Практические запросы с INNER JOIN

Организация хранения данных в БД

```
select * from skill_sales_march
```

skill_sales_march

dt	manager	product	cnt
2020-03-01	Ellis Forbes	disk utils	5
2020-03-01	Piter Robinson	OS	20
2020-03-02	Piter Graham	HDD	6
2020-03-02	Abbie Peters	disk utils	20
2020-03-05	Ellis Cisneros	OS	4
2020-03-05	Ellis Forbes	HDD	3
2020-03-07	Piter Robinson	disk utils	20
2020-03-11	Piter Graham	OS	20
2020-03-12	Abbie Peters	HDD	9
2020-03-25	Ellis Forbes	Motherboard	20
2020-03-25	Ellis Forbes	disk utils	20
2020-03-25	Piter Robinson	OS	7
2020-03-26	Darryl Mathis	HDD	3
2020-03-27	Piter Robinson	Motherboard	20
2020-03-27	Ellis Chen	disk utils	30
2020-03-28	Piter Robinson	OS	50
2020-03-29	Paul Lucas	HDD	76

Организация хранения данных в БД

```
select * from skill_sales_march
```

skill_sales_march

dt	manager	product	cnt
2020-03-01	Ellis Forbes	disk utils	5
2020-03-01	Piter Robinson	OS	20
2020-03-02	Piter Graham	HDD	6
2020-03-02	Abbie Peters	disk utils	20
2020-03-05	Ellis Cisneros	OS	4
2020-03-05	Ellis Forbes	HDD	3
2020-03-07	Piter Robinson	disk utils	20
2020-03-11	Piter Graham	OS	20
2020-03-12	Abbie Peters	HDD	9
2020-03-25	Ellis Forbes	Motherboard	20
2020-03-25	Ellis Forbes	disk utils	20
2020-03-25	Piter Robinson	OS	7
2020-03-26	Darryl Mathis	HDD	3
2020-03-27	Piter Robinson	Motherboard	20
2020-03-27	Ellis Chen	disk utils	30
2020-03-28	Piter Robinson	OS	50
2020-03-29	Paul Lucas	HDD	76

dt	manager_id	product_id	cnt
2020-03-01	1	1	5
2020-03-01	2	2	20
2020-03-02	3	3	6
2020-03-02	4	1	20
2020-03-05	5	2	4
2020-03-05	1	3	3
2020-03-07	2	1	20
2020-03-11	3	2	20
2020-03-12	4	3	9
2020-03-25	1	4	20
2020-03-25	1	1	20
2020-03-25	2	2	7
2020-03-26	6	3	3
2020-03-27	2	4	20
2020-03-27	8	1	30
2020-03-28	2	2	50
2020-03-29	9	3	76

Организация хранения данных в БД

```
select * from skill_sales_march
```

skill_sales_march

dt	manager_id	product_id	cnt
2020-03-01	1	1	5
2020-03-01	2	2	20
2020-03-02	3	3	6
2020-03-02	4	1	20
2020-03-05	5	2	4
2020-03-05	1	3	3
2020-03-07	2	1	20
2020-03-11	3	2	20
2020-03-12	4	3	9
2020-03-25	1	4	20
2020-03-25	1	1	20
2020-03-25	2	2	7
2020-03-26	6	3	3
2020-03-27	2	4	20
2020-03-27	8	1	30
2020-03-28	2	2	50
2020-03-29	9	3	76

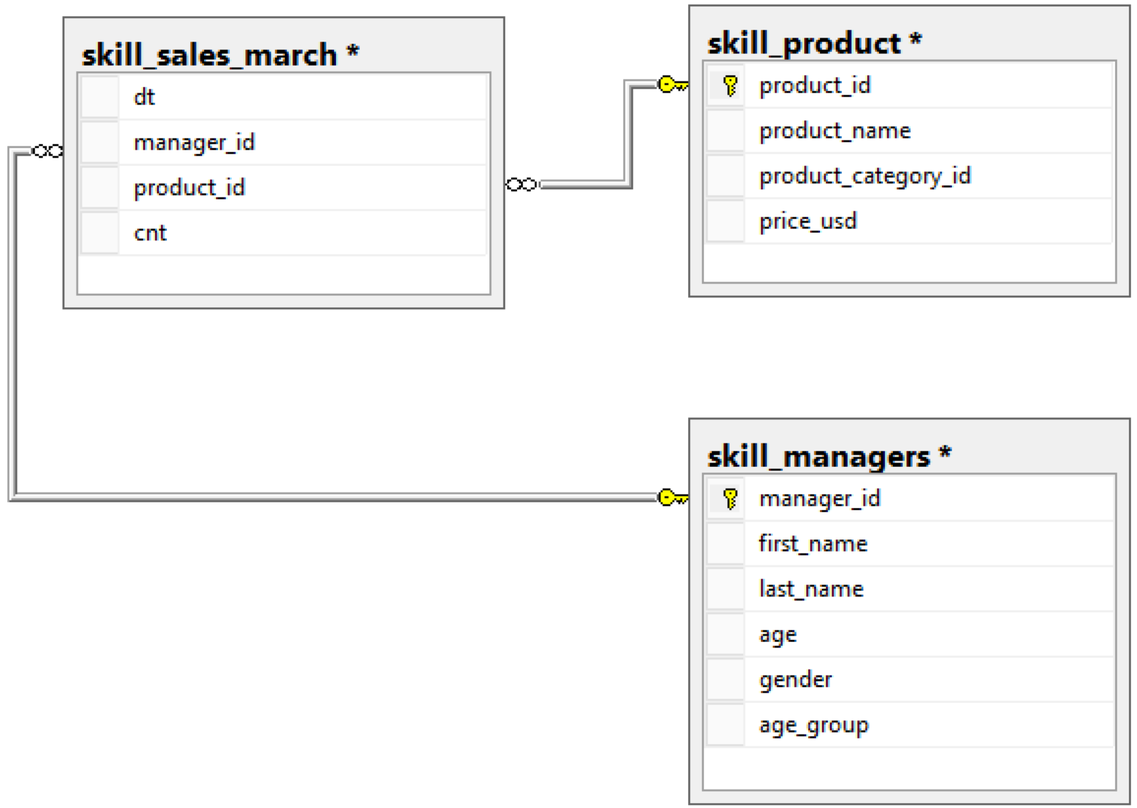
skill_product

product_id	product_name	product_category_id	price_usd
1	disk utils	1	100
2	OS	1	999
3	HDD	2	500
4	Motherboard	2	650
5	Cooler	2	5

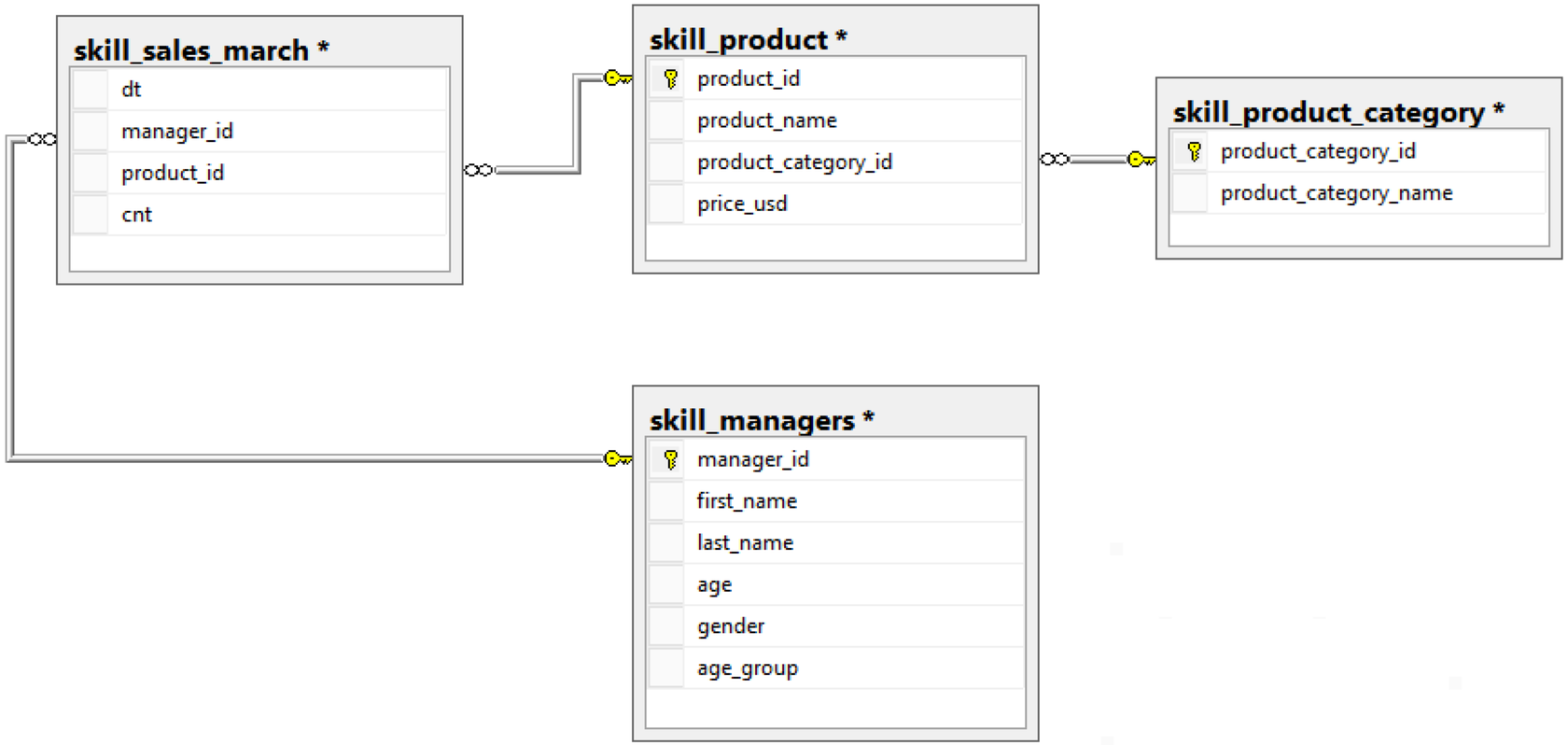
skill_managers

manager_id	first_name	last_name	age	gender	age_group
1	Ellis	Forbes	27	F	(25:35)
2	Piter	Robinson	24	M	(18:25)
3	Piter	Graham	23	M	(18:25)
4	Abbie	Peters	25	M	(25:35)
5	Ellis	Cisneros	25	F	(25:35)
6	Darryl	Mathis	29	F	(25:35)
7	Kaiden	Wall	38	F	(35:45)
8	Ellis	Chen	25	F	(25:35)
9	Paul	Lucas	23	M	(18:25)
10	Max	Kaiser	21	F	(18:25)

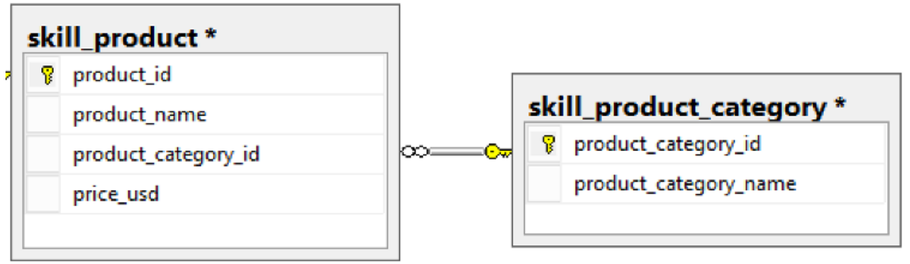
Организация хранения данных в БД



Организация хранения данных в БД



Использование JOIN для расшифровки значений справочника




```
select * from skill_product
inner join skill_product_category
on skill_product.product_category_id =
skill_product_category.product_category_id
```

product_id	product_name	product_category_id	price_usd	product_category_id	product_category_name
1	disk utils	1	100	1	soft
2	OS	1	999	1	soft
3	HDD	2	500	2	hard
4	Motherboard	2	650	2	hard
5	Cooler	2	5	2	hard

Использование JOIN для расшифровки значений справочника

skill_sales_march

dt	manager_id	product_id	cnt
2020-03-01	1	1	5
2020-03-01	2	2	20
2020-03-02	3	3	6
2020-03-02	4	1	20
2020-03-05	5	2	4
2020-03-05	1	3	3
2020-03-07	2	1	20
2020-03-11	3	2	20
2020-03-12	4	3	9
2020-03-25	1	4	20
2020-03-25	1	1	20
2020-03-25	2	2	7
2020-03-26	6	3	3
2020-03-27	2	4	20
2020-03-27	8	1	30
2020-03-28	2	2	50
2020-03-29	9	3	76

skill_product

product_id	product_name	product_category_id	price_usd
1	disk utils	1	100
2	OS	1	999
3	HDD	2	500
4	Motherboard	2	650
5	Cooler	2	5

skill_managers

manager_id	first_name	last_name	age	gender	age_group
1	Ellis	Forbes	27	F	(25:35)
2	Piter	Robinson	24	M	(18:25)
3	Piter	Graham	23	M	(18:25)
4	Abbie	Peters	25	M	(25:35)
5	Ellis	Cisneros	25	F	(25:35)
6	Darryl	Mathis	29	F	(25:35)
7	Kaiden	Wall	38	F	(35:45)
8	Ellis	Chen	25	F	(25:35)
9	Paul	Lucas	23	M	(18:25)
10	Max	Kaiser	21	F	(18:25)

SELECT с JOIN, объединяющий три таблицы

skill_sales_march – t1

dt	manager_id	product_id	cnt
2020-03-01	1	1	5
2020-03-01	2	2	20
2020-03-02	3	3	6
2020-03-02	4	1	20
2020-03-05	5	2	4
2020-03-05	1	3	3
2020-03-07	2	1	20
2020-03-11	3	2	20
2020-03-12	4	3	9
2020-03-25	1	4	20
2020-03-25	1	1	20
2020-03-25	2	2	7
2020-03-26	6	3	3
2020-03-27	2	4	20
2020-03-27	8	1	30
2020-03-28	2	2	50
2020-03-29	9	3	76

skill_managers – t2

manager_id	first_name	last_name	age	gender	age_group
1	Ellis	Forbes	27	F	(25:35)
2	Piter	Robinson	24	M	(18:25)
3	Piter	Graham	23	M	(18:25)
4	Abbie	Peters	25	M	(25:35)
5	Ellis	Cisneros	25	F	(25:35)
6	Darryl	Mathis	29	F	(25:35)
7	Kaiden	Wall	38	F	(35:45)
8	Ellis	Chen	25	F	(25:35)
9	Paul	Lucas	23	M	(18:25)
10	Max	Kaiser	21	F	(18:25)

skill_product – t3

product_id	product_name	product_category_id	price_usd
1	disk utils	1	100
2	OS	1	999
3	HDD	2	500
4	Motherboard	2	650
5	Cooler	2	5

```
select * from skill_sales_march t1
join skill_managers t2 on t1.manager_id=t2.manager_id
join skill_product t3 on t1.product_id=t3.product_id
```

dt	manager_id	product_id	cnt	manager_id	first_name	last_name	age	gender	age_group	product_id	product_name	product_category_id	price_usd
2020-03-01	1	1	5	1	Ellis	Forbes	27	F	(25:35)	1	disk utils	1	100
2020-03-01	2	2	20	2	Piter	Robinson	24	M	(18:25)	2	OS	1	999
2020-03-02	3	3	6	3	Piter	Graham	23	M	(18:25)	3	HDD	2	500
2020-03-02	4	1	20	4	Abbie	Peters	25	M	(25:35)	1	disk utils	1	100
2020-03-05	5	2	4	5	Ellis	Cisneros	25	F	(25:35)	2	OS	1	999

SELECT с JOIN, объединяющий четыре таблицы

skill_sales_march – t1

dt	manager_id	product_id	cnt
2020-03-01	1	1	5
2020-03-01	2	2	20
2020-03-02	3	3	6
2020-03-02	4	1	20
2020-03-05	5	2	4
2020-03-05	1	3	3
2020-03-07	2	1	20
2020-03-11	3	2	20
2020-03-12	4	3	9
2020-03-25	1	4	20
2020-03-25	1	1	20
2020-03-25	2	2	7
2020-03-26	6	3	3
2020-03-27	2	4	20
2020-03-27	8	1	30
2020-03-28	2	2	50
2020-03-29	9	3	76

skill_managers – t2

manager_id	first_name	last_name	age	gender	age_group
1	Ellis	Forbes	27	F	(25:35)
2	Piter	Robinson	24	M	(18:25)
3	Piter	Graham	23	M	(18:25)
4	Abbie	Peters	25	M	(25:35)
5	Ellis	Cisneros	25	F	(25:35)
6	Darryl	Mathis	29	F	(25:35)
7	Kaiden	Wall	38	F	(35:45)
8	Ellis	Chen	25	F	(25:35)
9	Paul	Lucas	23	M	(18:25)
10	Max	Kaiser	21	F	(18:25)

skill_product – t3

product_id	product_name	product_category_id	price_usd
1	disk utils	1	100
2	OS	1	999
3	HDD	2	500
4	Motherboard	2	650
5	Cooler	2	5

skill_product_category – t4

product_category_id	product_category_name
1	soft
2	hard

Сравнение двух запросов

```
select t1.dt,t2.first_name,t2.last_name,t3.product_name,
t4.product_category_name,t1.cnt from skill_sales_march t1
join skill_managers t2 on t1.manager_id=t2.manager_id
join skill_product t3 on t1.product_id=t3.product_id
join skill_product_category t4 on t3.product_category_id=t4.product_category_id
```

dt	first_name	last_name	product_name	product_category_name	cnt
2020-03-01	Ellis	Forbes	disk utils	soft	5
2020-03-01	Piter	Robinson	OS	soft	20
2020-03-02	Piter	Graham	HDD	hard	6
2020-03-02	Abbie	Peters	disk utils	soft	20
2020-03-05	Ellis	Cisneros	OS	soft	4
2020-03-05	Ellis	Forbes	HDD	hard	3

```
select * from skill_sales_march
```

dt	manager_id	product_id	cnt
2020-03-01	1	1	5
2020-03-01	2	2	20
2020-03-02	3	3	6
2020-03-02	4	1	20
2020-03-05	5	2	4
2020-03-05	1	3	3

Группировка по наименованию категории товара

```
select t4.product_category_name,sum(t1.cnt) cnt_all
from skill_sales_march t1
join skill_product t3 on t1.product_id=t3.product_id
join skill_product_category t4 on t3.product_category_id=t4.product_category_id
group by t4.product_category_name
```

product_category_name	cnt_all
hard	137
soft	196

skill_sales_march

dt	manager_id	product_id	cnt
2020-03-01	1	1	5
2020-03-01	2	2	20
2020-03-02	3	3	6
2020-03-02	4	1	20
2020-03-05	5	2	4
2020-03-05	1	3	3
2020-03-07	2	1	20
2020-03-11	3	2	20
2020-03-12	4	3	9
2020-03-25	1	4	20

skill_product

product_id	product_name	product_category_id	price_usd
1	disk utils	1	100
2	OS	1	999
3	HDD	2	500
4	Motherboard	2	650
5	Cooler	2	5

skill_product_category

product_category_id	product_category_name
1	soft
2	hard

Практика к уроку

1. Напишите SQL-запрос к таблице **city_customers_suppliers.** С помощью INNER JOIN присоедините две таблицы справочника: **gender** по полю **gender_id** и **age_range** по полю **age_range_id**

2. Измените запрос, оставив в результирующей выборке только поля **name, gender** и **age_range**

3. Модернизируйте запрос, посчитав количество людей в каждой поло-возрастной группе:

gender	age_range	cnt
F	(-18-25]	3
M	(-18-25]	2
F	(-25-35]	4
M	(-25-35]	5
M	(-35-55]	4
F	(-55-]	1
M	(-55-]	1

7 rows