
# Advanced Software Engineering Laboratory CS6471

## LAB-03 Software Requirements Specification

### Motor Part Shop Software (MPSS)

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# 1 Introduction

## 1.1 Purpose

The purpose of this Software Requirements Specification (SRS) document is to define the requirements for the development of the Motor Part Shop Software (MPSS). This software will assist a small automobile spare parts shop in managing its inventory, sales, and supply ordering processes efficiently.

## 1.2 Scope

The MPSS aims to streamline the operations of a motor parts shop that deals with a wide range of spare parts from various manufacturers and for different vehicle types. It will help the shop owner maintain optimal inventory levels by calculating threshold values for reordering based on sales data. The software will also generate daily order lists for vendors, track daily revenue, and provide monthly sales reports in graphical form.

## 1.3 Environmental Characteristics

The MPSS will operate in a typical retail environment within a small automobile spare parts shop. It will run on standard desktop computers and will require a reliable local network connection for client server communication.

## 1.4 Definitions

- MPSS: Motor Parts Shop Software
- JIT: Just In Time is philosophy of inventory management where items are ordered and received as they are needed, minimizing excess inventory.

## 1.5 Overview of Developer's Responsibilities

The development team is responsible for designing, developing, testing, and deploying the MPSS software. Additionally, they will provide training and support to the shop owner and staff during and after implementation.

# 2 General Description

## 2.1 Product Perspective

The MPSS is a standalone software application designed exclusively for the motor parts shop. It will not integrate with any external systems or databases.

## 2.2 Product Functions Overview

The primary functions of the MPSS include:

- Authentication and Authorization: User will be able to login into system via Username and Password.
- Inventory management: Tracking spare parts, their quantities, and locations.
- Threshold calculation: Automatically calculating reorder points based on weekly sales averages.
- Order generation: Daily generation of vendor orders with part numbers, quantities, and vendor addresses.
- Daily revenue tracking: Recording daily sales and generating monthly sales graphs.

## 2.3 User Characteristics

Users of the MPSS include the shop owner, shop employees, and vendors. These users may have varying levels of computer literacy, so the software should be user-friendly and require minimal training.

## 2.4 Operating Environment

The MPSS will operate on standard desktop computers modern or mobile phone with support for web browsing. It will not require an internet connection as the software will be deployed on local network.

## 2.5 General Constraints

- The shop owner wants to maintain parts to be able to sustain selling for about one week.
- The software should be developed within a specified budget and timeline.
- The software must be compatible with the hardware and software available at the shop.

# 3 Functional Requirements

## 3.1 Login

### 3.1.1 Introduction

A successful login will be required for user to access the software and work with it.

### 3.1.2 Inputs

User will have to provide correct username and password.

### 3.1.3 Processing

The system will check the provided username and password with the pre-saved credentials in database.

### 3.1.4 Output

Depending upon the verification of username and password user will be allowed to access further parts of the software or restricted from doing so.

## 3.2 Sales Tracking

### 3.2.1 Introduction

The MPSS software will track selling of individual parts via sales entries or sales receipts. It will store information related to selling statistics for each part on daily basis which will be used for calculating weekly average and threshold for each part which will help up follow existing JIT methodology.

### 3.2.2 Inputs

Part Number, Quantity and date of sale will be provided by user so system can create a digital record of sell.

### 3.2.3 Processing

The software will process the sales order and reduce the available inventory by quantity for each individual part.

### 3.2.4 Output

User will be provided with a choice to print the sales order otherwise no outputs will be generated.

## 3.3 Adding/Modifying part information

### 3.3.1 Introduction

User should be able to add or modify a product in the system so that sales tracking and purchase order geeneration can be done for part in future.

### 3.3.2 Inputs

User will have to provide part number, name, cost, selling price, vendor name, vendor contact, vendor address to save the product information.

### 3.3.3 Processing

The system will save the new product information in database.

## 3.4 Adding/Modifying part information

### 3.4.1 Introduction

User should be able to add or modify a product in the system so that sales tracking and purchase order geeneration can be done for part in future.

### 3.4.2 Inputs

User will have to provide part number, name, cost, selling price, vendor name, vendor contact, vendor address to save the product information.

### 3.4.3 Processing

The system will save the new product information in database.

## 3.5 Search part

### 3.5.1 Introduction

User should be able to search for certain part with part number, part name or vendor name.

### 3.5.2 Inputs

User will input part number, part name or vendor name as input.

### 3.5.3 Processing

The system will check for part with provided criteria.

### 3.5.4 Outputs

The system will generate part information page which will list product information like part name, number and vendor info along with sales graphs for past week and sales trends for current month.

## 3.6 Generate Purchase Order

### 3.6.1 Introduction

User should be able generate purchase order via this functionality on daily basis.

### 3.6.2 Inputs

User will generate purchase order at the end of the day.

### 3.6.3 Processing

The system will check for all the parts which have quantity below threshold for that part.

### 3.6.4 Outputs

A purchase order document will be generated which will list all the parts that must be ordered today along with quantity and vendor information such as name, contact and address.

## 3.7 Daily and Monthly revenue report.

### 3.7.1 Introduction

User should be able generate revenue report with this functionality for particular day or month.

### 3.7.2 Inputs

User will select day or month for which they want to generate revenue report.

### 3.7.3 Processing

The system will process all sales order data for given date or month and aggregate them part wise to generate revenue report.

### 3.7.4 Outputs

A Revenue report for that day or month will be generated.

# 4 External Interface Requirements

## 4.1 User Interfaces

A minimal, neat and simple user interface will be required as the software will be used by non technical users. The user should be able to use software on daily basis after initial training of user interface. To access the user interface and core functionality user will have to login into the system.

## 4.2 Hardware Interfaces

No other hardware will be needed as the complete software will be hosted on single server including database.

## 4.3 Software Interfaces

The system will not use any software and will be a complete package without external software dependency.

## 4.4 Communication Interfaces

The system will be deployed in local network and will not require internet connection, it will run on http protocol as a web page.

# 5 Non Functional Requirements

## 5.1 Maintainability Requirement

The software must be robust enough to require as lesser maintenance as possible. Given a glitch in the software, the administrators must be capable enough to sort out the bug quickly to prevent delay in the shop's functionality.

## 5.2 Portability Requirements

The software should be able to be deployed in any machine.

## 5.3 Performance Requirements

The software must be developed using an object oriented model. The performance of every existing module in this software must be robust. This software should be able to run on various operating systems steadily as it as been specified before. Overall the performance of the software must be reliable and the data kept must be safe in case of a power failure.

## 5.4 Safety Requirements

Passwords must be kept different from the student id's for safety purpose. A mail must be provided for emergency queries regarding the software, so that the software can be used without concerns. The mail must be replied by the admins of the software for quick responses.

# 6 Design Constraints

## 6.1 Standards Compliance

The software should comply with data protection law and should refrain unauthorized access. It should not implement neither depend on illegal software or functionalities.

## 6.2 Hardware Limitations

A server machine will be needed to deploy the system in local network. The minimum hardware limitations are as below:

- Single core 2GHz Processor
- 2GB RAM
- 2GB of disk space
- support for server nginx

Below will be required for user to access the software

- Modern browser with support for ES 2015 and later.
- The device should be connected to local network of shop.

# 7 Future Scope

The system can be further enhanced via incorporating the sales tracking per time of the year, for example the vehicle failure rate is high in monsoon so during that time period the threshold should be high compare to previous months. It can be done via retaining the sales order of previous year and considering them while calculating threshold.