and a nursing numerin? Visios if the Kodateky governous and a subserve could have a subs

hosp cet results on Two peoples and facility were taken by selicopter Saturday morning: The chief said he did not know kilometers) east of St. Louis.

History Commediately elegated the the Held by ge was existed by straight-line storms or a tornado, but the National Weather Second after the St. Louis reported radar-confirment ornadoes, in the Edvardsville area around the time of the collapse. About 10 people who were in the building were taken to bus to the police station in nearby Pontoon Beach for evaluation. Early Saturday, rescue crews were still sorting through the rubble. Fullback said the process could take several more hours. Cranes and backhoes were brought in to bely moved

The countries that are doing best are the ones with high effective measures," says Salathé. "The worst countries neither. Most are in between." Buffeven when vaccination rates are high and the pres ow, it may not be enough for long-term protection—especially give he UK rolled out a vaccination program earlier than most country erefore has experienced the impact of waning immunity earlies says. "Ultimately, the world can be out of this was a majority of the way coinated. The combination of vaccine hasitancy and fack of access to vaccines

Thately the contribute the Harage was caused by straight-line storms or a torm do. but the National Weather

The who were in the bridging were taking a hit.

Early Saturday, rescue crews were still sorting through the rubble. Fullback said the process could take several more hour Cranes and backhoes were brought in to

The countries that are doing best are the ones with high

vana l'arsons-Perez, di distory rampley ce, veus trappe d'under five feet (about 1.5) meters) of de par least of the company o

ates Courte Paro Courte Pail, she said.

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and a newing ome in Arkansas. The Kentucky governor said he feare more could be lead.

But even when var ination racs are high and the present of the country of your property of the country of the coun esearch fellow in global, main at the University of Southampton.

The UK are clearly bytes an invest are to preside the constant of the UK are clearly bytes an invest are to preside the constant of the UK are constant of the UK a on arby con coping as s properties the state of the sta て "Predictive" Analytics Veronique Frizzell

We were a merry band of four, trying to oversee the financial management of 100+ projects. The duties entailed the set up and close down of charge codes, the updates of contract values, the reporting of project financial status, doing project reviews, forecasting - to name just a few tasks.

We were dropping the ball on catching the projects that had imminent overruns and it was hitting our revenues.

I needed something easy, without a lot of work, predicting which of the 100+ projects were going to overrun.



We didn't have any fancy AI software back then. It probably was just a glimmer in some scientist's eye.

The internal software we were using didn't have a feature warning us of imminent overruns.

Fortunately, I came up with something that didn't involving linear regressions, clustering, decisions trees, or any other of those fancy analytics terms. It involved something that anybody who graduated from high school can use...

conference Saturday. "It is very har confidence Saturday." It is very har belief to be conference Saturday. "It is very har belief to be conference Saturday. "It is very har belief to be conference Saturday." It is very har belief to be confidence of the confidenc

Yep, averages.

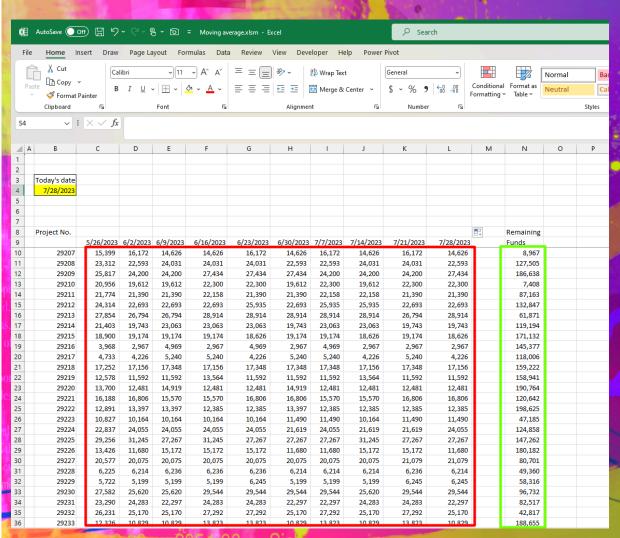
7 "Predictive" Analytics

Veronique Frizzell

Here's how it worked:

Off to the right is a sample spreadsheet full of made up numbers.

- The section outlined in red are weekly expenses pulled in via formulas.
- Column B lists the project numbers.
- And row 9 shows the weekly dates.
- The section outlined in green are the remaining budget or contract values, also pulled in via formulas.
- I needed to transform this into an analytical powerhouse.

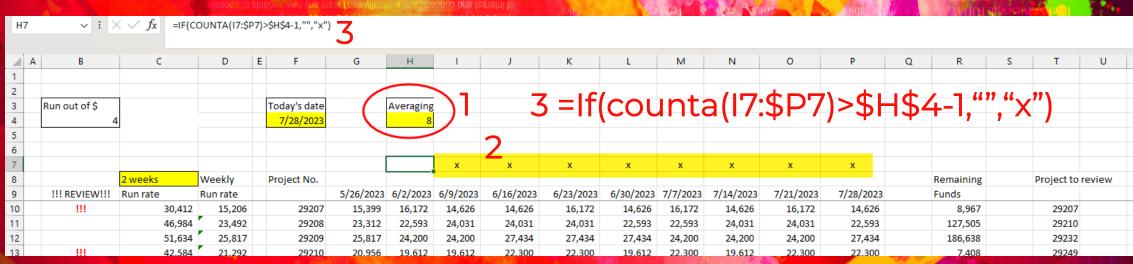


Here's what I ended up with: (Red outlines are new.)

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	wling Gr	8		2 weeks	▼ eekly	Project No.												Remaining		Project to	review
	ana Parse	9	!!! REVIEW!!!	Run rate	Run rate		5/26/2023	6/2/2023	6/9/2023	6/16/2023	6/23/2023	6/30/2023	7/7/2023	7/14/2023	7/21/2023	7/28/2023		Funds			
1	100	10	!!!	30,412	15,206	29207	15,399	16,172	14,626	14,626	16,172	14,626	16,172	14,626	16,172	14,626		8,967		29207	
109	euers ma	11		46,984	23,492	29208	23,312	22,593	24,031	24,031	24,031	22,593	22,593	24,031	24,031	22,593		127,505		29210	
	120	12		51,634	25,817	29209	25,817	24,200	24,200	27,434	27,434	27,434	24,200	24,200	24,200	27,434		186,638		29232	
	K In	13	!!!	42,584	21,292	29210	20,956	19,612	19,612	22,300	22,300	19,612	22,300	19,612	22,300	22,300		7,408		29249	
		14		43,356	21,678	29211	21,774	21,390	21,390	22,158	21,390	21,390	22,158	22,158	21,390	21,390		87,163			
THE	ık I was į	15		47,818	23,909	29212	24,314	22,693	22,693	22,693	25,935	22,693	25,935	25,935	22,693	22,693		132,847			
A SUS	the re	16		56,768	28,384	29213	27,854	26,794	26,794	28,914	28,914	28,914	28,914	28,914	26,794	28,914		61,871			
	vom Ta	17		43,636	21,818	29214	21,403	19,743	23,063	23,063	23,063	19,743	23,063	23,063	19,743	19,743		119,194			
	JOHN TAN	18		37,937	18,969	29215	18,900	19,174	19,174	19,174	18,626	19,174	19,174	18,626	19,174	18,626		171,132			
	one	19		7,436	3,718	29216	3,968	2,967	4,969	2,967	4,969	2,967	4,969	2,967	2,967	2,967		145,377			
	16 / C	20		9,720	4,860	29217	4,733	4,226	5,240	5,240	4,226	5,240	5,240	4,226	5,240	4,226		118,006			
		21		34,552	17,276	29218	17,252	17,156	17,348	17,156	17,348	17,348	17,348	17,156	17,348	17,156		159,222			
	Casi	22		24,170	12,085	29219	12,578	11,592	11,592	13,564	11,592	11,592	11,592	13,564	11,592	11,592		158,941			
	int the	23		26,181	13,091	29220	13,700	12,481	14,919	12,481	12,481	14,919	12,481	12,481	12,481	12,481		190,764			
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		25		25,276	12,638	29222	12,891	13,397	13,397	12,385	12,385	13,397	12,385	12,385	12,385	12,385		198,625			
		26		21,654	10,827	29223	10,827	10,164	10,164	10,164	10,164	11,490	11,490	10,164	11,490	11,490		47,185			
kile	meters)	27		46,283	23,142	29224	22,837	24,055	24,055	24,055	24,055	21,619	24,055	21,619	21,619	24,055		124,858			
	activities	28		56,523	28,262	29225	29,256	31,245	27,267	31,245	27,267	27,267	27,267	31,245	27,267	27,267		147,262			
21.11	2 68	29		27,725	13,863	29226	13,426	11,680	15,172	15,172	15,172	11,680	11,680	15,172	15,172	11,680		180,182			
	ALC: OHIO	30		40,652	20,326	29227	20,577	20,075	20,075	20,075	20,075	20,075	20,075	20,075	21,079	21,079		80,701			
	au 30 p	31		12,450	6,225	29228	6,225	6,214	6,236	6,236	6,236	6,214	6,214	6,214	6,236	6,214		49,360			
	ly Saturo	32		11,183	5,591	29229	5,722	5,199	5,199	5,199	6,245	5,199	5,199	5,199	6,245	6,245		58,316			
		33		57,126	28,563	29230	27,582	25,620	25,620	29,544	29,544	29,544	29,544	25,620	29,544	29,544		96,732			
	ines and	34		46,580	23,290	29231	23,290	24,283	22,297	24,283	24,283	22,297	22,297	24,283	24,283	22,297		82,517			
		35	!!!	52,462	26,231	29232	26,231	25,170	25,170	27,292	27,292	25,170	27,292	25,170	27,292	25,170		42,817			
100.0	ALCOHOLD STATE	36		24,652	12,326	29233	12,326	10,829	10,829	13,823	13,823	10,829	13,823	10,829	13,823	10,829		188,655			
0.00		THE PERSON				Control of the Contro		A 10 TO 10 T		- ABELLO 1	*** * * * * * * * * * * * * * * * * *	THU	ZIII	F U×	>10 E	I CONTRACTOR AND ADDRESS.	Belleville on				100

Let's take this little by little.

- 1. Here I keyed in how many weeks I wanted to use in averaging the weekly spend. I'm using 8 here, so I want to calculate the average weekly expenses over 8 weeks.
- 2. Those "x's" are the weeks that I want to calculate the average. Those "x's" will play a role later on. Also, I'm making a visual representation so I can see better.
- 3. The formula for creating those "x's" is shown in the formula bar and in red text.



5. Again, the formula bar shows the formula for the calculation. Note it calculates averages using only those columns marked with "x".

		The Table 10 St. St.	A A A A A A A A A A A A A A A A A A A	raying	at a Maria Carlo		remembed the	To be your or wattries in	Finally States 11					
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4	Α	В	С	D E	F	G	Н	1	J	K	L			
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4		4			7/28/2023		8							
5														
6				4										
7				•	1			X	X	X	X			
8			2 weeks	Weekly	Project No.									
9		!!! REVIEW!!!	Run rate	Run rate		5/26/2023	6/2/2023	6/9/2023	6/16/2023	6/23/2023	6/30/2023			
10		!!!	30,412	15,206	29207	15,399	16,172	14,626	14,626	16,172	14,626			
11			46,984	23,492	29208	23,312	22,593	24,031	24,031	24,031	22,593			

6. In cell C8, I pick either 2 weeks or 4 weeks to calculate spending. How much am I going to spend in 2 weeks (roughly in half a month) or 4 weeks (roughly a month later)? I did this analysis every 2 weeks to catch any projects in danger.

7. Formula bar shows the formula for 2 or 4 weeks spending under column C.

	7	conference Saturday. "It's very h	ard, really tough, and we're pra	ving has a and every (ne o	f those families	therefore the	has experienced the	impact of waning imp	nunity earlier," says Micha	iel	N. 19 To 18 10		
C10		∨] : [×	√ fx =IF(LI	=IF(LEFT(\$C\$8,1)="2",D10*2,D10*4) 7										
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9		!!! REVIEW!!!	Run rate	Run rate			5/26/2023	6/2/2023	6/9/2023	6/16/2023	6/23/2023	6/30/2023		
10		!!!	30,412	15,206		29207	15,399	16,172	14,626	14,626	16,172	14,626		
11			46,984	23,492		29208	23,312	22,593	24,031	24,031	24,031	22,593		

- 8. Column B shows which project is predicted to overrun in the upcoming weeks. That is done by comparing the 2 or 4 weeks spending in column C with the *remaining* project funds in column R.
- 9. Here again, the formula bar shows the formula in column B for that comparison.

ALL CONTRACTOR	THE RESERVE AND								Maying paring an	no Usinon ac	un Grudson a	ardonijše 💮 🎉			1000
▽] i [>	$\checkmark f_x$ =IF(C	10>R10,"!!!","	") Q												
В	С	D	E F	G	Н	I	J	К	L	М	N	0	P	Q	R
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						X	x	x	X	X	x	X	X		
8	2 weeks	Weekly	Project No.												Remaining
!!! REVIEW!!!	Run rate	Run rate		5/26/2023	6/2/2023	6/9/2023	6/16/2023	6/23/2023	6/30/2023	7/7/2023	7/14/2023	7/21/2023	7/28/2023		Funds
111	30,412	15,206	29207	15,399	16,172	14,626	14,626	16,172	14,626	16,172	14,626	16,172	14,626		8,967
	46,984	23,492	29208	23,312	22,593	24,031	24,031	24,031	22,593	22,593	24,031	24,031	22,593		127,505
_	51,634	25,817	29209	25,817	24,200	24,200	27,434	27,434	27,434	24,200	24,200	24,200	27,434		186,638
111	42,584	21,292	29210	20,956	19,612	19,612	22,300	22,300	19,612	22,300	19,612	22,300	22,300		7,408
N Comment	43,356	21,678	29211	21,774	21,390	21,390	22,158	21,390	21,390	22,158	22,158	21,390	21,390		87,163
	47,818	23,909	29212	24,314	22,693	22,693	22,693	25,935	22,693	25,935	25,935	22,693	22,693		132,847
	56,768	28,384	29213	27,854	26,794	26,794	28,914	28,914	28,914	28,914	28,914	26,794	28,914		61,871
	43,636	21,818	29214	21,403	19,743	23,063	23,063	23,063	19,743	23,063	23,063	19,743	19,743		119,194
	37,937	18,969	29215	18,900	19,174	19,174	19,174	18,626	19,174	19,174	18,626	19,174	18,626		171,132

- 10. You could either use the filter tool on column B to filter on "!!!" (or whatever warning you use) or you could use the new FILTER formula used in column T.
- 11. Here is the formula used in column T to filter out a list of projects forecasted to overrun.

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T10	~]:[>	$\langle f_x \rangle = FILT$	ER(F9:F62,B9	9:B62="!!!")	1											
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3	Run out of \$			Today's date		Averaging										
4	4			7/28/2023		8										
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8		2 weeks	Weekly	Project No.			X	X	X	X	Х	X	X	X	Remaining	Project to revi
9		Run rate	Run rate	Project No.	5/26/2023	6/2/2023	6/9/2023	6/16/2023	6/23/2023	6/30/2023	7/7/2023	7/14/2023	7/21/2023	7/28/2023	Funds	Project to revi
10	!!!	30,412	15,206	29207	15,399	16,172	14,626	14,626	16,172	14,626	16,172	14,626	16,172	14,626	8,967	29207
11		46,984	23,492	29208	23,312	22,593	24,031	24,031	24,031	22,593	22,593	24,031	24,031	22,593	127,505	29210
12		51,634	25,817	29209	25,817	24,200	24,200	27,434	27,434	27,434	24,200	24,200	24,200	27,434	186,638	29232
13	!!!	42,584	21,292	29210	20,956	19,612	19,612	22,300	22,300	19,612	22,300	19,612	22,300	22,300	7,408	29249
14		43,356	21,678	29211	21,774	21,390	21,390	22,158	21,390	21,390	22,158	22,158	21,390	21,390	87,163	
15		47,818	_	29212	24,314	22,693	22,693	22,693	25,935	22,693	25,935	25,935	22,693	22,693	132,847	
16		56,768	_	29213	27,854	26,794	26,794	28,914	28,914	28,914	28,914	28,914	26,794	28,914	61,871	
17		43,636		29214	21,403	19,743	23,063	23,063	23,063	19,743	23,063	23,063	19,743	19,743	119,194	
18		37,937		29215	18,900	19,174	19,174	19,174	18,626	19,174	19,174	18,626	19,174	18,626	171,132	
19		7,436		29216	3,968	2,967	4,969	2,967	4,969	2,967	4,969	2,967	2,967	2,967	145,377	
20		9,720	4,860	29217	4,733	4,226	5,240	5,240	4,226	5,240	5,240	4,226	5,240	4,226	118,006	
21		34,552	17,276	29218	17,252	17,156	17,348	17,156	17,348	17,348	17,348	17,156	17,348	17,156	159,222	

RESULTS: After developing and implementing this tool, we no longer dropped the ball and our revenue and gross margins improved because we were catching and addressing the potentially problematic projects.

And the process didn't take long: just dump in the data and let the formulas do its work - maybe 10 minutes work.

As you can see, it doesn't have

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Early Saturday, rescue crews were strik.
Cranes and backhoes were brought in to

e, it back said the process of tld take several more hou

16 "Predictive" Analytics

eronique Frizzell

Hopefully this will trigger some ideas on how you can set up your work flow and catch problems *before* they occur.

If anything is unclear, you can connect with me on LinkedIn by clicking on the More button at

https://www.linkedin.com/in/veroniquefrizzell/