Creating Table:

```
CREATE TABLE sales (
    invoice_id VARCHAR(30) NOT NULL PRIMARY KEY,
    branch VARCHAR(5) NOT NULL,
    city VARCHAR(30) NOT NULL,
    customer_type VARCHAR(30) NOT NULL,
    gender VARCHAR(30) NOT NULL,
    product_line VARCHAR(100) NOT NULL,
    unit_price NUMERIC(10, 2) NOT NULL,
    quantity INT NOT NULL,
    VAT NUMERIC(6, 4) NOT NULL,
    total NUMERIC(12, 4) NOT NULL,
    date DATE NOT NULL,
    time TIME NOT NULL,
    payment VARCHAR(15) NOT NULL,
    cogs NUMERIC(10, 2) NOT NULL,
    gross_margin_pct NUMERIC(11, 9) NOT NULL,
    gross_income NUMERIC(12, 4) NOT NULL,
    rating REAL
);

SELECT * FROM sales
```

Creating New Columns:

-- time_of_day

```
SELECT time,
   CASE
      WHEN time BETWEEN '00:00:00' AND '12:00:00' THEN 'Morning'
      WHEN time BETWEEN '12:01:00' AND '16:00:00' THEN 'Afternoon'
      ELSE 'Evening'
   END AS time_of_day
FROM sales;

ALTER TABLE sales ADD COLUMN time_of_day VARCHAR(20);

UPDATE sales
SET time_of_day =
   CASE
      WHEN time BETWEEN '00:00:00' AND '12:00:00' THEN 'Morning'
      WHEN time BETWEEN '12:01:00' AND '16:00:00' THEN 'Afternoon'
      ELSE 'Evening'
   END;
```

-- day_name

```
SELECT
   date,
   TO_CHAR(date, 'Day') AS day_name
FROM sales;
```

```
ALTER TABLE sales ADD COLUMN day_name VARCHAR(10)

UPDATE sales
SET day_name = TO_CHAR(date, 'Day');

-- month_name

SELECT
date,
TO_CHAR(date, 'Month') AS month_name
FROM sales;

ALTER TABLE sales ADD COLUMN month_name VARCHAR(10)

UPDATE sales
SET month_name = TO_CHAR(date, 'Month');
```

Generic Questions:

```
-- How many unique cities does the data have?

SELECT DISTINCT city
        FROM sales;

-- In which city is each branch?

SELECT DISTINCT city,
branch
FROM sales;
```

Product Questions:

-- How many unique product lines does the data have?

```
SELECT COUNT (DISTINCT product_line)
From sales;
```

-- What is the most common payment method?

```
SELECT payment, COUNT(payment) AS cnt
FROM sales
GROUP BY payment
ORDER BY cnt DESC
LIMIT 1;
```

-- What is the most selling product line?

```
SELECT product_line, COUNT(product_line) AS cnt
FROM sales
GROUP BY product_line
ORDER BY cnt DESC
LIMIT 1;
```

-- What is the total revenue by month?

```
SELECT month_name AS month,
   SUM(total) AS total_revenue
FROM sales
GROUP BY month_name, month
```

```
ORDER BY month;
```

-- What month had the largest COGS?

```
SELECT month_name AS month,
   SUM(cogs) AS cogs
FROM sales
GROUP BY month_name
ORDER BY cogs DESC
LIMIT 1;
```

-- What product line had the largest revenue?

```
SELECT product_line AS productline,
SUM(total) AS total_revenue
FROM sales
GROUP BY product_line
ORDER BY total_revenue DESC
LIMIT 1;
```

-- What is the city with the largest Revenue?

```
SELECT city AS city,
SUM(total) AS total_revenue
FROM sales
GROUP BY city
ORDER BY total_revenue DESC
LIMIT 1;
```

-- What Product line had the largest VAT?

```
SELECT product_line AS productline,
AVG(vat) as AVGvat
FROM sales
GROUP BY productline
ORDER BY AVGvat DESC
LIMIT 1;
```

-- Which branch sold more products than average product sold?

```
SELECT branch,
SUM(quantity) AS qty
FROM sales
GROUP BY branch
HAVING SUM(quantity) > (SELECT AVG(quantity)FROM sales);
```

-- What is the most product line by gender?

```
SELECT gender, product_line,
COUNT(gender) AS total_cnt
FROM sales
GROUP BY gender, product_line
ORDER BY total_cnt desc;
```

-- What is the average rating of each product line?

```
SELECT AVG(rating) AS AVGrating,
product_line
```

```
FROM sales
GROUP BY product_line
ORDER BY AVGrating DESC;
```

Sales Questions:

-- Number of sales made in each time of the day per weekday

```
SELECT
   time_of_day,
   COUNT(*) AS total_sales
FROM sales
WHERE day_name = 'Sunday'
GROUP BY time_of_day
ORDER BY total_sales DESC;
```

-- Which of the customer types brings the most revenue?

```
SELECT customer_type,
SUM(total) AS total_revenue
FROM sales
GROUP BY customer_type
ORDER BY total_revenue DESC;
```

-- Which city has the largest tax percent/VAT ?

```
SELECT city,
AVG(vat) AS AVGvat
FROM sales
```

```
GROUP BY city
ORDER BY AVGvat DESC;
```

-- Which customer type pays the most in VAT?

```
SELECT customer_type,
AVG(vat) AS AVGvat
FROM sales
GROUP BY customer_type
ORDER BY AVGvat DESC;
```

Customer Questions:

-- How many unique customer types does the data have?

```
SELECT DISTINCT customer_type
From Sales;
```

-- How many unique payment methods does the data have?

```
SELECT DISTINCT payment
FROM sales;
```

-- What is the most common customer type?

```
SELECT
   customer_type,
   COUNT(customer_type) AS cnt
FROM sales
```

```
GROUP BY customer_type
ORDER BY cnt DESC
LIMIT 1;
```

-- Which customer type buys the most?

```
SELECT customer_type,
SUM(total) as totalbuy
FROM sales
GROUP BY customer_type
ORDER BY totalbuy DESC;
```

-- What is the gender of most of the customers?

```
SELECT gender,
Count(*) as cnt
FROM sales
GROUP BY gender
ORDER BY cnt DESC;
```

-- What is the gender distribution per branch?

```
SELECT gender,
COUNT(*) as gender_cnt
FROM sales
WHERE branch = 'B'
GROUP BY gender
ORDER BY gender_cnt DESC;
```

-- Which time of the day do customers give most ratings?

```
SELECT time_of_day,
AVG(rating) as AVGrating
FROM sales
GROUP BY time_of_day
ORDER BY AVGrating DESC;
```

-- Which time of the day do customers give most ratings per branch?

```
SELECT time_of_day,
AVG(rating) AS AVGrating
FROM sales
WHERE branch = 'A'
GROUP BY time_of_day
ORDER BY AVGrating DESC;
```

-- Which day of the week has the best avg ratings?

```
SELECT day_name,
AVG(rating) as AVGrating
FROM sales
GROUP BY day_name
ORDER BY AVGrating Desc;
```

-- Which day of the week has the best average ratings per branch?

```
SELECT day_name,
AVG(rating) as AVGrating
```

```
FROM sales
        WHERE branch = 'A'
GROUP BY day_name
ORDER BY AVGrating Desc;
```