

**Министерство науки и высшего образования
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**Федеральное государственное автономное
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**«Национальный исследовательский университет
ИТМО»**

**Факультет информационных технологий и
программирования**

Лабораторная работа №4

Маскировка и анонимизация данных

Вариант 20

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Подпись:



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Маскировка и анонимизация данных происходила через docker. Через него я и установил расширение для анонимизации

Создание роли:

```
CREATE ROLE "admin" WITH LOGIN PASSWORD '1703';
GRANT USAGE ON SCHEMA "public" TO "admin";
GRANT SELECT ON ALL TABLES IN SCHEMA "public" TO "admin";
CREATE EXTENSION IF NOT EXISTS anon CASCADE;

SELECT anon.start_dynamic_masking();
SECURITY LABEL FOR anon ON ROLE "admin" is 'MASKED';
```

Generalization:

Shipment

```
CREATE MATERIALIZED VIEW generalized_shipment AS
SELECT "id",
       anon.generalize_numrange("pickup_point_id", 2) AS
"pickup_point_id",
       anon.generalize_numrange("weight", 5) AS "weight"
FROM public."shipment";
```

Shipment_transaction

```
CREATE MATERIALIZED VIEW generalized_transaction AS
SELECT "id",
       anon.generalize_numrange("shipment_id", 2) AS "shipment_id",
       anon.generalize_numrange("price", 500) AS "price"
FROM public."shipment_transaction";
```

Client_authorization

```
CREATE MATERIALIZED VIEW generalized_authorization AS
SELECT "client_id",
       '[TOP SECRET]' ::TEXT AS "login",
       '[TOP SECRET]' ::TEXT AS "password"
FROM public."client_authorization";
```

Shipment

	id	pickup_point_id	weight
1	1	[2,4)	[10,15)
2	2	[4,6)	[5,10)
3	3	[4,6)	[0,5)
4	4	[10,12)	[40,45)
5	5	[0,2)	[100,105)
6	6	[4,6)	[5,10)
7	7	[2,4)	[0,5)
8	8	[14,16)	[10,15)
9	9	[2,4)	[120,125)
10	10	[14,16)	[15,20)
11	11	[2,4)	[0,5)
12	12	[8,10)	[70,75)
13	13	[12,14)	[0,5)
14	14	[12,14)	[95,100)
15	15	[12,14)	[5,10)

Shipment_transaction

	id	shipment_id	price
1	1	[0,2)	[1000,1500)
2	2	[2,4)	[500,1000)
3	3	[2,4)	[0,500)
4	4	[4,6)	[2000,2500)
5	5	[4,6)	[7500,8000)
6	6	[6,8)	[2500,3000)
7	7	[6,8)	[0,500)
8	8	[8,10)	[5000,5500)
9	9	[8,10)	[12000,12500)
10	10	[10,12)	[5500,6000)
11	11	[10,12)	[1000,1500)
12	12	[12,14)	[34500,35000)
13	13	[12,14)	[0,500)
14	14	[14,16)	[77500,78000)
15	15	[14,16)	[500,1000)

Client_authorization

	<input type="checkbox"/> client_id	÷	<input type="checkbox"/> login	÷	<input type="checkbox"/> password	÷
1		1	[TOP SECRET]		[TOP SECRET]	
2		2	[TOP SECRET]		[TOP SECRET]	
3		3	[TOP SECRET]		[TOP SECRET]	
4		4	[TOP SECRET]		[TOP SECRET]	
5		5	[TOP SECRET]		[TOP SECRET]	
6		6	[TOP SECRET]		[TOP SECRET]	
7		7	[TOP SECRET]		[TOP SECRET]	
8		8	[TOP SECRET]		[TOP SECRET]	
9		9	[TOP SECRET]		[TOP SECRET]	
10		10	[TOP SECRET]		[TOP SECRET]	
11		11	[TOP SECRET]		[TOP SECRET]	
12		12	[TOP SECRET]		[TOP SECRET]	
13		13	[TOP SECRET]		[TOP SECRET]	
14		14	[TOP SECRET]		[TOP SECRET]	
15		15	[TOP SECRET]		[TOP SECRET]	

Анонимизация:

Partial scrambling

```
SECURITY LABEL FOR anon ON COLUMN client.first_name
IS 'MASKED WITH FUNCTION anon.partial("first_name",2,'*****',2)';

SECURITY LABEL FOR anon ON COLUMN client.last_name
IS 'MASKED WITH FUNCTION anon.partial("last_name",2,'*****',2)';

SECURITY LABEL FOR anon ON COLUMN client.email
IS 'MASKED WITH FUNCTION anon.partial_email(email)';

SECURITY LABEL FOR anon ON COLUMN client.phone
IS 'MASKED WITH FUNCTION anon.partial("phone",6,'***-**--',2)';
```

id	first_name	last_name	email	client_type	phone
1	1 Се***ей	Ро***ов	mi*****@ao*****.com		1 7(495)***-**-38
2	2 Ди***ий	Ку***ов	du*****@ma*****.ru		1 7(495)***-**-51
3	3 Ст***ан	Ши***ов	go*****@ma*****.ru		1 7(495)***-**-50
4	4 Со***ия	Ив***ва	ex*****@ya*****.ru		1 7(495)***-**-75
5	5 Ки***ра	Го***ва	si*****@ya*****.com		2 7(495)***-**-81
6	6 Ян***ян	Ло***ин	st*****@ya*****.ru		1 7(495)***-**-34
7	7 Ка***ла	Ув***ва	mo*****@ya*****.com		1 7(495)***-**-62
8	8 Яр***ав	Со***ев	al*****@li*****.ru		2 7(495)***-**-91
9	9 Ма***та	Гу***ва	gr*****@in*****.ru		1 7(495)***-**-23
10	10 Ам***на	Пе***ва	te*****@in*****.ru		1 7(495)***-**-19
11	11 Ив***ан	Ма***ов	ke*****@ya*****.ru		1 7(495)***-**-11
12	12 Ан***ей	Ми***ев	nw*****@in*****.ru		1 7(495)***-**-25
13	13 Те***на	За***ва	nl*****@bk*****.ru		1 7(495)***-**-93
14	14 Ам***на	Гр***ва	or*****@ya*****.com		1 7(495)***-**-76
15	15 Ол***га	По***ва	lp*****@ya*****.ru		1 7(495)***-**-11

Randomization

```
SECURITY LABEL FOR anon ON COLUMN client.id
IS 'MASKED WITH FUNCTION anon.random_int_between(0,99)';

SECURITY LABEL FOR anon ON COLUMN client.first_name
IS 'MASKED WITH FUNCTION anon.random_string(5)';

SECURITY LABEL FOR anon ON COLUMN client.last_name
IS 'MASKED WITH FUNCTION anon.random_string(5)';

SECURITY LABEL FOR anon ON COLUMN client.phone
IS 'MASKED WITH FUNCTION anon.random_phone()';
```

id	first_name	last_name	email	client_type	phone
1	32 BYP46	DSFRD	mi*****@ao*****.com		1 0404429636
2	28 JS7YW	ZX166	du*****@ma*****.ru		1 0247375639
3	60 200YT	THQLW	go*****@ma*****.ru		1 0602706589
4	66 ZJ4TC	GA6C7	ex*****@ya*****.ru		1 0720873527
5	74 4LR33	W7YKW	si*****@ya*****.com		2 0917093996
6	35 DERZA	E03R8	st*****@ya*****.ru		1 0626514459
7	92 6DVJD	LOS68	mo*****@ya*****.com		1 0593194107
8	93 VQONH	VAW9B	al*****@li*****.ru		2 0437754790
9	47 TIA12	E071U	gr*****@in*****.ru		1 0654114628
10	77 BXHT5	03QN8	te*****@in*****.ru		1 0304107086
11	5 X20JJ	BX1EG	ke*****@ya*****.ru		1 0999924116
12	43 L53CA	MNOHH	nw*****@in*****.ru		1 0995340439
13	81 TVMEM	0RR7C	nl*****@bk*****.ru		1 0696892469
14	92 XR1EL	B5YPZ	or*****@ya*****.com		1 0372103751
15	21 IZ7B0	943T5	lp*****@ya*****.ru		1 0282160428