# Семинар 3

|  |  |  |
| --- | --- | --- |
| select | 1 | 5 |
| from | 2 | 1 |
| where | 3 | 2 |
| group by | 4 | 3 |
| having | 5 | 4 |
| order by | 6 | 6 |

Инструкция select  
select now() – системное время базы данных  
select 1+1 – использование БД вместо калькулятора

Инструкция from  
select \*  
from dual

select \*  
from “Детали” – получить все

select attr1, attr2, t.attr3 as “Аттрибут”  
from dbo.myTable as t  
=> attr1, attr2, attr3  
  
select attr1, attr2, t.attr3 as “Аттрибут”  
from dbo.myTable as t  
=> attr1, attr2, “Аттрибут”

select attr1, attr2, 1+1  
from dbo.myTable as t  
=> attr1, attr2, ??column??, ??column??  
=> a1, a2, 2, 3

## Инструкция where

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Id | Name | Weight | Color | City |
| 1 | Гвоздь | 10 | К | Москва |
| 2 | Винт | 11 | К | Смоленск |
| 3 | Шуруп | 15 | С | Рязань |
| 4 | Гвоздь | 12 | З | Москва |
| 5 | Шайба | 19 | С | Москва |

D - Детали

select \*  
form dbo “Детали”  
where <предикат>

## Предикаты

1. Сравнение: <, <=, >, >=, !=, <>, =
2. IS [NOT] NULL
3. IN
4. Between
5. Like
6. exists  
   \_ - 1 символ  
   % - последовательность

## NULL

NULL – это отсутствие информации  
NULL+1 = NULL  
NULL||’a’ = NULL  
NULL != NULL, NULL <> NULL

select \*  
form dbo “Детали”  
where Color=’к’ – всё что true, идёт в select

select \*  
form dbo “Детали”  
where City is [not] null

select \*  
form dbo “Детали”  
where City is null  
 or Color is null (или City + Color is null \/\*)

select \*  
form dbo “Детали”  
where Color in (‘к’, ’с’) – множество

|  |  |  |
| --- | --- | --- |
| Sid | Did | Q-ty |
| 1 | 1 | 100 |
| 1 | 2 | 150 |
| 2 | 1 | 50 |

SD – информация о продажах

1. А-К
2. Pid=1  
   Q-ty > 150

Получить красные детали которые продали > 150 штук:

select  
from SD  
where Qty > 100 and  
 Did in(select id  
 from 0  
 where Color = ’к’)  
  
select  
from SD  
where Qty > 100 and  
 Did in(select id, name – если несколько ключей  
 from 0  
 where Color = ’к’)

Что такое корреляция?

Коррелированный запрос

Если -\*- and SD.Qty>100, то коррелированный запрос  
  
select \*  
from D  
where between 12 and 17  
  
select \*  
from D  
where between weight >= 12 and weight <= 17  
  
select \*  
from   
where name like ‘Ш%’ – детали, имен которых начинаются с Ш  
  
lower(name)  
upper(name)  
  
select \*  
from   
where upper(name) like ‘%Г’ – ничего  
where upper(name) like ‘%Г%’ – все гвозди   
where upper(name) like ‘\_%Г%’ – ничего  
  
select \*  
from D  
where exists (select \*  
 from SP  
 where Детали.id=Did) – 2 детали  
  
select \*  
from D  
where exists (select \*  
 from SP) – Вернёт всю таблицу D - Детали  
  
select \*  
from D  
where exists (select \*  
 from SP  
 where Did >10) – ничего => false

## Инструкция group by

Агрегирующие функции:

1. Sum
2. Max, min, avg
3. Count

select Color, count(\*)as cnt  
from D  
group by Color

|  |  |
| --- | --- |
| Color |  |
| К | |  |  |  |  | | --- | --- | --- | --- | | id | name | weight | City | | 1 | Гвоздь | 10 | Москва | | 2 | Винт | 14 | Смоленск | |
| С | |  |  |  |  | | --- | --- | --- | --- | | id | name | weight | City | | 3 | Шуруп | 15 | Рязань | | 5 | Шайба | 19 | Москва | |
| З | |  |  |  |  | | --- | --- | --- | --- | | id | name | weight | City | | 4 | Гвоздь | 12 | Москва | |

В результате такого запроса будет таблица из двух столбцов:

|  |  |
| --- | --- |
| Color | Count |
| К | 2 |
| С | 2 |
| З | 1 |

select Color, count(City)  
from D  
group by Color

|  |  |
| --- | --- |
| Color | Count |
| К | 2 |
| С | 2 |
| З | 0 |

## Инструкция having

select Color, min(Weight)  
from D  
group by Color  
having count(\*)>1

|  |  |  |  |
| --- | --- | --- | --- |
| Color | Count |  | Min |
| К | 2 | |  |  |  |  | | --- | --- | --- | --- | | id | name | weight | City | | 1 | Гвоздь | 10 | Москва | | 2 | Винт | 14 | Смоленск | | 10 |
| С | 2 | |  |  |  |  | | --- | --- | --- | --- | | id | name | weight | City | | 3 | Шуруп | 15 | Рязань | | 5 | Шайба | 19 | Москва | | 15 |
| З | 1 | |  |  |  |  | | --- | --- | --- | --- | | id | name | weight | City | | 4 | Гвоздь | 12 | Москва | |  |

Итого:

|  |  |
| --- | --- |
| Color | Min |
| К | 10 |
| С | 15 |

## Order by

Assending – asc – по возрастанию

Desc – по убыванию

select \*  
from D  
order by name desc,  
 weight desc

select D.\*, id\*100 as id10  
from D  
order by name desc,  
 weight desc,  
 id10 – можно использовать псевдонимы из select

select \*  
from D  
order by name desc,  
 weight desc

Итого:  
4/3, 5, 1, 3/4, 2  
4, 5, 1, 3, 2