Чепоков Елизар ПИ-18-2

НИС №3 "Практическая работа с базой данных временных рядов InfluxDB, средой визуализации Grafana и языком программирования Python"

1. Ссылки на "авторитетов"

Найти фамилии ученых, мирового уровня, имеющих самые высокие индексы Хирша (цитирование) и эти индексы выписать, по теме анализа данных в IoT. Выпишите, где они работают и их регалии (должности, ученая степень, награды). Смотрим базы данных Scopus, Web of science, IEEE

M A Hossain (Professor of Computer Science, University of Northumbria at Newcastle)

https://scholar.google.com/citations?user=etPAW2cAAAAJ&hl=en

h-index: 83

Awards:

1996: IET-F C Williams 1996 2010: Best Paper Award

2012: IEEE Fellow

--2)-Импорт-данных-в-InfluxDB-с-помощью-скрипта-на-Python----

--3)-Вывести-содержимое-измерения-cluster3------select pressure1 from cluster3 limit 20 precision rfc3339 use cluster3

select * from cluster3

Description	> select * from cluster3							
0019-01-01T00:30-007 0, 302 0, 579 0, 772 11.915 10.989 ID0100 0019-01-01T00:30-007 0, 549 0, 582 0, 779 10.029 9, 577 ID0100 0019-01-01T01:30-007 0, 549 0, 582 0, 779 10.029 9, 577 ID0100 0019-01-01T01:30-007 0, 529 0, 577 0, 781 10.029 9, 577 ID0100 0019-01-01T01:30-007 0, 522 0, 577 0, 781 10.029 9, 577 ID0100 0019-01-01T01:30-007 0, 522 0, 577 0, 781 10.029 9, 577 ID0100 0019-01-01T01:30-007 0, 522 0, 579 0, 781 10.029 0, 199 8, 105 ID0100 0019-01-01T01:30-007 0, 522 0, 579 0, 784 7, 602 7, 19 ID0100 0019-01-01T01:30-007 0, 522 0, 579 0, 784 7, 602 7, 19 ID0100 0019-01-01T01:30-007 0, 522 0, 579 0, 784 7, 602 7, 19 ID0100 0019-01-01T01:30-007 0, 522 0, 579 0, 784 7, 602 7, 19 ID0100 0019-01-01T01:30-007 0, 522 0, 579 0, 784 7, 602 7, 19 ID0100 0019-01-01T01:30-007 0, 522 0, 585 0, 79 6, 197 5, 952 ID0100 0019-01-01T01:30-007 0, 260 0, 555 0, 79 6, 79 6, 197 5, 952 ID0100 0019-01-01T01:30-007 0, 260 0, 260 0, 79 6, 197 5, 952 ID0100 0019-01-01T01:30-007 0, 260 0, 260 0, 79 6, 197 5, 952 ID0100 0019-01-01T01:30-007 0, 260 0, 260 0, 79 6, 197 5, 952 ID0100 0019-01-01T01:30-007 0, 260 0, 260 0, 79 5, 401 4, 758 ID0100 0019-01-01T01:30-007 0, 160 0, 59 0, 787 5, 461 4, 758 ID0100 0019-01-01T01:30-007 0, 160 0, 59 0, 787 5, 461 4, 758 ID0100 0019-01-01T01:30-007 0, 160 0, 59 0, 787 5, 461 4, 476 ID0100 0019-01-01T01:30-007 0, 11 0, 557 0, 78 5, 505 4, 68 ID0100 0019-01-01T01:30-007 0, 11 0, 557 0, 78 5, 505 4, 68 ID0100 0019-01-01T01:30-007 0, 11 0, 557 0, 789 5, 505 4, 68 ID0100 0019-01-01T01:30-007 0, 11 0, 557 0, 789 5, 505 4, 68 ID0100 0019-01-01T01:30-007 0, 11 0, 557 0, 789 5, 505 4, 68 ID0100 0019-01-01T01:30-007 0, 11 0, 557 0, 789 5, 831 4, 488 ID0100 0019-01-01T01:30-007 0, 11 0, 557 0, 789 5, 831 4, 488 ID0100 0019-01-01T01:30-007 0, 11 0, 557 0, 789 5, 831 4, 488 ID0100 0019-01-01T01:30-007 0, 11 0, 557 0, 789 5, 831 4, 488 ID0100 0019-01-01T01:30-007 0, 11 0, 559 0, 789 5, 831 4, 848 ID0100 0019-01-01T11:30-007 0, 11 0, 559 0, 789 5, 789 5, 833 ID0100 0019-01-01T11:30-007 0, 12 0, 12 0, 12 0, 12 0, 1	name: cluster3							
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2019-01-01105:30:00Z 0,247 0,589 0,789 5,481 4,758 1D0100 2019-01-01106:00:00Z 0,105 0,59 0,787 5,467 4,656 1D0100 2019-01-01106:30:00Z 0,168 0,586 0,785 4,493 4,446 1D0100 2019-01-01107:00:00Z 0,181 0,587 0,782 5,602 4,248 1D0100 2019-01-01107:00:00Z 0,251 0,592 0,785 5,606 4,06 1D0100 2019-01-01107:00:00Z 0,251 0,592 0,785 5,606 4,06 1D0100 2019-01-01107:00:00Z 0,25 0,594 0,781 5,788 4,4 1D0100 2019-01-01107:00:00Z 0,259 0,594 0,781 5,788 4,4 1D0100 2019-01-01107:00:00Z 0,259 0,594 0,781 5,788 4,4 1D0100 2019-01-01107:00:00Z 0,259 0,594 0,786 5,439 4,288 1D0100 2019-01-01107:00:00Z 0,479 0,595 0,785 6,333 7,233 1D0100 2019-01-01111:00:00Z 0,470 0,477 0,785 6,633 7,233 1D0100 2019-01-01111:00:00Z 0,470 0,477 0,595 0,785 6,333 7,233 1D0100 2019-01-01111:00:00Z 0,470 0,477 0,595 0,785 6,333 7,233 1D0100 2019-01-01111:00:00Z 0,470 0,477 0,595 0,785 6,333 7,233 1D0100 2019-01-01111:00:00Z 0,470 0,595 0,785 6,549 0,593 1D0100 2019-01-01111:00:00Z 0,310 0,595 0,785 0,593 1D0100 2019-01-01111:00:00Z 0,310 0,595 0,782 0,593 1D0100 2019-01-01111:00:00Z 0,470 0,595 0,293 0,784 0,595 0,593 1D0100 2019-01-01111:00:00Z 0,487 0,276 0,288 0,781 0,995 8,038 1D0100 2019-01-01111:00:00Z 0,487 0,276 0,288 0,781 0,995 8,038 1D0100 2019-01-01111:00:00Z 0,487 0,276 0,288 0,781 10,027 0,593 1D0100 2019-01-01111:00:00Z 0,487 0,276 0,288 0,781 10,027 0,593 1D0100 2019-01-01111:00:00Z 0,487 0,228 0,781 10,028 0,998 1D0100 2019-01-01111:00:00Z 0,487 0,229 0,782 10,028 0,998 1D0100 2019-01-01111:00:00Z 0,487 0,229 0,782 10,028 0,998 1D0100 2019-01-01111:00:00Z 0,487 0,229 0,789 1,022 10,023 1,027 1D0100 2019-01-01111:00:00Z 0,487 0,229 0,789 1,022 10,027 1,00100 2019-01-01111:00:00Z 0,487 0,229 0,789 1,022 10,022 1,029 1,020								
2019-01-01T06:08:00Z 0.106 0.59 0.787 5.467 4.656 ID0100 2019-01-01T07:08:00Z 0.108 0.586 0.785 4.943 4.446 ID0100 2019-01-01T07:08:00Z 0.181 0.587 0.782 5.602 4.248 ID0100 2019-01-01T07:08:00Z 0.251 0.592 0.785 5.602 4.248 ID0100 2019-01-01T08:08:00Z 0.251 0.592 0.785 5.602 4.268 ID0100 2019-01-01T08:08:00Z 0.251 0.592 0.785 5.602 4.268 ID0100 2019-01-01T08:08:00Z 0.252 0.599 0.789 5.831 4.49 ID0100 2019-01-01T109:08:00Z 0.182 0.599 0.789 5.831 4.858 ID0100 2019-01-01T109:08:00Z 0.18 0.599 0.789 5.831 7.283 ID0100 2019-01-01T109:08:00Z 0.460 0.596 0.785 6.333 7.283 ID0100 2019-01-01T11:08:00Z 0.460 0.596 0.785 6.333 7.283 ID0100 2019-01-01T11:08:00Z 0.460 0.596 0.785 6.333 7.283 ID0100 2019-01-01T11:08:00Z 0.460 0.596 0.785 6.385 6.285 ID0100 2019-01-01T11:08:00Z 0.460 0.596 0.785 8.162 7.999 5.993 ID0100 2019-01-01T11:08:00Z 0.460 0.596 0.782 7.919 5.993 ID0100 2019-01-01T11:08:00Z 0.329 0.599 0.788 8.508 6.595 ID0100 2019-01-01T12:08:00Z 0.350 0.299 0.78 8.162 7.393 ID0100 2019-01-01T13:08:00Z 0.356 0.299 0.78 8.162 7.393 ID0100 2019-01-01T13:08:00Z 0.366 0.229 0.780 8.028 ID0100 2019-01-01T13:08:00Z 0.366 0.229 0.780 8.782 8.598 ID0100 2019-01-01T13:08:00Z 0.366 0.229 0.780 8.782 8.598 ID0100 2019-01-01T13:08:00Z 0.365 0.293 0.782 10.602 8.461 ID0100 2019-01-01T14:08:00Z 0.485 0.356 0.299 0.782 10.602 8.461 ID0100 2019-01-01T15:08:00Z 0.486 0.229 0.782 10.602 8.461 ID0100 2019-01-01T15:08:00Z 0.487 0.223 0.785 10.239 10.100 10.000								
2019-01-01T06:30:00Z 0.168 0.586 0.785 4.943 4.446 ID0100 2019-01-01T07:00:00Z 0.181 0.587 0.782 5.602 4.248 ID0100 2019-01-01T07:00:00Z 0.181 0.587 0.782 5.602 4.248 ID0100 2019-01-01T07:00:00Z 0.2 0.2 0.585 0.785 5.036 4.06 ID0100 2019-01-01T08:00:00Z 0.2 0.59 0.584 0.781 5.788 4.4 ID0100 2019-01-01T08:00:00Z 0.259 0.594 0.789 5.831 4.888 ID0100 2019-01-01T109:00:00Z 0.259 0.599 0.789 5.831 4.888 ID0100 2019-01-01T109:00:00Z 0.259 0.599 0.784 6.00Z 6.00Z 6.00Z 0.10Z 0								
2019-01-01177:08:002 0.151 0.557 0.762 5.602 4.248 100100 2019-01-01176:38:002 0.251 0.592 0.758 5.035 4.46 100100 2019-01-01176:38:002 0.251 0.592 0.758 5.035 4.46 100100 2019-01-01176:38:002 0.282 0.59 0.789 5.831 4.48 100100 2019-01-01176:38:002 0.18 0.59 0.789 5.831 4.858 100100 2019-01-01176:38:002 0.18 0.59 0.789 5.831 7.283 100100 2019-01-01176:38:002 0.466 0.556 0.785 6.333 7.283 100100 2019-01-01176:38:002 0.466 0.556 0.785 6.333 7.283 100100 2019-01-01171:38:002 0.466 0.556 0.785 6.333 7.283 100100 2019-01-01171:38:002 0.427 0.589 0.782 7.919 5.983 100100 2019-01-01171:38:002 0.427 0.599 0.788 8.508 6.595 100100 2019-01-01171:38:002 0.329 0.589 0.778 8.508 6.595 100100 2019-01-01171:38:002 0.336 0.291 0.789 8.528 8.538 100100 2019-01-01171:38:002 0.356 0.299 0.78 8.142 7.393 100100 2019-01-01171:38:002 0.356 0.299 0.78 8.628 100100 2019-01-01171:38:002 0.356 0.299 0.782 8.628 100100 2019-01-01171:38:002 0.356 0.299 0.782 10.602 8.461 100100 2019-01-01171:38:002 0.356 0.229 0.782 10.602 8.461 100100 2019-01-01171:38:002 0.485 0.232 0.589 10.782 10.602 8.461 100100 2019-01-01171:38:002 0.485 0.232 0.789 10.789 10.789 10.0000 2019-01-01171:38:002 0.485 0.233 0.784 10.147 9.592 100100 2019-01-01171:38:002 0.485 0.233 0.784 10.147 9.592 100100 2019-01-01171:38:002 0.485 0.353 0.787 11.083 10.287 9.358 100100 2019-01-01171:38:002 0.488 0.333 0.786 11.289 100100 2019-01-01171:38:002 0.488 0.373 0.762 11.003 12.279 100100 2019-01-01171:38:002 0.485 0.487 0.786 11.293 100100 2019-01-01171:38:002 0.485 0.487 0.763 11.505 12.721 100100 2019-01-01171:38:002 0.485 0.487 0.786 11.295 100100 2019-01-01171:38:002 0.480 0.788 0.579 0.811 11.299 100100 2019-01-01171:38:002 0.485 0.485 0.885 11.295 11.315 100100 2019-01-01171:38:002 0.485 0.485 0.885 11.289 11.199 110100 2019-01-01171:38:002 0.485 0.485 0.885 11.289 11.315 100100 2019-01-01171:38:002 0.485 0.585 0.885 11.289 11.391 100100 2019-01-01171:38:002 0.480 0.580 0.885 11.093 10.827 100100 2019-01-01171:38:002 0.485 0.590 0.885 11.093 10.827 100100 2019-01-01171								
2019-01-01179:30:002 0.251 0.592 0.785 5.036 4.06 1D0100 2019-01-01188:00:002 0.2 0.584 0.781 5.788 4.4 1D0100 2019-01-01188:00:002 0.259 0.590 0.780 5.831 4.888 1D0100 2019-01-01170:30:002 0.259 0.591 0.786 5.439 5.225 1D0100 2019-01-011710:00:002 0.217 0.595 0.786 5.439 5.225 1D0100 2019-01-011710:00:002 0.470 0.275 0.785 6.333 7.203 1D0100 2019-01-011711:00:002 0.470 0.477 0.595 0.785 6.333 7.203 1D0100 2019-01-01171:00:002 0.470 0.595 0.785 6.333 7.203 1D0100 2019-01-01171:00:002 0.310 0.599 0.785 6.303 7.203 1D0100 2019-01-01171:00:002 0.310 0.599 0.785 6.303 7.203 1D0100 2019-01-01171:00:002 0.310 0.599 0.788 8.508 6.505 1D0100 2019-01-01171:00:002 0.356 0.291 0.789 8.508 6.505 1D0100 2019-01-01171:00:002 0.376 0.228 0.781 9.905 8.028 1D0100 2019-01-01171:00:002 0.367 0.229 0.782 10.002 8.401 1D0100 2019-01-01171:00:002 0.487 0.229 0.782 10.002 8.401 1D0100 2019-01-01171:00:002 0.487 0.229 0.782 10.023 10.002 8.401 1D0100 2019-01-01171:00:002 0.487 0.229 0.789 10.288 1.00100 2019-01-01171:00:002 0.487 0.229 0.789 10.28 8.978 1D0100 2019-01-01171:00:002 0.487 0.229 0.789 10.28 8.978 1D0100 2019-01-01171:00:002 0.487 0.228 0.787 10.28 8.978 1D0100 2019-01-01171:00:002 0.480 0.278 0.22 0.767 9.501 11.709 1D0100 2019-01-01171:00:002 0.450 0.457 0.767 9.501 11.709 1D0100 2019-01-01171:00:002 0.450 0.450 0.450 0.787 11.505 11.729 1D0100 2019-01-01171:00:002 0.38 0.597 0.851 12.241 12.438 1D0100 2019-01-01171:00:002 0.38 0.590 0.855 12.252 11.431 1D0100 2019-01-01171:00:002 0.38 0.590 0.855 12.252 11.431 1D0100 2019-01-01171:00:002 0.38 0.590 0.855 12.252 11.431 1D0100 2019-01-01171:00:002 0.38 0.580 0.591 0.855 12.651 11.991 1D0100 2019-01-01171:00:								
2019-01-01108:08:082 0.22 0.584 0.781 5.788 4.4 100109 2019-01-01109:08:082 0.282 0.59 0.789 5.831 0.525 100109 2019-01-01109:38:082 0.18 0.59 0.789 5.831 5.225 100109 2019-01-01109:38:082 0.18 0.59 0.785 6.333 7.283 100109 2019-01-011109:08:082 0.466 0.595 0.785 6.333 7.283 100109 2019-01-01111:08:082 0.466 0.595 0.785 6.333 7.283 100109 2019-01-01111:08:082 0.496 0.595 0.785 6.295 100109 2019-01-01111:38:082 0.496 0.599 0.782 7.919 5.983 100109 2019-01-01111:38:082 0.329 0.599 0.788 8.508 6.595 100109 2019-01-01112:38:082 0.335 0.291 0.789 8.528 8.538 100109 2019-01-01113:38:082 0.336 0.291 0.789 8.528 8.538 100109 2019-01-01113:38:082 0.336 0.291 0.789 8.528 8.538 100109 2019-01-01113:38:082 0.365 0.299 0.788 8.528 100109 2019-01-01113:38:082 0.365 0.229 0.788 9.774 8.863 100109 2019-01-01113:38:082 0.365 0.229 0.788 9.774 8.863 100109 2019-01-01115:38:082 0.485 0.233 0.784 10.147 9.592 100109 2019-01-01115:38:082 0.485 0.233 0.784 10.147 9.592 100109 2019-01-01115:38:082 0.485 0.233 0.784 10.147 9.592 100109 2019-01-01115:38:082 0.485 0.227 0.812 10.828 9.388 100109 2019-01-01115:38:082 0.488 0.227 0.812 10.828 9.388 100109 2019-01-01115:38:082 0.488 0.233 0.785 10.239 10.109 10.209 2019-01-01115:38:082 0.488 0.233 0.785 10.239 10.109 10.209 2019-01-01117:38:082 0.488 0.383 0.787 11.289 100109 2019-01-01177:38:082 0.485 0.437 0.763 11.595 12.721 100109 2019-01-01177:38:082 0.485 0.458 0.458 0.78 11.295 100109 2019-01-01177:38:082 0.485 0.458 0.788 11.295 100109 2019-01-01177:38:082 0.485 0.459 0.458 0.781 11.595 100109 2019-01-01177:38:082 0.485 0.459 0.458 0.788 11.295 100109 2019-01-01177:38:082 0.485 0.459 0.458 0.788 11.295 100109 2019-01-01177:38:082 0.485 0.458 0.458 0.788 11.295 100109 2019-01-01177:38:082 0.485 0.458 0.458 0.788 11.295 100109 2019-01-01177:38:082 0.485 0.458 0.458 0.788 11.295 100109 2019-01-01177:38:082 0.485 0.458 0.458 0.788 11.295 100109 2019-01-01177:38:082 0.485 0.458 0.458 0.788 11.295 100109 2019-01-01177:38:082 0.485 0.458 0.458 0.788 11.295 100109 2019-01-01179:38:082 0.48								
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2019-01-01114:30:002 0.585 0.233 0.784 10.147 9.592 ID0100 2019-01-01115:00:002 0.487 0.227 0.812 10.287 9.358 ID0100 2019-01-01115:00:002 0.487 0.227 0.812 10.287 9.358 ID0100 2019-01-01115:00:002 0.47 0.228 0.78 10.28 10.29 10.1006 ID0100 2019-01-01116:00:002 0.47 0.228 0.78 10.28 8.978 ID0100 2019-01-01116:00:002 0.36 0.373 0.762 11.003 12.279 ID0100 2019-01-01177:00:002 0.36 0.373 0.762 11.003 12.279 ID0100 2019-01-01177:00:002 0.49 0.49 0.553 0.762 11.003 12.279 ID0100 2019-01-01177:00:002 0.419 0.553 0.762 11.003 12.279 ID0100 2019-01-01179:00:002 0.419 0.553 0.787 12.241 12.438 ID0100 2019-01-01179:00:002 0.511 0.576 0.798 12.257 11.315 ID0100 2019-01-01179:00:002 0.511 0.576 0.798 12.257 11.991 ID0100 2019-01-01179:00:002 0.378 0.579 0.821 12.525 11.209 ID0100 2019-01-01179:00:002 0.391 0.594 0.856 12.602 11.275 ID0100 2019-01-01179:00:002 0.391 0.594 0.856 12.602 11.275 ID0100 2019-01-01171:00:002 0.238 0.582 0.805 12.602 11.275 ID0100 2019-01-01171:00:002 0.238 0.588 0.857 12.475 11.177 ID0100 2019-01-01172:00:002 0.238 0.588 0.857 12.475 11.177 ID0100 2019-01-01172:00:002 0.245 0.599 0.855 12.613 9.992 ID0100 2019-01-01172:30:002 0.245 0.599 0.855 12.613 9.992 ID0100 2019-01-01172:30:002 0.258 0.588 0.858 12.003 19.992 100100 2019-01-01172:30:002 0.258 0.589 0.868 11.093 10.827 ID0100 2019-01-01172:30:002 0.253 0.599 0.855 12.613 9.992 ID0100 2019-01-01172:30:002 0.253 0.599 0.855 12.613 9.992 ID0100 2019-01-01172:30:002 0.253 0.599 0.855 12.613 9.992 ID0100 2019-01-0172:30:002 0.253 0.599 0.855 10.991 9.826 ID0100 2019-01-0172:30:002 0.750 0.599 0.855 8.852 8.572 ID0100 2019-01-0172:30:002 0.750 0.599 0.855 8.855 8.572 ID0100 2019-01-0172:30:002 0.750 0.599 0.855 8.855 8.572 ID0100 0.0019-01-01700:30:002								
2019-01-0115:00:002 0.487 0.227 0.812 10.287 9.358 100100 2019-01-01115:00:002 0.428 0.23 0.785 10.239 10.106 100100 2019-01-01115:00:002 0.278 0.228 0.767 9.561 11.097 100100 2019-01-01117:00:002 0.56 0.373 0.762 11.003 12.279 100100 2019-01-01117:00:002 0.56 0.373 0.762 11.003 12.279 100100 2019-01-01117:00:002 0.445 0.437 0.763 11.505 12.721 100100 2019-01-01119:00:002 0.495 0.457 12.241 12.438 100100 2019-01-01119:00:002 0.495 0.452 0.458 12.251 11.315 100100 2019-01-01119:00:002 0.511 0.576 0.798 12.267 11.991 100100 2019-01-01119:00:002 0.310 0.508 0.791 13.525 11.315 100100 2019-01-01119:00:002 0.310 0.508 1.791 12.251 11.991 100100 2019-01-01119:00:002 0.310 0.508 1.208 12.257 11.991 100100 2019-01-01119:00:002 0.316 0.592 0.821 12.557 11.289 100100 2019-01-01172:00:002 0.316 0.594 0.856 12.602 11.775 100100 2019-01-01172:00:002 0.218 0.582 0.86 12.602 11.775 100100 2019-01-01172:00:002 0.218 0.582 0.86 12.602 11.775 100100 2019-01-01172:00:002 0.218 0.588 0.857 12.475 11.177 100100 2019-01-01172:00:002 0.218 0.588 0.858 12.005 10.509 10.500 2019-01-01172:00:002 0.250 0.509 0.855 12.613 9.932 100100 2019-01-01172:00:002 0.250 0.509 0.868 11.093 11.298 100100 2019-01-0172:30:002 0.250 0.509 0.868 11.093 1.298 100100 2019-01-0172:30:002 0.250 0.509 0.868 11.093 1.298 100100 2019-01-0172:30:002 0.250 0.509 0.868 11.093 1.298 100100 2019-01-0172:30:002 0.250 0.509 0.868 11.093 10.827 100100								
2019-01-01115:30:00Z 0.478 0.228 0.785 10.239 10.106 100100 2019-01-01116:00:00Z 0.47 0.228 0.78 10.28 8.978 10.28 8.978 10.20 2019-01-01116:00:00Z 0.47 0.228 0.78 10.28 8.978 10.20 2019-01-01116:00:00Z 0.36 0.278 0.26 0.762 11.003 12.279 100100 2019-01-01117:00:00Z 0.36 0.373 0.762 11.003 12.279 100100 2019-01-01117:00:00Z 0.49 0.49 0.553 0.787 12.241 12.438 100100 2019-01-01119:00:00Z 0.419 0.553 0.787 12.241 12.438 100100 2019-01-01119:00:00Z 0.511 0.576 0.798 12.257 11.991 100100 2019-01-01119:00:00Z 0.511 0.576 0.798 12.257 11.991 100100 2019-01-01120:00Z 0.378 0.592 0.851 12.557 11.289 100100 2019-01-01120:00Z 0.391 0.594 0.856 12.60Z 11.275 100100 2019-01-01121:00:00Z 0.316 0.62Z 0.851 12.527 11.443 100100 2019-01-01121:00:00Z 0.316 0.592 0.851 12.257 11.443 100100 2019-01-01121:00:00Z 0.316 0.592 0.856 12.60Z 11.275 100100 2019-01-01121:00:00Z 0.391 0.594 0.856 12.60Z 11.275 100100 2019-01-01121:00:00Z 0.38 0.582 0.865 12.60Z 11.275 100100 2019-01-01121:00:00Z 0.218 0.582 0.80 12.00Z 11.275 100100 2019-01-01122:00:00Z 0.218 0.582 0.805 12.60Z 19.992 100100 2019-01-01122:00:00Z 0.253 0.589 0.868 12.90Z 19.992 100100 2019-01-01123:00:00Z 0.253 0.589 0.868 11.993 10.82Z 100100 2019-01-0123:00.00Z 0.53 0.589 0.868 11.993 0.825 100100 2019-01-0123:00:00Z 0.53 0.589 0.868 11.993 0.825 100100 2019-01-0122:00:00Z 0.755 0.589 0.865 8.85Z 8.57Z 100100 2019-01-0120:00:00Z 0.750 0.599 0.865 8.85Z 8.57Z 100100								
2019-01-01T16:08:080 7, 0.278 0.228 0.78 10.28 8.978 ID0100 2019-01-01T16:38:087 0, 278 0.22 0.767 9.561 11.709 1D0100 2019-01-01T17:30:007 0, 445 0.373 0.762 11.003 12.279 ID0100 2019-01-01T17:30:007 0, 445 0.437 0.763 11.505 12.721 ID0100 2019-01-01T18:30:007 0, 445 0.437 0.763 11.505 12.721 ID0100 2019-01-01T18:30:007 0, 462 0.452 0.588 0.791 12.241 12.438 ID0100 2019-01-01T19:00:007 0, 551 0.576 0.798 12.267 11.991 ID0100 2019-01-01T19:00:007 0, 316 0.622 0.851 12.555 11.289 ID0100 2019-01-01T2:00:007 0, 316 0.622 0.851 12.557 11.438 ID0100 2019-01-01T2:00:007 0, 316 0.582 0.86 12.662 11.775 ID0100 2019-01-01T2:00:007 0, 218 0.552 0.86 12.802 11.775 ID0100 2019-0								
2019-01-01716:30:00Z 0.278 0.22 0.767 9.561 11.769 ID0100 2019-01-01717:00:00Z 0.36 0.373 0.762 11.003 12.279 ID0100 2019-01-01717:00:00Z 0.36 0.373 0.762 11.003 12.279 ID0100 2019-01-01717:00:00Z 0.419 0.553 0.767 12.241 12.438 ID0100 2019-01-01718:30:00Z 0.419 0.553 0.767 12.241 12.438 ID0100 2019-01-01718:30:00Z 0.511 0.576 0.798 12.267 11.991 ID0100 2019-01-01719:30:00Z 0.511 0.576 0.798 12.267 11.991 ID0100 2019-01-01719:30:00Z 0.316 0.622 0.851 12.55Z 11.25Z ID0100 2019-01-01720:30:00Z 0.316 0.65Z 0.851 12.55Z 11.289 ID0100 2019-01-01720:30:00Z 0.316 0.592 0.856 12.682 11.27Z ID0100 2019-01-017121:30:00Z 0.218 0.592 0.855 12.280 10.719 ID0100 2019-01-017121:30:00Z 0.218 0.592 0.85 12.280 10.719 ID0100 2019-01-017121:30:00Z 0.238 0.582 0.85Z 12.47Z ID0100 2019-01-017121:30:00Z 0.238 0.582 0.85Z 12.47Z ID0100 2019-01-017121:30:00Z 0.245 0.592 0.855 12.693 19.93Z ID0100 2019-01-017121:30:00Z 0.245 0.592 0.855 12.613 9.93Z ID0100 2019-01-017123:30:00Z 0.253 0.588 0.85Z 12.613 9.93Z ID0100 2019-01-017123:30:00Z 0.253 0.598 0.858 11.093 10.82Z ID0100 2019-01-01723:30:00Z 0.253 0.589 0.858 11.093 10.82Z ID0100 2019-01-07123:30:00Z 0.253 0.589 0.855 11.093 0.825 ID0100 2019-01-07123:30:00Z 0.253 0.589 0.855 11.093 0.825 ID0100 2019-01-07123:30:00Z 0.753 0.589 0.855 8.85Z 8.57Z ID0100 2019-01-071000Z 0.750 0.599 0.855 8.85Z 8.57Z ID0100 2019-01-07100Z 0.00Z 0.750 0.599 0.855 8.85Z 8.57Z ID0100								
2019-01-01172:08:097 0, 445 0, 437 0, 763 11.595 12.721 1D0100 2019-01-011713:08:097 0, 445 0, 437 0, 763 11.595 12.721 1D0100 2019-01-01118:30:002 0, 445 0, 553 0, 787 12.241 12.438 1D0100 2019-01-01118:30:002 0, 462 0, 558 0, 798 12.241 12.438 1D0100 2019-01-01119:30:002 0, 531 0, 576 0, 798 12.267 11.991 1D0100 2019-01-01179:00:002 0, 316 0, 676 0, 798 12.267 11.991 1D0100 2019-01-01179:00:002 0, 316 0, 622 0, 851 12.555 11.289 1D0100 2019-01-01172:30:002 0, 316 0, 622 0, 851 12.557 11.443 1D0100 2019-01-01172:30:002 0, 391 0, 594 0, 856 12.804 11.795 1D0100 2019-01-01712:30:002 0, 218 0, 558 0, 858 12.804 10.719 1D0100 2019-01-0172:30:002 0, 218 0, 588 0, 857 12.637 11.77 1D0100 2019-01-0172:30:002 0, 304 0, 508 0, 858 12.005 10.65 1D0100 2019-01-0172:30:002 0, 304 0, 62 0, 86 11.373 11.298 1D0100 2019-01-0172:30:002 0, 254 0, 559 0, 868 11.093 10.827 1D0100 2019-01-0172:30:002 0, 253 0, 559 0, 868 11.093 10.827 1D0100 2019-01-0172:30:002 0, 253 0, 559 0, 868 11.093 10.827 1D0100 2019-01-0172:30:002 0, 253 0, 559 0, 868 11.093 10.827 1D0100								
2019-01-01172:30:002 0.445 0.457 0.763 11.505 12.721 ID01;00 2019-01-01178:30:007 0.419 0.553 0.787 12.241 12.438 ID01;00 2019-01-01178:30:007 0.419 0.553 0.787 12.241 12.438 ID01;00 2019-01-01178:30:007 0.551 0.756 0.798 12.267 11.991 ID01;00 2019-01-01179:30:007 0.316 0.652 0.851 12.555 11.299 ID01;00 2019-01-01179:30:007 0.316 0.622 0.851 12.555 11.289 ID01;00 2019-01-01172:30:007 0.316 0.592 0.851 12.557 11.443 ID01;00 2019-01-01172:30:007 0.238 0.592 0.851 12.557 11.475 ID01;00 2019-01-01172:30:007 0.238 0.592 0.855 12.682 11.275 ID01;00 2019-01-01172:30:007 0.238 0.582 0.857 12.487 I1.177 ID01;00 2019-01-01172:30:007 0.238 0.588 0.857 12.487 I1.177 ID01;00 2019-01-01172:30:007 0.245 0.588 0.858 12.693 9.932 ID01;00 2019-01-01172:30:007 0.245 0.599 0.855 12.613 9.932 ID01;00 2019-01-01172:30:007 0.253 0.599 0.885 11.093 11.298 ID01;00 2019-01-0172:30:007 0.253 0.599 0.888 11.093 10.827 ID01;00 2019-01-0172:30:007 0.253 0.599 0.888 11.093 10.827 ID01;00 2019-01-0770:00:007 0.755 0.599 0.885 11.093 10.827 ID01;00 2019-01-0770:00:007 0.755 0.599 0.885 11.093 9.826 ID01;00 2019-01-07700:00:007 0.755 0.599 0.885 8.852 8.572 ID01;00 2019-01-07700:000:007 0.755 0.599 0.885 8.852 8.572 ID01;00 2019-01-07700:30:007 0.755 0.755 0.599 0.885 8.852 8.572 ID01;00 2019-01-07700:30:007 0.755 0.755 0.599 0.885 8.852 8.572 ID01;00 2019-01-07700:30:007 0.755 0.								
2019-01-01118:08:087 0,419 0,553 0,787 12.241 12.438 ID0100 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0								
2019-01-01118:30:00Z 0.462 0.568 0.791 13.525 11.315 ID0100 2019-01-01119:00:00Z 0.551 0.576 0.798 12.267 11.991 ID0100 2019-01-01119:00:00Z 0.551 0.576 0.798 12.267 11.991 ID0100 2019-01-01119:00:00Z 0.378 0.579 0.821 12.55Z 11.289 ID0100 2019-01-01129:00:00Z 0.316 0.622 0.851 12.55Z 11.289 ID0100 2019-01-01129:00:00Z 0.38 0.592 0.851 12.52Z 11.443 ID0100 2019-01-01121:00:00Z 0.218 0.592 0.86 12.884 10.719 ID0100 2019-01-01121:30:00Z 0.238 0.588 0.857 12.475 11.177 ID0100 2019-01-01121:30:00Z 0.238 0.588 0.857 12.475 11.177 ID0100 2019-01-01121:30:00Z 0.238 0.588 0.857 12.475 11.177 ID0100 2019-01-01121:30:00Z 0.245 0.599 0.855 12.613 9.932 ID0100 2019-01-01121:30:00Z 0.245 0.599 0.855 12.613 9.932 ID0100 2019-01-01123:30:00Z 0.253 0.589 0.868 11.093 10.827 ID0100 2019-01-02120:00:00Z 0.253 0.589 0.868 11.093 10.827 ID0100 2019-01-02120:00Z 0.755 0.583 0.865 10.991 9.826 ID0100 2019-01-02120:00Z 0.075 0.755 0.599 0.865 8.852 8.572 ID0100 2019-01-02120:30:00Z 0.176 0.599 0.865 8.852 8.572 ID0100 2019-01-021200:30:00Z 0.176 0.599 0.599 0.865 8.852 8.572 ID0100 2019-01-021200:30:00Z 0.176 0.599 0.86								
2019-01-0119:30:007 o.378 0.576 0.798 12.267 11.991 ID0100 2019-01-0119:30:007 o.378 0.579 0.821 12.552 11.289 ID0100 2019-01-01720:30:002 o.316 0.622 0.851 12.527 11.443 ID0100 2019-01-017120:30:002 o.218 0.582 0.86 12.682 11.275 ID0100 2019-01-017121:30:002 o.218 0.582 0.86 12.804 10.719 ID0100 2019-01-017121:30:002 o.215 0.588 0.858 12.985 11.177 ID0100 2019-01-017122:30:002 o.245 0.599 0.855 12.613 9.932 ID0100 2019-01-01723:30:002 o.253 0.589 0.868 11.973 11.993 10.082 2019-01-02700:30:002 o.076 0.599 0.865 11.093 19.826 ID0100 2019-01-02700:30:002 o.076 0.599 0.865 8.852 8.572 1D0100								
2019-01-01119:30:00Z 0.378 0.579 0.821 12.355 11.289 ID0100 0109-01-011720:00:00Z 0.316 0.622 0.851 12.55Z 11.443 ID0100 2019-01-011720:00:00Z 0.316 0.622 0.851 12.55Z 11.443 ID0100 2019-01-011720:00Z 00Z 0.218 0.59Z 0.86 12.804 10.719 ID0100 2019-01-011721:00:00Z 0.218 0.59Z 0.86 12.804 10.719 ID0100 2019-01-011721:00Z 00Z 0.215 0.588 0.85Z 12.475 11.177 ID0100 2019-01-011722:30Z:00Z 0.245 0.59S 0.85S 12.613 9.93Z ID0100 2019-01-011722:30Z:00Z 0.245 0.59S 0.85S 12.613 9.93Z ID0100 2019-01-011722:30Z:00Z 0.245 0.59S 0.86S 11.093 11.29B ID0100 2019-01-011722:30Z:00Z 0.253 0.589 0.86S 11.093 10.82Z ID0100 2019-01-02700:00Z 0.275 0.583 0.86S 11.093 9.82Z ID0100 2019-01-02700:00Z 0.0Z 0.75 0.59S 0.86S 8.85Z 8.57Z ID0100 2019-01-02700:00Z 0.0Z 0.75 0.59S 0.86S 8.85Z 8.57Z ID0100 2019-01-02700:00Z 0.0Z 0.75 0.59S 0.86S 8.85Z 8.57Z ID0100								
2019-01-01720:00:00Z 0.316 0.622 0.851 12.527 11.443 ID0100 2019-01-01720:30:00Z 0.391 0.594 0.856 12.682 11.275 ID0100 2019-01-01721:30:00Z 0.218 0.582 0.86 12.804 10.719 ID0100 2019-01-01721:30:00Z 0.238 0.588 0.858 12.504 11.177 ID0100 2019-01-01722:30:00Z 0.215 0.588 0.858 12.905 10.50 10.50 2019-01-01722:30:00Z 0.344 0.62 0.85 12.063 9.922 ID0100 2019-01-01723:30:00Z 0.253 0.589 0.868 11.093 10.827 ID0100 2019-01-02700:30:00Z 0.176 0.593 0.865 8.852 8.572 ID0100 2019-01-02700:30:00Z 0.176 0.593 0.865 8.852 8.572 ID0100								
2019-01-01720:30:00Z 0.391 0.594 0.856 12.682 11.275 ID0100 0.0019-01-017121:00:00Z 0.218 0.552 0.86 12.684 12.791 1D0100 0.0019-01-01721:30:00Z 0.218 0.552 0.86 12.694 10.719 ID0100 0.0019-01-01721:30:00Z 0.215 0.558 0.858 12.00S 11.475 ID0100 0.0019-01-01722:30:00Z 0.245 0.598 0.858 12.00S 10.655 ID0100 0.0019-01-01722:30:00Z 0.245 0.599 0.855 12.613 9.932 ID0100 0.0019-01-01722:30:00Z 0.253 0.509 0.868 11.093 11.298 ID0100 0.0019-01-01722:30:00Z 0.253 0.589 0.868 11.093 10.827 ID0100 0.0019-01-02700:00:00Z 0.275 0.583 0.865 11.093 9.826 ID0100 0.0019-01-02700:30:00Z 0.176 0.599 0.865 8.852 8.572 ID0100 0.0019-01-02700:30:00Z 0.176 0.599 0.855 8.852 8.572 ID0100 0.0019-01-02700:30:00Z 0.776 0.599 0.855 8.852 8.572								
2019-01-017121:00:002 0.218 0.582 0.86 12.804 10.719 ID0100 2019-01-01721:30:002 0.238 0.588 0.857 12.475 11.177 ID0100 2019-01-01722:00:002 0.215 0.588 0.858 12.905 10.65 ID0100 2019-01-01723:00:002 0.245 0.599 0.855 12.613 9.932 ID0100 2019-01-01723:00:002 0.304 0.62 0.86 11.373 11.298 ID0100 2019-01-01723:00:002 0.253 0.599 0.868 11.093 10.827 ID0100 2019-01-02700:00:002 0.275 0.583 0.865 10.991 9.826 ID0100 2019-01-02700:20:00:002 0.176 0.599 0.865 8.852 8.572 ID0100								
2019-01-01712:30:002 0,238 0,588 0,857 12,475 11,177 ID0100 2019-01-01712:00:007 0,215 0,588 0,858 12,005 10.65 ID0100 2019-01-01712:30:002 0,245 0,599 0,855 12,613 9,922 ID0100 2019-01-01723:30:002 0,253 0,509 0,865 11,0373 11,298 ID0100 2019-01-01723:30:002 0,253 0,589 0,868 11,093 10,827 ID0100 2019-01-02700:00:002 0,275 0,589 0,808 11,093 10,827 ID0100 2019-01-02700:30:002 0,775 0,583 0,865 10,991 9,826 ID0100 2019-01-02700:30:002 0,176 0,599 0,865 8,852 8,572 ID0100 2019-01-02700:30:002 0,176								
2019-01-01722:00:00Z 0.215 0.588 0.858 12.095 10.65 ID0100 2019-01-01722:30:00Z 0.245 0.599 0.855 12.613 9.932 ID0100 2019-01-01723:30:002 0.304 0.62 0.86 11.373 11.298 ID0100 2019-01-01723:30:00Z 0.253 0.589 0.868 11.093 10.827 ID0100 2019-01-02T00:00:00Z 0.275 0.583 0.865 10.991 9.826 ID0100 2019-01-02T00:30:00Z 0.176 0.59 0.855 8.852 8.572 ID0100								
2019-01-01722:30:007 0.304 0.52 0.855 12.613 9.932 ID0100 0.0019-01-01723:30:007 0.304 0.52 0.86 11.373 11.298 ID0100 0.0019-01-01723:30:007 0.253 0.589 0.868 11.093 10.827 ID0100 0.0019-01-02100:00:007 0.275 0.583 0.805 11.093 9.826 ID0100 0.0019-01-02100:30:007 0.176 0.59 0.865 8.852 8.572 ID0100 0.0019-01-02100:30:007 0.001								
2019-01-01T23:00:00Z 0.304 0.62 0.86 11.373 11.298 ID0100 2019-01-01T23:30:00Z 0.253 0.589 0.868 11.093 10.827 ID0100 2019-01-02T00:00:00Z 0.275 0.583 0.865 10.991 9.826 ID0100 2019-01-02T00:30:00Z 0.176 0.59 0.865 8.852 8.572 ID0100								
2019-01-01723:30:00Z 0.253 0.589 0.868 11.093 10.827 ID0100 2019-01-02700:00:00Z 0.275 0.583 0.865 10.991 9.826 ID0100 2019-01-02700:30:00Z 0.176 0.59 0.865 8.852 8.572 ID0100								
2019-01-02T00:00:00Z 0.275 0.583 0.865 10.991 9.826 ID0100 2019-01-02T00:30:00Z 0.176 0.59 0.865 8.852 8.572 ID0100								
2019-01-02T00:30:00Z 0.176 0.59 0.865 8.852 8.572 ID0100								
2019-01-02T01:00:00Z 0.14 0.582 0.871 7.955 7.313 ID0100								
	2019-01-02T01:00:00Z	0.14	0.582	0.871	7.955	7.313	ID0100	

```
----из-измерения-cluster3-----
select pressure1 from cluster3 limit 20
> select pressure1 from cluster3 limit 20
name: cluster3
time
                     pressure1
2019-01-01T00:00:00Z 0.302
2019-01-01T00:30:00Z 0.333
2019-01-01T01:00:00Z 0.549
2019-01-01T01:30:00Z 0.301
2019-01-01T02:00:00Z 0.522
2019-01-01T02:30:00Z 0.286
2019-01-01T03:00:00Z 0.252
2019-01-01T03:30:00Z 0.238
2019-01-01T04:00:00Z 0.158
2019-01-01T04:30:00Z 0.274
2019-01-01T05:00:00Z 0.226
2019-01-01T05:30:00Z 0.247
2019-01-01T06:00:00Z 0.196
2019-01-01T06:30:00Z 0.168
2019-01-01T07:00:00Z 0.181
2019-01-01T07:30:00Z 0.251
```

--4)-Вывести-первые-20-строк-значений-pressure1-----

2019-01-01T08:00:00Z 0.2 2019-01-01T08:30:00Z 0.282 2019-01-01T09:00:00Z 0.259 2019-01-01T09:30:00Z 0.18

--5)-Вывести-результат-сглаживания-временного-ряда-по-----------значению-pressure1-с-окном,-равным-3-значения.---------Используем-операцию-moving_average(pressure1,3)------select moving_average(pressure1, 3) from cluster3

```
--6)-Вывести-все-минимальные,-максимальные-и-средние-значения-
-----для-всех-давлений------
select max(/pressure/), min(/pressure/), mean(/pressure/) from cluster3
--7)-Вывести-разброс-значений-давления1------
-----командой-SPREAD(<field>)-----
select spread(pressure1) from cluster3
 select spread(pressure1) from cluster3_
name: cluster3
time
                       spread
1970-01-01T00:00:00Z 0.6799999999999999
--8)-Вывести-стандартное-отклонение-для-давления1------
-----командой-STDDEV(<field>)-----
select stddev(pressure1) from cluster3
> select stddev(pressure1) from cluster3_
name: cluster3
time
                       stddev
1970-01-01T00:00:00Z 0.14932423129505185
--9)-Что-выведет-этот-запрос??-----
select stddev(pressure1),stddev(pressure2),stddev(pressure3) from cluster3 group by time(7d)
> select stddev(pressure1),stddev(pressure2),stddev(pressure3) from cluster3 group by time(7d)
name: cluster3
time
                   stddev
                                     stddev_1
                                                        stddev_2
2018-12-27T00:00:00Z 0.11731139398155126 0.1591020402462719 0.052064508527840864
2019-01-03T00:00:00Z 0.14299155396750265 0.14065010483483387 0.0675208715000834
2019-01-10T00:00:00Z 0.15601744040679372 0.16515084635641078 0.04775525056997095
2019-01-17T00:00:00Z 0.14930002608119822 0.20099767145504022 0.042140666118823535
2019-01-24T00:00:002 0.15394832006978795 0.19380982569032754 0.15689270017259713
2019-01-31T00:00:00Z 0.12515040419516335 0.18401487278004275 0.04321236012272282
2019-02-07T00:00:00Z
(Стандартное отклонение давлений по неделе)
--10)-Вывести-прогноз-значения-pressure1-на-сутки-вперед-----
select holt winters(first(pressure1),5,24) from cluster3 group by time(1h)
> select holt_winters(first(pressure1),5,24) from cluster3 group by time(1h)
name: cluster3
time
                       holt_winters
2019-02-01T00:00:00Z 0.30485467960072776
2019-02-01T01:00:00Z 0.33246311160704706
2019-02-01T02:00:00Z 0.3277292273581258
2019-02-01T03:00:00Z 0.22999131308255272
2019-02-01T04:00:00Z 0.22246317346964242
```

```
--11)-Вывести-все-содержимое-измерений-по-кусту3-------
-----базы-данных-production------
```

select * from cluster3

Scient Holl Glasters								
> select * from clust	ter3							
name: cluster3								
time	pressure1	pressure2	pressure3	pressure4	pressure5	well		
2019-01-01T00:00:00Z	0.302	0.579	0.772	11.915	10.989	ID0100		
2019-01-01T00:30:00Z	0.333	0.582	0.773	11.138	9.905	ID0100		
2019-01-01T01:00:00Z	0.549	0.582	0.779	10.629	9.577	ID0100		
2019-01-01T01:30:00Z	0.301	0.581	0.78	9.5	10.034	ID0100		
2019-01-01T02:00:00Z	0.522	0.577	0.781	10.055	8.072	ID0100		
2019-01-01T02:30:00Z	0.286	0.578	0.784	9.199	8.105	ID0100		
2019-01-01T03:00:00Z	0.252	0.579	0.784	7.692	7.19	ID0100		
2019-01-01T03:30:00Z	0.238	0.585	0.784	7.028	6.456	ID0100		
2019-01-01T04:00:00Z	0.158	0.585	0.79	6.197	5.952	ID0100		
2019-01-01T04:30:00Z		0.589	0.791	5.992	5.082	ID0100		
2019-01-01T05:00:00Z		0.592	0.794	5.846	5.485	ID0100		
2019-01-01T05:30:00Z		0.589	0.789	5.481	4.758	ID0100		
2019-01-01T06:00:00Z		0.59	0.787	5.467	4.656	ID0100		
2019-01-01T06:30:00Z		0.586	0.785	4.943	4.446	ID0100		
2019-01-01T07:00:00Z		0.587	0.782	5.602	4.248	ID0100		
2019-01-01T07:30:00Z		0.592	0.785	5.036	4.06	ID0100		
2019-01-01T08:00:00Z		0.584	0.781	5.758	4.4	ID0100		
2019-01-01T08:30:00Z		0.59	0.789	5.831	4.858	ID0100		
2019-01-01T09:00:00Z		0.591	0.786	5.439	5.225	ID0100		
2019-01-01T09:30:00Z		0.59	0.784	6.007	6.312	ID0100		
2019-01-01T10:00:00Z		0.595	0.785	6.333	7.283	ID0100		
2019-01-01T10:30:00Z		0.596	0.783	6.287	6.295	ID0100		
2019-01-01T11:00:00Z		0.589	0.782	7.919	5.983	ID0100		
2019-01-01T11:30:00Z		0.589	0.778	8.568	6.505	ID0100		
2019-01-01T12:00:00Z		0.299	0.78	8.142	7.393	ID0100		
2019-01-01T12:30:00Z		0.291	0.789	8.528	8.538	ID0100		
2019-01-01T13:00:00Z		0.228	0.781	9.996	8.028	ID0100		
2019-01-01T13:30:00Z		0.229	0.78	9.774	8.863	ID0100		
2019-01-01T14:00:00Z		0.229	0.782	10.062	8.461	ID0100		
2019-01-01T14:00:00Z		0.233	0.784	10.147	9.592	ID0100		
2019-01-01T15:00:00Z		0.227	0.812	10.147	9.358	ID0100		
2019-01-01T15:30:00Z		0.233	0.785	10.239	10.106	ID0100		
2019-01-01T16:00:00Z		0.228	0.78	10.23	8.978	ID0100		
2019-01-01T16:30:00Z		0.22	0.767	9.561	11.709	ID0100		
2019-01-01T17:00:00Z		0.373	0.762	11.003	12.279	ID0100		
2019-01-01T17:30:00Z		0.437	0.763	11.505	12.721	ID0100		
2019-01-01T18:00:00Z		0.553	0.787	12.241	12.438	ID0100		
2019-01-01T18:30:00Z		0.568	0.791	13.525	11.315	ID0100		
2019-01-01T19:00:00Z		0.576	0.791	12.267	11.991	ID0100		
2019-01-01719:30:00Z		0.579	0.821	12.355	11.289	ID0100		
2019-01-01T20:00:00Z		0.622	0.851	12.527	11.443	ID0100		
2019-01-01T20:00:00Z		0.594	0.856	12.682	11.275	ID0100		
2019-01-01720:30:00Z		0.582	0.86	12.804	10.719	ID0100		
2019-01-01721:00:00Z		0.588	0.857	12.475	11.177	ID0100		
				12.4/5				
2019-01-01T22:00:00Z		0.588 0.599	0.858 0.855	12.905	10.65	ID0100 ID0100		
2019-01-01T22:30:00Z		0.599		12.613	9.932 11.298	ID0100		
2019-01-01T23:00:00Z			0.86					
2019-01-01T23:30:00Z		0.589	0.868	11.093	10.827	ID0100		
2019-01-02T00:00:00Z		0.583	0.865	10.991	9.826	ID0100		
2019-01-02T00:30:00Z		0.59	0.865	8.852	8.572	ID0100		
2019-01-02T01:00:00Z	0.14	0.582	0.871	7.955	7.313	ID0100		

select pressure1,pressure3 from cluster3 where pressure1>0.5 and pressure3>0.5 limit 10

```
select pressure1,pressure3 from cluster3 where pressure1>0.5 and pressure3>0.5 limit 10
name: cluster3
time
                    pressure1 pressure3
2019-01-01T01:00:00Z 0.549
                              0.779
2019-01-01T02:00:00Z 0.522
                             0.781
2019-01-01T14:30:00Z 0.585
                             0.784
2019-01-01T19:00:00Z 0.531
                              0.798
2019-01-02T13:00:00Z 0.658
                              0.725
2019-01-02T15:30:00Z 0.516
                              0.732
2019-01-03T11:30:00Z 0.669
2019-01-03T14:00:00Z 0.509
                              0.678
2019-01-03T14:30:00Z 0.538
                               0.687
2019-01-03T15:00:00Z 0.585
                              0.676
```

--13)-Вывести-средние-за-сутки-значения-давления2-----select mean(pressure2) from cluster3 group by time(1d) fill(none)

```
> select mean(pressure2) from cluster3 group by time(24h) fill(none)
name: cluster3
time
                     mean
2019-01-01T00:00:00Z 0.5075416666666669
2019-01-02T00:00:00Z 0.46308333333333333
2019-01-03T00:00:00Z 0.46102083333333344
2019-01-04T00:00:00Z 0.4572291666666668
2019-01-05T00:00:00Z 0.460458333333333325
2019-01-06T00:00:00Z 0.44012499999999993
2019-01-07T00:00:00Z 0.4243333333333333
2019-01-08T00:00:00Z 0.40881249999999997
2019-01-09T00:00:00Z 0.4312291666666666
2019-01-10T00:00:00Z 0.39008333333333334
2019-01-11T00:00:00Z 0.4220833333333334
2019-01-12T00:00:00Z 0.4200208333333335
2019-01-13T00:00:00Z 0.4436875
2019-01-14T00:00:00Z 0.496208333333333353
2019-01-15T00:00:00Z 0.5172708333333333
2019-01-16T00:00:00Z 0.3735833333333334
2019-01-17T00:00:00Z 0.2693125
2019-01-18T00:00:00Z 0.25720833333333333
2019-01-19T00:00:00Z 0.290208333333333323
2019-01-20T00:00:00Z 0.2720208333333334
2019-01-21T00:00:00Z 0.33985416666666673
2019-01-22T00:00:00Z 0.4862916666666666
2019-01-23T00:00:00Z 0.5313125
2019-01-24T00:00:00Z 0.5161041666666667
2019-01-25T00:00:00Z 0.5228333333333333
2019-01-26T00:00:00Z 0.5329166666666666
2019-01-27T00:00:00Z 0.5271666666666666
2019-01-28T00:00:00Z 0.4767708333333333
2019-01-29T00:00:00Z 0.49475000000000001
2019-01-30T00:00:00Z 0.4905208333333333
2019-01-31T00:00:00Z 0.477625
```

--14)-Вывести-максимальные-значения-давлений-по-суткам------select max(/pressure/) from cluster3 group by time(1d) fill(none)

	() 6		(0.1)	, ` , <i>'</i>	
> select max(/pressur name: cluster3	re/) from clust	ter3 group by t	:1me(24h) +111((none)	
name: Cluster3 time	may ppassupa1	may pagguna)	may pagguna?	may prossure4	may procesure
time	max_pressure1	max_pressure2	max_pressure3	max_pressure4	max_pressures
2019-01-01T00:00:00Z	0 505	0.622	0.868	13.525	12.721
2019-01-02T00:00:00Z		0.61	0.888	14.838	12.316
2019-01-03T00:00:00Z		0.578	0.878	17.612	13.61
2019-01-04T00:00:00Z		0.61	0.85	16.033	13.819
2019-01-05T00:00:00Z		0.59	0.855	15.312	14.469
2019-01-06T00:00:00Z		0.586	0.804	14.446	15.337
2019-01-07T00:00:00Z		0.553	0.69	15.571	16.063
2019-01-08T00:00:00Z		0.529	0.763	18.56	18.003
2019-01-09T00:00:00Z			0.79	18.212	21.03
2019-01-10T00:00:00Z		0.534	0.81	16.194	19.792
2019-01-11T00:00:00Z		0.527	0.746	17.982	15.781
2019-01-12T00:00:00Z		0.519	0.79	17.049	16.652
2019-01-13T00:00:00Z		0.542	0.805	16.279	17.107
2019-01-14T00:00:00Z		0.664	0.773	15.425	15.822
2019-01-15T00:00:00Z		0.659	0.796	16.023	14.451
2019-01-16T00:00:00Z		0.661	0.788	15.306	15.033
2019-01-17T00:00:00Z		0.356	0.807	15.241	14.53
2019-01-18T00:00:00Z	0.678	0.358	0.843	15.944	13.913
2019-01-19T00:00:00Z	0.723	0.401	0.772	15.096	13.956
2019-01-20T00:00:00Z	0.644	0.399	0.774	15.844	16.222
2019-01-21T00:00:00Z	0.719	0.654	0.776	14.702	15.533
2019-01-22T00:00:00Z	0.635	0.676	0.776	17.548	16.153
2019-01-23T00:00:00Z	0.784	0.682	0.821	17.143	17.341
2019-01-24T00:00:00Z	0.7	0.677	0.826	15.898	15.419
2019-01-25T00:00:00Z	0.576	0.708	0.77	17.321	17.497
2019-01-26T00:00:00Z	0.723	0.7	0.796	16.954	17.437
2019-01-27T00:00:00Z	0.733	0.678	0.802	16.554	19.014
2019-01-28T00:00:00Z	0.815	0.637	0.773	16.24	15.869
2019-01-29T00:00:00Z	0.727	0.636	0.788	16.066	16.604
2019-01-30T00:00:00Z	0.785	0.651	0.782	16.712	14.875
2019-01-31T00:00:00Z	0.591	0.643	0.779	14.959	14.168
	•				·

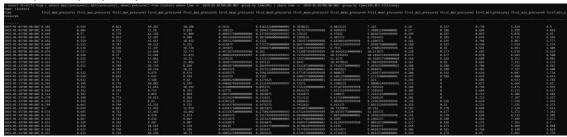
.....

- --15)-Вывести-разницу-среднесуточных-значений-давлений-1-и-2--
- -----по-каждым-суткам-за-первые-2-недели-измерений------

select mean(pressure1)-mean(pressure2) from cluster3 group by time(1d) fill(none) limit 12

- --16)-Вывести-минимальное,-максимальное,-среднее-значения-----
- -----всех-давлений-по-каждым-суткам-в-первую-смену------
- -----работы-персонала,-то-есть-с-8-00-до-17-00------

select first(*) from (select max(/pressure/), min(/pressure/), mean(/pressure/) from cluster3 where time \geq '2019-01-01T08:00:00Z' group by time(8h)) where time \geq '2019-01-01 00:00:00' group by time(24h,8h) fill(none)



- --17)-Вывести-отклонения-среднесуточных-значений-------
- -----от-среднего-значения-за-месяц-по-давлению4-и-давлению5--

select mean(pressure4),mean(pressure5) from cluster3 where time >= '2019-01-01 00:00:00' group by time(31d,10d) fill(none)

select mean(pressure4)-9.686063844086023,mean(pressure5)-9.273440188172044 from cluster3 group by time(1d)

> select mean(pressure4)-9.686063844086023,mean(pressure5)-9.273440188172044 from cluster3 group by time(1d)							
name: cluster3							
time mean	mea	in_1					
2019-01-01T00:00:00Z -0.472605	5107526914 -0.	8097735215053774					
2019-01-02T00:00:00Z -0.537647	177419359 -0.	9514401881720431					
2019-01-03T00:00:00Z 0.4125194		3962735215053783					
2019-01-04T00:00:00Z 0.0399986		5174193548387098					
2019-01-05T00:00:00Z 0.0312694	892473111 -0.	515815188172045					
2019-01-06T00:00:00Z -0.772918	0107526883 -0.	77935685483871					
2019-01-07T00:00:00Z 0.4028528		448723118279581					
2019-01-08T00:00:00Z 1.4130611		303931451612854					
2019-01-09T00:00:00Z 2.2651236	559139782 2.3	463306451612898					
2019-01-10T00:00:00Z 1.1472069		07497311827956					
2019-01-11T00:00:00Z 1.7281861		349348118279551					
2019-01-12T00:00:00Z 0.6830819	892473095 0.1	.8399731182795698					
2019-01-13T00:00:00Z -0.113022							
2019-01-14T00:00:00Z -0.638251	344086024 -0.	8510235215053754					
2019-01-15T00:00:00Z -0.412418	01075268825 -0.	8630860215053779					
2019-01-16T00:00:00Z -0.636480	5107526905 -1.	1560651881720467					
2019-01-17T00:00:00Z -0.682813		6782735215053766					
2019-01-18T00:00:00Z -0.048230	51075268836 -0.	17454435483871222					
2019-01-19T00:00:00Z -1.082605	510752689 -0.	9303985215053743					
2019-01-20T00:00:00Z -0.838126		9382943548387104					
2019-01-21T00:00:00Z -0.319938		4574401881720416					
2019-01-22T00:00:00Z -0.665459	6774193564 -0.	255190188172044					
2019-01-23T00:00:00Z 0.2409778	225806427 -0.	2209818548387119					
2019-01-24T00:00:00Z 0.5710403		826639784946206					
2019-01-25T00:00:00Z 0.6009361	559139776 1.7	869764784946192					
2019-01-26T00:00:00Z -0.550522	1774193547 0.3	499556451612893					
2019-01-27T00:00:00Z -0.235418	0107526922 0.2	1943481182795566					
2019-01-28T00:00:00Z 0.0372278		23606518817204503					
2019-01-29T00:00:00Z -0.493147		758098118279534					
2019-01-30T00:00:00Z -0.396438							
2019-01-31T00:00:00Z -0.677438	8440860228 0.6	43184811827954306					
2019-02-01T00:00:00Z							

select count(mean) from (select mean(pressure1) from cluster3 group by time(1d) fill(none)) where mean > 0.34653024193548393 group by time(31d,10d) fill(none)

- --19)-Подсчитать-число-дней,-когда-среднесуточные-значения----
- -----давление1-и-давления2-одновременно-находились------
- -----в-диапазонах-+/-10%-от-среднего-значения-за-месяц------

select mean(pressure1),mean(pressure2) from cluster3 where time >= '2019-01-01 00:00:00' group by time(31d,10d) fill(none) --среднее значение

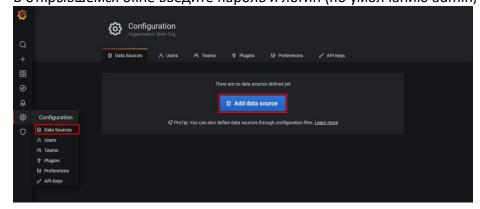
```
> select mean(pressure1),mean(pressure2) from cluster3 where time >= '2019-01-01 00:00:00' group by time(31d,10d) fill(none)
name: cluster3
time mean mean_1
----
2019-01-01T00:00:00:00Z 0.34653024193548393 0.4387634408602153
```

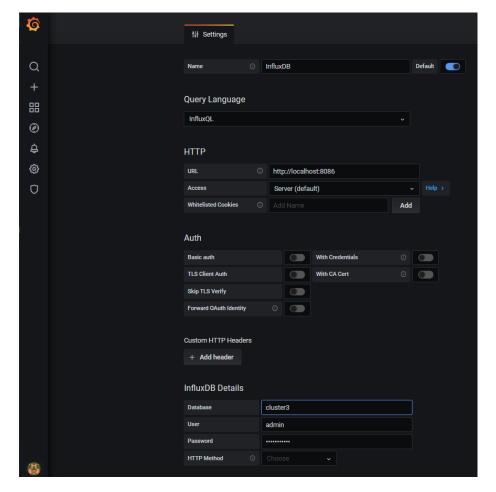
select count(mean) from (select mean(pressure1),mean(pressure2) from cluster3 group by time(1d) fill(none)) where mean > 0.31187721774 and mean < 0.38118326612 and mean_1 < 0.39488709677 and mean_1 < 0.48263978494 group by time(31d,10d) fill(none)

--20)-Построить-прогноз-каждого-давления-на-2-суток-вперед----select HOLT_WINTERS(first(/pressure/),5,48) from cluster3 group by time(1h)

21. Установка и настройка Grafana

Откройте интернет браузер и <u>перейдите по адресу http://localhost:8080 (или 3000)</u> В открывшемся окне введите пароль и логин (по умолчанию admin, admin)





22. Сделать каждому студенту свой дашборд с 10 виджетами, на которых должны быть представлены результаты запросов, связанных с расчетами среднего, минимального, максимального значения, запросы с группировкой значений по суткам и неделям, ++запросы с трансформаторами (скользящее среднее и простейшая арифметическая операция), запросы с предиктором Хольта-Винтерса

Нужно адаптировать запрос на извлечение времени работы: SELECT sum("Energy")/mean("Energy")*15 FROM "K1" WHERE ("Energy" > 40) AND \$timeFilter GROUP BY time(1d) fill(null) Время простоя: SELECT sum("Energy")/mean("Energy")*15 FROM "K1" WHERE ("Energy" < 40) AND \$timeFilter GROUP BY time(1d) fill(null)



http://localhost:3000/goto/PGHDU-YGk