# NB: These exercises are for students that cannot run a local DB on their own computer

# Database Exercises – SQL

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| **Exercise** | W3S\_SQL.1 |
| **URL** | [**https://www.w3schools.com/sql/trysql.asp?filename=trysql\_select\_all**](https://www.w3schools.com/sql/trysql.asp?filename=trysql_select_all) |
| **Purpose** | Try out some relatively simple SQL queries on a single table. |
| **Description** | Use the **Products** table on the ***W3Schools*** website for this exercise |
| **Steps** | 1. Go to the URL stated above. 2. Type the query **SELECT \* FROM Products** into the ***SQL Statement*** window, and run the query. This should return 77 rows. 3. Now try to write queries that return the following from the **Products** table (expected results from execu­ting the queries can be found below):    1. Product name, Supplier ID and Unit for all products.    2. Full details for products with a price higher than 20.    3. Full details for products with a price lower than 15.    4. Full details for products with a supplier ID between 10 and 25.    5. Full details for products with a category ID equal to 2    6. Full details for products with a category ID equal to 2, 4 or 7    7. Product name and price for products where category ID is less than 3    8. Full details for products with a name starting with “S”.    9. Full details for products with a name at most 10 characters long. |
| **Expected**  **Results** | |  |  | | --- | --- | | **a.** | 77 rows with three columns in each row. | | **b.** | 37 rows with full details | | **c.** | 24 rows with full details | | **d.** | 41 rows with full details | | **e.** | 12 rows with full details | | **f.** | 27 rows with full details | | **g.** | 24 rows with two columns in each row | | **h.** | 9 rows with full details | | **i.** | 15 rows with full details | |

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| **Exercise** | W3S\_SQL.2 |
| **URL** | [**https://www.w3schools.com/sql/trysql.asp?filename=trysql\_select\_all**](https://www.w3schools.com/sql/trysql.asp?filename=trysql_select_all) |
| **Purpose** | Try out some SQL queries involving calculation, possibly using some of the built-in aggregate functions. |
| **Description** | Use the **Products** table on the ***W3Schools*** website for this exercise |
| **Steps** | 1. Go to the URL stated above. 2. Type the query **SELECT \* FROM Products** into the ***SQL Statement*** window, and run the query. This should return 77 rows. 3. Now try to write queries that return the following from the **Products** table (expected results from execu­ting the queries can be found below):    1. The minimum price for any product in the table. Name the returned column **MinPrice**.    2. The maximal category ID for any product in the table. Name the returned column **MaxCategoryID**.    3. The number of products that have a price above 50. Name the returned column **ExpensiveProducts**.    4. The number of products with a category ID equal to 2, 4 or 7. Name the returned column **InCat247**.    5. The average price for all products.    6. The sum of the prices for all products.    7. The name and price in Kroner (we assume original prices are in Dollars, and that 1 Dollar = 7 Kroner) for all products. Name the column for price in Kroner **PriceInKr**. |
| **Expected**  **Results** | |  |  | | --- | --- | | **a.** | 2.5 | | **b.** | 8 | | **c.** | 7 | | **d.** | 27 | | **e.** | 28.8664 | | **f.** | 2222.71 | | **g.** | 77 rows with 2 columns, **PriceInKr** values equal to 7 times original values. | |

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| **Exercise** | W3S\_SQL.3 |
| **Script** | [**https://www.w3schools.com/sql/trysql.asp?filename=trysql\_select\_all**](https://www.w3schools.com/sql/trysql.asp?filename=trysql_select_all) |
| **Purpose** | Try out some SQL queries involving ordering and grouping. |
| **Description** | Use the **Products** table on the ***W3Schools*** website for this exercise |
| **Steps** | 1. Go to the URL stated above. 2. Type the query **SELECT \* FROM Products** into the ***SQL Statement*** window, and run the query. This should return 77 rows. 3. Now try to write queries that return the following from the **Products** table (expected results from execu­ting the queries can be found below):    1. Full details for all products, ordered by name.    2. Full details for all products, ordered by category ID. In case of equal category ID, order by price.    3. Name and price for all products, ordered by category ID. In case of equal category ID, order by price.    4. Number of products for each supplier ID. Name the column containing the count **NoOfProducts**.    5. Average price for products for each Category ID. Name the column containing the average price **AveragePrice**.    6. The number of products in each combination of category ID and supplier ID.    7. The number of products in each combination of category ID and supplier ID, but only including combinations containing at least 3 products. |
| **Expected**  **Results** | |  |  | | --- | --- | | **a.** | Full details, ordered alphabetically by name. | | **b.** | Full details, ordered by category ID, then price. | | **c.** | Name and price for all products, ordered by category ID, then price. | | **d.** | 8 rows, sum of values should be 77. | | **e.** | 8 rows, average values between 20 and 54 | | **f.** | 49 rows, count between 1 and 4 | | **g.** | 7 rows, count between 1 and 4 | |

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| **Exercise** | W3S\_SQL.4 |
| **Script** | [**https://www.w3schools.com/sql/trysql.asp?filename=trysql\_select\_all**](https://www.w3schools.com/sql/trysql.asp?filename=trysql_select_all) |
| **Purpose** | Try out some multi-table SQL queries. |
| **Description** | Use the **Products** and **Suppliers** tables on the ***W3Schools*** website for this exercise |
| **Steps** | 1. Go to the URL stated above. 2. Now try to write queries that return the following data from the two tables (expected results from execu­ting the queries can be found below):    1. The name of the supplier that supplies the product named “Ikura”    2. The average price of products supplied by a supplier from the UK.    3. The average price of products supplied by a supplier from a specific country, i.e. the average should be returned for each country. |
| **Expected**  **Results** | |  |  | | --- | --- | | **a.** | The supplier is named “Tokyo Trade” | | **b.** | The average price is 22.8143 | | **c.** | 16 rows, average prices between 4.5 (Brazil) and 76.75 (France) | |