MySQL transcript

**List of products and their categories with sales greater than 100 units.**

[SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/select.html) pd.product\_id, pd.name AS product\_name, pd.category, [SUM](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/aggregate-functions.html%23function_sum)(s.quantity) AS total\_sales FROM productdetails pd JOIN sales s ON pd.product\_id = s.product\_id GROUP BY pd.product\_id, pd.name, pd.category HAVING [SUM](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/aggregate-functions.html%23function_sum)(s.quantity) > 100;

* **The total revenue per branch**

[SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/select.html) s.branch\_id, [SUM](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/aggregate-functions.html%23function_sum)(s.quantity \* pd.price) AS total\_revenue FROM sales s JOIN productdetails pd ON s.product\_id = pd.product\_id GROUP BY s.branch\_id;

* **Customers who purchase in more than 3 branches**

[SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/select.html) customer\_id FROM sales GROUP BY customer\_id HAVING [COUNT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/aggregate-functions.html%23function_count)(DISTINCT branch\_id) > 3;

* **The average sale quantity by category for sales made in the last quarter**

[SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/select.html) pd.category AS product\_category, [AVG](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/aggregate-functions.html%23function_avg)(s.quantity) AS avg\_sale\_quantity FROM sales s JOIN productdetails pd ON s.product\_id = pd.product\_id WHERE s.sale\_date >= DATE\_SUB(NOW(), [INTERVAL](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/comparison-operators.html%23function_interval) 3 MONTH) [AND](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/logical-operators.html%23operator_and) s.sale\_date <= NOW() GROUP BY pd.category;

* **Ranking products based on the total sales quantity**

[SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/select.html) product\_id, name AS product\_name, category AS product\_category, total\_sales, RANK() OVER (PARTITION BY category ORDER BY total\_sales DESC) AS sales\_rank FROM ( [SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/select.html) pd.product\_id, pd.name, pd.category, [COALESCE](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/comparison-operators.html%23function_coalesce)([SUM](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/aggregate-functions.html%23function_sum)(s.quantity), 0) AS total\_sales FROM productdetails pd [LEFT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/string-functions.html%23function_left) JOIN sales s ON pd.product\_id = s.product\_id GROUP BY pd.product\_id, pd.name, pd.category ) AS sales\_summary;

* **The month-over-month percentage growth in sales for the top 5 products**

[SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/select.html) product\_id, product\_name, month\_year, total\_sales, LAG(total\_sales) OVER (PARTITION BY product\_id ORDER BY month\_year) AS prev\_month\_sales, [CASE](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/control-flow-functions.html%23operator_case) WHEN LAG(total\_sales) OVER (PARTITION BY product\_id ORDER BY month\_year) [IS](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/comparison-operators.html%23operator_is) [NOT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/logical-operators.html%23operator_not) NULL THEN (total\_sales - LAG(total\_sales) OVER (PARTITION BY product\_id ORDER BY month\_year)) / LAG(total\_sales) OVER (PARTITION BY product\_id ORDER BY month\_year) \* 100 ELSE NULL END AS sales\_growth\_percentage FROM ( [SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/select.html) s.product\_id, pd.name AS product\_name, DATE\_FORMAT(s.sale\_date, '%Y-%m') AS month\_year, [SUM](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/aggregate-functions.html%23function_sum)(s.quantity) AS total\_sales FROM sales s JOIN productdetails pd ON s.product\_id = pd.product\_id GROUP BY s.product\_id, product\_name, month\_year ) AS monthly\_sales ORDER BY sales\_growth\_percentage DESC LIMIT 5;

* **Products not sold in the last 6 months but have stock levels above 50**

[SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/select.html) pd.product\_id, pd.name AS product\_name, pd.stock\_level FROM productdetails pd [LEFT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/string-functions.html%23function_left) JOIN sales s ON pd.product\_id = s.product\_id [AND](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/logical-operators.html%23operator_and) s.sale\_date >= DATE\_SUB(NOW(), [INTERVAL](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/comparison-operators.html%23function_interval) 6 MONTH) WHERE s.product\_id [IS](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/comparison-operators.html%23operator_is) NULL [AND](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/logical-operators.html%23operator_and) pd.stock\_level > 50;

* **The total number of complaints lodged against per Product Category**

[SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/select.html) pd.category AS product\_category, [COUNT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/aggregate-functions.html%23function_count)(\*) AS total\_complaints FROM complaintdetails cd JOIN productdetails pd ON cd.product\_id = pd.product\_id GROUP BY pd.category;

* **The top 10 customers by total spending**

[SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/select.html) cd.customer\_id, cd.name AS customer\_name, [SUM](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/aggregate-functions.html%23function_sum)(s.quantity \* pd.price) AS total\_spending, ( [SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/select.html) pd.category FROM productdetails pd WHERE pd.product\_id = s.product\_id ORDER BY [COUNT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/aggregate-functions.html%23function_count)(\*) DESC LIMIT 1 ) AS most\_frequent\_category FROM sales s JOIN customerdetails cd ON s.customer\_id = cd.customer\_id JOIN productdetails pd ON s.product\_id = pd.product\_id GROUP BY cd.customer\_id, cd.name ORDER BY total\_spending DESC LIMIT 10;

* **Days of the week with the highest sales transactions volume5**

[SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/select.html) DAYNAME(sale\_date) AS day\_of\_week, [COUNT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/aggregate-functions.html%23function_count)(\*) AS transaction\_volume FROM sales GROUP BY DAYOFWEEK(sale\_date) ORDER BY transaction\_volume DESC;

* **The correlation between loyalty program status and the average transaction value per customer**

[SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/select.html) cd.loyalty\_program\_status, [AVG](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/aggregate-functions.html%23function_avg)(s.total\_transaction\_value) AS avg\_transaction\_value FROM customerdetails cd JOIN ( [SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/select.html) customer\_id, [SUM](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/aggregate-functions.html%23function_sum)(quantity \* price) AS total\_transaction\_value FROM sales s JOIN productdetails pd ON s.product\_id = pd.product\_id GROUP BY customer\_id ) AS s ON cd.customer\_id = s.customer\_id GROUP BY cd.loyalty\_program\_status;

* **The average duration between complaint registration and resolution**

[SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/select.html) [AVG](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/aggregate-functions.html%23function_avg)(DATEDIFF([CURRENT\_DATE](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/date-and-time-functions.html%23function_current_date), complaint\_date)) AS avg\_duration\_days FROM complaintdetails WHERE resolution\_status = 'Closed';

* **Staff members with shifts longer than 8 hours**

[SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/select.html) s.staff\_id, s.branch\_id, s.shift\_date, TIMEDIFF(s.end\_time, s.start\_time) AS shift\_duration FROM staffshiftdetails s HAVING shift\_duration > '08:00:00';

* **The branch with the lowest stock levels across all products**

[SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/select.html) branch\_id, [SUM](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/aggregate-functions.html%23function_sum)(stock\_level) AS total\_stock FROM productdetails JOIN sales ON productdetails.product\_id = sales.product\_id GROUP BY branch\_id ORDER BY total\_stock ASC LIMIT 1;

* **The product with the highest number of complaints and nature of complaints**

[SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/select.html) cd.product\_id, pd.name AS product\_name, [COUNT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/aggregate-functions.html%23function_count)(\*) AS total\_complaints, [GROUP\_CONCAT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/aggregate-functions.html%23function_group_concat)(cd.resolution\_status ORDER BY cd.complaint\_id) AS complaints FROM complaintdetails cd JOIN productdetails pd ON cd.product\_id = pd.product\_id GROUP BY cd.product\_id, pd.name ORDER BY total\_complaints DESC LIMIT 1;

Self-designed questions

[SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/select.html) s.branch\_id, b.branch\_name, [SUM](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/aggregate-functions.html%23function_sum)(s.quantity) AS total\_sales, SEC\_TO\_TIME([SUM](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/aggregate-functions.html%23function_sum)(TIME\_TO\_SEC(TIMEDIFF(ss.end\_time, ss.start\_time)))) AS total\_hours\_worked, [SUM](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/aggregate-functions.html%23function_sum)(s.quantity) / TIME\_TO\_SEC(TIMEDIFF(ss.end\_time, ss.start\_time)) AS sales\_per\_hour FROM sales s JOIN staffshiftdetails ss ON s.branch\_id = ss.branch\_id JOIN branchdetails b ON s.branch\_id = b.branch\_id GROUP BY s.branch\_id, b.branch\_name ORDER BY sales\_per\_hour DESC;

**How do sales vary by season for each product category? Calculate the total sales for each category in each season (e.g., summer, winter, spring, autumn).**

[SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/select.html) pd.category AS product\_category, [CASE](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/control-flow-functions.html%23operator_case) WHEN MONTH(sale\_date) [IN](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/comparison-operators.html%23function_in) (12, 1, 2) THEN 'Winter' WHEN MONTH(sale\_date) [IN](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/comparison-operators.html%23function_in) (3, 4, 5) THEN 'Spring' WHEN MONTH(sale\_date) [IN](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/comparison-operators.html%23function_in) (6, 7, 8) THEN 'Summer' WHEN MONTH(sale\_date) [IN](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/comparison-operators.html%23function_in) (9, 10, 11) THEN 'Autumn' ELSE 'Unknown' END AS season, [SUM](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/aggregate-functions.html%23function_sum)(s.quantity) AS total\_sales FROM sales s JOIN productdetails pd ON s.product\_id = pd.product\_id GROUP BY pd.category, season ORDER BY pd.category, season;

**What is the average amount spent per transaction?**

[SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/select.html) [AVG](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/aggregate-functions.html%23function_avg)(s.quantity \* pd.price) AS average\_transaction\_value FROM sales s JOIN productdetails pd ON s.product\_id = pd.product\_id;

**How many complaints are currently pending resolution?**

[SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/select.html) [COUNT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/aggregate-functions.html%23function_count)(\*) AS num\_pending\_complaints FROM complaintdetails WHERE resolution\_status = 'Pending';

**What are the products with the highest and lowest prices?**

[SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/select.html) [MAX](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/aggregate-functions.html%23function_max)(price) AS highest\_price\_product, [MIN](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/aggregate-functions.html%23function_min)(price) AS lowest\_price\_product FROM productdetails;