

22511 - Bases de datos para Data Warehousing

Actividad P2: De la creación a la manipulación de una base de datos relacional

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Pregunta 1 (6 puntos)

Código de Script **Actividad2_ej1_Borja_Villena_Pardo**

```
Query Query History
1  -- Database: dbdw_pec2
2
3  -- DROP DATABASE IF EXISTS dbdw_pec2;
4
5  CREATE DATABASE dbdw_pec2
6    WITH
7      OWNER = postgres
8      ENCODING = 'UTF8'
9      LC_COLLATE = 'Spanish_Spain.1252'
10     LC_CTYPE = 'Spanish_Spain.1252'
11     LOCALE_PROVIDER = 'libc'
12     TABLESPACE = pg_default
13     CONNECTION LIMIT = -1
14     IS_TEMPLATE = False;
15
16  COMMENT ON DATABASE dbdw_pec2
17      IS 'Creación BBDD Actividad2_ej1_Borja_Villena_Pardo.sql ';
18
19  -- Creamos el Esquema erp
20
21  CREATE SCHEMA erp
22      AUTHORIZATION postgres
23
24  -- Creamos la tabla tb_supplier; proveedores de piezas
25
26  CREATE TABLE erp.tb_supplier(
27      supplier_id CHAR(3) NOT NULL,
28      name VARCHAR(30) NOT NULL,
29      days_to_server_order INTEGER NOT NULL DEFAULT 0,
30      PRIMARY KEY (supplier_id)
31  );
32
33  -- Creamos la tabla tb_part; información de piezas
34
35  CREATE TABLE erp.tb_part(
36      part_id CHAR(4) NOT NULL,
37      name VARCHAR(50) NOT NULL UNIQUE,
38      stock INTEGER NOT NULL DEFAULT 0,
39      supplier_id CHAR(3) NOT NULL,
40      price NUMERIC(8, 2) NOT NULL DEFAULT 0,
41      PRIMARY KEY (part_id),
42      FOREIGN KEY (supplier_id) REFERENCES erp.tb_supplier(supplier_id)
43  );
44
45  -- Creamos la tabla tb_counter; información de los contadores
46
47  CREATE TABLE erp.tb_counter(
48      counter_id INTEGER NOT NULL,
49      name VARCHAR(25) NOT NULL,
50      last_update_date DATE NOT NULL,
51      hours INTEGER NOT NULL,
52      PRIMARY KEY (counter_id)
53  );
54
55  -- Creamos la tabla tb_machines; información de las instalaciones
56
57  CREATE TABLE erp.tb_machines(
58      machine_id INTEGER NOT NULL,
59      name VARCHAR(50) NOT NULL,
60      parent_id INTEGER,
61      type_structure VARCHAR(20) NOT NULL,
62      part_id CHAR(4),
63      counter_id INTEGER,
64      operating_hours INTEGER,
65      units INTEGER,
66      last_change INTEGER,
67      PRIMARY KEY(machine_id),
68      FOREIGN KEY(parent_id) REFERENCES erp.tb_machines(machine_id),
69      FOREIGN KEY(part_id) REFERENCES erp.tb_part(part_id),
70      FOREIGN KEY(counter_id) REFERENCES erp.tb_counter(counter_id),
71      CHECK(type_structure IN ('Machine', 'Installation part', 'Part'))
72  );
73
74  -- Creamos la tabla tb_purchase_order_cab
75  -- información de los datos comunes de los pedidos a proveedores.
76
77  CREATE TABLE erp.tb_purchase_order_cab(
78      purchase_order_cab_id INTEGER NOT NULL,
79      order_date DATE NOT NULL DEFAULT CURRENT_DATE,
80      order_number CHAR(9) UNIQUE NOT NULL,
81      supplier_id CHAR(3) NOT NULL,
82      PRIMARY KEY(purchase_order_cab_id),
83      FOREIGN KEY(supplier_id) REFERENCES erp.tb_supplier(supplier_id)
84  );
85
86  -- Creamos la tabla tb_purchase_order_lin
87  -- información del detalle de las piezas incluidas en cada pedido.
88
89  CREATE TABLE erp.tb_purchase_order_lin(
90      purchase_order_lin_id INTEGER NOT NULL,
91      purchase_order_cab_id INTEGER NOT NULL,
92      part_id CHAR(4) NOT NULL,
93      units INTEGER NOT NULL,
94      unit_price NUMERIC(8, 2) NOT NULL,
95      subtotal NUMERIC(10, 2) NOT NULL,
96      delivery_date DATE NOT NULL,
97      PRIMARY KEY(purchase_order_lin_id),
98      FOREIGN KEY(purchase_order_cab_id) REFERENCES erp.tb_purchase_order_cab(purchase_order_cab_id),
99      FOREIGN KEY(part_id) REFERENCES erp.tb_part(part_id)
100 );
```

Messages al ejecutar script BBDD_ERP_data.sql

Dashboard × Properties × SQL × Statistics × Dependencies × Dependents × Processes × Actividad2_ej1_Bor... × BBDD_ERP_data.sql ×

dbdw_pec2/postgres@PostgreSQL 16 No limit

Query Query History

```

1 INSERT INTO erp.tb_supplier (supplier_id,name,days_to_server_order) VALUES ('S01','TechPart Supplies',30);
2 INSERT INTO erp.tb_supplier (supplier_id,name,days_to_server_order) VALUES ('S02','NovaPlex Engineering',60);
3 INSERT INTO erp.tb_supplier (supplier_id,name,days_to_server_order) VALUES ('S03','AccelTech Parts',30);
4 INSERT INTO erp.tb_supplier (supplier_id,name,days_to_server_order) VALUES ('S04','OptiGear Industries',45);

5
6 INSERT INTO erp.tb_part(part_id,name,stock,supplier_id,price) VALUES ('P001','Drum 3559-26',0,'S01',1545);
7 INSERT INTO erp.tb_part(part_id,name,stock,supplier_id,price) VALUES ('P001','Belt 2218-30',4,'S01',143.54);
8 INSERT INTO erp.tb_part(part_id,name,stock,supplier_id,price) VALUES ('P001','Paddle 4154-31',2,'S01',1340.5);
9 INSERT INTO erp.tb_part(part_id,name,stock,supplier_id,price) VALUES ('P001','Sensor roasting 1651-3',4,'S03',332.4);
10 INSERT INTO erp.tb_part(part_id,name,stock,supplier_id,price) VALUES ('P002','Burner 2356-2',0,'S01',4500);
11 INSERT INTO erp.tb_part(part_id,name,stock,supplier_id,price) VALUES ('P001','Gas valve 9556-30',3,'S02',434.45);
12 INSERT INTO erp.tb_part(part_id,name,stock,supplier_id,price) VALUES ('P001','Flame sensor 3976-37',2,'S04',493.39);
13 INSERT INTO erp.tb_part(part_id,name,stock,supplier_id,price) VALUES ('A001','Air filter 1796-23',5,'S03',59.32);
14 INSERT INTO erp.tb_part(part_id,name,stock,supplier_id,price) VALUES ('F003','Fan motor 5422-19',0,'S04',156.89);
15 INSERT INTO erp.tb_part(part_id,name,stock,supplier_id,price) VALUES ('G002','Gas removal system 1805-24',1,'S01',1023.43);
16 INSERT INTO erp.tb_part(part_id,name,stock,supplier_id,price) VALUES ('T001','Temperature controller 4678-43',10,'S01',205.4);
17 INSERT INTO erp.tb_part(part_id,name,stock,supplier_id,price) VALUES ('D002','Display or user interface 7696-6',0,'S02',2594);
18 INSERT INTO erp.tb_part(part_id,name,stock,supplier_id,price) VALUES ('T002','Temperature transmitters 7682-33',5,'S03',194.4);
19 INSERT INTO erp.tb_part(part_id,name,stock,supplier_id,price) VALUES ('A002','Air Extractor 8940-25',2,'S01',1234.54);
20 INSERT INTO erp.tb_part(part_id,name,stock,supplier_id,price) VALUES ('P002','Perforated Grid 1775-43',0,'S01',457.89);
21 INSERT INTO erp.tb_part(part_id,name,stock,supplier_id,price) VALUES ('A003','Agitator Motor 3275-27',0,'S01',876.52);
22 INSERT INTO erp.tb_part(part_id,name,stock,supplier_id,price) VALUES ('A004','Air Ducts 9029-23',0,'S03',341.95);
23 INSERT INTO erp.tb_part(part_id,name,stock,supplier_id,price) VALUES ('S002','Smoke fan 2586-4',0,'S01',245.76);
24 INSERT INTO erp.tb_part(part_id,name,stock,supplier_id,price) VALUES ('F002','Filter 5511-50',4,'S02',78.98);
25 INSERT INTO erp.tb_part(part_id,name,stock,supplier_id,price) VALUES ('D003','Dampers 7662-25',0,'S04',194);
26 INSERT INTO erp.tb_part(part_id,name,stock,supplier_id,price) VALUES ('C001','Condensate 6429-39',2,'S03',173.45);
27 INSERT INTO erp.tb_part(part_id,name,stock,supplier_id,price) VALUES ('T003','Temperature sensors 1141-18',8,'S04',239.61);
28 INSERT INTO erp.tb_part(part_id,name,stock,supplier_id,price) VALUES ('S003','Sensor Feeding 2629-23',0,'S01',367.91);
29 INSERT INTO erp.tb_part(part_id,name,stock,supplier_id,price) VALUES ('A005','Airlock 8282-23',0,'S01',821.91);
30 TNSERT TINTO erp.tb_part(part_id,name,stock,supplier_id,price) VALUES ('D004','Discharge Valve 2842-43',1,'S02',99.99);

```

Data Output Messages Notifications

INSERT 0 1

Query returned successfully in 69 msec.

tb_counter

	counter_id [PK] integer	name character varying (25)	last_update_date date	hours integer
1	1	Counter toaster AA	2024-08-10	19254
2	2	Counter toaster AB	2024-08-10	10613
3	3	Counter refrigeration AA	2024-08-10	19043
4	4	Counter refrigeration AB	2024-08-10	10573

tb_machines

	machine_id [PK] integer	name character varying (50)	parent_id integer	type_structure character varying (20)	part_id character (4)	counter_id integer	operating_hours integer	units integer	last_change integer
1	1	toaster_AA	[null]	Machine	[null]	[null]	[null]	[null]	[null]
2	2	Roasting drum	1	Installation part	[null]	[null]	[null]	[null]	[null]
3	3	Burner or heat source	1	Installation part	[null]	[null]	[null]	[null]	[null]
4	4	Ventilation system	1	Installation part	[null]	[null]	[null]	[null]	[null]
5	5	Temperature control system	1	Installation part	[null]	[null]	[null]	[null]	[null]

tb_part

	part_id [PK] character (4)	name character varying (50)	stock integer	supplier_id character (3)	price numeric (8,2)
1	A001	Air filter 1796-23	5	S03	59.32
2	A002	Air Extractor 8940-25	2	S01	1234.54
3	A003	Agitator Motor 3275-27	0	S01	876.52
4	A004	Air Ducts 9029-23	0	S03	341.95
5	A005	Airlock 8282-23	0	S01	821.91

tb_purchase_order_cab

	purchase_order_cab_id [PK] integer	order_date date	order_number character (9)	supplier_id character (3)
1	1001	2024-08-01	2024-0001	S01
2	1002	2024-08-05	2024-0002	S03
3	1003	2024-08-06	2024-0003	S04
4	1004	2024-08-09	2024-0004	S01

tb_purchase_order_lin

	purchase_order_lin_id [PK] integer	purchase_order_cab_id integer	part_id character (4)	units integer	unit_price numeric (8,2)	subtotal numeric (10,2)	delivery_date date
1	9001	1001	A003	2	876.52	1753.04	2024-08-31
2	9002	1001	A005	1	821.91	821.91	2024-08-31
3	9003	1001	B002	1	4500.00	4500.00	2024-08-31
4	9004	1001	E001	1	398.91	398.91	2024-08-31
5	9005	1001	P001	2	1340.50	2681.00	2024-08-31

tb_supplier

	supplier_id [PK] character (3)	name character varying (30)	days_to_server_order integer
1	S01	TechPart Supplies	30
2	S02	NovaPlex Engineering	60
3	S03	AccelTech Parts	30
4	S04	OptiGear Industries	45

Pregunta 2 (7.5 puntos)

Consulta a)

```
1 -- Consulta apartado a)
2
3 SELECT part_id, name, stock, price
4 FROM erp.tb_part
5 WHERE supplier_id IN ('S01', 'S04')
6     AND stock > 0
7     AND price BETWEEN 400 AND 1300
8 ORDER BY price DESC;
```

Data Output Messages Notifications

SQL

	part_id [PK] character (4)	name character varying (50)	stock integer	price numeric (8,2)
1	A002	Air Extractor 8940-25	2	1234.54
2	G002	Gas removal system 1805-24	1	1023.43
3	F001	Flame sensor 3976-37	2	493.39

Consulta b)

```
10 -- Consulta apartado b)
11
12 SELECT cab.order_number, part.name, cab.order_date, lin.part_id,
13     lin.units, lin.unit_price, lin.subtotal
14 FROM erp.tb_purchase_order_cab AS cab
15 JOIN erp.tb_purchase_order_lin AS lin ON lin.purchase_order_cab_id = cab.purchase_order_cab_id
16 JOIN erp.tb_part AS part ON lin.part_id = part.part_id
17 WHERE order_number = '2024-0003'
18 ORDER BY lin.part_id ASC;
19
```

Data Output Messages Notifications

SQL

	order_number character (9)	name character varying (50)	order_date date	part_id character (4)	units integer	unit_price numeric (8,2)	subtotal numeric (10,2)
1	2024-0003	Airflow Regulator 2193-46	2024-08-06	A006	3	293.12	879.36
2	2024-0003	Display screen 8583-50	2024-08-06	D005	1	2435.87	2435.87
3	2024-0003	Flame sensor 3976-37	2024-08-06	F001	1	493.39	493.39
4	2024-0003	Fan motor 5422-19	2024-08-06	F003	1	156.89	156.89

Consulta c)

```
20  -- Consulta apartado c)
21
22  SELECT mach.machine_id, mach.part_id, mach.name, mach.units, mach.counter_id
23  FROM erp.tb_machines AS mach
24  WHERE mach.type_structure = 'Part'
25      AND mach.part_id LIKE '_002'
26      AND mach.units = 2
27  ORDER BY mach.part_id ASC, mach.machine_id DESC
28
```

Data Output Messages Notifications

SQL

	machine_id [PK] integer	part_id character (4)	name character varying (50)	units integer	counter_id integer
1	125	A002	Air Extractor	2	4
2	25	A002	Air Extractor	2	3
3	130	F002	Filter	2	2
4	30	F002	Filter	2	1
5	126	P002	Perforated Grid	2	[null]
6	26	P002	Perforated Grid	2	[null]

Consulta d)

```
29  -- Consulta apartado d)
30
31  SELECT part.part_id, part.name, sup.name, part.price
32  FROM erp.tb_part AS part
33  JOIN erp.tb_supplier AS sup ON part.supplier_id = sup.supplier_id
34  WHERE part.price > (SELECT AVG(price) FROM erp.tb_part)
35  ORDER BY part.price ASC;
36
```

Data Output Messages Notifications

SQL

	part_id character (4)	name character varying (50)	name character varying (30)	price numeric (8,2)
1	A005	Airlock 8282-23	TechPart Supplies	821.91
2	A003	Agitator Motor 3275-27	TechPart Supplies	876.52
3	G002	Gas removal system 1805-24	TechPart Supplies	1023.43
4	A002	Air Extractor 8940-25	TechPart Supplies	1234.54
5	P001	Paddle 4154-31	TechPart Supplies	1340.50
6	D001	Drum 3559-26	TechPart Supplies	1545.00
7	D005	Display screen 8583-50	OptiGear Industries	2435.87
8	D002	Display or user interface 7696-6	NovaPlex Engineering	2594.42
9	B002	Burner 2356-2	TechPart Supplies	4500.00

Consulta e)

```
37 -- Consulta apartado e)
38
39 SELECT part.part_id, part.name, mach.units, part.stock
40 FROM erp.tb_part AS part
41 JOIN erp.tb_machines AS mach ON part.part_id = mach.part_id
42 JOIN erp.tb_counter AS contar ON mach.counter_id = contar.counter_id
43 WHERE (mach.last_change + mach.operating_hours > contar.hours)
44     AND mach.units > part.stock
45 ORDER BY mach.units DESC;
```

	part_id character (4)	name character varying (50)	units integer	stock integer
1	D004	Discharge Valve 2842-43	8	0
2	D004	Discharge Valve 2842-43	8	0
3	F004	Fan 2638-32	3	0
4	F004	Fan 2638-32	3	0
5	D003	Dampers 7662-25	1	0
6	D001	Drum 3559-26	1	0
7	D001	Drum 3559-26	1	0

Pregunta 3 (7.5 puntos)

Sentencias apartado a)

```
1 -- Sentencias apartado a)
2
3 ALTER TABLE erp.tb_machines
4     ADD COLUMN next_change INTEGER;
5 UPDATE erp.tb_machines AS mach
6     SET next_change = mach.last_change + mach.operating_hours
7     WHERE mach.last_change IS NOT NULL
8         AND mach.operating_hours IS NOT NULL;
9
10 SELECT * FROM erp.tb_machines
11 WHERE next_change IS NOT NULL;
```

Data Output Messages Notifications

SQL

	machine_id [PK] integer	name character varying (50)	parent_id integer	type_structure character varying (20)	part_id character (4)	counter_id integer	operating_hours integer	units integer	last_change integer	next_change integer
1	12	Drum	2	Part	D001	1	8760	1	12874	21634
2	13	Belt	2	Part	B001	1	730	3	16889	17619
3	15	Sensor roasting	2	Part	S001	1	1460	1	16524	17984
4	17	Gas valve	3	Part	G001	1	1460	4	16524	17984
5	19	Air filter	4	Part	A001	3	730	2	16889	17619
6	25	Air Extractor	6	Part	A002	3	8760	2	12874	21634
7	30	Filter	7	Part	F002	1	730	2	16889	17619
8	31	Dampers	7	Part	D003	1	4380	1	15064	19444
9	33	Temperature sensors	7	Part	T003	1	4380	4	15064	19444
10	36	Discharge Valve	8	Part	D004	1	8760	8	12874	21634
11	41	Fan	11	Part	F004	1	8760	3	12874	21634
12	44	Dust Filter	11	Part	D006	1	730	3	16889	17619
13	112	Drum	102	Part	D001	2	8760	1	3179	11939
14	113	Belt	102	Part	B001	2	730	3	7194	7924
15	115	Sensor roasting	102	Part	S001	2	1460	1	6829	8289
16	117	Gas valve	103	Part	G001	2	1460	4	6829	8289
17	119	Air filter	104	Part	A001	4	730	2	7194	7924
18	125	Air Extractor	106	Part	A002	4	8760	2	3179	11939
19	130	Filter	107	Part	F002	2	730	2	7194	7924
20	131	Dampers	107	Part	D003	2	4380	1	5369	9749
21	133	Temperature sensors	107	Part	T003	2	4380	4	5369	9749
22	136	Discharge Valve	108	Part	D004	2	8760	8	3179	11939
23	141	Fan	111	Part	F004	2	8760	3	3179	11939
24	144	Dust Filter	111	Part	D006	2	730	3	7194	7924

Sentencias apartado b)

```
13 -- Sentencias apartado b)
14
15 ALTER TABLE erp.tb_machines
16   ADD CONSTRAINT manage_data CHECK (
17     (type_structure = 'Part' AND part_id IS NOT NULL
18      AND units IS NOT NULL)
19     OR
20     (type_structure <> 'Part' AND part_id IS NULL
21      AND units IS NULL)
22   );
23
24
25 SELECT machine_id, type_structure, part_id, units FROM erp.tb_machines
26 WHERE type_structure = 'Part';
27
28 SELECT machine_id, type_structure, part_id, units FROM erp.tb_machines
29 WHERE type_structure <> 'Part';
30
```

- Restricciones para `part_id = 'Part'`

Data Output Messages Notifications

SQL

	machine_id [PK] integer	type_structure character varying (20)	part_id character (4)	units integer
1	14	Part	P001	4
2	16	Part	B002	1
3	18	Part	F001	1
4	20	Part	F003	1
5	21	Part	G002	1
6	22	Part	T001	3
7	23	Part	D002	1
8	24	Part	T002	4
9	26	Part	P002	2
10	27	Part	A003	2
11	28	Part	A004	2
12	29	Part	S002	4
13	32	Part	C001	2
14	34	Part	S003	8
15	35	Part	A005	1
16	37	Part	C002	8
17	38	Part	D005	1
18	39	Part	E001	1
19	40	Part	P003	1
20	42	Part	P004	3
21	43	Part	A006	3
22	114	Part	P001	4
23	116	Part	B002	1
24	118	Part	F001	1
25	120	Part	F003	1
26	121	Part	G002	1
27	122	Part	T001	3
28	123	Part	D002	1
29	124	Part	T002	4
30	126	Part	P002	2

31	127	Part	A003	2
32	128	Part	A004	2
33	129	Part	S002	4
34	132	Part	C001	2
35	134	Part	S003	8
36	135	Part	A005	1
37	137	Part	C002	8
38	138	Part	D005	1
39	139	Part	E001	1
40	140	Part	P003	1
41	142	Part	P004	3
42	143	Part	A006	3
43	12	Part	D001	1
44	13	Part	B001	3
45	15	Part	S001	1
46	17	Part	G001	4
47	19	Part	A001	2
48	25	Part	A002	2
49	30	Part	F002	2
50	31	Part	D003	1
51	33	Part	T003	4
52	36	Part	D004	8
53	41	Part	F004	3
54	44	Part	D006	3
55	112	Part	D001	1
56	113	Part	B001	3
57	115	Part	S001	1
58	117	Part	G001	4
59	119	Part	A001	2
60	125	Part	A002	2
61	130	Part	F002	2
62	131	Part	D003	1
63	133	Part	T003	4
64	136	Part	D004	8
65	141	Part	F004	3
66	144	Part	D006	3

- Restricciones para **part_id = 'Machine'** o **part_id = 'Instalation part'**

Data Output Messages Notifications

SQL

	machine_id [PK] integer	type_structure character varying (20)	part_id character (4)	units integer
1	1	Machine	[null]	[null]
2	2	Installation part	[null]	[null]
3	3	Installation part	[null]	[null]
4	4	Installation part	[null]	[null]
5	5	Installation part	[null]	[null]
6	6	Installation part	[null]	[null]
7	7	Installation part	[null]	[null]
8	8	Installation part	[null]	[null]
9	9	Installation part	[null]	[null]
10	10	Installation part	[null]	[null]
11	11	Installation part	[null]	[null]
12	101	Machine	[null]	[null]
13	102	Installation part	[null]	[null]
14	103	Installation part	[null]	[null]
15	104	Installation part	[null]	[null]
16	105	Installation part	[null]	[null]
17	106	Installation part	[null]	[null]
18	107	Installation part	[null]	[null]
19	108	Installation part	[null]	[null]
20	109	Installation part	[null]	[null]
21	110	Installation part	[null]	[null]
22	111	Installation part	[null]	[null]

Sentencias apartado c)

```
31  -- Sentencias apartado c)
32
33  CREATE VIEW erp.stock_valuation (part_id, name, supplier_id,
34      supplier_name, stock, price, stock_value) AS
35      (SELECT part.*,
36          sup.name AS supplier_name,
37          (part.stock * part.price) AS stock_value
38
39      FROM erp.tb_part AS part
40      JOIN erp.tb_supplier AS sup ON part.supplier_id = sup.supplier_id
41      WHERE part.stock > 0
42  );
43
44  SELECT * FROM erp.stock_valuation
```

Data Output Messages Notifications 

≡+        SQL

	part_id character (4) 	name character varying (50)	supplier_id integer 	supplier_name character (3) 	stock numeric (8,2) 	price character varying (30) 	stock_value numeric 
1	B001	Belt 2218-30	4	S01	143.54	TechPart Supplies	574.16
2	P001	Paddle 4154-31	2	S01	1340.50	TechPart Supplies	2681.00
3	S001	Sensor roasting 1651-3	4	S03	332.40	AccelTech Parts	1329.60
4	G001	Gas valve 9556-30	3	S02	434.45	NovaPlex Engineering	1303.35
5	F001	Flame sensor 3976-37	2	S04	493.39	OptiGear Industries	986.78
6	A001	Air filter 1796-23	5	S03	59.32	AccelTech Parts	296.60
7	G002	Gas removal system 1805-24	1	S01	1023.43	TechPart Supplies	1023.43
8	T001	Temperature controller 4678-43	10	S01	205.43	TechPart Supplies	2054.30
9	T002	Temperature transmitters 7682-33	5	S03	194.43	AccelTech Parts	972.15
10	A002	Air Extractor 8940-25	2	S01	1234.54	TechPart Supplies	2469.08
11	F002	Filter 5511-50	4	S02	78.98	NovaPlex Engineering	315.92
12	C001	Condensate 6429-39	2	S03	173.45	AccelTech Parts	346.90
13	T003	Temperature sensors 1141-18	8	S04	239.61	OptiGear Industries	1916.88
14	P004	Pressure valve 8374-44	3	S03	245.91	AccelTech Parts	737.73
15	D006	Dust Filter 3712-22	3	S01	92.65	TechPart Supplies	277.95

Sentencias apartado d)

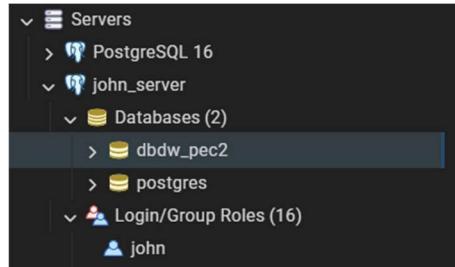
Fuentes consultadas:

<https://www.qualoom.es/blog/administracion-usuarios-roles-postgresql/>
<https://www.todopostgresql.com/crear-usuarios-en-postgresql/>
<https://www.pragma.com.co/academia/lecciones/como-conectarse-a-una-instancia-de-bd-con-pgadmin>
<https://es.stackoverflow.com/questions/520715/postgresql-crear-usuario-administrador-para-una-%C3%BAri>
<https://www.youtube.com/watch?v=yONxEvzuHR0>

1- Sentencia de creación de usuario y privilegios desde servidor PostgreSQL16

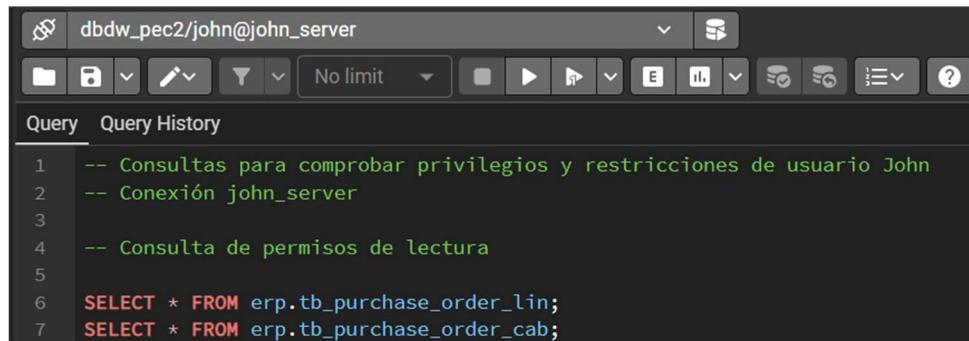
```
47 -- Sentencias apartado d)
48
49 -- Fuentes consultadas:
50 -- https://www.qualoom.es/blog/administracion-usuarios-roles-postgresql/
51 -- https://www.todopostgresql.com/crear-usuarios-en-postgresql/
52 -- https://www.pragma.com.co/academia/lecciones/como-conectarse-a-una-instancia-de-bd-con-pgadmin
53 -- https://es.stackoverflow.com/questions/520715/postgresql-crear-usuario-administrador-para-una-%C3%BAri
54 -- https://www.youtube.com/watch?v=yONxEvzuHR0
55
56 CREATE USER John WITH PASSWORD '1234!';
57 GRANT USAGE ON SCHEMA erp TO john;
58 GRANT ALL PRIVILEGES ON TABLE erp.tb_purchase_order_lin, erp.tb_purchase_order_cab TO john;
59 GRANT SELECT ON TABLE erp.tb_part, erp.tb_supplier TO john;
60
```

2- Conexión john_server



3- Consulta de permisos de lectura desde servidor john_server sobre tablas:

- “tb_purchase_order_lin”
- “tb_purchase_order_cab”



```
-- Consultas para comprobar privilegios y restricciones de usuario John
-- Conexión john_server
-- Consulta de permisos de lectura
SELECT * FROM erp.tb_purchase_order_lin;
SELECT * FROM erp.tb_purchase_order_cab;
```

dbdw_pec2/john@john_server

No limit

Data Output Messages Notifications

SQL

	purchase_order_lin_id [PK] integer	purchase_order_cab_id integer	part_id character (4)	units integer	unit_price numeric (8,2)	subtotal numeric (10,2)	delivery_date date
1	9001	1001	A003	2	876.52	1753.04	2024-08-31
2	9002	1001	A005	1	821.91	821.91	2024-08-31
3	9003	1001	B002	1	4500.00	4500.00	2024-08-31
4	9004	1001	E001	1	398.91	398.91	2024-08-31
5	9005	1001	P001	2	1340.50	2681.00	2024-08-31
6	9006	1002	A004	2	341.95	683.90	2024-09-05
7	9007	1002	C001	1	173.45	173.45	2024-09-05
8	9008	1002	C002	10	193.72	1937.20	2024-09-05
9	9009	1002	P004	1	245.91	245.91	2024-09-05
10	9010	1002	T002	1	194.43	194.43	2024-09-05
11	9011	1002	T002	1	194.43	194.43	2024-09-05
12	9012	1003	A006	3	293.12	879.36	2024-09-21
13	9013	1003	D005	1	2435.87	2435.87	2024-09-21
14	9014	1003	F001	1	493.39	493.39	2024-09-21
15	9015	1003	F003	1	156.89	156.89	2024-09-21
16	9016	1004	P002	2	457.89	915.78	2024-09-09
17	9017	1004	P003	1	229.12	229.12	2024-09-09
18	9018	1004	S002	4	245.76	983.04	2024-09-09
19	9019	1004	S003	8	367.91	2943.28	2024-09-09

dbdw_pec2/john@john_server

No limit

Query History

Data Output Messages Notifications

SQL

	purchase_order_cab_id [PK] integer	order_date date	order_number character (9)	supplier_id character (3)
1	1001	2024-08-01	2024-0001	S01
2	1002	2024-08-05	2024-0002	S03
3	1003	2024-08-06	2024-0003	S04
4	1004	2024-08-09	2024-0004	S01

4- Consultas permiso de escritura desde servidor john_server sobre tablas:

- a. “tb_purchase_order_lin”
- b. “tb_purchase_order_cab”

The screenshot shows a MySQL Workbench interface with two panes. The left pane contains the following SQL code:

```
9 -- Consulta de permisos de escritura
10
11 v INSERT INTO erp.tb_purchase_order_cab
12   VALUES (111111, '2024-11-08', 'TEST-john', 'S02');
13
14 v INSERT INTO erp.tb_purchase_order_lin
15   VALUES (111111, 111111, 'Test', 1, 1000.11, 1000.11, '2024-11-08');
```

The right pane shows the results of the two INSERT statements:

Data Output	Messages	Notifications
INSERT 0 1		
Query returned successfully in 75 msec.		

Data Output	Messages	Notifications
INSERT 0 1		
Query returned successfully in 80 msec.		

5- Consultas permiso de modificación desde servidor john_server sobre tablas:

- a. “tb_purchase_order_lin”
- b. “tb_purchase_order_cab”

The screenshot shows a MySQL Workbench interface with two panes. The left pane contains the following SQL code:

```
17 -- Consulta de permisos de modificación
18
19 v UPDATE erp.tb_purchase_order_lin
20   SET units = 111
21 WHERE part_id = 'Test';
```

The right pane shows the results of the UPDATE statement:

Data Output	Messages	Notifications
UPDATE 1		
Query returned successfully in 76 msec.		

Data Output	Messages	Notifications
UPDATE 1		
Query returned successfully in 72 msec.		

6- Consultas de restricciones.

a. Permiso de lectura desde servidor john_server sobre tablas:

- i. “tb_purchase_order_lin”
- ii. “tb_purchase_order_cab”

The screenshot shows a MySQL Workbench interface. The title bar says "dbdw_pec2/john@john_server". The toolbar includes icons for file, database, search, and execution. A dropdown menu shows "No limit". The main area has tabs for "Query" and "Query History". The query window contains the following code:

```
27 -- Consulta de restricciones
28 -- Permiso lectura tablas tb_part y tb_supplier
29
30 SELECT * FROM erp.tb_part;
31 SELECT * FROM erp.tb_supplier;
```

Below the code is a results grid with the following data:

	part_id [PK] character (4)	name character varying (50)	stock integer	supplier_id character (3)	price numeric (8,2)
1	D001	Drum 3559-26	0	S01	1545.00
2	B001	Belt 2218-30	4	S01	143.54
3	P001	Paddle 4154-31	2	S01	1340.50
4	S001	Sensor roasting 1651-3	4	S03	332.40
5	B002	Burner 2356-2	0	S01	4500.00
6	G001	Gas valve 9556-30	3	S02	434.45
7	F001	Flame sensor 3976-37	2	S04	493.39
8	A001	Air filter 1796-23	5	S03	59.32
9	F003	Fan motor 5422-19	0	S04	156.89
10	G002	Gas removal system 1805-24	1	S01	1023.43
11	T001	Temperature controller 4678-43	10	S01	205.43
12	D002	Display or user interface 7696-6	0	S02	2594.42
13	T002	Temperature transmitters 7682-33	5	S03	194.43
14	A002	Air Extractor 8940-25	2	S01	1234.54
15	P002	Perforated Grid 1775-43	0	S01	457.89
16	A003	Agitator Motor 3275-27	0	S01	876.52
17	A004	Air Ducts 9029-23	0	S03	341.95
18	S002	Smoke fan 2586-4	0	S01	245.76
19	F002	Filter 5511-50	4	S02	78.98
20	D003	Dampers 7662-25	0	S04	194.00
21	C001	Condensate 6429-39	2	S03	173.45
22	T003	Temperature sensors 1141-18	8	S04	239.61
23	S003	Sensor Feeding 2629-23	0	S01	367.91
24	A005	Airlock 8282-23	0	S01	821.91
25	D004	Discharge Valve 2842-43	0	S02	99.99
26	C002	Cooling sensor 1455-48	0	S03	193.72
27	D005	Display screen 8583-50	0	S04	2435.87
28	E001	Emergency stop button 9852-37	0	S01	398.91
29	P003	Power switch 2803-47	0	S01	229.12
30	F004	Fan 2638-32	0	S02	188.62
31	P004	Pressure valve 8374-44	3	S03	245.91
32	A006	Airflow Regulator 2193-46	0	S04	293.12
33	D006	Dust Filter 3712-22	3	S01	92.65

	supplier_id [PK] character (3)	name character varying (30)	days_to_server_order integer
1	S01	TechPart Supplies	30
2	S02	NovaPlex Engineering	60
3	S03	AccelTech Parts	30
4	S04	OptiGear Industries	45

b. Restricciones de escritura desde servidor john_server sobre tablas:

- i. “tb_purchase_order_lin”
- ii. “tb_purchase_order_cab”

```
33 -- Restricción de permisos de escritura
34
35 v INSERT INTO erp.tb_part
36   VALUES (1111, 'Test', 1, 'S02', 1000.11);
37
38 v INSERT INTO erp.tb_supplier
39   VALUES ('S02', 'Test', 1);
```

Data Output Messages Notifications

ERROR: permiso denegado a la tabla tb_part

SQL state: 42501

Data Output Messages Notifications

ERROR: permiso denegado a la tabla tb_supplier

SQL state: 42501

c. Restricciones de modificación desde servidor john_server sobre tablas:

- i. “tb_purchase_order_lin”
- ii. “tb_purchase_order_cab”

```
41 -- Restricción de permisos de modificación
42
43 v UPDATE erp.tb_part
44   SET stock = 111
45 WHERE part_id = 'Test';
46
47 v UPDATE erp.tb_supplier
48   SET supplier_id = 'S01'
49 WHERE name = 'Test';
```

Data Output	Messages	Notifications
	ERROR: permiso denegado a la tabla tb_part	
SQL state:	42501	

Data Output	Messages	Notifications
	ERROR: permiso denegado a la tabla tb_supplier	
SQL state:	42501	

Pregunta 4 (4 puntos)

Apartado a)

Fuentes consultadas:

https://www-postgresql-org.translate.goog/docs/current/rangetypes.html?_x_tr_sl=en&_x_tr_tl=es&_x_tr_hl=es&_x_tr_pto=rq#RANGE TYPES-BUILTIN

Los tipos de rango en PostgreSQL son tipos de datos que representan un rango de valores de algún tipo de elemento (denominado subtipo del rango). Los tipos de rango son útiles porque representan muchos valores de elementos en un único valor de rango y porque conceptos como rangos superpuestos se pueden expresar con claridad.

Cada tipo de rango tiene un tipo multirango correspondiente. Un multirango es una lista ordenada de rangos no contiguos, no vacíos y no nulos. La mayoría de los operadores de rango también funcionan en multirango y tienen algunas funciones propias.

PostgreSQL viene con los siguientes tipos de rango integrados:

int4range — Rango de `integer`, **int4multirange** — Multirango correspondiente
int8range — Rango de `bigint`, **int8multirange** — Multirango correspondiente
numrange — Rango de `numeric`, **nummultirange** — Multirango correspondiente
tsrange — Rango de `timestamptz` without time zone, **tsmultirange** — Multirango correspondiente
stzrange — Rango de `timestamptz` with time zone, **tstzmultirange** — Multirango correspondiente
daterange — Rango de `date`, **datemultirange** — Multirango correspondiente

Además, podemos definir nuestros propios tipos de rango, para ello podemos consultar la siguiente fuente:

https://www-postgresql-org.translate.goog/docs/current/sql-createtype.html?_x_tr_sl=en&_x_tr_tl=es&_x_tr_hl=es&_x_tr_pto=rq

Apartado b)

```
33 -- Apartado b)
34
35 ✓ CREATE TABLE erp.tb_production_agenda(
36     production_agenda_id INTEGER NOT NULL,
37     period_range TSRANGE NOT NULL,
38     PRIMARY KEY (production_agenda_id)
39 );
40
41 ✓ INSERT INTO erp.tb_production_agenda
42     VALUES (1, '[11-08-2024 00:00, 11-08-2024 15:00]:::tsrange'),
43             (2, '[11-08-2024 17:00, 11-08-2024 24:00]:::tsrange');
44
```

- Consulta 14:00 – 14:30 – **HAY SOLAPAMIENTO**

```
45 -- Consulta de 14:00 - 14:30
46
47 ✓ SELECT period_range
48     FROM erp.tb_production_agenda
49     WHERE period_range && '[11-08-2024 14:00, 11-08-2024 14:30]:::tsrange';
50
```

Data Output		Messages	Notifications
period_range	tsrange		
1	[2024-08-11 00:00:00,"2024-08-11 15:00:00"]		

- Consulta 15:30 – 16:00 – **NO HAY SOLAPAMIENTO**

```
51 -- Consulta de 15:30 - 16:00
52
53 ✓ SELECT period_range
54     FROM erp.tb_production_agenda
55     WHERE period_range && '[11-08-2024 15:30, 11-08-2024 16:00]:::tsrange';
```

Data Output		Messages	Notifications
period_range	tsrange		