

Executive Report of the Logical Database Design and Build for ElectroSpares

Introduction

ElectroSpares is a small business-to-business (B2B) enterprise providing corporate institutions with furniture, technology, and equipment, did not have a database or management system which could store customer, supplier, order, and product data in an accessible manner for their analysts to perform tasks and build strong reports. A database proposal was submitted to the Chief Information Officer at the organisation, outlining a potential solution for relational database management system (RDBMS) which would be built for their requirements and needs. The completed design and build are detailed in this report, alongside an evaluation of different data models, various database management systems (DBMS) on offer, and legal and regulatory considerations.

Evaluation of Data Models

The foundational concepts of database modelling underpin the design and development of the database solution which was implemented. It is a process which translates the complex data management and storage requirements of an organisation into a robust technical architecture solution. Several types of data models exist, all possessing tangible benefits and drawbacks depending on the specific use case (table 1).

Model Type	Storage Format	Typical Use Case	Advantages	Disadvantages
Document	JSON-like documents	Content Management Systems	<ul style="list-style-type: none"> - High scalability: database can be scaled horizontally across multiple servers. - Development speed: data is typically stored in JSON format. 	<ul style="list-style-type: none"> - Limited joins: difficult to join data across multiple documents, restricting the queries which can be executed. - Eventual consistency: better data availability compromises accuracy.
Graph	Nodes, edges	Recommendation engines	<ul style="list-style-type: none"> - Flexibility: strong flexibility due to the lack of a predetermined schema. - Speed: links across data can be made quickly without joins functions. 	<ul style="list-style-type: none"> - High demand on memory: larger networks require greater CPU, RAM. - Specialisation: requires learning new, complex languages.
Relational	Tables	Transactions	<ul style="list-style-type: none"> - Data integrity: need for ACID (atomicity, consistency, isolation, durability) compliance results in reliable transactions. - Standardisation: adherence to industry wide standards (e.g., ISO/IEC 9075). 	<ul style="list-style-type: none"> - Rigidity: fixed schema results in slower changes to structures. - Scaling limitations: as it scales vertically, scaling horizontally across servers is complex.
Object-Oriented	Objects	Engineering models	<ul style="list-style-type: none"> - Complex logic: native support for inheritance. - Programming synergy: no potential mismatch between code and storage. 	<ul style="list-style-type: none"> - Performance: data retrieval is slower. - Niche support: limited support from vendors.

Table 1: Different types of data models and their respective advantages and disadvantages

A relational model consists of tables storing data in rows, storing a unique record, and columns, representing a specific attribute of the record. Relationships between tables can be formed using primary and foreign keys. Primary keys are unique identifiers for each row in a table. Foreign keys is a column in one table which refers to the primary key of a different one. Relational models are dependent on normalised

data. Normalisation is the process of organising data to minimise data redundancy and avoid anomalies while protecting the consistency and accuracy of data. Larger tables are broken down into smaller ones and are linked together using identified relationships. Normal forms describe the level of normalisation in a database, and the degree of redundancy and anomalies within it (Chen, 2023).

As ElectroSpares is in its infancy stage of adopting strong data management principles, its current priority is to store data in a standardised, consistent, and secure format. A relational database provides a solution which can store customer information, supplier details, product information, and basic employee data. The database solution designed is fourth normal form (4NF) compliant, meaning that any changes to information stored in a table (e.g., customer details) only need to be made in one table. This is a key strength of the relational model, and a strong rationale point behind the proposal. A second is its compliance with ACID – atomicity, consistency, isolation, and durability. However, relational models are difficult to scale efficiently and affordably in addition to being highly rigid and inflexible due to its requirement for a predetermined schema, the ‘blueprint’ of the database. These limitations were considered and discussed with stakeholders in ElectroSpares but are not significant when considering the maturity of the organisation’s requirements.

One notable limitation is its reduced ability to handle semi and unstructured data as this limits the types and scale of data which can be stored in the database (Meghwar and Meghji, 2025). As a result, the database does not contain a diverse range of data formats. This is not a limitation that drastically impacts the database solution but

is a consideration internal stakeholders must factor into future data management strategies.

Identification of a Database Management System

Database management systems are software used to create and manage three key components of a database: its data, its schema, and its engine, allowing data to be accessed, maintained, and locked (Hassan, 2021).

As stated in the proposal report submitted previously, a relational database management system (RDBMS) based on Structured Query Language (SQL), such as MySQL or PostgreSQL, provides the ability to create a database which stores structured data in a straightforward manner. MySQL permits compliance with ACID and ensures that the database remains consistent when handling transactions across tables, concurrent access, and machine failures. Its cost of ownership is low and is simple for database administrators to manage and update, apt for ElectroSpares as large technical teams aren't required to maximise its data storage and retrieval capabilities. MySQL can also be hosted on ElectroSpares' cloud platform irrespective of whether it is Oracle, Amazon Web Services or Microsoft Azure (MySQL, no date). This provides additional benefits of automated backups, high availability of data, and reinforced security measures.

Order details, inventory levels, and customer and supplier information can be retrieved easily and accurately due to MySQL's strong data availability. This enables analysis on orders depending on certain conditions set by identifying aspects of

customer information. MySQL also provides a high level of data integrity and consistency, in addition to robust security measures – a notable feature given the current technological climate and vulnerability levels of personal data (Meghwar and Meghji, 2025).

Non-relational database management systems (NRDBMS), such as Not Only SQL (NoSQL), do not use SQL as its query language and is better at storing semi and unstructured data. NoSQL databases comply with BASE as opposed to ACID – Basically Available, Soft State, Eventual Consistency. Following this principle allows for large volumes of data to be readily available for retrieval in the event of a node failure, and to be consistent eventually, not at every transaction. NoSQL databases can handle vast volumes of unstructured data from diverse origins, including social media platforms, and offers improved scalability due to its flexible schemas. If ElectroSpares want to grow the database and incorporate analytics from social media sites to aid with marketing analysis and subsequent strategies, an NRDBMS, such as MongoDB, should be considered in the future (Hassan, 2021).

Like MongoDB, MySQL can cope with high volumes of data. MongoDB offers the benefits of strong scalability and the flexibility of data which can be stored as it is a document-oriented database, storing data in a JSON-like format. The availability of data stored in MySQL, as well as better security measures and a reduced risk of breaches by virtue of robust user access control, makes it the suitable RDBMS for ElectroSpares. If the organisation plans on scaling and growing in the future, MongoDB will provide a flexible solution which could handle their current data requirements whilst considering future analytical and data management needs.

Furthermore, MongoDB also outperforms MySQL in terms of latency and will allow for a higher workload while improving performance and speed (Eyada *et al.*, 2020).

MySQL Database Design, Build, and Testing

ElectroSpares needed a simple database which could contain data relating to customer orders, inventory tracking, product suppliers, and basic employee data. In accordance with the database development lifecycle, a systematic approach (commonly referred to as the waterfall method) based on the software development lifecycle was used to develop a database that adhered to their requirements (Gupta, Mata-Toledo and Monger, 2011).

Stages one, two, and three (planning, requirements definition, and design respectively), were detailed in the proposal report submitted previously. Key stakeholders in ElectroSpares were interviewed and consulted with to define the structure of the data, how it flows across systems, and processes which define what should be done with the data during stage two. Stage three involved the creation of conceptual maps which displayed how data is related before the development of a logical design and entity-relationship diagram (ERD), displaying the seven key data entities identified, their corresponding attributes, and primary and foreign keys to define the relationships between tables in a normalised format (figure 1).

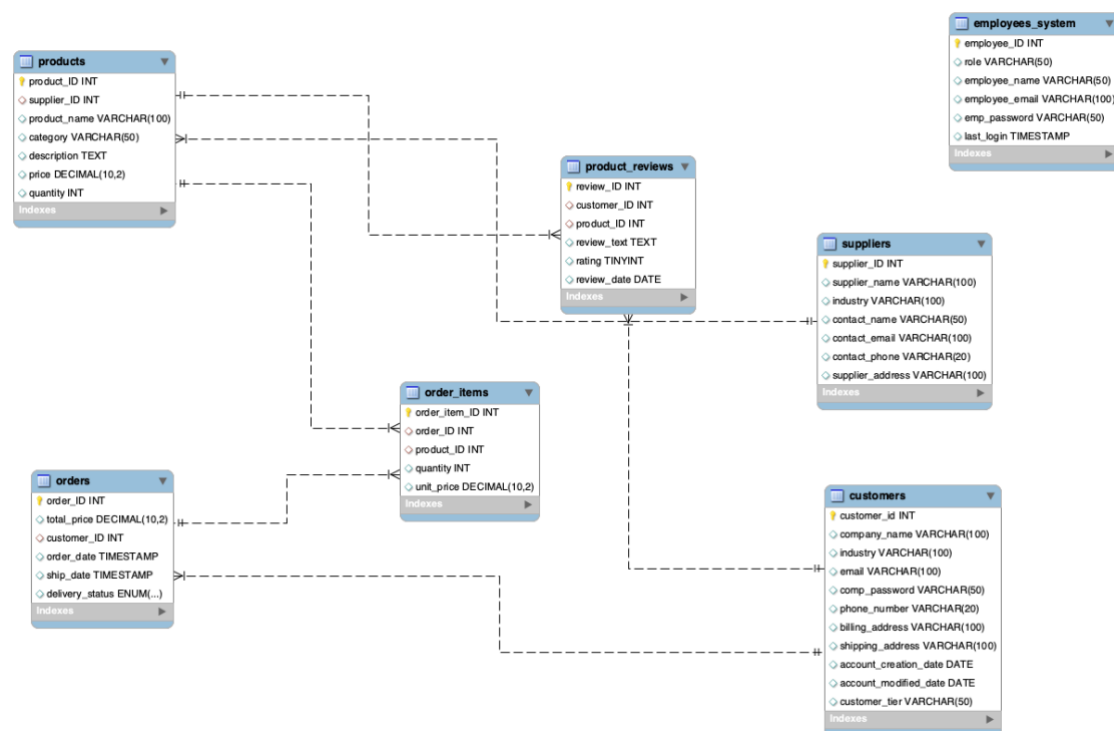


Figure 1 - Entity-Relationship Diagram (ERD) displaying the proposed database system

Developers used MySQL to build the database. All tables were built using the software's 'CREATE TABLE' function, ensuring that all keys, as well as data types for each column, were defined in the table (appendix A). A portion of data was inserted into each table before testing to ensure the data was inputted successfully. Custom queries were written using basic data manipulation language (DML) commands within MySQL, such as 'SELECT' and 'WHERE' to return data matching specified conditions, in addition to 'JOIN' which joined data across different tables. The test case featured in appendix B shows a query which returned the name and contact email address of each company which completed high value orders above the value of £10,000. This test case reiterates the strength of MySQL – pointed, detailed analysis can be performed to produce strategically significant reports.

Legal, Regulatory and Compliance Considerations

The database built incorporates the principles of 'Privacy by Design' in accordance with the security parameters set by the Information Commissioner Office's (ICO), based on seven key principles within the UK General Data Protection Regulation.

Data minimisation is built into the database architecture, ensuring that only specific attributes required for necessary business purposes are collected and stored.

Guidance produced by the ICO instructs organisations to restrict personal data collection and storage to what is adequate, relevant, and limited. Restricting the data footprint significantly reduces ElectroSpares' risk profile and potential liability in the event of a security breach.

The logical design facilitates the right to erasure and right to access by implementing a data hierarchy, allowing for efficient retrieval or deletion of data in the event of a Subject Access Request (SAR) submission. Compliance with the ICO's accountability principle is met through the implementation of audit logs that track modifications made to data and access history. This ensures that the organisation can demonstrate compliance in the event of an audit (Information Commissioner's Office, 2024).

Additionally, the formation and integration of Role-Based Access Control (RBAC) provide an additional layer of protection as it ensures that only authorised users can view, modify, or delete data as appropriate. Figure 2 displays the different user roles which exist for the database, alongside read/write permissions and the data which can be viewed by each. By adhering to these standards, ElectroSpares' new database meets both the legal requirements of the UK's GDPR laws as well as technical best practices outlined in the ISO/IEC 27001 framework for information security management.



Figure 2 - user hierarchy and access control

Recommendations and Conclusion

This report details the successful design and construction of a relational database for ElectroSpares, which matches their requirements to have a database which can store customer, supplier, product, and employee data. The MySQL database that was built stores structured data and provides a high level of data availability, consistency when retrieving data across tables, and strong security measures with a low overall cost of ownership. NRDBMS options were considered, including

MongoDB, which presents several additional benefits associated with better scalability and storage of different data formats, significant for ElectroSpares' future growth and expansion objectives. The inclusion of a test case reinforces the strengths of MySQL when performing complex analysis across tables. Compliance with legal and regulatory laws, such as GDPR, is embedded in the database and its design, factoring in data security principles and strict user access control to minimise the risk of security breaches.

A critical priority for ElectroSpares should be to finalise the upload of data into the database before conducting advanced user training for all administrative staff, ensuring that they are equipped with the skills and technical ability to administer the database and perform data analysis. A significant, but lesser, priority is to begin planning for integration with a reporting/analytics tool in the future, such as Power BI, to produce self-service, automated dashboards.

References

Chen, W. (2023) 'Database Design and Implementation', *ATU Faculty OER Books and Materials* [Preprint]. Available at: https://orc.library.atu.edu/atu_oer/2.

Eyada, M.M. *et al.* (2020) 'Performance Evaluation of IoT Data Management Using MongoDB Versus MySQL Databases in Different Cloud Environments', *IEEE Access*, 8, pp. 110656–110668. Available at: <https://doi.org/10.1109/ACCESS.2020.3002164>.

General Data Protection Regulation (GDPR) (2016) Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data. Available at: <https://eur-lex.europa.eu/eli/reg/2016/679/oj> (Accessed: 19 January 2026).

Gupta, P., Mata-Toledo, R.A. and Monger, M.D. (2011) 'Database development life cycle', *JISOM*, 5, pp. 8–17.

Hassan, M.A. (2021) 'Relational and NoSQL Databases: The Appropriate Database Model Choice', in *2021 22nd International Arab Conference on Information Technology (ACIT)*. *2021 22nd International Arab Conference on Information Technology (ACIT)*, pp. 1–6. Available at: <https://doi.org/10.1109/ACIT53391.2021.9677042>.

Information Commissioner's Office (2024) *A guide to the data protection principles*.

Available at: <https://ico.org.uk/for-organisations/uk-gdpr-guidance-and-resources/data-protection-principles/> (Accessed: 19 January 2026).

Meghwar, H.K. and Meghji, A.F. (2025) 'An ACID-BASE Analysis of NoSQL Database Structuring Models for Efficient Data Management', *VAWKUM*

Transactions on Computer Sciences, 13(1), pp. 278–289. Available at:

<https://doi.org/10.21015/vtcs.v13i1.2167>.

MySQL :: HeatWave User Guide :: 1.2 MySQL HeatWave Features (no date).

Available at: <https://dev.mysql.com/doc/heatwave/en/mys-hw-silos.html> (Accessed: 16 January 2026).

Appendices

Appendix A – Database creation and data entry in MySQL

```
1  -- Create ElectroSpares database
2  • CREATE DATABASE IF NOT EXISTS electrospares_data;
3  • USE electrospares_data;
4
5  -- Create required tables, identifying entities, attributes, data types for each column, and primary and foreign keys
6  • CREATE TABLE customers(customer_ID INT,
7      company_name VARCHAR(100),
8      industry VARCHAR(100),
9      email VARCHAR(100),
10     comp_password VARCHAR(50),
11     phone_number VARCHAR(20),
12     billing_address VARCHAR(100),
13     shipping_address VARCHAR(100),
14     account_creation_date DATE,
15     account_modified_date DATE,
16     customer_tier VARCHAR(50),
17     PRIMARY KEY (customer_ID));
18
19 • CREATE TABLE suppliers(supplier_ID INT,
20     supplier_name VARCHAR(100),
21     industry VARCHAR(100),
22     contact_name VARCHAR(50),
23     contact_email VARCHAR(100),
24     contact_phone VARCHAR(20),
25     supplier_address VARCHAR(100),
26     PRIMARY KEY (supplier_ID));
27
28 • CREATE TABLE employees_system(employee_ID INT,
29     role VARCHAR(50),
30     employee_name VARCHAR(50),
31     employee_email VARCHAR(100),
32     emp_password VARCHAR(50),
33     last_login TIMESTAMP,
34     PRIMARY KEY (employee_ID));
35
36 • CREATE TABLE orders(order_ID INT,
37     total_price DECIMAL(10,2),
38     customer_ID INT,
39     order_date TIMESTAMP,
40     ship_date TIMESTAMP,
41     delivery_status ENUM('Not Yet Delivered', 'Delivered'),
42     PRIMARY KEY (order_ID),
43     FOREIGN KEY (customer_ID) REFERENCES customers(customer_ID));
44
45 • CREATE TABLE products(product_ID INT,
46     supplier_ID INT,
47     product_name VARCHAR(100),
48     category VARCHAR(50),
49     description TEXT,
50     price DECIMAL(10,2),
51     quantity INT,
52     PRIMARY KEY (product_ID),
53     FOREIGN KEY (supplier_ID) REFERENCES suppliers(supplier_ID));
54
55 • CREATE TABLE order_items(order_item_ID INT,
56     order_ID INT,
57     product_ID INT,
58     quantity INT,
59     unit_price DECIMAL(10,2),
60     PRIMARY KEY (order_item_ID),
61     CONSTRAINT FK_Order_Items_Order FOREIGN KEY (order_ID) REFERENCES orders(order_ID),
62     CONSTRAINT FK_Order_Items_Product FOREIGN KEY (product_ID) REFERENCES products(product_ID));
```

```

74 -- Inserting a sample of data into each table
75 • INSERT INTO customers(customer_ID, company_name, industry, email, comp_password, phone_number, billing_address, shipping_address, account_creation_date, account_modified_date, customer_tier) VALUES
76     (101, 'Zenith Holdings', 'Finance', 'zenithdigi@britishenterprises.org', 'DytIPYSJg', 0121270190, "14 Church Ln, London, L1 8QC", "115 Queensway, London, B1 5EG", '2020-04-20', '2022-09-17', 'Silver'),
77     (102, 'University of Allaban', 'Education', 'contact@allaban.co.uk', 'UKIP07313', 0141553459, "149 Park Rd, Edinburgh, L51 2EH", "52 Park Rd, Cardiff, CF10 1GH", '2022-10-18', '2024-05-18', 'Gold'),
78     (103, 'Albion Core Plc', 'Technology', 'albioncore@uk-tech.com', 'UKIP07193', 077651329037, "93 Queensway, London, L1 6HG", "124 High St, Liverpool, SW1A 7EA", '2021-03-23', '2023-01-28', 'Silver'),
79     (104, 'Kaptching Innovations Ltd', 'Technology', 'kaptching@ltdcorp.net', 'UKIP07637', 0141405607, "107 Victoria St, Glasgow, L1 9DE", "133 Church Ln, Birmingham, M1 1FA", '2022-12-07', '2024-09-02', 'Platinum'),
80     (105, 'Meridian Forge Ltd', 'Healthcare', 'meridian@forge.net', 'UKIP0455', 077207433728, "132 Church Ln, Glasgow, L1 1HP", "104 Victoria St, London, SW1A 5DC", '2020-05-11', '2021-02-12', 'Gold'),
81     (106, 'Sovereign Systems', 'Hospitality', 'sovereign@uk-tech.com', 'UKIP02384', 077530408713, "140 Old Mill Ln, Bristol, SW1A 9BH", "148 High St, Manchester, EHI 2FA", '2020-02-09', '2023-02-03', 'Bronze'),
82     (107, 'Lumina Digital', 'Technology', 'lumina@digital.co.uk', 'UKIP03398', 07739523230, "128 Old Mill Ln, London, M1 4CD", "143 The Avenue, Liverpool, B1 5CH", '2021-05-14', '2022-02-13', 'Platinum'),
83     (108, 'Solstice Tech Plc', 'Technology', 'sun@solsticetech.co.uk', 'UKIP06931', 02073932835, "104 High St, Liverpool, CF10 1GC", "133 Park Rd, Glasgow, M1 8FH", '2022-04-12', '2025-02-06', 'Gold'),
84     (109, 'Aegis Tech Holdings', 'Education', 'aegistech_9@ltdcorp.net', 'UKIP05860', 077002654275, "117 Park Rd, Liverpool, L1 6EE", "87 Church Ln, Edinburgh, CF10 3AH", '2020-09-24', '2023-02-27', 'Bronze'),
85     (110, 'Nova Labs', 'Retail', 'nova@labsgr_10@gmail.co.uk', 'UKIP09583', 077759292150, "44 Church Ln, Birmingham, B1 4CB", "32 Queensway, Leeds, LS1 3EA", '2020-11-20', '2023-05-08', 'Platinum');
86
87 • INSERT INTO suppliers(supplier_ID, supplier_name, industry, contact_name, contact_email, contact_phone, supplier_address) VALUES
88     (301, 'OfficeRite Ltd', 'Furniture', 'Lia Wills', 'liawills@officerite.co.uk', 07264636208, "14 Mill Common, Hertford, HE2 8PW"),
89     (302, 'ClockTox', 'Technology', 'Jackson Hodges', 'jackson.hodges@clocktox.com', 01846597221, "Unit 2 Melwyn Business Park, Middlesbrough, M83 6NW"),
90     (303, 'MockDo', 'Manufacturing', 'India Heelings', 'indiaheelings@mockdo.co.uk', 02085924146, "Unit 4 Lucy Road, London, RM9 1AA"),
91     (304, 'Nexus Modular Systems', 'Furniture', 'Alistair Vance', 'alistair.vance@nexusms.com', 01780782227, "1 Lexham Park, Moongate, Peterborough, PE1 5BC"),
92     (305, 'Voltcore Technologies', 'Technology', 'Julian Kloss', 'julian.kloss@voltcore.co.uk', 01277365578, "131-133 Jesmond Road, Newcastle, NE2 1JY"),
93     (306, 'Veridian Ergonomics', 'Furniture', 'Chloe Sinclair', 'chloe.sinclair@veridian.co.uk', 01733575867, "965 Lincoln Road, Peterborough, PE4 6AF");
94
95 • INSERT INTO employees_system(employee_ID, role, employee_name, employee_email, emp_password, last_login) VALUES
96     (101, 'Chief Executive Officer', 'Amanda van Maasakkar', 'a.vanmaasakkar@electrospar.es.com', 'Vx92!kLp88!', '2026-01-06 07:32:12'),
97     (102, 'Head of Procurement', 'Sarah Jenkins', 's.jenkins@electrospar.es.com', 'Prcure#2026', '2026-01-06 08:44:57'),
98     (103, 'Logistics Manager', 'Marcus Thorne', 'm.thorne@electrospar.es.com', 'ShipIt_Safe!', '2026-01-06 07:12:04'),
99     (104, 'Head of Marketing', 'Elena Moretti', 'e.moretti@electrospar.es.com', 'DesignFlow99', '2026-01-05 14:23:41'),
100     (105, 'IT Manager', 'Julianne Williams', 'j.williams@electrospar.es.com', 'SysAdmin442', '2026-01-06 10:04:22'),
101     (106, 'Sales Representative', 'Nadia Petrov', 'n.petrov@electrospar.es.com', 'SalesWin_22', '2026-01-06 11:58:33'),
102     (107, 'Warehouse Supervisor', 'David Okoro', 'd.okoro@electrospar.es.com', 'StockCheck#1', '2026-01-06 05:51:19'),
103     (108, 'Customer Success Lead', 'Samantha Wilson', 's.wilson@electrospar.es.com', 'HappyCust80!', '2026-01-05 16:47:02'),
104     (109, 'Chief People Officer', 'Sophia Chen', 's.chen@electrospar.es.com', 'PeopleFirst26', '2026-01-05 09:12:55'),
105     (110, 'Database Administrator', 'Samuel Kwok', 's.kwok@electrospar.es.com', 'SQLQuery_Pro', '2026-01-06 08:03:44'),
106     (111, 'Warehouse Operative', 'Jackson Meyer', 'j.meyer@electrospar.es.com', 'ForkLift_01', '2026-01-06 05:22:10'),
107     (112, 'Procurement Officer', 'Isabella Rossi', 'i.rossi@electrospar.es.com', 'BuyLow_SellHi', '2026-01-05 11:15:38'),
108     (113, 'IT Support Specialist', 'Ethan Wright', 'e.wright@electrospar.es.com', 'TechHelp_2026', '2026-01-06 09:44:11'),
109     (114, 'Marketing Specialist', 'Olivia Martinez', 'o.martinez@electrospar.es.com', 'BrandPower11', '2026-01-05 13:00:29'),
110     (115, 'Delivery Lead', 'Lucas de Groot', 'l.degroot@electrospar.es.com', 'OnTime_Every!', '2026-01-06 04:52:03'),
111     (116, 'Junior Accountant', 'Amara Okafor', 'a.okafor@electrospar.es.com', 'Balance_0092', '2026-01-06 00:59:47'),
112     (117, 'Warehouse Operative', 'Felix Mueller', 'f.mueller@electrospar.es.com', 'PackShip_44', '2026-01-06 05:01:25'),
113     (118, 'Sales Representative', 'Zara Hussain', 'z.hussain@electrospar.es.com', 'ClientCall_10', '2026-01-06 10:21:09'),
114     (119, 'Facilities Manager', 'Victor Hupp', 'v.hupp@electrospar.es.com', 'BuildSafe_202', '2026-01-04 17:03:55'),
115     (120, 'Product Designer', 'Maya Tanaka', 'm.tanaka@electrospar.es.com', 'Sketch_Idea77', '2026-01-05 15:32:10'),
116     (121, 'Customer Service Agent', 'Ingrid Bergman', 'i.bergman@electrospar.es.com', 'SolveIt_Fast!', '2026-01-06 09:11:44'),
117     (122, 'Senior Sales Manager', 'Leo Vance', 'l.vance@electrospar.es.com', 'TargetHit_20', '2026-01-06 00:02:01'),
118     (123, 'Inventory Controller', 'Maria Garcia', 'm.garcia@electrospar.es.com', 'Counted_Perfect', '2026-01-06 07:18:36'),
119     (124, 'Security Lead', 'Arthur Shelby', 'a.shelby@electrospar.es.com', 'Garrison_Sect', '2026-01-06 00:06:12'),
120     (125, 'Junior Sales Executive', 'Tariq Ali', 't.ali@electrospar.es.com', 'FreshStart_20', '2026-01-06 09:33:29'),
121     (126, 'Chief Financial Officer', 'Beatrice Thorne', 'b.thorne@electrospar.es.com', 'GoldStd_88!', '2026-01-06 00:04:15'),
122     (127, 'Sales Associate', 'Liam O Connor', 'l.oconnor@electrospar.es.com', 'GreenField20', '2026-01-06 10:45:22'),
123     (128, 'Data Analyst', 'Hiroshi Tanaka', 'h.tanaka@electrospar.es.com', 'QueryKing_99', '2026-01-06 00:58:03'),
124     (129, 'Receptionist', 'Simone Dubois', 's.dubois@electrospar.es.com', 'FrontDesk_11', '2026-01-06 08:12:44'),
125     (130, 'Warehouse Operative', 'George Miller', 'g.miller@electrospar.es.com', 'HeavyLift_42', '2026-01-06 06:21:09'),
126     (131, 'HR Assistant', 'Clara Oswald', 'c.oswald@electrospar.es.com', 'TimeSpace_26', '2026-01-05 16:55:12'),
127     (132, 'Procurement Specialist', 'Benjamin Hart', 'b.hart@electrospar.es.com', 'BuyRight_202', '2026-01-06 09:18:37'),
128     (133, 'IT Technician', 'Aisha Khan', 'a.khan@electrospar.es.com', 'Reset_12345', '2026-01-06 13:02:11'),
129     (134, 'Project Manager', 'Robert Chase', 'r.chase@electrospar.es.com', 'Timeline_Pro', '2026-01-06 11:13:24'),
130     (135, 'Legal Counsel', 'Fiona Gallagher', 'f.gallagher@electrospar.es.com', 'LawOrder_007', '2026-01-05 15:40:05'),
131     (136, 'Quality Control Specialist', 'Hans Schmidt', 'h.schmidt@electrospar.es.com', 'CheckList_55', '2026-01-06 07:33:51'),
132     (137, 'Sales Representative', 'Monica Beltran', 'm.beltran@electrospar.es.com', 'ClosingDeal1', '2026-01-06 12:22:40'),
133     (138, 'Social Media Manager', 'Toby Ziegler', 't.ziegler@electrospar.es.com', 'CommStrat_20', '2026-01-06 00:47:02'),
134     (139, 'Fleet Coordinator', 'Rajesh Gupta', 'r.gupta@electrospar.es.com', 'VanRoute_991', '2026-01-06 05:00:14'),
135     (140, 'Senior Developer', 'Linus Sterling', 'l.sterling@electrospar.es.com', 'Kernel_Mode0', '2026-01-06 14:15:33');

```

Appendix B – Testing of database and example analysis

```

1  -- Query to determine high value orders for targeted marketing activities
2  •  SELECT
3      c.company_name AS "Company",
4      c.email AS "Contact Email Address",
5      c.customer_tier AS "Tier",
6      o.order_id AS "Order ID",
7      o.order_date AS "Order Date",
8      o.total_price AS "Order Value"
9  FROM orders o
10 JOIN customers c ON o.customer_id = c.customer_id
11 WHERE o.total_price >= 10000 -- filters results by price
12
13

```

0% 1:15 1 error found

Result Grid Filter Rows: Search Export:

Company	Contact Email Address	Tier	Order ID	Order Date	Order Value	
Albion Core Plc	albioncore@uk-tech.com	Silver	5053	2025-11-27 13:04:12	72089.50	
Albion Core Plc	albioncore@uk-tech.com	Silver	5063	2025-12-02 09:12:44	13251.67	
Kaptching Innovations Ltd	kaptching@ltdcorp.net	Platinum	5034	2025-11-17 13:12:44	15028.00	
Kaptching Innovations Ltd	kaptching@ltdcorp.net	Platinum	5044	2025-11-22 16:33:21	71188.90	
Meridian Forge Ltd	meridian@forge.net	Gold	5065	2025-12-03 10:44:55	12177.99	
Lumina Digital	lumina@digital.co.uk	Platinum	5077	2025-12-09 11:04:55	15008.61	
Solstice Tech Plc	sun@solsticetech.co.uk	Gold	5098	2025-12-19 13:12:44	59266.71	