

## НИС №2 “Практическая работа с базой данных временных рядов InfluxDB”

--11-----

```
insert cluster,well=ID0678,temperature=27,region=Perm pressure=6.8
insert cluster,well=ID0678,temperature=27,region=Perm pressure=6.8
insert cluster,well=ID0678,temperature=27,region=Perm pressure=6.8
insert cluster,well=ID0100,region=Perm pressure1=0.64,pressure2=1.15
insert cluster,well=ID0678,temperature=27,region=Perm pressure=6.8
insert cluster,well=ID0101,region=Osa pressure1=0.68,pressure2=2.75,pressure3=16
insert cluster,well=ID0101,region=Osa pressure1=0.87,pressure2=3.5,pressure3=67
insert cluster,well=ID0102,region=Barda pressure1=0.12,pressure2=1.5,pressure3=1.7
insert cluster,well=ID0102,region=Barda pressure1=0.15,pressure2=1.55,pressure3=1.75
insert cluster,well=ID0102,region=Barda pressure1=0.45,pressure2=1.75,pressure3=1.65
insert cluster,well=ID0102,region=Barda pressure1=0.35,pressure2=1.95,pressure3=1.85
insert cluster,well=ID0102,region=Barda pressure1=0.35,pressure2=1.95
insert cluster,well=ID0103,region=Ufa pressure1=1.35,pressure2=2.95,pressure3=5
insert cluster,well=ID0103,region=Ufa pressure1=2.35,pressure2=3.95,pressure3=5.5
insert cluster,well=ID0103,region=Ufa pressure1=3.35,pressure2=1.95,pressure3=4.5
insert cluster,well=ID0103,region=Ufa pressure1=2.35,pressure2=4.95,pressure3=7.5
insert cluster,well=ID0103,region=Ufa pressure1=2.35,pressure2=4.95
```

```
> select * from cluster
name: cluster
time                pressure pressure1 pressure2 pressure3 region temperature well
-----
2021-01-25T04:02:02.5878567Z 6.8          Perm      27          ID0678
2021-01-25T04:02:06.2272238Z 6.8          Perm      27          ID0678
2021-01-25T04:02:09.5766761Z 6.8          Perm      27          ID0678
2021-01-27T03:00:18.9796768Z      0.64      1.15          Perm      ID0100
2021-01-27T03:00:26.6703948Z      0.68      2.75      16      Osa      ID0101
2021-01-27T03:00:34.6402968Z 6.8          Perm      27          ID0678
2021-01-27T03:00:41.5096568Z      0.87      3.5      67      Osa      ID0101
2021-01-27T03:51:22.881693Z      0.35      1.95          Barda      ID0102
2021-01-27T03:51:26.5719043Z      1.35      2.95      5      Ufa      ID0103
2021-01-27T04:00:51.1664401Z      0.12      1.5      1.7      Barda      ID0102
2021-01-27T04:00:56.3656463Z      0.15      1.55      1.75      Barda      ID0102
2021-01-27T04:01:00.6053449Z      0.45      1.75      1.65      Barda      ID0102
2021-01-27T04:01:04.8254704Z      0.35      1.95      1.85      Barda      ID0102
2021-01-27T04:11:36.2132587Z      2.35      3.95      5.5      Ufa      ID0103
2021-01-27T04:11:40.134229Z      3.35      1.95      4.5      Ufa      ID0103
2021-01-27T04:11:44.5844964Z      2.35      4.95      7.5      Ufa      ID0103
2021-01-27T04:11:48.0440627Z      2.35      4.95          Ufa      ID0103
```

--12-----

```
select pressure1 from cluster where time<now()-3d17h30m
```

```
> select pressure1 from cluster where time<now()-3d17h30m
name: cluster
time                pressure1
-----
2021-01-27T03:00:18.9796768Z 0.64
2021-01-27T03:00:26.6703948Z 0.68
2021-01-27T03:00:41.5096568Z 0.87
2021-01-27T03:51:22.881693Z 0.35
2021-01-27T03:51:26.5719043Z 1.35
2021-01-27T04:00:51.1664401Z 0.12
2021-01-27T04:00:56.3656463Z 0.15
2021-01-27T04:01:00.6053449Z 0.45
2021-01-27T04:01:04.8254704Z 0.35
```

select pressure1 from cluster where time<now()-3d17h40m

```
> select pressure1 from cluster where time<now()-3d17h40m
name: cluster
time                pressure1
----                -
2021-01-27T03:00:18.9796768Z 0.64
2021-01-27T03:00:26.6703948Z 0.68
2021-01-27T03:00:41.5096568Z 0.87
2021-01-27T03:51:22.881693Z  0.35
2021-01-27T03:51:26.5719043Z 1.35
2021-01-27T04:00:51.1664401Z 0.12
2021-01-27T04:00:56.3656463Z 0.15
```

select pressure1 from cluster where time<now()-3d18h

```
> select pressure1 from cluster where time<now()-3d18h
name: cluster
time                pressure1
----                -
2021-01-27T03:00:18.9796768Z 0.64
2021-01-27T03:00:26.6703948Z 0.68
2021-01-27T03:00:41.5096568Z 0.87
```

--13-----

select pressure1 from cluster group by region

```
> select pressure1 from cluster group by region
name: cluster
tags: region=Barda
time                pressure1
----                -
2021-01-27T03:51:22.881693Z 0.35
2021-01-27T04:00:51.1664401Z 0.12
2021-01-27T04:00:56.3656463Z 0.15
2021-01-27T04:01:00.6053449Z 0.45
2021-01-27T04:01:04.8254704Z 0.35

name: cluster
tags: region=Osa
time                pressure1
----                -
2021-01-27T03:00:26.6703948Z 0.68
2021-01-27T03:00:41.5096568Z 0.87

name: cluster
tags: region=Perm
time                pressure1
----                -
2021-01-27T03:00:18.9796768Z 0.64

name: cluster
tags: region=Ufa
time                pressure1
----                -
2021-01-27T03:51:26.5719043Z 1.35
2021-01-27T04:11:36.2132587Z 2.35
2021-01-27T04:11:40.134229Z  3.35
```

--14-----

select mean(pressure1) from cluster where time>now()-5d group by time(1d)

```
> select mean(pressure1) from cluster where time>now()-5d group by time(1d)
name: cluster
time                mean
----
2021-01-25T00:00:00Z
2021-01-26T00:00:00Z
2021-01-27T00:00:00Z 1.1815384615384616
2021-01-28T00:00:00Z
2021-01-29T00:00:00Z
2021-01-30T00:00:00Z
```

--15-----

select pressure1 from cluster fill(previous)

```
> select pressure1 from cluster fill(previous)
name: cluster
time                pressure1
----
2021-01-27T03:00:18.9796768Z 0.64
2021-01-27T03:00:26.6703948Z 0.68
2021-01-27T03:00:41.5096568Z 0.87
2021-01-27T03:51:22.881693Z 0.35
2021-01-27T03:51:26.5719043Z 1.35
2021-01-27T04:00:51.1664401Z 0.12
2021-01-27T04:00:56.3656463Z 0.15
2021-01-27T04:01:00.6053449Z 0.45
2021-01-27T04:01:04.8254704Z 0.35
2021-01-27T04:11:36.2132587Z 2.35
2021-01-27T04:11:40.134229Z 3.35
2021-01-27T04:11:44.5844964Z 2.35
2021-01-27T04:11:48.0440627Z 2.35
```

select pressure1 from cluster fill(none)

```
> select pressure1, pressure2 from cluster fill(none)
ERR: fill(none) must be used with a function
```

select mean(preasure2) from cluster group by time(1h) fill(linear)

```
> select mean(preasure2) from cluster group by time(1h) fill(linear)
>
```

--Homework-----

--1)-Вывести-максимальные-за-час-значения-для-всех-давлений-куста2-----

-----для-текущего-месяца-----

select max(/pressure/) from cluster where time>now()-30d group by time(1h) fill(none)

```
> select max(/pressure/) from cluster where time>now()-30d group by time(1h) fill(none)
name: cluster
time                max_pressure max_pressure1 max_pressure2 max_pressure3
----                -
2021-01-25T04:00:00Z 6.8
2021-01-27T03:00:00Z 6.8          1.35          3.5          67
2021-01-27T04:00:00Z          3.35          4.95          7.5
```

--2)-Вывести-средние-на-интервалах-в-6-часов-значения-давлений1-и-2,----

-----превышающих-1.54,-куста2-для-разных-регионов-для-текущего-месяца---

select mean(pressure1), mean(pressure2) from cluster where pressure1>1.54 and pressure2>1.54 and time>now()-30d group by time(6h), region fill(none)

```
> select mean(pressure1), mean(pressure2) from cluster where pressure1>1.54 and pressure2>1.54 and time>now()-30d group
by time(6h), region fill(none)
name: cluster
tags: region=Ufa
time                mean mean_1
----                -
2021-01-27T00:00:00Z 2.6   3.95
```

--3)-Добавить-несколько-записей-для-куста,-чтобы-данные-по-----

-----давлению1-отсутствовали-----

insert cluster,well=ID0104,region=Ekaterinburg pressure2=1.15,pressure3=0.9

insert cluster,well=ID0104,region=Ekaterinburg pressure2=0.14,pressure3=0.12

insert cluster,well=ID0104,region=Ekaterinburg pressure2=1.35,pressure3=0.28

```
> insert cluster,well=ID0104,region=Ekaterinburg pressure2=1.15,pressure3=0.9
> insert cluster,well=ID0104,region=Ekaterinburg pressure2=0.14,pressure3=0.12
> insert cluster,well=ID0104,region=Ekaterinburg pressure2=1.35,pressure3=0.28
> select * from cluster
name: cluster
time                pressure pressure1 pressure2 pressure3 region      temperature well
----                -
2021-01-25T04:02:02.5878567Z 6.8          Perm        27        ID0678
2021-01-25T04:02:06.2272238Z 6.8          Perm        27        ID0678
2021-01-25T04:02:09.5766761Z 6.8          Perm        27        ID0678
2021-01-27T03:00:18.9796768Z      0.64        1.15          Perm        ID0100
2021-01-27T03:00:26.6703948Z      0.68        2.75          16        Osa          ID0101
2021-01-27T03:00:34.6402968Z 6.8          Perm        27        ID0678
2021-01-27T03:00:41.5096568Z      0.87        3.5          67        Osa          ID0101
2021-01-27T03:51:22.881693Z      0.35        1.95          Barda        ID0102
2021-01-27T03:51:26.5719043Z      1.35        2.95          5        Ufa          ID0103
2021-01-27T04:00:51.1664401Z      0.12        1.5          1.7        Barda        ID0102
2021-01-27T04:00:56.3656463Z      0.15        1.55          1.75       Barda        ID0102
2021-01-27T04:01:00.6053449Z      0.45        1.75          1.65       Barda        ID0102
2021-01-27T04:01:04.8254704Z      0.35        1.95          1.85       Barda        ID0102
2021-01-27T04:11:36.2132587Z      2.35        3.95          5.5        Ufa          ID0103
2021-01-27T04:11:40.134229Z      3.35        1.95          4.5        Ufa          ID0103
2021-01-27T04:11:44.5844964Z      2.35        4.95          7.5        Ufa          ID0103
2021-01-27T04:11:48.0440627Z      2.35        4.95          Ufa          ID0103
2021-01-30T21:55:24.0008103Z          1.15          0.9        Ekaterinburg ID0104
2021-01-30T21:55:29.0507164Z          0.14          0.12       Ekaterinburg ID0104
2021-01-30T21:55:34.210649Z          1.35          0.28       Ekaterinburg ID0104
```

--4)-Вывести-значения-давлений1-и-2-с-использованием-автозаполнения-----

-----разными-способами-----

select pressure1, pressure2 from cluster fill(previous)

```
> select pressure1, pressure2 from cluster fill(previous)
name: cluster
time                pressure1 pressure2
----                -
2021-01-27T03:00:18.9796768Z 0.64      1.15
2021-01-27T03:00:26.6703948Z 0.68      2.75
2021-01-27T03:00:41.5096568Z 0.87      3.5
2021-01-27T03:51:22.881693Z  0.35      1.95
2021-01-27T03:51:26.5719043Z 1.35      2.95
2021-01-27T04:00:51.1664401Z 0.12      1.5
2021-01-27T04:00:56.3656463Z 0.15      1.55
2021-01-27T04:01:00.6053449Z 0.45      1.75
2021-01-27T04:01:04.8254704Z 0.35      1.95
2021-01-27T04:11:36.2132587Z 2.35      3.95
2021-01-27T04:11:40.134229Z  3.35      1.95
2021-01-27T04:11:44.5844964Z 2.35      4.95
2021-01-27T04:11:48.0440627Z 2.35      4.95
2021-01-30T21:55:24.0008103Z 2.35      1.15
2021-01-30T21:55:29.0507164Z 2.35      0.14
2021-01-30T21:55:34.210649Z  2.35      1.35
```

select pressure1, pressure2 from cluster fill(1)

```
> select pressure1, pressure2 from cluster fill(1)
name: cluster
time                pressure1 pressure2
----                -
2021-01-27T03:00:18.9796768Z 0.64      1.15
2021-01-27T03:00:26.6703948Z 0.68      2.75
2021-01-27T03:00:41.5096568Z 0.87      3.5
2021-01-27T03:51:22.881693Z  0.35      1.95
2021-01-27T03:51:26.5719043Z 1.35      2.95
2021-01-27T04:00:51.1664401Z 0.12      1.5
2021-01-27T04:00:56.3656463Z 0.15      1.55
2021-01-27T04:01:00.6053449Z 0.45      1.75
2021-01-27T04:01:04.8254704Z 0.35      1.95
2021-01-27T04:11:36.2132587Z 2.35      3.95
2021-01-27T04:11:40.134229Z  3.35      1.95
2021-01-27T04:11:44.5844964Z 2.35      4.95
2021-01-27T04:11:48.0440627Z 2.35      4.95
2021-01-30T21:55:24.0008103Z 1          1.15
2021-01-30T21:55:29.0507164Z 1          0.14
2021-01-30T21:55:34.210649Z  1          1.35
```

select pressure1, pressure2 from cluster fill(null)

```
> select pressure1, pressure2 from cluster fill(null)
name: cluster
time                pressure1 pressure2
----                -
2021-01-27T03:00:18.9796768Z 0.64      1.15
2021-01-27T03:00:26.6703948Z 0.68      2.75
2021-01-27T03:00:41.5096568Z 0.87      3.5
2021-01-27T03:51:22.881693Z  0.35      1.95
2021-01-27T03:51:26.5719043Z 1.35      2.95
2021-01-27T04:00:51.1664401Z 0.12      1.5
2021-01-27T04:00:56.3656463Z 0.15      1.55
2021-01-27T04:01:00.6053449Z 0.45      1.75
2021-01-27T04:01:04.8254704Z 0.35      1.95
2021-01-27T04:11:36.2132587Z 2.35      3.95
2021-01-27T04:11:40.134229Z  3.35      1.95
2021-01-27T04:11:44.5844964Z 2.35      4.95
2021-01-27T04:11:48.0440627Z 2.35      4.95
2021-01-30T21:55:24.0008103Z          1.15
2021-01-30T21:55:29.0507164Z          0.14
2021-01-30T21:55:34.210649Z          1.35
```

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