Linear Programming
Using Solver

1 Linear Programming using Excel

Input Linear Program into Excel

Decision Variables

x_1, x_2, x_3, x_4

Objective Function

Maximize Profit:

$P = 5.5x_1 + 6.25x_2 + 4.67x_3 + 5.23x_4$

Constraints

$4x_1 + x_2 + 2x_3 + x_4 = 5000$

$x_1 \leq 2000$

$x_2 \leq 860$

$x_3 \leq 980$

$x_4 \leq 3000$

	A	B	C	D	E	F	G	H	I
1		X1	X2	X3	X4				
2		Item 1	Item 2	Item 3	Item 4				
3	Weight in Kilos	0	860	570	3000				
4	Load Value	5.5	6.25	4.67	5.23	=SUMPRODUCT(B4:E4,B3:E3)	<--	Objective Function	
5	**Constraints:**								
6	Capacity	4	1	2	1	=SUMPRODUCT(B6:E6,$B$3:$E$3)	=	5000	
7	Item 1 Limit (Kilos)	1	0	0	0	=SUMPRODUCT(B7:E7,$B$3:$E$3)	<=	2000	
8	Item 2 Limit (Kilos)	0	1	0	0	=SUMPRODUCT(B8:E8,$B$3:$E$3)	<=	860	
9	Item 3 Limit (Kilos)	0	0	1	0	=SUMPRODUCT(B9:E9,$B$3:$E$3)	<=	980	
10	Item 4 Limit (Kilos)	0	0	0	1	=SUMPRODUCT(B10:E10,$B$3:$E$3)	<=	3000	
11						LHS		RHS	
12									
13									
14									
15									

Labels for decision variables

Values of decision variables are to be left blank. Excel will compute optimal values.

Constraint coefficients

Constraints and Objective Function are computed using the SUMPRODUCT function.
Example: 4x1 + x2 + 2x3 + x4 -> =SUMPRODUCT(B6:E6,$B$3:$E$3)

=SUMPRODUCT(B6:E6,$B$5:$E$5)

Note: Dollar sign forces absolute reference.

Drag the fill handle to copy down to other cells.

To use solver, flip to the back ——>
Ok let's do this

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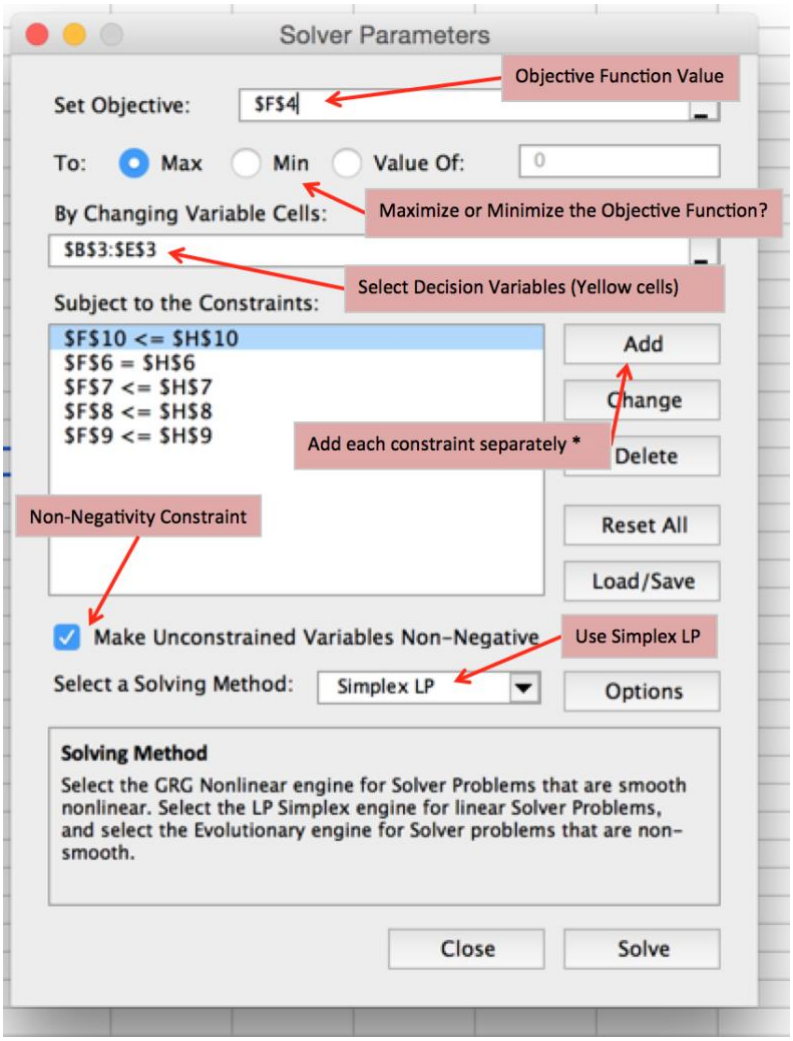
Solver

File → Options → Add-ins Pane → Go → select Solver Add-ins → OK

To add Solver to Excel, go on Data menu and select Solver.



*Note: When using solver, always select your SUMPRODUCT function, not the coefficients.

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