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| **Proposal for Full Stack Solution**  **Moayad Hamdan** |
|  | **To: Dern-Support** |  |
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Contents

[Business Context and Problem Summary 3](#_Toc177054076)

[Business Context: 3](#_Toc177054077)

[Summary of the Problem: 3](#_Toc177054078)

[Description of the Proposed Solution 3](#_Toc177054079)

[Customer Account Management: 3](#_Toc177054080)

[A. Account Creation and Login: 3](#_Toc177054081)

[B. User Profiles: 4](#_Toc177054082)

[Support Request and Scheduling: 4](#_Toc177054083)

[Knowledge Base: 4](#_Toc177054084)

[Spare Parts Inventory Management: 4](#_Toc177054085)

[Spare Parts Inventory Management: 5](#_Toc177054086)

[Inventory Tracking and Management: 5](#_Toc177054087)

[Job Scheduling and Prioritization: 5](#_Toc177054088)

[Job Management: 5](#_Toc177054089)

[Data Analytics: 5](#_Toc177054090)

[Functional and Non-Functional Requirements 5](#_Toc177054091)

[Functional Requirements: 5](#_Toc177054092)

[Non-Functional Requirements: 6](#_Toc177054093)

[Key Performance Indicators (KPIs) 6](#_Toc177054094)

[Operational Efficiency: 6](#_Toc177054095)

[System Performance: 6](#_Toc177054096)

[Inventory Management: 6](#_Toc177054097)

[Risks and Implications of the Proposed Solution 7](#_Toc177054098)

[Risks: 7](#_Toc177054099)

[Implications: 7](#_Toc177054100)

[Proposal Review and Approval Process 8](#_Toc177054101)

# Business Context and Problem Summary

## Business Context:

Dern-Support is a small but growing IT support company specializing in computer repairs for both businesses and individuals. They provide on-site support for business clients, while individual customers must drop off their computers at one of Dern-Support’s offices or arrange for courier delivery. As the company expands, there is a need for a more efficient system to manage operations and customer interactions effectively.

## **Summary of the Problem:**

Currently, Dern-Support lacks an integrated system for managing customer accounts, support requests, scheduling, inventory, and data analysis. This leads to inefficiencies, longer response times, and disjointed processes. There is also a lack of tools for management to analyze data trends and make informed decisions. To support growth and improve customer satisfaction, Dern-Support requires a comprehensive software solution.

# Description of the Proposed Solution

The proposed solution is a full-stack web application designed to address the identified challenges and meet Dern-Support’s operational requirements. The solution includes the following key features:

## ****Customer Account Management:****

### Account Creation and Login:

1. Users can create accounts as either individual or business users.
2. Business accounts support multiple users under a single account.
3. Both types of accounts have login capabilities.

### User Profiles:

Individual users and Business accounts can track their repair requests and service history

## **Support Request and Scheduling:**

1. **Support Request Submission:**
2. Users can submit support requests via a user-friendly web interface.
3. They can provide a title, description, and view the status of their requests.
4. **Scheduling Repairs:** Users can view available services, costs, and schedule repair appointments for specific dates.

## **Knowledge Base:**

1. **Diagnostic Tools:** Users have access to diagnostic tools for identifying common IT issues.
2. **Instructional Guides:** Offers step-by-step guides for resolving minor issues and frequently asked questions.

## **Spare Parts Inventory Management:**

1. **Inventory Search:** Search functionality to find details about spare parts in stock.
2. **Inventory Tracking:** Real-time tracking of inventory levels, with alerts for low stock and automated reordering.
3. **Inventory Editing:** Include Save and Delete options for managing spare parts inventory to optimize resource utilization.
4. **Real-Time Tracking:** Track inventory levels in real-time with alerts for low stock and automated reorder suggestions.

## Spare Parts Inventory Management:

### Inventory Tracking and Management:

1. Admins can view and manage spare parts inventory.
2. Includes functionalities to search for parts, edit details, and track inventory levels with real-time updates and alerts.

## **Job **Scheduling** and Prioritization:**

### Job Management**:**

1. Admins can manage daily repair jobs, optimizing technician availability and workload.
2. Includes prioritization of urgent repair requests

## **Data Analytics:**

1. **Trend and Performance Analysis:** Provides analytics for identifying common issues, tracking repair times, and monitoring customer satisfaction.
2. **Management Dashboard:** A comprehensive dashboard for real-time analytics and decision-making.
3. **Geographical Insights** **Geographical Insights and Predictive Analytics:** Maps business support jobs and forecasts potential issues based on historical data.

# Functional and Non-Functional Requirements

## **Functional Requirements:**

1. **Support Request Management:** Submission, tracking, and updating of support requests.
2. **Knowledge Base:** Diagnostic tools and instructional guides.
3. **Inventory Management:** Real-time tracking, searching, and editing of inventory.
4. **Job Management:** Scheduling and prioritization of repair jobs.
5. **Real-time spare parts** inventory management.
6. **Data Analytics:** Real-time analytics and reporting dashboard.

## **Non-Functional Requirements:**

1. **Scalability:** Support growth in users and data.
2. **Performance:** Response times under 2 seconds for key operations.
3. **Usability:** User-friendly interfaces designed for ease of use.
4. **Reliability:** Target uptime of 99.9% and robust disaster recovery.

# Key Performance Indicators (KPIs)

## **Operational Efficiency:**

1. **Resolution Time:** Measure the average time taken to resolve support requests.
2. **Daily Requests:** Track the number of support requests handled daily.

## **System Performance:**

1. **Response Time:** Monitor the average response time for key user interactions, aiming for under 2 seconds.
2. **Uptime:** Track system uptime with a target of 99.9% availability.

## **Inventory Management:**

1. **Accuracy:** Measure the accuracy of inventory records by comparing system data with physical counts.
2. **Restocking Time:** Track the time taken to reorder and restock parts.

# Risks and Implications of the Proposed Solution

## **Risks:**

1. **System Downtime:** Mitigation with backup and disaster recovery plans. Mitigation: Robust backup and disaster recovery plans.
2. **Data Integrity:** Regular backups and integrity checks.

Mitigation: Regular data backups and integrity checks.

1. **User Adoption:** Mitigation with training and support.

Mitigation: Comprehensive training and user support.

1. **Budget Overruns:** Mitigation with detailed planning and contingency budgeting.

## **Implications:**

1. **Positive Implications:**
2. **Better Decision-Making:** Data-driven insights for better management decisions.
3. **Negative Implications:**
4. **Initial Costs:** Development and deployment costs, including potential training expenses.
5. **Maintenance Requirements:** Ongoing maintenance and support.
6. **Change Management:** Potential disruption during the transition to the new system, requiring careful change management.

# Proposal Review and Approval Process













