

Linear Programming (Simplex LP) PuLP?

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4

In Python only, and using data from a Pandas dataframe, how can I use [PuLP](#) to solve linear programming problems the same way I can in Excel? How much budget should be allocated to each Channel under the New Budget column so we maximize the total number of estimated successes? I'm really looking for a concrete **example** using data from a dataframe and not really high-level advice.

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Problem Data Setup

3

	Channel	30-day Cost	Trials	Success	Cost Min	Cost Max	New Budget
0	Channel1	1765.21	9865	812	882.61	2647.82	0
1	Channel2	2700.00	15000	900	1350.00	4050.00	0
2	Channel3	2160.00	12000	333	1080.00	3240.00	0

This is a **Maximization** problem.

The *objective function* is:

```
objective_function = sum((df['New Budget']/(df['30-day Cost']/df['Trials']))*
(df['Success']/df['Trials']))
```

The *constraints* are:

1. The sum of `df['New Budget']` must equal 5000
2. The `New Budget` for a given channel can go no *lower* than the `Cost Min`
3. The `New Budget` for a given channel can go no *higher* than the `Cost Max`

Any ideas how to translate this pandas dataframe solver linear problem using PuLP or any other solver approach? The end-result would be what you see in the image below.

	A	B	C	D	E	F	G	H
1	Channel	30-day Cost	Trials	Success	Cost Min	Cost Max	New Budget	Est. Successes
2	Channel1	\$1,765.21	9,865	812	\$882.61	\$2,647.82	\$2,570.00	1,182
3	Channel2	\$2,700.00	15,000	900	\$1,350.00	\$4,050.00	\$1,350.00	450
4	Channel3	\$2,160.00	12,000	333	\$1,080.00	\$3,240.00	\$1,080.00	167
5		\$6,625.21					\$5,000.00	1,799

Solver Parameters	
Set Objective:	\$H\$5

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