**Scotia Runners Scenario**

Scotia runners serve the running / jogging community in Glasgow via their warehouse, adjacent retail outlet and their new mail order business.

The mail order business is relatively new and is currently conducted over the telephone with customers ordering from the catalogue or by the order form (detachable from catalogue) being completed and posted along with a cheque or details of their credit/debit cards.

The catalogue is sent out to customers on request (possibly as the result of an advertisement in a running magazine) or picked up at an event.

The new mail order system shows good retail potential, but it does tie up shop staff and is limited to shop opening hours.

The owner, Ms A Tupper, is keen to explore the e-commerce possibilities of the business. Before this can take place, they require a new information system which completely automates the current sales and stock control operations. The current system is a simple graphical front end through which shop staff log into a relational database. The current system will not be able to cope with many more new customers and new ranges of stock items, especially if the mail order system goes online. The current system was developed by one of their Saturday workers (a student studying HND software Development). They would like to retain the database from their current stock system.

Ms Tupper would like you to design, implement, test and provide training for this new information system.

Ms Tupper would like the system up and running in 6 months’ time.

There is no more money in the budget for software, though money might be made available for hardware if appropriate.

Scotia offer 3 types of product – running footwear, clothing (vests, shorts, leggings, tracksuits, high vis jackets etc) and accessories (watches, heart rate monitors, sat nav, running backpacks etc). Sales assistants aid customers, either in the shop or over the telephone, with any queries they might have regarding price and specification.

**Current System (this information has been taken from interviews with various staff members and management)**

When an order is received, the customer is asked if they are a returning customer. This is a time saving measure. If the customer is already on the database, the sales assistant requests the customer’s postcode to validate their details. The sales assistant then checks the availability of each item, adding the item and the quantity required to the order form. Occasionally an item can be out of stock and there is a separate routine for this event – the member of staff (all experienced runners) can suggest an alternative that is in stock or check to see if the item required has already been ordered from their supplier and when it will be in. If not on order from the supplier, the manager is informed (who then informs the stock controller) so that more stock can be ordered in.

On completion, the customer is quoted the total order price. Customers who are members of the Scottish Athletics Federation (SAF) qualify for a 10% discount by quoting their SAF membership.

Mail order customers are then asked which delivery option they prefer and the delivery charge is added. Bulky items such as footwear are sent via Parcel Force who deliver between 9 am and 5pm on weekdays. It is therefore helpful if the customer can give an address where delivery is guaranteed (e.g customer’s place of work). Customers can have a maximum of 3 delivery addresses. For orders over £100, Scotia Runners will try to deliver between 3 to 5 working days. It is fairly unusual for customers to request next day delivery, but it is an option and as long as the order is received by 4pm they will arrange next day delivery at an added cost.

The customer is then quoted the final price of the order (including delivery) and if this acceptable, the transaction is completed, and the stock records are decremented accordingly. A copy of the order is placed in the pending orders tray to be uplifted by the warehouse operatives for packing and delivery. The order copy is packed along with the goods and a returns slip is included in case of any problems with the items.

The warehouse operatives also deal with returned items. If an item is returned, the customer is either sent out the correct item (e.g. if wrong size has been sent), sent an alternative (e.g. if item was not suitable) or sent a credit slip to be used against future purchases. The returned item is inspected to ascertain if it is re-sellable and if so, the stock records are adjusted accordingly.

The stock controller’s job is to order stock from suppliers according to demand and to make sure that the stock levels are updated when new stock arrives.

The Sales Manager has two main roles. A stock report is automatically generated on the last Friday of every month and it is his job to check for buying trends. Based on this, he can make decisions whether to try and shift slow moving stock by changing the pricing policy on certain goods. He is also responsible for organising promotions based on discounts offered by suppliers.

**Exercise:**

Have a think about a possible requirements specification solution in regard to the following:

**Project Interpretation (What do you think you have been asked to do?)**

The task is to design, implement, test, and provide training for a new information system to automate the sales and stock control operations at Scotia Runners. The current system is outdated and cannot handle the growing demands of the business, especially with the new e-commerce initiative. The new system must integrate with the existing database, streamline mail-order processes, automate inventory management, and enable online sales.

**Background (information about the company)**

Scotia Runners serves the running and jogging community in Glasgow, with products ranging from running footwear to apparel and accessories. The company operates both a physical retail outlet and a mail order business. The mail order business is currently limited to phone-based orders but has the potential for growth via e-commerce. The company aims to modernize its operations to accommodate an increasing number of customers, streamline sales, and integrate online capabilities into its existing structure.

**Approach (what approach will you take i.e., Waterfall / Agile etc.)**

**Waterfall Approach**: The project will be managed using the waterfall methodology. Given the complexity of automating sales and stock control, and the fact that a new system needs to be up and running in 6 months, the waterfall approach will provide a structured timeline. Requirements are well-defined at the outset, and the project progresses through clear stages:

1. Requirements gathering
2. Design and development
3. Testing
4. Training and implementation

Alternatively, if requirements are expected to evolve significantly, the **Agile** approach could also be considered to allow more iterative development and continuous stakeholder feedback, but this would need more time.

**Summary (Information Gathering)**

Information was gathered through interviews with staff and management. The main concerns highlighted were:

* The existing system is inefficient and limited in capacity.
* Manual processes, especially regarding stock control and order handling, create bottlenecks.
* A lack of integration between the retail and mail-order operations.
* Potential for growth through online sales, but a need for a more robust backend system.
* The desire to retain the existing stock database for continuity.

**Problems with current system?**

* **Limited scalability**: The current system, developed by a student, cannot handle more customers, products, or sales.
* **Manual processes**: Many aspects of order processing (e.g., stock availability, order creation, delivery management) are still handled manually, leading to inefficiencies and the possibility of human error.
* **Inventory management**: The stock control system is not fully automated, making it difficult to track stock in real time, especially with mail order and retail sales operating independently.
* **Customer experience**: The current system doesn’t support e-commerce, limiting customer reach and convenience.
* **Lack of automation in reporting**: The Sales Manager’s role in generating stock reports manually is time-consuming.
* Requirements (functional / non-functional)

**Functional Requirements:**

1. **Customer Management**: A system to store customer details (new and returning), including SAF membership information.
2. **Order Processing**: Ability to manage orders, validate customer details, track stock availability, calculate total prices (including discounts), and handle delivery options.
3. **Inventory Management**: Automated updates for stock levels based on sales and returns, integration with suppliers for reordering stock.
4. **Returns Handling**: A process for managing returned items, issuing credits, or sending replacements.
5. **Reporting**: Automated reports for the sales manager on stock levels, trends, and performance.
6. **E-commerce Integration**: A fully integrated online shopping platform to allow customers to place orders and browse products 24/7.
7. **Delivery Management**: Integration with delivery services (e.g., Parcel Force) for accurate shipping charges and tracking.
8. **Discount Management**: Handling of discount policies such as the SAF membership discount.
9. **Payment Gateway**: Secure payment handling for card transactions, including credit/debit card processing and cheque options.

**Non-Functional Requirements:**

1. **Performance**: The system should handle an increasing number of customers and products without performance degradation.
2. **Scalability**: Ability to scale as the business grows, especially regarding the e-commerce side.
3. **Security**: Protection of sensitive customer information (e.g., payment details, addresses).
4. **Usability**: Easy to use for staff and customers, with a user-friendly interface.
5. **Availability**: The system must be available for customers 24/7 for online sales.

**Constraints (hardware / software / Time / Costs)**

* **Hardware**: Limited budget for hardware upgrades, though necessary infrastructure (e.g., server space, internet connectivity) for e-commerce will need to be considered.
* **Software**: The system must integrate with the existing relational database, so it cannot be completely rebuilt from scratch. The budget limits the choice of third-party software and tools.
* **Time**: The system needs to be operational within 6 months, which is a tight deadline.
* **Costs**: The project is limited in budget, with no additional funding for software, though some hardware costs may be considered if necessary.

**Recommendations (What solution do you propose?)**

* **Integrated Database**: Retain and integrate the existing stock database, upgrading it to support the e-commerce platform.
* **Automated Inventory Management**: Implement a real-time inventory management system to handle stock updates, order processing, and supplier integration.
* **Online Store**: Build a fully-functional e-commerce website to allow customers to browse products, place orders, and track deliveries.
* **Order and Payment Automation**: Integrate automated order processing, payment handling, and delivery options into the system.
* **Cloud Hosting**: Use cloud services to host the new e-commerce platform, ensuring scalability and reducing initial hardware costs.
* **Employee Training**: Provide comprehensive training for all staff to ensure smooth adoption of the new system.

**Limitations (Is there anything the new system will not include?)**

* **Mobile App**: The system will not include a dedicated mobile app at this stage, although the website will be mobile-friendly.
* **Advanced Customer Analytics**: While basic customer data and order histories will be available, advanced analytics for personalized marketing will not be implemented initially due to budget constraints.
* **Next-Day Delivery**: The system will support various delivery options, but implementing a guaranteed next-day delivery system may be outside the scope initially.