

Министерство науки и высшего образования Российской Федерации
федеральное государственное автономное образовательное учреждение высшего
образования
«НАЦИОНАЛЬНЫЙ ИССЛЕДОВАТЕЛЬСКИЙ УНИВЕРСИТЕТ ИТМО»

Отчет

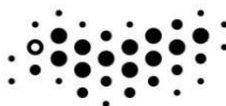
по лабораторной работе по теме: **“Партиципирование в PostgreSQL”**

по дисциплине **«Проектирование баз данных»**

Автор: Юрпалов С. Н.

Факультет: ИТиП

Группа: М34051












УНИВЕРСИТЕТ ИТМО

Санкт-Петербург 2023

Ход работы

Исходные данные:

Query		Query History				
1	SELECT * FROM "DatabaseArchitectureLabWorks"."Comment"					
2	ORDER BY id ASC					

Data Output		Messages					Notifications				
											
	id [PK] integer		postId integer		userId integer		content text		commentDate timestamp without time zone		
1	1		1		1		Great post!		2023-09-26 14:00:00		
2	2		2		3		I completely agree with your points.		2023-09-26 14:15:00		
3	3		3		4		This is very informative.		2023-09-26 14:30:00		
4	4		4		6		Well written!		2023-09-26 14:45:00		
5	5		5		8		I found this really helpful.		2023-09-26 15:00:00		
6	6		8		10		Interesting read.		2023-09-26 15:15:00		
7	7		7		12		Thanks for sharing this!		2023-09-26 15:30:00		
8	8		8		14		I learned something new from this.		2023-09-26 15:45:00		
9	9		9		16		Can you provide more details on this topic?		2023-09-26 16:00:00		
10	10		10		3		I have a question about point 2.		2023-09-26 16:15:00		
11	11		11		5		This is a great resource!		2023-09-26 16:30:00		
12	12		13		7		I appreciate your insights.		2023-09-26 16:45:00		
13	13		13		9		Could you clarify point 4?		2023-09-26 17:00:00		
14	14		14		11		I enjoyed reading this.		2023-09-26 17:15:00		
15	15		15		13		Looking forward to your next post.		2023-09-26 17:30:00		

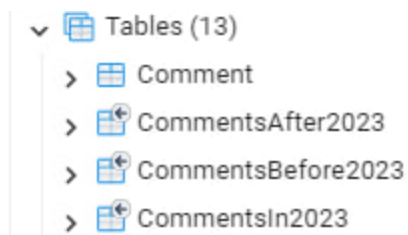
SET search_path to "DatabaseArchitectureLabWorks";

Создание таблиц-партиций:

```
CREATE TABLE "CommentsBefore2023" (  
    CHECK ( "commentDate" < DATE '2023-01-01' )  
)  
INHERITS ("Comment");
```

```
CREATE TABLE "CommentsIn2023" (  
    CHECK ( "commentDate" >= DATE '2023-01-01' AND "commentDate" < DATE '2024-01-01')  
)  
INHERITS ("Comment");
```

```
CREATE TABLE "CommentsAfter2023" (  
    CHECK ( "commentDate" >= DATE '2024-01-01')  
)  
INHERITS ("Comment");
```



Перенос данных в партиции

Truncate "Comment";

```
INSERT INTO "CommentsIn2023" ("id", "postId", "userId", content, "commentDate")
VALUES
(1,1,1,'Great post!','2023-09-26 14:00:00'),
(2,2,3,'I completely agree with your points.','2023-09-26 14:15:00'),
(3,3,4,'This is very informative.','2023-09-26 14:30:00'),
(4,4,6,'Well written!','2023-09-26 14:45:00'),
(5,5,8,'I found this really helpful.','2023-09-26 15:00:00'),
(6,8,10,'Interesting read.','2023-09-26 15:15:00'),
(7,7,12,'Thanks for sharing this!','2023-09-26 15:30:00'),
(8,8,14,'I learned something new from this.','2023-09-26 15:45:00'),
(9,9,16,'Can you provide more details on this topic?','2023-09-26 16:00:00'),
(10,10,3,'I have a question about point 2.','2023-09-26 16:15:00'),
(11,11,5,'This is a great resource!','2023-09-26 16:30:00'),
(12,13,7,'I appreciate your insights.','2023-09-26 16:45:00'),
(13,13,9,'Could you clarify point 4?','2023-09-26 17:00:00'),
(14,14,11,'I enjoyed reading this.','2023-09-26 17:15:00'),
(15,15,13,'Looking forward to your next post.','2023-09-26 17:30:00');
```

```
1 SELECT * FROM "DatabaseArchitectureLabWorks"."CommentsIn2023"  
2
```

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	id integer	postId integer	userId integer	content text	commentDate timestamp without time zone	
1	1	1	1	Great post!	2023-09-26 14:00:00	
2	2	2	3	I completely agree with your points.	2023-09-26 14:15:00	
3	3	3	4	This is very informative.	2023-09-26 14:30:00	
4	4	4	6	Well written!	2023-09-26 14:45:00	
5	5	5	8	I found this really helpful.	2023-09-26 15:00:00	
6	6	8	10	Interesting read.	2023-09-26 15:15:00	
7	7	7	12	Thanks for sharing this!	2023-09-26 15:30:00	
8	8	8	14	I learned something new from this.	2023-09-26 15:45:00	
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10	10	10	3	I have a question about point 2.	2023-09-26 16:15:00	
11	11	11	5	This is a great resource!	2023-09-26 16:30:00	
12	12	13	7	I appreciate your insights.	2023-09-26 16:45:00	
13	13	13	9	Could you clarify point 4?	2023-09-26 17:00:00	
14	14	14	11	I enjoyed reading this.	2023-09-26 17:15:00	
15	15	15	13	Looking forward to your next post.	2023-09-26 17:30:00	

Создание функции, обеспечивающей патицирование

```
CREATE OR REPLACE FUNCTION comments_partition_insert_trigger()
    RETURNS TRIGGER AS $$
BEGIN
    IF (NEW."commentDate" < DATE '2023-01-01') THEN
        INSERT INTO "CommentsBefore2023" VALUES (NEW.*);
    ELSIF (NEW."commentDate" >= DATE '2023-01-01' AND NEW."commentDate" < DATE '2024-01-01') THEN
        INSERT INTO "CommentsIn2023" VALUES (NEW.*);
    ELSIF (NEW."commentDate" >= DATE '2024-01-01') THEN
        INSERT INTO "CommentsAfter2023" VALUES (NEW.*);
    ELSE
        RAISE EXCEPTION 'Date out of range';
    END IF;
    RETURN NULL;
END;
$$ LANGUAGE plpgsql;
```

Подключение функции к мастер таблице

```
CREATE TRIGGER comments_partition_insert_trigger  
    BEFORE INSERT ON "Comment"  
    FOR EACH ROW EXECUTE FUNCTION comments_partition_insert_trigger();
```

Тестирование работы функции + дополнение оставшихся партиций

“CommentBefore2023”

```
INSERT INTO "Comment" ("postId", "userId", content, "commentDate")
```

```
VALUES
```

```
(1,1,'hello','2022-09-26 10:00:00'),
```

```
(8,6,'Lorem','2022-09-26 14:00:00'),
```

```
(5,5,'Ipsum','2021-09-26 14:15:00'),
```

```
(7,11,'Dolor','2022-09-26 14:30:00'),
```

```
(13,4,'Sit','2022-09-26 14:45:00');
```

Query Query History

```
1 SELECT * FROM "DatabaseArchitectureLabWorks"."CommentsBefore2023"
2
```

Data Output Messages Notifications

	id integer	postId integer	userId integer	content text	commentDate timestamp without time zone
1	17	1	1	hello	2022-09-26 10:00:00
2	18	8	6	Lorem	2022-09-26 14:00:00
3	19	5	5	Ipsum	2021-09-26 14:15:00
4	20	7	11	Dolor	2022-09-26 14:30:00
5	21	13	4	Sit	2022-09-26 14:45:00

“CommentAfter2023”

```
INSERT INTO "Comment" ("postId", "userId", content, "commentDate")  
  
VALUES  
  
(1,1,'consectetur','2024-09-26 10:00:00'),  
  
(6,8,'adipiscing','2025-09-26 14:00:00'),  
  
(5,5,'elit','2026-09-26 14:15:00'),  
  
(11,7,'sed','2027-09-26 14:30:00'),  
  
(4,13,'do','2028-09-26 14:45:00');
```

Query

Query History

1

2

```
SELECT * FROM "DatabaseArchitectureLabWorks"."CommentsAfter2023"
```

Data Output

Messages

Notifications

	id integer	postId integer	userId integer	content text	commentDate timestamp without time zone
1	22	1	1	consectetur	2024-09-26 10:00:00
2	23	6	8	adipiscing	2025-09-26 14:00:00
3	24	5	5	elit	2026-09-26 14:15:00
4	25	11	7	sed	2027-09-26 14:30:00
5	26	4	13	do	2028-09-26 14:45:00

Финальный вид “Comment”

Query Query History

```
1 SELECT * FROM "DatabaseArchitectureLabWorks"."Comment"
2 ORDER BY id ASC
```

Data Output Messages Notifications

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	<div>id</div> <div>[PK] integer</div>	<div>postId</div> <div>integer</div>	<div>userId</div> <div>integer</div>	<div>content</div> <div>text</div>	<div>commentDate</div> <div>timestamp without time zone</div>	
1	1	1	1	Great post!	2023-09-26 14:00:00	
2	2	2	3	I completely agree with your points.	2023-09-26 14:15:00	
3	3	3	4	This is very informative.	2023-09-26 14:30:00	
4	4	4	6	Well written!	2023-09-26 14:45:00	
5	5	5	8	I found this really helpful.	2023-09-26 15:00:00	
6	6	8	10	Interesting read.	2023-09-26 15:15:00	
7	7	7	12	Thanks for sharing this!	2023-09-26 15:30:00	
8	8	8	14	I learned something new from this.	2023-09-26 15:45:00	
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10	10	10	3	I have a question about point 2.	2023-09-26 16:15:00	
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15	15	15	13	Looking forward to your next post.	2023-09-26 17:30:00	
16	17	1	1	hello	2022-09-26 10:00:00	
17	18	8	6	Lorem	2022-09-26 14:00:00	
18	19	5	5	Ipsum	2021-09-26 14:15:00	
19	20	7	11	Dolor	2022-09-26 14:30:00	
20	21	13	4	Sit	2022-09-26 14:45:00	
21	22	1	1	consectetur	2024-09-26 10:00:00	
22	23	6	8	adipiscing	2025-09-26 14:00:00	
23	24	5	5	elit	2026-09-26 14:15:00	
24	25	11	7	sed	2027-09-26 14:30:00	
25	26	4	13	do	2028-09-26 14:45:00	