

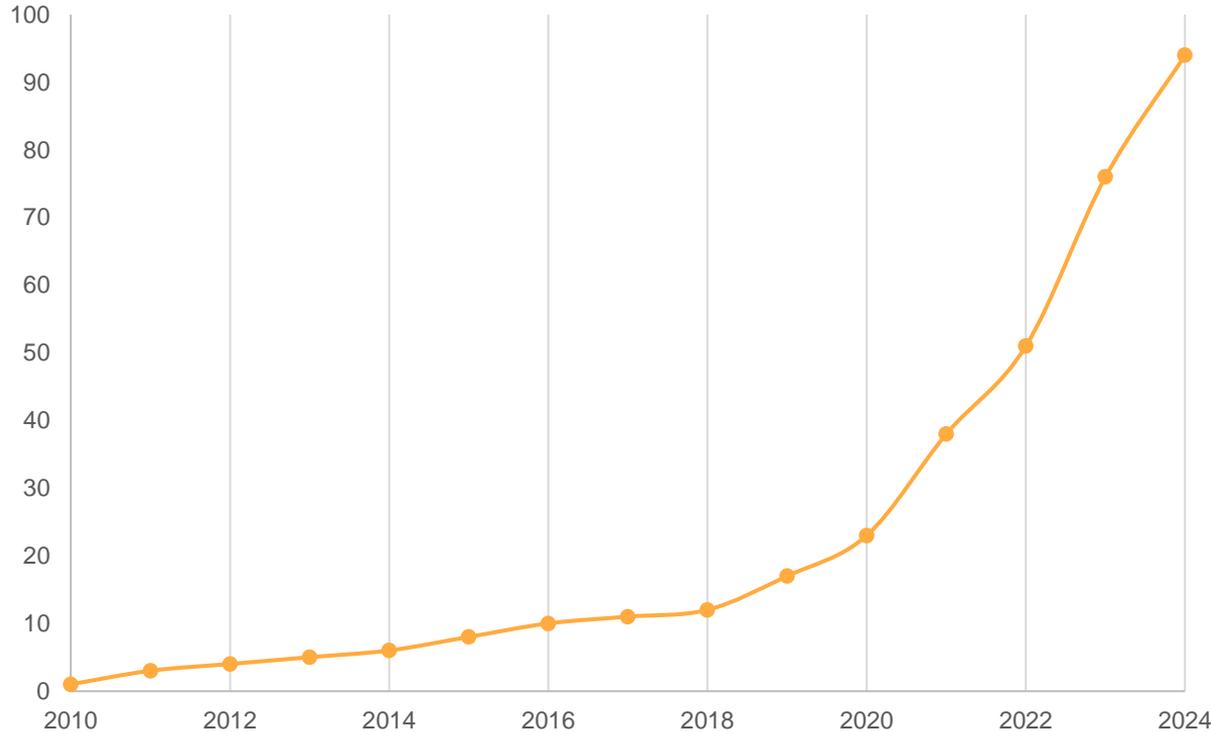
Построение аналитики для всех уровней менеджмента в HoReCa.

Алексей Орловский

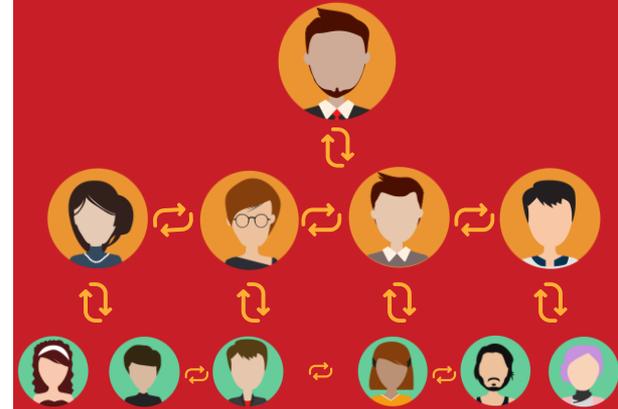
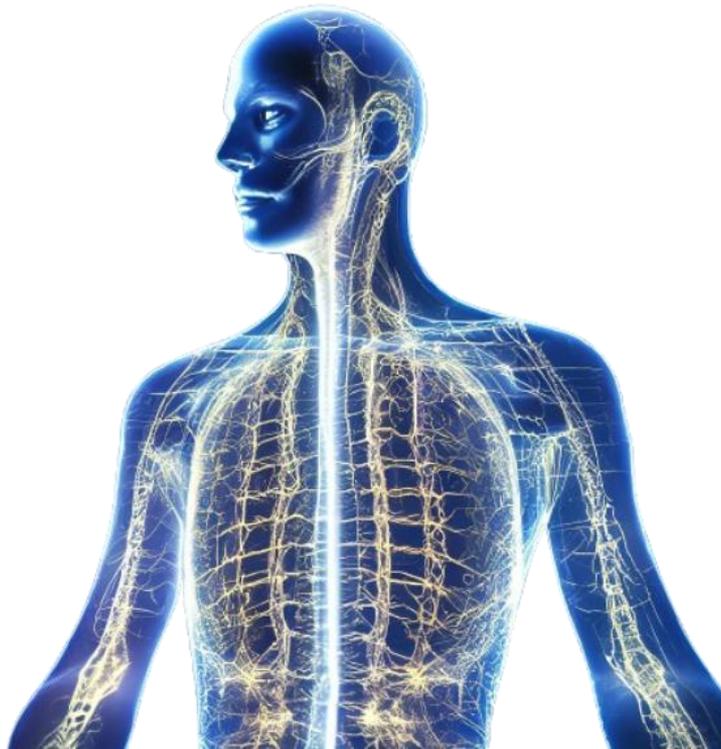


История развития Qqtepa Lavash

Количество филиалов



Компания как сложная система. Рост и развитие.



Сложная система — система, которая состоит из элементов разных типов и обладает разнородными связями между ними.

Объединение систем

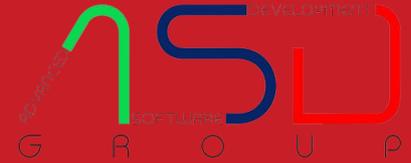

Superset


Apache
Airflow



r_keeper

StoreHouse


G R O U P

Workly

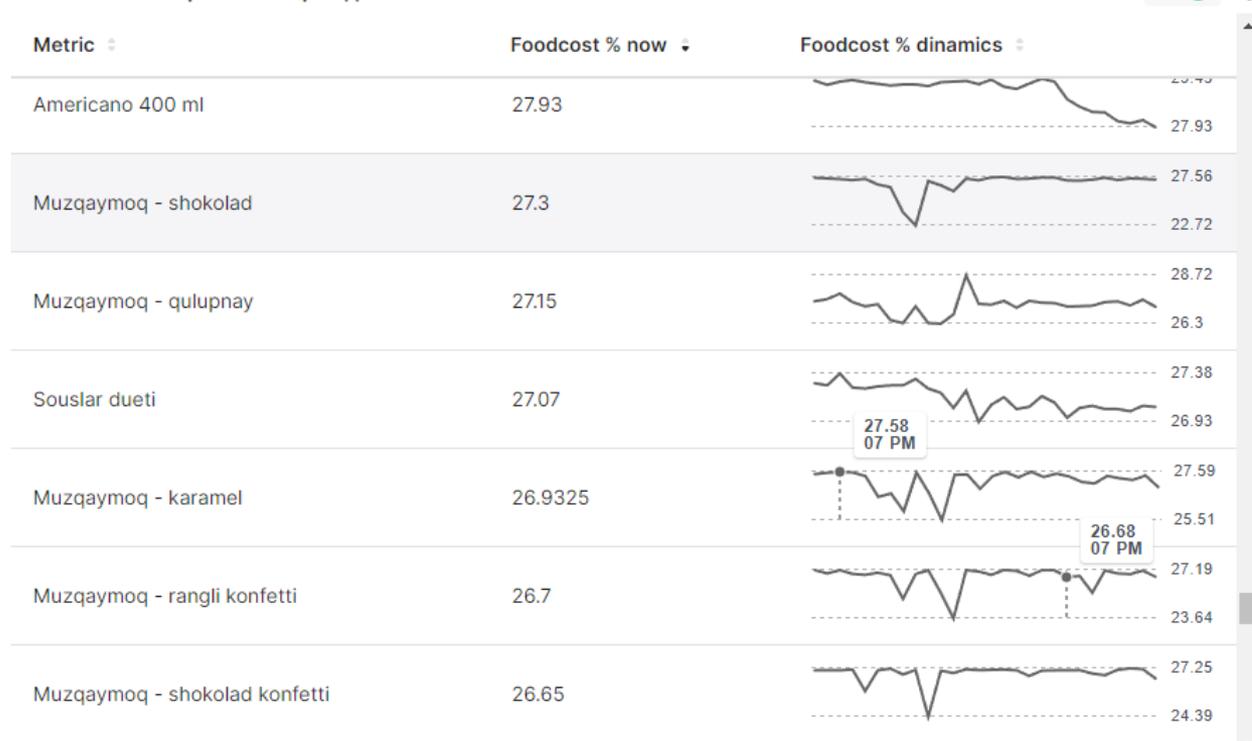
 **WEBSOFT**

Финансы



Финансы

Food cost позиций таблица с динамикой

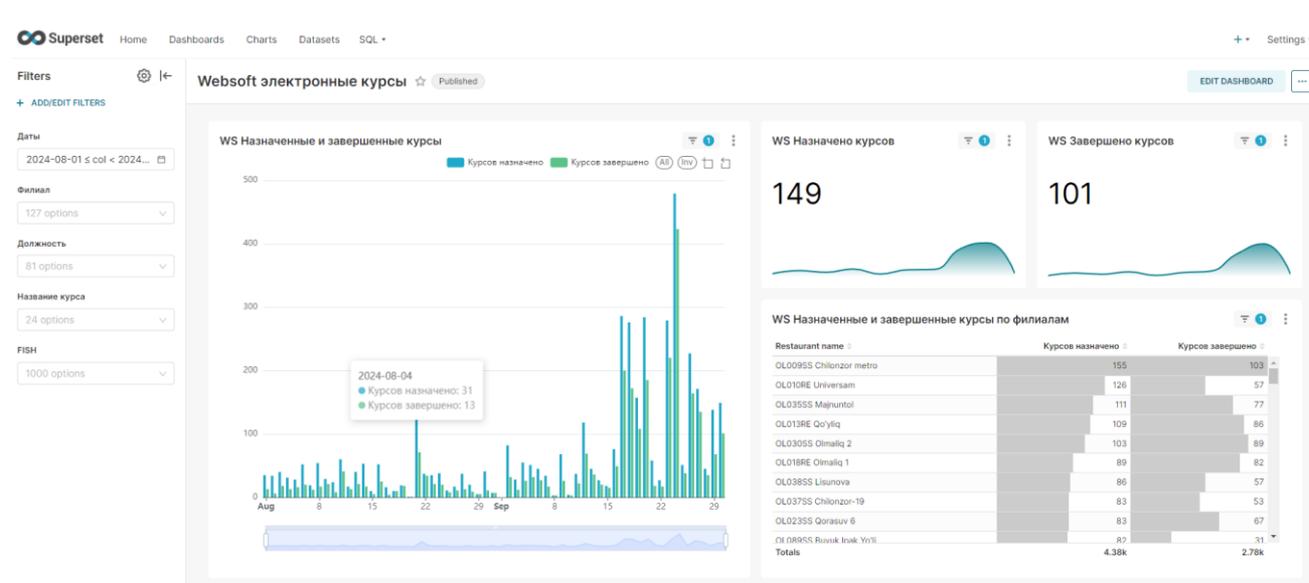


StoreHouse

Бизнес-процессы

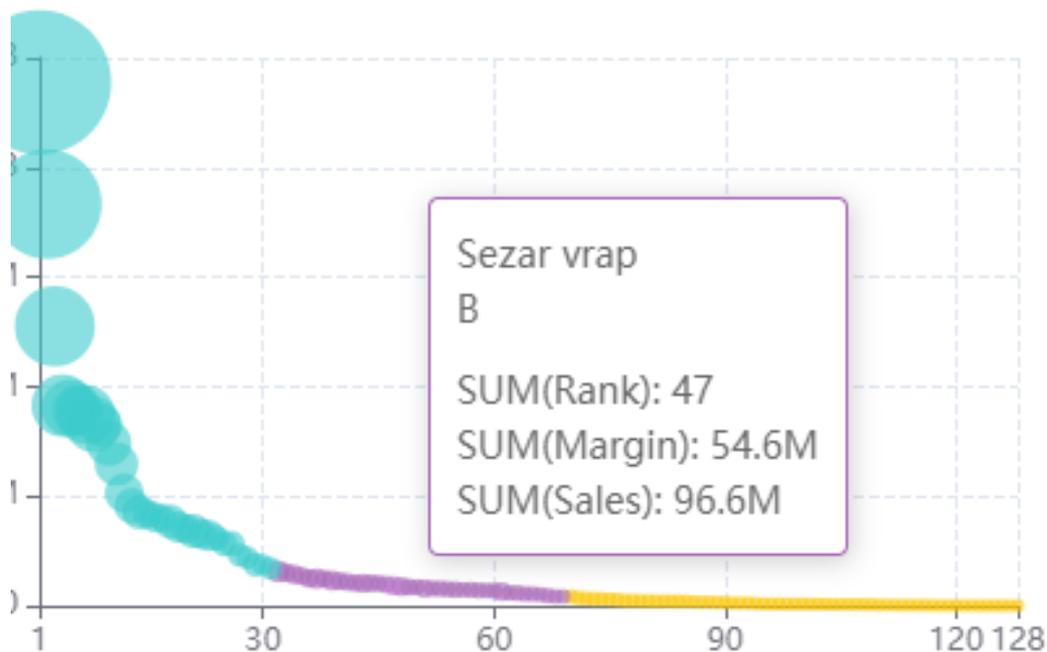


Обучение и развитие



Клиенты

● C ● B ● A (All) (Inv)

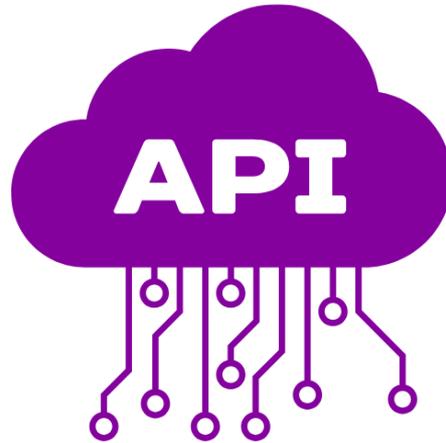


StoreHouse

Трудности интеграций.



VS



r_keeper

StoreHouse

ASU
G R O U P

Werkly

WEBSOFT

Трудности интеграций.

Directors and restaurants ☆ Published

EDIT DASHBOARD ...

Main Fot

Продажи за период directors

87,086,400 UZS

ФОТ за период directors

3,499,061 UZS

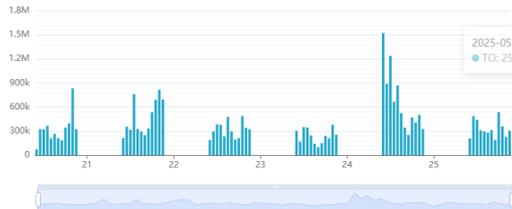
%ФОТ за весь период directors

4 %

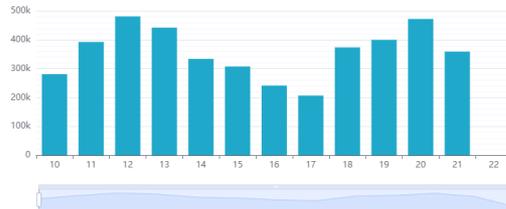
Средняя производительность directors

352,577 UZS

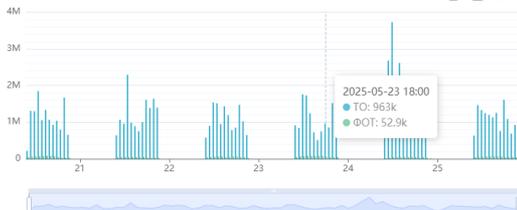
Производительность по дням directors



Производительность по часам directors



Продажи и ФОТ по дням и часам directors



%ФОТ от выручки по дням и часам directors



План развития



Принятие решений при помощи ИИ



Построение предиктивной аналитики



Построение дата-аналитики



Оцифровка бизнес-процессов

Построение предиктивной аналитики

Daily ingredients ☆ Published

[EDIT DASHBOARD](#) ⋮

[Ingredients](#) [Lavash](#) [Donar](#) [Sandwich](#) [Pizza](#) [Gam Hot / dog](#)

Lavash

Week day number	Weekday	Ingredient	Metric																							Total (Sum)			
			Total amount																										
			Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
1	Dushanba	Achchliq sous	1.96	1.59	0.85	0.28	0.19					0.09	0.32	0.86	1.9	2.74	3.24	2.51	2.19	1.78	1.43	1.82	2.23	3.52	3.66	2.87	2.95	38.98	
		PF donar porsiya	55.43	35.77	22.66	7.55	4.16	0.26				0.78	2.83	14.23	36.7	66.28	109.08	127.73	94.98	67.8	62.41	62.15	75.47	100.39	125.67	113.06	94.79	78.4	1358.58
		PF pomidor	9.42	5.86	3.49	1.17	0.62	0.03				0.09	0.41	1.97	6.03	11.3	18.84	22.23	16.47	11.48	10.5	10.61	12.85	17.41	21.92	19.66	16.36	13.46	232.18
		PF qizil sous	52.1	33.19	21.22	7.05	3.82	0.25				0.77	2.66	13.46	34.82	62.36	103.07	121.5	89.98	63.8	58.99	59.15	71.51	95.69	119.33	106.57	89.53	73.67	1284.49
		Xalapeno	0.04	0.02	0.01	0	0.02							0	0	0.02	0.1	0.07	0.09	0.06	0	0.01	0.02	0.04	0.11	0.06	0.09	0.03	0.79
2	Seshanba	Achchliq sous	2.53	1.82	1.29	0.22	0.28					0.05	0.1	0.34	1.36	2.01	2.88	4.24	2.84	2.23	2.1	1.75	2.53	3.13	3.52	3.56	3.08	2.58	44.44
		PF donar porsiya	59.9	35.89	23.07	9.03	3.71	0.27	0.05			1.13	2.44	16.91	39.01	78.06	112.74	127.12	90.82	70.22	61.17	66.89	76.89	101.15	133.06	122.99	98.4	79.41	1410.33
		PF pomidor	10.17	5.78	3.52	1.32	0.48	0.03	0.01	0.15	0.3	2.59	6.41	13.33	19.58	22.17	15.49	11.84	10.39	11.4	13.11	17.59	23.09	21.39	17.14	13.7			240.98
		PF qizil sous	55.96	33.21	21.15	8.61	3.3	0.26	0.05	1.06	2.3	16.09	36.28	73.82	106.89	119.48	85.31	65.94	57.31	63.27	72.32	95.47	126.37	116.55	93.15	74.81			1328.96
		Xalapeno	0.07	0	0	0.02	0						0	0	0.02	0.04	0.05	0.07	0.07	0.03	0	0.04	0.04	0.1	0.09	0.04	0.04	0.03	0.75
3	Chorshanba	Achchliq sous	1.86	1.61	0.84	0.2	0.14					0.02	0.04	0.21	0.64	1.37	3.02	3.6	2.39	1.99	1.91	1.66	1.98	3.13	3.32	3.7	2.52	2.67	38.82
		PF donar porsiya	60.58	37.38	23.67	6.2	3.95	0.61				1.2	2.4	13.24	41.07	67.51	112.16	130.27	91.1	73.26	61.41	62.41	80.21	104.95	127.06	123.59	97.3	77.4	1398.93
		PF pomidor	10.37	6.05	3.63	0.89	0.52	0.1				0.16	0.25	1.87	6.66	11.48	19.65	22.74	15.61	12.43	10.29	10.61	13.76	18.33	22.23	21.43	16.88	13.23	239.17
		PF qizil sous	57.56	34.87	22.35	5.88	3.71	0.6				1.16	2.29	12.67	39.18	64.31	106.3	123.27	86.33	69.03	58.02	59.1	76.23	99.29	120.91	117.05	92.75	73.02	1325.86
		Xalapeno	0.06	0.04	0.01	0	0					0.01	0.01	0.02	0.01	0.11	0.05	0.03	0.05	0	0.02	0.04	0.05	0.1	0.11	0.07	0.03		0.82
4	Payshanba	Achchliq sous	1.99	1.5	0.84	0.19	0.42					0.07	0.12	0.57	0.44	2.3	2.54	2.79	2.84	1.76	1.81	1.88	2.31	2.82	3.87	3.18	2.77	3.17	40.18
		PF donar porsiya	62.85	40.38	27.78	8.67	4.37	0.09	0.03	0.83	3.03	20.93	39.39	72.71	116.37	131.55	92.11	74.86	61.88	68.73	89.7	117.34	140.08	126.16	91.55	83.12			1474.49
		PF pomidor	10.71	6.55	4.41	1.33	0.63	0.01	0	0.08	0.38	3.23	6.53	12.32	20.33	23.03	15.86	12.7	10.31	11.7	15.44	20.57	24.64	22.01	15.82	14.23			252.82
		PF qizil sous	58.95	37.48	26.12	8.27	3.79	0.08	0.03	0.74	2.85	19.41	37.83	67.99	110.83	125.32	87.05	70.96	58.37	65.01	85.22	111.89	133.11	119.98	86.66	78.05			1395.99
		Xalapeno	0.03	0.01	0.01	0.02							0.01	0.03	0.07	0.07	0.03	0.01	0.04	0.04	0.08	0.07	0.05	0.08	0.07	0.06			0.78
5	Juma	Achchliq sous	2.31	1.81	0.96	0.27	0.16					0.04	0.15	0.22	0.66	1.77	2.57	4.29	2.82	2.23	1.71	2.01	2.33	2.99	4.48	4.27	3	2.85	43.7
		PF donar porsiya	64.84	39.61	28.49	11.27	4.8	0.48	0.08	1.04	3.51	18.87	52.95	88.57	137.25	150.45	120.49	86.74	74.56	80.47	99.2	128.42	182.49	151.98	129.78	97.19			1753.53



Построение предиктивной аналитики

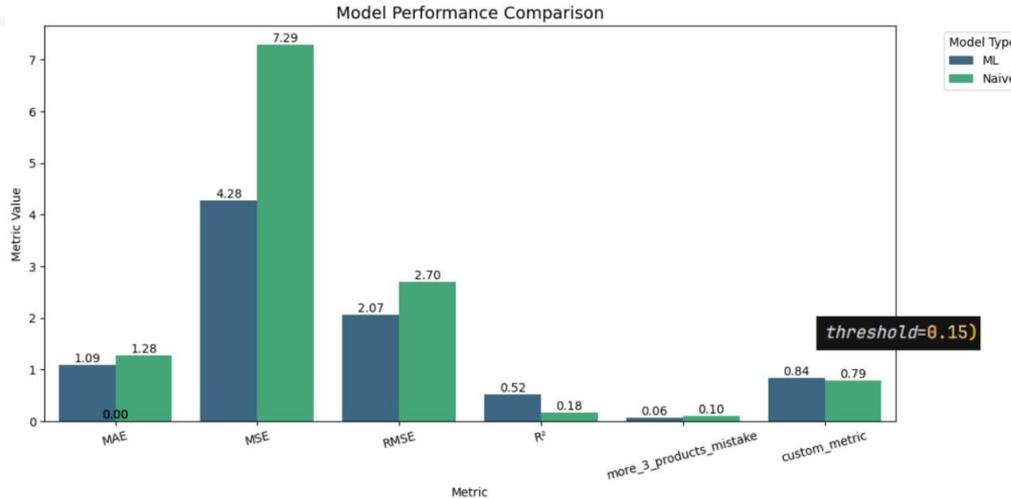
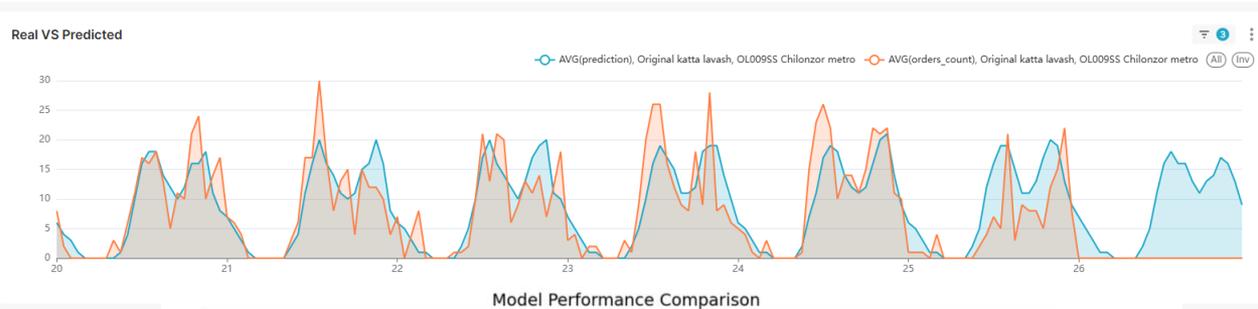
$$MAE = \frac{1}{n} \sum_{t=1}^n |e_t|, \text{ where } e_t = \text{original}_t - \text{predict}_t$$

факт	предсказан	сколько процентов 1 шт	Разница факт и предск по модулю	Процент разницы	Метрика1	Метрика2	Метрика3	Метрика4	Метрика5	Метрика6	Метрика7
0	2	100,00	2	200,00%	102,00%	2,00%	6,00%	43,09%	4,00%	8,00%	8,00%
0	3	100,00	3	300,00%	103,00%	3,00%	12,00%	94,87%	9,00%	12,00%	24,00%
0	8	100,00	8	800,00%	108,00%	8,00%	72,00%	479,59%	64,00%	32,00%	2048,00%
1	0	50,00	1	50,00%	98,04%	1,96%	3,85%	12,39%	3,85%	7,41%	3,85%
1	2	50,00	1	50,00%	101,96%	1,96%	3,85%	12,39%	3,85%	7,41%	3,85%
1	3	50,00	2	100,00%	103,92%	3,92%	11,32%	42,70%	11,32%	14,81%	14,81%
1	6	50,00	5	250,00%	109,80%	9,80%	53,57%	171,27%	53,57%	37,04%	195,12%
2	0	33,33	2	66,67%	94,34%	5,66%	15,25%	38,33%	19,35%	19,35%	19,35%
2	3	33,33	1	33,33%	102,83%	2,83%	5,36%	12,86%	7,63%	9,68%	5,36%
2	4	33,33	2	66,67%	105,66%	5,66%	15,25%	38,33%	19,35%	19,35%	19,35%
2	6	33,33	4	133,33%	111,32%	11,32%	46,15%	99,59%	52,94%	38,71%	97,96%
3	4	25,00	1	25,00%	103,57%	3,57%	6,45%	12,50%	10,81%	10,81%	6,45%
3	5	25,00	2	50,00%	107,14%	7,14%	17,65%	33,76%	25,00%	21,62%	21,62%
3	6	25,00	3	75,00%	110,71%	10,71%	32,43%	57,29%	41,86%	32,43%	48,98%
4	1	20,00	3	60,00%	87,50%	12,50%	33,33%	49,06%	43,75%	33,33%	46,15%
4	5	20,00	1	20,00%	104,17%	4,17%	7,14%	11,80%	12,50%	11,11%	7,14%
4	6	20,00	2	40,00%	108,33%	8,33%	18,75%	29,79%	27,27%	22,22%	22,22%
5	5	16,67	0	0,00%	100,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
5	7	16,67	2	33,33%	109,23%	9,23%	18,95%	26,47%	27,10%	21,82%	21,82%
6	8	14,29	2	28,57%	109,86%	9,86%	18,58%	23,73%	25,69%	20,90%	20,90%
10	9	9,09	1	9,09%	94,76%	5,24%	6,88%	7,68%	9,24%	8,15%	6,88%
5	10	6,25	5	31,25%	76,47%	23,53%	31,17%	30,57%	32,65%	30,19%	32,90%
17	19	5,56	2	11,11%	108,87%	8,87%	10,61%	10,65%	11,57%	10,88%	10,88%
20	22	4,76	2	9,52%	108,08%	8,08%	9,26%	9,22%	9,89%	9,44%	9,44%
24	22	4,00	2	8,00%	92,86%	7,14%	7,89%	7,82%	8,28%	8,00%	8,00%
30	27	3,23	3	9,68%	90,97%	9,03%	9,74%	9,57%	9,97%	9,74%	9,87%
41	45	2,38	4	9,52%	109,22%	9,22%	9,64%	9,48%	9,74%	9,62%	9,72%
45	41	2,17	4	8,70%	91,52%	8,48%	8,80%	8,66%	8,88%	8,78%	8,86%
45	40	2,17	5	10,87%	89,40%	10,60%	11,02%	10,84%	11,10%	10,98%	11,09%
55	50	1,79	5	8,93%	91,19%	8,81%	9,04%	8,91%	9,09%	9,02%	9,08%

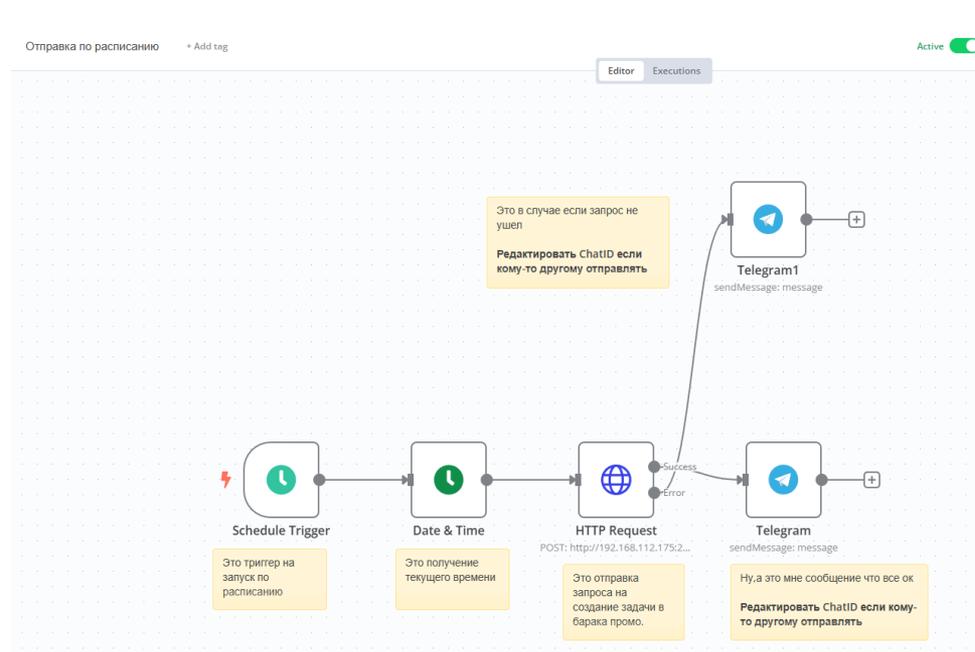


Нужно <=10 Нужно <=10

Построение предиктивной аналитики



Принятие решений при помощи ИИ



n8n

Спасибо за внимание!

