**PostgreSQL**

```
----------------------------------------------step_1----------------------------------------------
CREATE TABLE us_agriculture_exports (
	commodity text,
	level_of_processing text,
	year_2023 bigint,
	year_2022 bigint,
	year_2021 bigint,
	year_2020 bigint,
	year_2019 bigint,
	year_2018 bigint,
	year_2017 bigint,
	year_2016 bigint,
	year_2015 bigint,
	year_2014 bigint,
	year_2013 bigint,
	year_2012 bigint,
	year_2011 bigint,
	year_2010 bigint,
	year_2009 bigint,
	year_2008 bigint,
	year_2007 bigint,
	year_2006 bigint,
	year_2005 bigint,
	year_2004 bigint,
	year_2003 bigint,
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	year_2000 bigint,
	year_1999 bigint,
	year_1998 bigint,
	year_1997 bigint,
	year_1996 bigint,
	year_1995 bigint,
	year_1994 bigint,
	year_1993 bigint,
	year_1992 bigint,
	year_1991 bigint,
	year_1990 bigint,
	CONSTRAINT commodity_key PRIMARY KEY (commodity)
);
----------------------------------------------step_2----------------------------------------------
COPY us_agriculture_exports FROM
'C:\Users\Jalil Ahamd\Desktop\project_4\agriculture_exports\exports_commodity\us_agriculture_exports.csv'
WITH (FORMAT CSV, HEADER);
----------------------------------------------step_3----------------------------------------------
CREATE TABLE us_agriculture_exports_destinations (
	country text,
	year_2023 bigint,
	year_2022 bigint,
	year_2021 bigint,
	year_2020 bigint,
	year_2019 bigint,
	year_2018 bigint,
	year_2017 bigint,
	year_2016 bigint,
	year_2015 bigint,
	year_2014 bigint,
	year_2013 bigint,
	year_2012 bigint,
	year_2011 bigint,
	year_2010 bigint,
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	year_1998 bigint,
	year_1997 bigint,
	year_1996 bigint,
	year_1995 bigint,
	year_1994 bigint,
	year_1993 bigint,
	year_1992 bigint,
	year_1991 bigint,
	year_1990 bigint,
	CONSTRAINT country_key PRIMARY KEY (country)
);
----------------------------------------------step_4----------------------------------------------
COPY us_agriculture_exports_destinations FROM
'C:\Users\Jalil Ahamd\Desktop\project_4\agriculture_exports\exports_destination\us_agriculture_exports_destinations.csv'
WITH (FORMAT CSV, HEADER);
----------------------------------------------step_5----------------------------------------------
CREATE TABLE us_agriculture_imports (
	commodity text,
	level_of_processing text,
	year_2023 bigint,
	year_2022 bigint,
	year_2021 bigint,
	year_2020 bigint,
	year_2019 bigint,
	year_2018 bigint,
	year_2017 bigint,
	year_2016 bigint,
	year_2015 bigint,
	year_2014 bigint,
```

```
	year_2013 bigint,
	year_2012 bigint,
	year_2011 bigint,
	year_2010 bigint,
	year_2009 bigint,
	year_2008 bigint,
	year_2007 bigint,
	year_2006 bigint,
	year_2005 bigint,
	year_2004 bigint,
	year_2003 bigint,
	year_2002 bigint,
	year_2001 bigint,
	year_2000 bigint,
	year_1999 bigint,
	year_1998 bigint,
	year_1997 bigint,
	year_1996 bigint,
	year_1995 bigint,
	year_1994 bigint,
	year_1993 bigint,
	year_1992 bigint,
	year_1991 bigint,
	year_1990 bigint,
	CONSTRAINT commodity_import_key PRIMARY KEY (commodity)
);
-----------------------------------------------step_6-----------------------------------------------
COPY us_agriculture_imports FROM
'C:\Users\Jalil Ahamd\Desktop\project_4\agriculture_imports\imports_commodity\us_agriculture_imports.csv'
WITH (FORMAT CSV, HEADER);
-----------------------------------------------step_7-----------------------------------------------
CREATE TABLE us_agriculture_imports_sources (
	country text,
	year_2023 bigint,
	year_2022 bigint,
	year_2021 bigint,
	year_2020 bigint,
	year_2019 bigint,
	year_2018 bigint,
	year_2017 bigint,
	year_2016 bigint,
	year_2015 bigint,
	year_2014 bigint,
	year_2013 bigint,
	year_2012 bigint,
	year_2011 bigint,
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	year_1998 bigint,
	year_1997 bigint,
	year_1996 bigint,
	year_1995 bigint,
	year_1994 bigint,
	year_1993 bigint,
	year_1992 bigint,
	year_1991 bigint,
	year_1990 bigint,
	CONSTRAINT sources_key PRIMARY KEY (country)
);
-----------------------------------------------step_8-----------------------------------------------
COPY us_agriculture_exports_destinations FROM
'C:\Users\Jalil Ahamd\Desktop\project_4\agriculture_imports\imports_sources\us_agriculture_imports_sources.csv'
WITH (FORMAT CSV, HEADER);
-----------------------------------------------step_9-----------------------------------------------
CREATE TABLE exports_1990_2023 (
	country text,
	exports_1990_2023 bigint
);

COPY exports_1990_2023 FROM
'C:\Users\Jalil Ahamd\Desktop\project\exports_1990_2023.csv'
WITH (FORMAT CSV, HEADER)
;
-----------------------------------------------step_10----------------------------------------------
CREATE TABLE imports_1990_2023 (
	country text,
	imports_1990_2023 bigint
);

COPY imports_1990_2023 FROM
'C:\Users\Jalil Ahamd\Desktop\project\imports_1990_2023.csv'
WITH (FORMAT CSV, HEADER)
;
-----------------------------------------------step_11----------------------------------------------
CREATE TABLE imports_exports_yearly (
	year smallint,
	total_imports bigint,
	total_exports bigint,
	trade_balance bigint
);

COPY imports_exports_yearly FROM
```

```
'C:\Users\Jalil Ahamd\Desktop\project\imports_exports_yearly.csv'
WITH (FORMAT CSV, HEADER)
;
-----------------------------------------------step_12-----------------------------------------------
SELECT year, total_imports, total_exports, trade_balance,
round((total_exports - total_imports)::numeric / total_imports * 100,2) percent_change
FROM imports_exports_yearly
;
-----------------------------------------------step_13-----------------------------------------------
SELECT year, total_imports, total_exports, trade_balance,
round((total_exports - total_imports)::numeric / total_imports * 100,2) percent_change
FROM imports_exports_yearly
WHERE (total_exports - total_imports)::numeric / total_imports * 100 < 0
;
-----------------------------------------------step_14-----------------------------------------------
SELECT year, total_imports, total_exports, trade_balance,
round((total_exports - total_imports)::numeric / total_imports * 100,2) percent_change
FROM imports_exports_yearly
WHERE (total_exports - total_imports)::numeric / total_imports * 100 < 0
AND trade_balance < 0
;
-----------------------------------------------step_15-----------------------------------------------
SELECT year, total_imports, total_exports, trade_balance,
round((total_exports - total_imports)::numeric / total_imports * 100,2) percent_change
FROM imports_exports_yearly
WHERE (total_exports - total_imports)::numeric / total_imports * 100 < 0
AND trade_balance < 0
ORDER BY trade_balance DESC
;
-----------------------------------------------step_16-----------------------------------------------
ALTER TABLE imports_exports_yearly ADD COLUMN percent_change numeric;
-----------------------------------------------step_17-----------------------------------------------
UPDATE imports_exports_yearly
SET percent_change =
(
	round((total_exports - total_imports)::numeric / total_imports * 100,2)
);
-----------------------------------------------step_18-----------------------------------------------
SELECT * FROM imports_exports_yearly
ORDER BY percent_change DESC;
-----------------------------------------------step_19-----------------------------------------------
ALTER TABLE exports_1990_2023 ADD CONSTRAINT exports_key PRIMARY KEY (country);
-----------------------------------------------step_20-----------------------------------------------
ALTER TABLE imports_1990_2023 ADD CONSTRAINT imports_key PRIMARY KEY (country);
-----------------------------------------------step_21-----------------------------------------------
SELECT im.country, im.imports_1990_2023, ex.country, ex.exports_1990_2023
FROM imports_1990_2023 im FULL OUTER JOIN exports_1990_2023 ex
ON ex.country = im.country;
-----------------------------------------------step_22-----------------------------------------------
SELECT im.country, im.imports_1990_2023, ex.exports_1990_2023
FROM imports_1990_2023 im INNER JOIN exports_1990_2023 ex
ON ex.country = im.country
WHERE imports_1990_2023 > 30_000_000_000
ORDER BY imports_1990_2023 DESC;
-----------------------------------------------step_23-----------------------------------------------
CREATE TABLE agriculture_1990_2023 AS
(
SELECT im.country, im.imports_1990_2023, ex.exports_1990_2023
FROM imports_1990_2023 im INNER JOIN exports_1990_2023 ex
ON ex.country = im.country
);
-----------------------------------------------step_24-----------------------------------------------
SELECT exports_1990_2023 - imports_1990_2023 AS trade_balance
FROM agriculture_1990_2023;
-----------------------------------------------step_25-----------------------------------------------
SELECT
round
(
	(exports_1990_2023 - imports_1990_2023)::numeric / imports_1990_2023 * 100, 2
) AS percent_change
FROM agriculture_1990_2023;
-----------------------------------------------step_26-----------------------------------------------
UPDATE agriculture_1990_2023
SET trade_balance =
(
	exports_1990_2023 - imports_1990_2023
);
-----------------------------------------------step_27-----------------------------------------------
UPDATE agriculture_1990_2023
SET percent_change =
(
	round
	(
		(exports_1990_2023 - imports_1990_2023)::numeric / imports_1990_2023 * 100, 2
	)
);
-----------------------------------------------step_28-----------------------------------------------
COPY (
SELECT * FROM agriculture_1990_2023
	) TO
'C:\Users\Jalil Ahamd\Desktop\project\agri_1990_2023.csv'
WITH (FORMAT CSV, HEADER)
;
-----------------------------------------------step_29-----------------------------------------------
COPY (
SELECT * FROM imports_exports_yearly
	) TO
'C:\Users\Jalil Ahamd\Desktop\project\agriculture_yearly_all_data.csv'
WITH (FORMAT CSV, HEADER)
;
-----------------------------------------------step_30-----------------------------------------------
CREATE TABLE analysis_5yr (
```

```
	year smallint,
	total_exports bigint,
	total_imports bigint,
	trade_balance bigint
);
-----------------------------------------------step_31-----------------------------------------------
COPY analysis_5yr FROM
'C:\Users\Jalil Ahamd\Desktop\project_4\analysis_5yr.csv'
WITH (FORMAT CSV, HEADER)
;
-----------------------------------------------step_32-----------------------------------------------
SELECT * FROM analysis_5yr;
-----------------------------------------------step_33-----------------------------------------------
ALTER TABLE analysis_5yr ADD COLUMN percent_change numeric;
-----------------------------------------------step_34-----------------------------------------------
UPDATE analysis_5yr
SET percent_change =
(
	round
	(
		(total_exports - total_imports)::numeric / total_imports * 100, 2
	)
);
-----------------------------------------------step_35-----------------------------------------------
COPY
(
	SELECT * FROM analysis_5yr
)
TO 'C:\Users\Jalil Ahamd\Desktop\project_4\detail_5yr.csv'
WITH (FORMAT CSV, HEADER);
-----------------------------------------------Explanations-----------------------------------------------
step_1: Created Table named "us_agriculture_exports" in project_4 DATABASE. country, level_of_processing, year_2023, ....
	year_1990 are columns. text, bigint are data types. commodity column is selected as PRIMARY KEY with name commodity_key.
step_2: Loaded the Table with the data from us_agriculture_exports.csv. With specifying formats.
step_3: Created Table named "us_agriculture_exports_destinations" in project_4 DATABASE. country, year_2023, year_2022, ....
	year_1990 are columns. text, bigint are data types. country column is selected as PRIMARY KEY with name country_key.
step_4: Loaded the Table with the data from us_agriculture_exports_destinations.csv. With specifying formats.
step_5: Created Table named "us_agriculture_imports" in project_4 DATABASE. country, level_of_processing, year_2023, ....
	year_1990 are columns. text, bigint are data types. commodity column is select as PRIMARY KEY with name
	commodity_imports_key.
step_6: Loaded the Table with the data from us_agriculture_imports.csv. With specifying formats.
step_7: Created Table named "us_agriculture_imports_sources" in project_4 DATABASE. country, year_2023, year_2022, ....
	year_1990 are columns. text, bigint are data types. country column is select as PRIMARY KEY with name sources_key.
step_8: Loaded the Table with the data from us_agriculture_imports_sources.csv. With specifying formats.
step_9: Created Table "exports_1990_2023" for total exports to each country.
step_10: Created Table "imports_1990_2023" for total imports from each country.
step_11: Created Table "imports_exports_yearly" with yearly imports, exports, and trade.
step_12: Simple SELECT query along with percent_change formula.
step_13: step_12 with WHERE clause to look for negative percent_change.
step_14: step_13 WHERE clause with AND
step_15: step_14 with "ORDER BY percent_change DESC" means to order data in descending order.
step_16: Added new column "percent_change" to TABLE imports_exports_yearly with data type "numeric".
step_17: Assigned new column in step_16 "percent_change" to percent_change formula.
step_18: Simple query.
step_19: Added a CONSTRAINT to TABLE exports_1990_2023 with name exports_key and PRIMARY KEY "country".
step_20: Added a CONSTRAINT to TABLE imports_1990_2023 with name imports_key and PRIMARY KEY "country".
step_21: Combined TABLES "exports_1990_2023" and "imports_1990_2023" with aliases ON PRIMARY KEYs.
step_22: step_21 and looked for imports > 30 billion with descending order.
step_23: Created TABLE "agriculture_1990_2023" AS A query result step_21.
step_24: export - import as alias.
step_25: percent_change "casting integer into numeric with shortcut key ::".
step_26: Updated TABLE "agriculture_1990_2023" column trade_balance.
step_27: Updated TABLE "agriculture_1990_2023" column percent_change.
step_28: Exported the TABLE "agriculture_1990_2023" with COPY TO command into csv file.
step_29: Exported the TABLE "imports_exports_yearly" with COPY TO command into csv file.
Step_30: Created TABLE “analysis_5yr” with columns and required data types.
Step_31: Copied the Table from respective file for data.
Step_32: Checked the table using SELECT query.
Step_33: Added a new column “percent_change” with a data type numeric using short key for casting “::”.
Step_34: Updated the column “percent_change” with percent_change formula.
Step_35: Exported the table into csv file for further use.
-----------------------------------------------------------------------------------------------------------
```