Task: Crystal Reports Development

Role: Software Developer
Environment: C# (.NET Framework 4.8.1), Crystal Reports, SQL Server, ADO.NET (XML Dataset / XSD)

Task Overview:

Developed and customized **Crystal Reports** for various production and inventory modules to enhance report presentation, accuracy, and performance.

Key Responsibilities:

- Designed **parameterized and dynamic Crystal Reports** for production summaries, material tracking, and audit logs.
- Integrated Crystal Reports with **C# WinForms** applications for real-time report generation.
- Created and used **ADO.NET XSD (XML Dataset) files** as the data source to provide a stable and flexible connection between Crystal Reports and both development & live SQL Server databases.
- Used **SQL queries and stored procedures** as the backend data providers for optimized report performance.
- Enhanced report layouts with **grouping, conditional formatting, calculated fields**, and unified formatting standards.

Key Achievements:

- Improved data visibility and reduced manual reporting time for production and inventory teams.
- Delivered **consistent, professional, and data-driven reports** widely used in shop-floor and management dashboards.

Task: Barcode and QR Code Integration

Role: Software Developer
Environment: C# (.NET Framework 4.8.1), Bartender Software, PRN Files, Crystal Reports, SQL Server, ZXing.NET, ADO.NET XSD Dataset

Task Overview:

Implemented QR code generation and printing solutions to support product identification, production tracking, and dispatch workflows by integrating Bartender (PRN templates), ZXing QR generation, and Crystal Reports.

Key Responsibilities:

- **Designed and automated PRN (Printer Command) files** for QR label printing using Bartender software.
- **Integrated C# WinForms applications** with the Bartender Print Engine to generate QR labels on-demand during production and dispatch.
- **Linked SQL Server data** to Bartender templates to ensure accurate and consistent QR label printing.
- **Implemented QR code generation for Crystal Reports** using the **ZXing.NET** library.
- **Generated QR images as** byte[] **(System.Byte[])** and bound them to Crystal Reports through an **ADO.NET XSD dataset**.

- **Developed a console application** in the existing solution to generate QR bitmaps and populate the XSD dataset for Crystal Reports.
- **Validated all printed QR labels** for scanner readability, layout accuracy, and shop-floor workflow requirements.

Key Achievements:

- Improved traceability and reduced manual labeling errors across production and dispatch processes.
- Automated label printing workflows, significantly improving speed and consistency on the shop floor.
- Delivered a unified solution supporting both **Bartender-based printing (PRN)** and **Crystal Report QR code integration**.

Additional Technical Implementation: XML-Based Batch Processing

Key Responsibilities (Add These Under Any Suitable Project):

- Performed **R&D on XML-based data transfer** between C# applications and SQL Server to optimize performance.
- Developed logic in C# to **generate XML documents dynamically** and pass them as parameters to stored procedures.
- Implemented SQL stored procedures to **parse XML input and perform Insert/Update/Delete operations in a single execution**, reducing multiple database calls.
- Improved application performance by **minimizing database round-trips** and enabling bulk data processing.
- Ensured data integrity through **schema validation, error handling, and transaction control** within SQL Server.

Achievement (1-line option):

- Reduced database load and improved processing speed by implementing **XML-based batch operations** instead of multiple individual SQL queries.

□ Short Version (If you want it in bullet form)

- Developed XML-based batch operations in C# and SQL Server to insert/update/delete multiple records in one stored procedure call, significantly reducing database trips.
- Implemented XML generation in C# and XML parsing logic in SQL Server using `nodes()` and `value()` methods.
- Improved performance and ensured data consistency through transactional XML processing.