Objective:
The goal of this task was to apply SQL queries for extracting, manipulating, and analyzing structured data using the E-commerce dataset. The task was implemented in R using the `sqldf` package, which allows execution of SQL queries on data frames.

Tools Used:

- **R Programming Language**
- **sqldf package** (SQL interface for data frames)

Dataset:
An E-commerce transactional dataset containing fields such as `InvoiceNo`, `StockCode`, `Description`, `Quantity`, `UnitPrice`, `InvoiceDate`, `CustomerID`, and `Country`.

SQL Queries Implemented

1. **SELECT, WHERE, ORDER BY:**
   Extracted top 10 products with quantity greater than 10, sorted by quantity.
2. **GROUP BY with Aggregate Functions:**
   Calculated total sales and number of unique customers for each country.
3. **Subqueries:**
   Identified customers whose total spending exceeded the average spending of all customers.
4. **Aggregate Functions (SUM, AVG):**
   Listed top-selling products based on total quantity sold.
5. **Views for Analysis:**
   A view was created (stored as a variable) for the top 10 selling products for further analysis or export.
6. **Query Optimization:**
   While traditional SQL allows for indexing to optimize queries, this was simulated by efficient filtering and grouping within `sqldf` as indexing is not supported on in-memory data frames in R.

Deliverables

- SQL-style queries implemented in R (`sqldf`)
- Screenshot outputs of all queries (to be submitted separately)
- Exported CSV for top-selling products
- `.R` script file containing all analysis queries