a = pl.LpVariable("a",0,1,pl.LpInteger)
b = pl.LpVariable("b",0,1,pl.LpInteger)
c = pl.LpVariable("c",0,1,pl.LpInteger)
d = pl.LpVariable("d",0,1,pl.LpInteger)
```

```
In [35]: prob = pl.LpProblem("Knapsack",pl.LpMaximize)
```

```
In [36]: prob += 5 * a + 7 * b + 2 * c + 10 * d
```

```
In [37]: prob += 2 * a + 4 * b + 7 * c + 10 * d <= 15
```

```
In [38]: prob.variables
```

```
Out[38]: <bound method LpProblem.variables of Knapsack:
MAXIMIZE
5*a + 7*b + 2*c + 10*d + 0
SUBJECT TO
_C1: 2 a + 4 b + 7 c + 10 d <= 15

VARIABLES
0 <= a <= 1 Integer
0 <= b <= 1 Integer
0 <= c <= 1 Integer
0 <= d <= 1 Integer
>
```

```
In [39]: status = prob.solve()
```

```
In [40]: print(pl.LpStatus[status])
```

Optimal

```
In [41]: # print the values
print("a", pl.value(a))
print("b", pl.value(b))
print("c", pl.value(c))
print("d", pl.value(d))
```

```
a 0.0  
b 1.0  
c 0.0  
d 1.0
```

```
In [51]: pl.value(prob.objective)
```

```
Out[51]: 17.0
```

```
In [ ]:
```