

Martin Cleaners  
Database Management System

*Mavs*

*Christopher Kozeny*

­

*Erik Eiler*

­

*John Manzo*

­

*Joe Cremeens*

­

*Shafiq Jahish*

­

May 15, 2019

University of Nebraska at Omaha

Table of Contents

[Milestone 1 3](#_Toc10383087)

[Roles and Responsibilities Matrix 5](#_Toc10383088)

[Milestone Change Log 8](#_Toc10383089)

[Client Documents 10](#_Toc10383090)

[Opening Statement 10](#_Toc10383091)

[Executive Summary 10](#_Toc10383092)

[Implications for the Client 12](#_Toc10383093)

[Items for Approval 12](#_Toc10383094)

[System Service Request (SSR) 13](#_Toc10383095)

[Stakeholder Register 16](file:///C:\Users\jecre\Desktop\ISQA%204110\Milestone%203\Stuff\Mavs_M3_RDoc_v1.0.docx#_Toc10383096)

[Project Charter 17](#_Toc10383097)

[Issue Log 27](#_Toc10383098)

[Milestone 2 28](#_Toc10383099)

[Roles and Responsibilities Matrix 30](#_Toc10383101)

[Milestone Change Log 32](#_Toc10383102)

[Client Documents 33](#_Toc10383104)

[Opening Statement 33](#_Toc10383105)

[Executive Summary 33](#_Toc10383106)

[Implications for the Client 35](#_Toc10383107)

[Items for Approval 35](#_Toc10383108)

[Mavs 36](#_Toc10383109)

[Statement of Project Scope 36](#_Toc10383110)

[Mavs 38](#_Toc10383111)

[Statement of Work 38](#_Toc10383112)

[Issue Log 43](#_Toc10383113)

[Milestone 3 44](#M3)

[Roles and Responsibilities Matrix 46](#RRM)

[Milestone Change Log 48](#CL)

[Client Documents 49](#CD)

[Opening Statement 49](#CD)

[Executive Summary 49](#CD)

[Implications for the Client 52](#CDP2)

[Items for Approval 52](#CDP2)

[Information security risk analysis 53](#ISRA)

[Baseline Project Plan 55](#BPP)

[risk Register 65](#RR)

[Requirements Documentation 68](#RD)

[Issue Log 69](#IL)

[Milestone 4 71](#M3)

[Roles and Responsibilities Matrix 73](#RRM)

[Milestone Change Log 76](#CL)

[Client Documents 78](#CD)

[Opening Statement 78](#CD)

[Executive Summary 78](#CD)

[Implications for the Client 80](#CDP2)

[Items for Approval 80](#CDP2)

[data dictionary documentation 82](#ISRA)

[context Level 82](#ISRA)

[Level 0 88](#ISRA)

[Level 1 112](#ISRA)

[Issue Log 125](#IL)



# Milestone 1

**Milestone Manager – Christopher Kozeny**

May 13, 2019 – May 18, 2019

**Milestone 1**

**Table of Contents**

[Roles and Responsibilities Matrix 5](#_Toc9061868)

[Milestone Change Log 8](#_Toc9061869)

[Client Documents 10](#_Toc9061870)

[**Opening Statement 10**](#_Toc9061871)

[**Executive Summary 10**](#_Toc9061872)

[**Implications for the Client 12**](#_Toc9061873)

[**Items for Approval 1**](#_Toc9061874)**2**

[System Service Request (SSR) 1](#_Toc9061875)3

[Stakeholder Register 1](file:////Users/ckozeny/Documents/Info%20Systems%20Analysis/Mavs_MS1_RDoc_v1.5.docx#_Toc9061876)6

[Project Charter 1](#_Toc9061877)7

[Issue Log 2](#_Toc9061878)7

**Martin Cleaners Database Management System**

## Roles and Responsibilities Matrix



**Department:** Operations

**Product/Process:** Inventory, Invoicing, Contractors, Clients

**Document Owner:** Christopher Kozeny

**Project or Organization Role:** Milestone Manager

|  |  |  |  |
| --- | --- | --- | --- |
| Version | Date | Author | Change Description |
| 1.0. | 05/14/2019 | Christopher Kozeny | Initial release. |
| 1.1 | 05/15/2019 | Christopher Kozeny | Modified responsibilities and vocabulary choices. |
| 1.2 | 05/15/2019 | Christopher Kozeny | Minor deletions and changes to responsibilities. |
| 1.3 | 05/16/2019 | Christopher Kozeny | Accepted final changes and comments. |



| **Title** | **Role** | **Responsibilities** |
| --- | --- | --- |
|  | The Project Manager is responsible for developing, in conjunction with the Project Sponsor, the project charter. The Project Manager ensures that the project is delivered on time, within budget, and to the required quality standards. | * Manage and lead the project team. * Develop and maintain a detailed project plan. |
| Milestone Manager  Cj Kozeny | The milestone manager is responsible for all duties related to the milestone in progress. This can include, but is not limited to, collecting required documents, delegating duties and ensuring deadlines are met in a timely fashion. | * Running Document * RRM * Title Page * Milestone 1 and Appendix Divider |
| John Manzo | John acts as the main channel of communication between the group and the stakeholder. Any unsolicited requests or demands from the stakeholder will be received and echoed to team members. | * Analysis Diagrams * SSR & SR * Martin Cleaners Logo |
| Shafiq Jahish | Shafiq directs the logistics of the beginning of the project. This includes the Project Charter, where a budget is created, as well as a description and the purpose of the project are all outlined. | * Project Charter |
| Erik Eiler | Erik manages documentation of the daily workings of the team. From minor side notes to major ideas, he is in charge of daily documentation. Documentation proves essential to manage the workflow and have an overview of what has been done or discussed. | * Change Log * Email Log * Group Meeting Minutes * Issues Log |
| Joe Cremeens | Joe leads the client documents for this milestone. This includes creation of an opening statement, executive summary, client implications, and items for approval. Contact with the stakeholder is constant and the ability to adapt is essential. | * Client Documents |

## Milestone Change Log

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Rev. No.** | **Change** | **Reference Sections** |
| 5/14/19 | 1.0 | Created Stakeholder Register | Stakeholder Register |
| 5/14/19 | 1.0 | Created System Service Request | System Service Request |
| 5/14/19 | 1.0 | Created Roles and Responsibilities Matrix | Roles and Responsibilities Matrix |
| 5/15/19 | 1.1 | Stakeholder Register approved by Project Manager | Stakeholder Register |
| 5/15/19 | 1.1 | Project Manager comments added | System Service Request |
| 5/15/19 | 1.2 | Added version year to Microsoft Word, Fixed use of the word “it”, Made a more concise Service Request | System Service Request |
| 5/15/19 | 1.0 | Created Client Documents | Client Documents |
| 5/15/19 | 1.0 | Created Issue Log | Issue Log |
| 5/16/19 | 1.0 | Created Project Charter | Project Charter |
| 5/16/19 | 1.1 | Project Manager comments added | Client Documents |
| 5/16/19 | 1.2 | Resized graphic, Shortened introduction piece of executive summary, Changed included documents, Added more content to SSR and PC document explanations, Implications for client now list the software required for the project | Client Documents |
| 5/16/19 | 1.1 | Changed Responsibilities to include the specific documents each member is working on | Roles and Responsibilities Matrix |
| 5/15/19 | 1.2 | Project Manager comments added | Roles and Responsibilities Matrix |
| 5/16/19 | 1.0 | Created Email Logs | Email Logs |
| 5/16/19 | 1.0 | Created Meeting Minutes | Meeting Minutes |
| 5/16/19 | 1.0 | Created Change Log | Change Log |
| 5/16/19 | 1.3 | Responsibilities are more concise | Roles and Responsibilities Matrix |
| 5/16/19 | 1.3 | Project Manager comments added | Client Documents |
| 5/16/19 | 1.4 | Remove defining Client Documents, Fixed sentences, proper capitalization for document names | Client Documents |
| 5/16/19 | 1.1 | Project Manager comments added | Project Charter |
| 5/16/19 | 1.2 | Change sentences, Replace passive verbs with action verbs, Added appendices | Project Charter |
| 5/16/19 | 1.0 | Created Analysis Diagrams | Analysis Diagrams |
| 5/17/19 | 1.5 | Final formatting changes | Client Documents |
| 5/17/19 | 1.3 | Grammatical and verbiage fixes | Project Charter |
| 5/17/19 | 1.1 | Project Manager comments added | Analysis Diagrams |
| 5/17/19 | 1.2 | Fixed diagrams and structure | Analysis Diagrams |
| 5/17/19 | 1.1 | Added new emails | Email Log |
| 5/17/19 | 1.1 | Added new changes | Change Log |

**Martin Cleaners Database Management System**

## Client Documents



### Opening Statement

Milestone 1 for Martin Cleaners Database Management System has been completed. The systems development project continues to remain on time and on budget.

### Executive Summary

Milestone 1 consists of the creation of our group, selection of a project, and naming of the group, The Mavs. Members of the group are CJ Kozeny, John Manzo, Shafiq Jahish, Erik Eiler, and Joe Cremeens. CJ Kozeny is our Milestone Manager for Milestone 1.

Sheri Martin is the sole proprietor of Martin Cleaners, a residential and commercial cleaning service. Martin currently uses MS Word 2013 to manually create invoices she emails to clients. No formal system or procedure is in place to track inventory, equipment, or payables. A smart phone calendar app is used to for client appointment setting. A lack of integration between all these operational components hampers Martin’s current workflow, leading to record-keeping inefficiencies, frequent errors, and lost opportunities. Martin also finds accessing the organization’s performance over time to be difficult and time-consuming.

**Milestone 1 documents include:**

* **Systems Service Request (SSR)**
  + The document consists of a problem statement and system request. The problem statement directly states the problem encountered by our client. The service request explicitly defines what type of computer application the client needs for their organization.
* **Project Charter (PC)**
  + The Project Charter is a document that formally authorizes a project or phase, and defines the reason for the project and assign a project manager and his or her authority level for the project. The contents of the charter describe the project in high-level terms.
* **Stakeholder Register (SR)**
  + The document identifies those people and organizations impacted by the project and documents relevant information about each stakeholder. Information in the Stakeholder Register should be tailored to meet the needs of the project.
* **Milestone 1 Issue Log (IL)**
  + The Issue Log is a dynamic document that is kept throughout the project. The Issue Log tracks all issues throughout the project lifecycle. An issue is a point or matter in question or in dispute, one that is not settled and is under discussion, or one over which there are opposing views or disagreements.
* **Appendix Divider**
  + **Appendix A** 
    - **Meeting Communications**
      * The Meeting Communications consist of email logs, interview notes, and meeting minutes for all communication between team members for the project.
  + **Appendix B** 
    - **Meeting Minutes**
      * The Meeting Minutes consist of an agenda, action items, any handouts, and other important items.
  + **Appendix C** 
    - **Analysis Diagrams (AD)**
      * **Organization Chart**
        + The Organization Chart is a diagram of a reporting hierarchy that is commonly used to show relationships among employees, titles, and groups.
      * **Cause and Effect Diagram**
        + The Cause and Effect Diagram documents all the factors that contribute to or affect a given situation: all the causes, that is, and lead to a certain effect.
      * **Swim Lane**
        + The Swim Lane shows the relationship between a business process and the functional units (such as departments) responsible for that process.
      * **Work Flow Diagrams (AS-IS & TO-BE)**
        + The Work Flow Diagrams are general-purpose pictorial diagrams. The Work Flow Diagrams have shapes for many common business departments, objects, and steps.

### Implications for the Client

Martin Cleaners needs to purchase a new Office 2016 that includes Access 2019.

### Items for Approval

**Items for approval are:**

* System Service Request
* Analysis Diagrams
* Stakeholder Register
* Project Charter
* Issue Log

## System Service Request (SSR)

**REQUESTED BY**: Martin Cleaners

**DATE**: May 14, 2019

**DEPARTMENT**: Operations

**LOCATION**: Omaha, NE

**CONTACT**: Sheri Martin – 402-490-1606 (text/voice)

**TYPE OF REQUEST**: **URGENCY**:

[ X ] New System

[ ] Systems Enhancement

[ ] System Error Correction.

[ ] Other

[ ] Immediate – Operations are impaired or opportunity lost

[ ] Problems exist, but can be worked around

[ X ] Business losses can be tolerated until new system

[ ] Other

**PROBLEM STATEMENT**:

Sheri Martin is the sole proprietor of Martin Cleaners, a residential and commercial cleaning service. Martin currently uses MS Word 2013 to manually create invoices she emails to clients. No formal system or procedure is in place to track inventory, equipment, or payables. A smart phone calendar app is used to for client appointment setting. A lack of integration between all these operational components hampers Martin’s current workflow, leading to record-keeping inefficiencies, frequent errors, and lost opportunities. Martin also finds accessing the organization’s performance over time unduly arduous and time-consuming.

**SERVICE REQUEST**:

Sheri Martin requests the Mavs group develop a database application. The new application includes the following features: Automated invoicing, payables management, equipment and inventory tracking, and appointment handling. The application simplifies performance gauging through date-range-based queries of payables and receivables.

**------------- TO BE COMPLETED BY PROJECT MANAGER-----------**

**ADDITIONAL DOCUMENTATION INCLUDED? [ ] YES [ ] NO**

**ACTION** (to be completed by instructor)  
  
[ ] Request approved - Assigned to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Start date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
  
 [ ] Recommend revision

[ ] Suggest user development

[ ] Reject for reasons \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**COMMENTS** (to be completed by instructor)

|  |  |
| --- | --- |
|  | |
| **Project Title:** | Martin Cleaners DBMS | |  | **Date Prepared:** | May 14, 2019 |

## Stakeholder Register

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Name** | **Position** | **Role** | **Contact Information** | **Requirements** | **Expectations** | **Influence** | **Classification** |
| Sheri Martin | Organization’s Owner | Project Sponsor | 402-490-1606 (text/voice) | Automate invoicing, and track equipment, inventory, payables, receivables, and client appointments. | A DBMS that integrates all routine business operations into a single application. | High | Internal Stakeholder |
| Martin Cleaner’s Clients | Organization’s Customers |  |  |  |  | Low | External Stakeholder |
| Martin Cleaner’s Suppliers | Organization’s Vendors |  |  |  |  | Low | External Stakeholder |

## Project Charter

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Project Title:** | Martin Cleaners | | | |
|  |  |  |  |  |
| **Project Sponsor:** | Sheri Martin |  | **Date Prepared:** | 5/15/2019 |
|  |  |  |  |  |
| **Project Manager:** | Dr. Leah Pietron |  | **Project Customer:** | Martin Cleaners |

|  |
| --- |
| **Project Purpose or Justification:** |
| Martin Cleaners is in need of an effective and efficient system to operate their small business. Martin Cleaners currently use MS Word 2013 to manually create invoices and email them to clients. Martin Cleaners uses a smartphone to track their appointments and the availability and location of equipment. This lack of integration negatively affects their workflow, record-keeping and causes frequent errors which ultimately causes to lose opportunities and money. |

| **Project Description:** |
| --- |
| Group Mavs develops a database application that will automate invoicing, and track locations and availability of equipment. The application will also track all past and future appointments and send automated notification if inventory is low. |

|  |
| --- |
| **High-level Project and Product Requirements:** |
| The new database application requires hardware and Office 365 to be installed. |

| **Summary Budget:** |
| --- |
|  |

| **Initial Risks:** |
| --- |
| Installing the database application temporarily affects the workflow. |

|  |  |
| --- | --- |
| **Summary Milestones** | **Due Date** |
| Milestone 1:  Table of Contents (TOC)  Control Documents  Milestone 1 Change Log (CL)  Roles and Responsibility Matrix (RRM)  Client Documents (CD)  System Service Request (SSR)  Stakeholder Register (SR)  Project Charter (PC)  Milestone 1 Issue Log (IL)  Appendices  Appendix A: Email Logs  Appendix B: Meeting Minutes  Appendix C: Analysis Diagrams  Cause & Effect, Swim Lane, Organizational Chart, Workflow (AS-IS)  Peer Evaluation | May 18, 2019 |
| Milestone 2:  Table of Contents (TOC)  Control Documents  Milestone 2 Change Log (CL)  Roles and Responsibility Matrix (RRM)  Client Documents (CD)  Statement of Work  Statement of Scope  Work Breakdown Structure (WBS)  Tracking Grant Chart  Economic Feasibility Study  Meeting Communication  Milestone 2 Issue Log (IL)  Appendices  Appendix A: Email Logs  Appendix B: Meeting Minutes  Appendix C: Analysis Diagrams  Cause & Effect, Swim Lane, Organizational Chart, Workflow (AS-IS)  **Appendix D: Project Management**  **Appendix E: Economic Feasibility Chart**  Peer Evaluation | May 25, 2019 |
| Milestone 3:  Table of Contents (TOC)  Control Documents  Milestone 2 Change Log (CL)  Roles and Responsibility Matrix (RRM)  Client Documents (CD)  Baseline Project Plan  Requirements Documentation  Information Systems Security Risk Analysis (Risk Register)  Information Systems Security Policies  Meeting Communication  Milestone 3 Issue Log (IL)  Appendices  Appendix A: Email Logs  Appendix B: Meeting Minutes  Appendix C: Analysis Diagrams  Cause & Effect, Swim Lane, Organizational Chart, Workflow (AS-IS)  Appendix D: Project Management  Appendix E: Economic Feasibility  **Appendix F: Tracking Gantt Chart**  **Appendix G: Security Policies**  Peer Evaluation | June 1, 2019 |
| Milestone 4:  Table of Contents (TOC)  Control Documents  Milestone 2 Change Log (CL)  Roles and Responsibility Matrix (RRM)  Client Documents (CD)  Process (DFDs and ODEFOs)  Logic Modeling  Use Case and Use Case Descriptions (proposed)  Updated Tracking Gantt Chart  Project 2016 Reports (defined by instructor)  Update Milestone Documents  Analysis Diagrams Update – Workflow Diagram (TO-BE)  Meeting Communication  Milestone 4 Issue Log (IL)  Appendices  Appendix A: Email Logs  Appendix B: Meeting Minutes  Appendix C: Analysis Diagrams  Cause & Effect, Swim Lane, Organizational Chart, Workflow (AS-IS)  Appendix D: Project Management  Appendix E: Economic Feasibility  Appendix F: Tracking Gantt Chart  Appendix G: Security Policies  **Appendix H: Data Flow Diagrams**  **Appendix I: IDEF0 Diagram**  **Appendix K: Use Case Diagrams**  Peer Evaluation | June 15, 2019 |

|  |  |  |
| --- | --- | --- |
| **Project Objectives** | **Success Criteria** | **Person Approving** |

|  |  |  |
| --- | --- | --- |
| **Scope:** |  |  |
| Mavs Develops a database application for Martin Cleaners that automates invoicing, tracks equipment location and availability, and send alerts about low inventory. | The new database application helps customer to efficiently create and send invoices, track equipment and appointments. | Dr. Pietron |

|  |  |  |
| --- | --- | --- |
| **Time:** |  |  |
| The new database system will be implemented by June 15, 2019. | All project related documents and a working database application will be available by June 15, 2019. | Dr. Pietron |

|  |  |  |
| --- | --- | --- |
| **Cost:** |  |  |
| The cost for Office 365 Premium subscription is $12.50 per user per month.  The cost for Office 365 Essentials is $5 per user per month. | Martin Cleaners have the hardware for this project. They should agree to purchase Office 365 subscription or a copy of Office 365. | Sheri Martin |

|  |  |  |
| --- | --- | --- |
| **Quality:** |  |  |
| No Error | The new database application automates all invoices. The application tracks equipment availability and location, and stores all appointments. | Dr. Pietron |

|  |  |  |
| --- | --- | --- |
| **Other:** |  |  |
|  |  |  |

|  |
| --- |
| **Acceptance Criteria:** |
| The database application automates all invoices and sends emails. The application tracks location and availability of equipment, and stores all past and future appointments. |

|  |
| --- |
| **Project Manager Authority Level** |

|  |
| --- |
| **Staffing Decisions:** |
| Team Mavs makes all decisions and Dr. Pietron approves the final decision. |

|  |
| --- |
| **Budget Management and Variance:** |
|  |

|  |
| --- |
| **Technical Decisions:** |
|  |

|  |
| --- |
| **Conflict Resolution:** |
| Mavs use the issue log to record all conflicts within the project and find a resolution and record that in the issue log as well. Dr. Pietron is notified and asked for a resolution if Mavs can’t resolve the issue. |

|  |
| --- |
| **Escalation Path for Authority Limitations:** |
| Sheri Martin is the person with full authority for this project. |

**Approvals:**

|  |  |  |
| --- | --- | --- |
|  |  |  |
| Project Manager Signature |  | Sponsor or Originator Signature |
|  |  | Sheri Martin |
| Project Manager Name |  | Sponsor or Originator Name |
|  |  | 5/17/2019 |

Date Date

## Issue Log

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Project Title:** | Martin Cleaners |  | **Date Prepared:** | 5/15/2019 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Issue ID** | **Category** | **Issue** | **Impact on Objectives** | **Urgency** |
| 001 | Software | Microsoft Visio & Project 2016 | These programs are required for analysis diagrams and for the project file. | High |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Responsible Party** | **Actions** | **Status** | **Due Date** | **Comments** |
| All | John found a new link to download for free through the university. | Solved | 5/14/2019 | The licenses may be short term but will work for the duration of the project. |
|  |  |  |  |  |



# Milestone 2

**Milestone Manager – Erik Eiler**

May 20, 2019 – May 25, 2019

**Milestone 2**

**Table of Contents**

[**Roles and Responsibilities Matrix 30**](#_Toc9616658)

[**Milestone Change Log 32**](#_Toc9616659)

[**Client Documents 33**](#_Toc9616661)

[**Opening Statement 33**](#_Toc9616662)

[**Executive Summary 33**](#_Toc9616663)

[**Implications for the Client 35**](#_Toc9616664)

[**Items for Approval 35**](#_Toc9616665)

[**Statement of Project Scope 36**](#_Toc9616667)

[**Statement of Work 38**](#_Toc9616669)

[**Issue Log 43**](#_Toc9616670)

****

## Martin Cleaners Database Management System

## Roles and Responsibilities Matrix



**Department:** Operations

**Product/Process:** Inventory, Invoicing, Contractors, Clients

**Document Owner:** Erik Eiler

**Project or Organization Role:** Milestone Manager

|  |  |  |  |
| --- | --- | --- | --- |
| **Version** | **Date** | **Author** | **Change Description** |
| 1.0. | 05/20/2019 | Erik Eiler | Initial release. |



| **Title** | **Role** | **Responsibilities** |
| --- | --- | --- |
|  | The Project Manager is responsible for developing, in conjunction with the Project Sponsor, the project charter. The Project Manager ensures that the project is delivered on time, within budget, and to the required quality standards. | * Manage and lead the project team. * Develop and maintain a detailed project plan. |
| Cj Kozeny | Cj builds the project files, such as the Gantt Chart, PERT Diagram, Resource List, and Work Breakdown Structure. | * Project Management |
| John Manzo | John calculates the economics of the project. This includes the costs, benefits, and breakeven point of the project. | * Economic Feasibility Analysis |
| Shafiq Jahish | Shafiq defines the objectives, goals, and deliverables of the project, showing the benefits to the client. This includes an estimated duration and phases of the work. | * Project Scope Statement * Statement of Work |
| Erik Eiler  Milestone Manager | Erik manages documentation of the daily workings of the team. The milestone manager is responsible for all duties related to the milestone in progress. This can include, but is not limited to, collecting required documents, delegating duties and ensuring deadlines are met in a timely fashion. | * Change Log * Email Log * Group Meeting Minutes * Issues Log * Running Document * RRM |
| Joe Cremeens | Joe leads the client documents for this milestone. This includes creation of an opening statement, executive summary, client implications, and items for approval. Contact with the stakeholder is constant and the ability to adapt is essential. | * Client Documents |

## Milestone Change Log

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Rev. No.** | **Change** | **Reference Sections** |
| 5/20/19 | 1.0 | Created Client Documents | Client Documents |
| 5/20/19 | 1.0 | Created Roles and Responsibilities Matrix | Roles and Responsibilities Matrix |
| 5/21/19 | 1.1 | Project Manager comments added | Client Documents |
| 5/21/19 | 1.2 | Fixed action verbiage, Added reference to appendices | Client Documents |
| 5/21/19 | 1.0 | Created Statement of Work | Statement of Work |
| 5/22/19 | 1.1 | Grammatical fixes | Statement of Work |
| 5/22/19 | 1.3 | Grammatical fixes | Client Documents |
| 5/22/19 | 1.0 | Created Project Scope Statement | Project Scope Statement |
| 5/23/19 | 1.2 | Restructured sentences, Reformatting | Statement of Work |
| 5/23/19 | 1.1 | Project Manager comments added | Project Scope Statement |
| 5/23/19 | 1.0 | Created Economic Feasibility Analysis | Economic Feasibility Analysis |
| 5/23/19 | 1.0 | Created Project Management | Project Management |
| 5/23/19 | 1.0 | Created Issue Log | Issue Log |
| 5/23/19 | 1.1 | Added Meeting Minutes of Milestone 2 | Meeting Minutes |
| 5/23/19 | 1.2 | Added Email Log of Milestone 2 | Email Log |
| 5/23/19 | 1.0 | Created Change Log | Change Log |
| 5/23/19 | 1.1 | Project Manager comments added | Project Scope Statement |
| 5/23/19 | 1.1 | Added Milestone 2 to the Running Document | Running Document |
| 5/24/19 | 1.2 | Fixed project objectives to align with SoW, Added data from EFA | Project Scope Statement |
| 5/24/19 | 1.3 | Project Manager comments added | Project Scope Statement |
| 5/24/19 | 1.4 | Reformatting and alignment fixes to headings | Project Scope Statement |
| 5/24/19 | 1.3 | Changed goals and objectives to relate properly | Statement of Work |
| 5/24/19 | 1.0 | Added styling and headings | Economic Feasibility Analysis |
| 5/24/19 | 1.0 | Created Project Management | Project Management |
| 5/24/19 | 1.2 | Added the PSS, Fixed formatting | Running Document |

## Martin Cleaners Database Management System

## Client Documents



### Opening Statement

Milestone 2 for Martin Cleaners Database Management System has been completed. The systems development project continues to remain on time and on budget.

### Executive Summary

Milestone 2 builds on Milestone 1 by providing updated versions of all current documents, while also providing the following additional documents: Project Scope Statement, Statement of Work, Project Management Documents, and Economic Feasibility Analysis. The Project Management Documents will include Task Information, Gantt Chart, and Network Diagram. The Economic Feasibility Analysis will include the Tangible Benefits, One-Time Costs, Recurring Costs, and Breakeven Chart. The Milestone Manager for milestone 2 is Erik Eiler.

**Milestone 1 documents include:**

* **Project Scope Statement (PSS)**
  + The Project Scope Statement consists of the following parts: Scope Information, Problem/Opportunity Statement, Project Objectives, Project Description, Business Benefits, Project Deliverables, Estimated Project Duration
* **Statement of Work (SoW)**
  + The Statement of Work outlines the work plan for the project. The document consists of the following sections: Project Information, Project Description, Goals and Objectives, and Phase of Work.
* **Project Management Documents (PMD)**
  + **Work Breakdown Structure**
    - The Work Breakdown Structure breaks the project into smaller pieces (tasks) and lists the requirements for each part (information).
  + **Task Information**
    - The Task Information consists of the task list for milestones 1-4.
  + **Gantt Chart**
    - Shows the tasks to be completed and the estimated time of completion.
  + **Network Diagram**
    - The Network Diagram defines the interdependencies between tasks.
  + **Please refer to Appendix D for additional information.**
* **Economic Feasibility Analysis (EFA)**
  + **Tangible Benefits**
    - The benefits that are tangible in nature or can be quantified.
  + **One-Time Costs**
    - These one-time costs occur only once in the project.
  + **Recurring Costs**
    - These costs l reoccur from month to month or year to year.
  + **Breakeven Chart**
    - This chart will represent when the revenue ends up equaling cost.
  + **Please refer to Appendix E for additional information.**

### Implications for the Client

Milestone 2 has no additional implications for the client.

### Items for Approval

**Items for approval are:**

* Client Documents
* Project Scope Statement
* Statement of Work
* Project Management Documents
* Economic Feasibility Analysis
* Issue Logs

Mavs  **Prepared by:** Shafiq Jahish

Statement of Project Scope **Date:** 5/22/2019

**General Project Information**

**Project Name:** Martin Cleaners

**Project Sponsor:** Sheri Martin

**Project Manager:** Dr. Leah Pietron

**Problem Opportunity Statement:**

Sheri Martin is the sole proprietor of Martin Cleaners, a residential and commercial cleaning service. Martin currently uses MS Word 2013 to manually create invoices she emails to clients. No formal system or procedure is in place to track inventory, equipment, or payables.

A smart phone calendar app is used to for client appointment setting. A lack of integration between all these operational components hampers Martin’s current workflow, leading to record-keeping inefficiencies, frequent errors, and lost opportunities. Martin also finds accessing the organization’s performance over time unduly arduous and time-consuming.

**Project Objectives:**

**Goals**

The goals for this project are as follow:

* Save owner’s time and avoid errors by automating invoices.
* Easily track location and availability of equipment.
* Notify owner about low inventory.
* Owner tracks all appointments.

**Objectives**

The following objectives will be achieved through this project:

* Build an application that automates invoicing.
* Avoid errors while processing invoices.
* Build features to the application that tracks the location and availability of the equipment.
* Easily track all equipment and assign them to different service requests.
* Send email notification when inventory is low.
* Easily track all inventory.
* Build features to the application that stores all past and future appointments.
* Help employees to track all appointments and be there on time.

**Business Benefits:**

Martin Cleaners will benefit from this project as follow:

* Improved Data Integrity
* Added Performance Gauging
* Improved Client Relations
* Improved Vendor Relations
* Reduced Administrative Load

**Project Deliverables:**

* A working database application.
* User manual for how to use the application
* All the documents for this project.

**Estimated Project Duration:**

Phase I Analysis May 13th, 2019 – June 15th, 2019

Phase II Design July 08th, 2019 – August 09th, 2019

Mavs  **Prepared by:** Shafiq Jahish

Statement of Work  **Date:** 5/21/2019

**Project Name: Martin Cleaners**

**Project Manager: Dr. Lean Pietron**

**Customer: Sheri Martin Project Sponsor: Sheri Martin**

**Project Start/End (projected):** May 13th 2019 – June 15th 2019

**Development Staff Estimates (man-months):** 1 – 2 months

**Project Description:**

Sheri Martin is the sole proprietor of Martin Cleaners, a residential and commercial cleaning service. Martin currently uses MS Word 2013 to manually create invoices she emails to clients. No formal system or procedure is in place to track inventory, equipment, or payables.

A smart phone calendar app is used to for client appointment setting. A lack of integration between all these operational components hampers Martin’s current workflow, leading to record-keeping inefficiencies, frequent errors, and lost opportunities. Martin also finds accessing the organization’s performance over time unduly arduous and time-consuming.

**Goals**

The goals for this project are as follow:

* Save owner’s time and avoid errors by automating invoices.
* Easily track location and availability of equipment.
* Notify owner about low inventory.
* Owner tracks all appointments.

**Objectives**

The following objectives will be achieved through this project:

* Build an application that automates invoicing.
* Avoid errors while processing invoices.
* Build features to the application that tracks the location and availability of the equipment
* Easily track all equipment and assign them to different service requests.
* Send email notification when inventory is low.
* Easily track all inventory.
* Build features to the application that stores all past and future appointments.
* Help employees to track all appointments and be there on time.

**Phases of Work:**

**Milestone 1 May 13th – 18th 2019**

Table of Contents (TOC)

Control Documents

Milestone 1 Change Log (CL)

Roles and Responsibility Matrix (RRM)

Client Documents (CD)

System Service Request (SSR)

Stakeholder Register (SR)

Project Charter (PC)

Milestone 1 Issue Log (IL)

Appendices

Appendix A: Email Logs

Appendix B: Meeting Minutes

Appendix C: Analysis Diagrams

Cause & Effect, Swim Lane, Organizational Chart, Workflow (AS-IS)

Peer Evaluation

**Milestone 2 May 20th – 25th 2019**

Table of Contents (TOC)

Control Documents

Milestone 2 Change Log (CL)

Roles and Responsibility Matrix (RRM)

Client Documents (CD)

Statement of Work

Statement of Scope

Work Breakdown Structure (WBS)

Tracking Grant Chart

Economic Feasibility Study

Meeting Communication

Milestone 2 Issue Log (IL)

Appendices

Appendix A: Email Logs

Appendix B: Meeting Minutes

Appendix C: Analysis Diagrams

Cause & Effect, Swim Lane, Organizational Chart, Workflow (AS-IS)

Appendix D: Project Management

Appendix E: Economic Feasibility Chart

Peer Evaluation

**Milestone 3 May 27th – June 1st 2019**

Table of Contents (TOC)

Control Documents

Milestone 2 Change Log (CL)

Roles and Responsibility Matrix (RRM)

Client Documents (CD)

Baseline Project Plan

Requirements Documentation

Information Systems Security Risk Analysis (Risk Register)

Information Systems Security Policies

Meeting Communication

Milestone 3 Issue Log (IL)

Appendices

Appendix A: Email Logs

Appendix B: Meeting Minutes

Appendix C: Analysis Diagrams

Cause & Effect, Swim Lane, Organizational Chart, Workflow (AS-IS)

Appendix D: Project Management

Appendix E: Economic Feasibility

Appendix F: Tracking Gantt Chart

Appendix G: Security Policies

Peer Evaluation

**Milestone 4 June 10th – 15th 2019**

Table of Contents (TOC)

Control Documents

Milestone 2 Change Log (CL)

Roles and Responsibility Matrix (RRM)

Client Documents (CD)

Process (DFDs and ODEFOs)

Logic Modeling

Use Case and Use Case Descriptions (proposed)

Updated Tracking Gantt Chart

Project 2016 Reports (defined by instructor)

Update Milestone Documents

Analysis Diagrams Update – Workflow Diagram (TO-BE)

Meeting Communication

Milestone 4 Issue Log (IL)

Appendices

Appendix A: Email Logs

Appendix B: Meeting Minutes

Appendix C: Analysis Diagrams

Cause & Effect, Swim Lane, Organizational Chart, Workflow (AS-IS)

Appendix D: Project Management

Appendix E: Economic Feasibility

Appendix F: Tracking Gantt Chart

Appendix G: Security Policies

Appendix H: Data Flow Diagrams

Appendix I: IDEF0 Diagram

Appendix K: Use Case Diagrams

Peer Evaluation

Group Presentation

## Issue Log

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Project Title:** | Martin Cleaners |  | **Date Prepared:** | 5/23/2019 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Issue ID** | **Category** | **Issue** | **Impact on Objectives** | **Urgency** |
| 002 | Scheduling | John will miss the EFA lecture. | John was delegated the EFA and accepted to take the document. | High |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Responsible Party** | **Actions** | **Status** | **Due Date** | **Comments** |
| John | John reviewed VidGrid of EFA and asked questions for clarity. | Solved | 5/23/19 | John has a final examination during the class. |



# Milestone 3

**Milestone Manager – Joe Cremeens**

May 27, 2019 – June 3, 2019

**Milestone 3**

**Table of Contents**

**Roles and Responsibilities Matrix 46**

**Milestone Change Log 48**

**Client Documents 49**

[**Opening Statement 49**](#_Toc9616662)

[**Executive Summary 49**](#_Toc9616663)

[**Implications for the Client 52**](#_Toc9616664)

[**Items for Approval 52**](#_Toc9616665)

**Information Security Risk Analysis 53**

**Baseline Project Plan 55**

**Risk Register 65**

**Requirements Documentation 68**

**Issue Log 69**

****

## Martin Cleaners Database Management System

## Roles and Responsibilities Matrix



**Department:** Operations

**Product/Process:** Inventory, Invoicing, Contractors, Clients

**Document Owner:** Joe Cremeens

**Project or Organization Role:** Milestone Manager

|  |  |  |  |
| --- | --- | --- | --- |
| **Version** | **Date** | **Author** | **Change Description** |
| 1.0. | 05/28/2019 | Joe Cremeens | Initial release. |



| **Title** | **Role** | **Responsibilities** |
| --- | --- | --- |
|  | The Project Manager is responsible for developing, in conjunction with the Project Sponsor, the project charter. The Project Manager ensures that the project is delivered on time, within budget, and to the required quality standards. | * Manage and lead the project team. * Develop and maintain a detailed project plan. |
| Cj Kozeny | CJ will create the Tracking Gantt chart, which will record the “guesstimates” of time frames and record the “actual” time frames. CJ will also help with the Running Document Dividers. | * Tracking Gantt * Dividers |
| John Manzo | John leads the Baseline Project Plan, with help from Shafiq. The Baseline Project Plan is a comprehensive overview of the entire project and requires a strong line of communication between the client and the Baseline Project Planner. | * Baseline Project Plan |
| Shafiq Jahish | Shafiq is responsible for the Security Policies, Requirements Documentation, and will be assisting John with the Baseline Project Plan. Security policies outline specific requirements or rules that must be met, the Requirements Documentation documents the project and product requirements. Shafiq and John will distribute the work as needed for the Baseline Project Plan. | * Security Policies * Requirements Documentation * Baseline Project Plan |
| Erik Eiler | Erik manages documentation of the daily workings of the team. | * Change Log * Email Log * Group Meeting Minutes * Issue Log |
| Joe Cremeens  Milestone Manager | Joe leads the client documents for this milestone. This includes creation of an opening statement, executive summary, client implications, and items for approval. Contact with the stakeholder is constant and the ability to adapt is essential. The Milestone Manager is responsible for all duties related to the milestone in progress. This can include, but is not limited to, collecting required documents, delegating duties and ensuring deadlines are met in a timely fashion. | * Client Documents * RRM * Running Document * Information Security Risk Analysis * Risk Register |

**Milestone Change Log**

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Rev. No.** | **Change** | **Reference Sections** |
| 5/28/19 | 1.0 | Created Roles and Responsibilities Matrix | Roles and Responsibilities Matrix |
| 5/30/19 | 1.0 | Created Client Documents | Client Documents |
| 5/30/10 | 1.0 | Created Requirements Documentation | Requirements Documentation |
| 5/30/10 | 1.1 | Fixed grammatical issues | Requirements Documentation |
| 5/31/19 | 1.1 | Added references to appendices F&G | Client Documents |
| 5/31/19 | 1.0 | Created Security Policies | Security Policies |
| 6/1/19 | 1.2 | Added security policies | Client Documents |
| 6/1/19 | 1.0 | Created Risk Register | Risk Register |
| 6/1/19 | 1.0 | Created Information Security Risk Analysis | Information Security Risk Analysis |
| 6/1/19 | 1.0 | Created Issue Log | Issue Log |
| 6/1/19 | 1.0 | Created Email Log | Email Log |
| 6/1/19 | 1.0 | Created Meeting Minutes | Meeting Minutes |
| 6/1/19 | 1.0 | Created Change Log | Change Log |
| 6/2/19 | 1.1 | Project manager comments added | Risk Register |
| 6/2/19 | 1.2 | Added the revised section | Risk Register |
| 6/2/19 | 1.1 | Table formatting changed to match | Security Policies |
| 6/2/19 | 1.0 | Created Baseline Project Plan | Baseline Project Plan |
| 6/2/19 | 1.1 | Fixed passive verbiage | Baseline Project Plan |
| 6/2/19 | 1.2 | Project manager comments added | Baseline Project Plan |
| 6/2/19 | 1.3 | Fixed capitalization, Fixed system description and political analysis | Baseline Project Plan |
| 6/2/19 | 1.1 | Added new changes | Change Log |
| 6/2/19 | 1.4 | Fixed a sentence in system description. | Baseline Project Plan |
| 6/2/19 | 1.1 | Added zoom meeting | Meeting Minutes |
| 6/2/19 | 1.1 | Added new emails | Email Log |
| 6/2/19 | 1.0 | Created Tracking Gantt | Tracking Gantt |
| 6/3/19 | 1.1 | Updated hours of finished tasks | Tracking Gantt |
| 6/3/19 | 1.3 | Added new changes | Change Log |

****

**Martin Cleaners Database Management System**

**Client Documents**



**Opening Statement**

Milestone 3 for Martin Cleaners Database Management System has been completed. The systems development project continues to remain on time and on budget.

**Executive Summary**

Milestone 3 builds on previous milestones by providing updated versions of all current documents, while also providing the following additional documents: Tracking Gantt Chart, Baseline Project Plan, Security Policies, Requirements Documentation, and the Risk Register. The Milestone Manager for milestone 3 is Joe Cremeens.

**Milestone 3 documents include:**

* **Tracking Gantt Chart (TGC)**
  + The Tracking Gantt Chart tracks guestimate timeframes (“a best guess start” with “a best guess” finish) and actual timeframes (the actual start and finish times), along with detailing the differences between them (otherwise known as the variance).
  + **Please refer to Appendix F for additional information.**
* **Baseline Project Plan (BPP)**
  + The Baseline Project Plan consists of the following four parts:
    - **Part 1: Introduction**
      * The Introduction consists of the following two parts: another introduction to this project, which is an overview of the current project, along with a recommendation, which is contingent on the second part, the Systems Description. The recommendation section details the recommended approach that the client takes for their database solution. In our case, The Mavs recommend that Martin Cleaners use Microsoft Access 2016.
    - **Part 2: Systems Description**
      * Systems Description as well is split up into two additional parts: a system description and alternatives. The system description found within this part is a detailed description for the system that is to be built, a thorough examination and requirements of the system to be put into place, whereas alternatives are as implied, the alternatives to the system being built. Alternatives will be listed in a pro/con format for comparison to the recommended path brought up in the Introduction part.
    - **Part 3: Feasibility Assessment**
      * The Feasibility Assessment encompasses the Economic Feasibility Analysis from the previous milestone, along with the technical, operational, legal, political, and schedule assessments. The technical feasibility identifies the technical skillset of the project members. The operational feasibility identifies the hardware and software required for the planned system. The legal feasibility are the legal obligations on behalf of the project group and the business, and the economic feasibility identifies the ecosystem under which the business operates. The schedule feasibility is the schedule in which the project group will complete the parts of the project, and in our case, will be broken up into two sections. One section for the first part of the course (ISQA 4110) and one for the second part of the course (ISQA 4120) to be completed over a three-month period.
      * **Please refer to Appendix E for additional information.**
    - **Part 4: Management Issues**
      * Management Issues consist of the following parts: project team, communication process, standard operating procedures, and other topics. The project team section details the members of the project group and their roles within the development of the system. The communication process details the way in which the project group communicated during the development of the system. The standard operating procedures lists the documents and procedures for each individual milestone. The other topics section can list the information security risk analysis and additional security policies.
* **Security Policies (SP)**
  + The Security policies detail what policies will go into effect once the project has been completed. These policies include the following:
    - **Acceptable Use** 
      * This policy is designed to outline the acceptable use of computer equipment at Martin Cleaners.
    - **Password Protection**
      * This policy is to establish standards for passwords and to protect the existing passwords.
    - **Disaster Recovery Plan**
      * This policy establishes requirements for disaster recovery and how to recover IT systems and data in case of a disaster.
    - **Ethics**
      * This policy establishes a culture of openness, trust, and an emphasis on fair business.
    - **Email**
      * This policy ensures proper use of the email system at Martin Cleaners and makes users aware of the system.
    - **End User Encryption Key Protection**
      * This policy outlines the requirements for how to protect the encryption keys of the end users.
    - **Clean Desk**
      * This policy establishes minimum requirements to make sure all information about employees, customers, and vendors are securely locked in a safe area.
    - **Security Response Plan.**
      * This policy helps businesses to develop a security response plan.
  + **Please refer to Appendix G for additional information.**
* **Requirements Documentation (RD)**
  + The Requirements Documentation assists the project manager in making trade-off decisions among requirements and in managing stakeholder expectations. Requirements are typically documented by categories, including but not limited to the following: functional requirements, quality requirements, performance requirements, safety requirements, security requirements, technical requirements, training requirements, and support and maintainability requirements.
* **Risk Register (RR)**
  + The Risk Register is used to track information about identified risk over the course of the project. Information within the Risk Register include the following: risk identifier, risk statement, probability of occurring, impact on objectives if the risk occurs, risk score, response strategies, revised probability, revised impact, revised score, responsible party, actions, status, and comments.
* **Issue Log (IL)**
  + The Issue Log is a dynamic document that is kept throughout the project. The Issue Log tracks all issues throughout the project lifecycle. An issue is a point or matter in question or in dispute, one that is not settled and is under discussion, or one over which there are opposing views or disagreements

**Implications for the Client**

Milestone 3 has no additional implications for the client.

**Items for Approval**

**Items for approval are:**

* Tracking Gantt Chart
* Baseline Project Plan
* Security Policies
* Requirements Documentation
* Risk Register
* Issue Log

****

**Martin Cleaners Database Management System**

**Information Security Risk Analysis**



|  |  |
| --- | --- |
| **Priority** | **Description** |
| **Assets** | * Computer Hardware * Computer software * Cleaning supplies * Mobile hardware * Mobile software |
| **Vulnerabilities** | * Weak Passwords * Recorded Passwords * Employee Negligence |
| **Threats** | * **Natural/Environmental Threats**   + Natural Disasters   + Power spikes, failure   + Data corruption * **Man-made/environmental threats**   + Viruses, spyware, malware   + Hackers   + Theft |
| **Safeguards** | * Creation and enforcement of security policies * Perform risk analysis * Purchase insurance |
| **Losses** | * **Direct costs**   + Monetary costs associated with fixing or recreating the data and the system   + Time lost fixing the system   + Loss of business * **Indirect costs**   + Consequences of not properly maintaining equipment while fixing the data and the system   + Data loss and inconsistencies   + Cliental that decide to take their business elsewhere as a result |

****

**Martin Cleaners Database Management System**

**Baseline Project Plan**



**Introduction**

**Project Overview**

Sheri Martin is the sole proprietor of Martin Cleaners, a residential and commercial cleaning service. Martin needs a data management solution to handle all operational recordkeeping and generate on-demand invoices, a variety of categorized data views, and operational performance reports. Martin presently handles recordkeeping and invoice generation in an ad-hoc manner, storing paper files, and manual creating invoices with Microsoft Word 2013. Integrated operational views of clients, vendors, inventory, equipment, appointments, invoices, and payables cannot currently be generated, nor is there any way to simply gauge the performance of Martin Cleaners over time. Moreover, Martin’s paper and electronic records are laden with inconsistencies and errors. These problems lead to a great deal of inefficiency and souring client and vendor relations. By deploying a DBMS application to manage and leverage all organizational data, Martin stands to reap substantial improvements in operational productivity and client and vendor relations. This potentially will lead to considerable tangible monetary gains for the organization.

**Recommendations**

The Mavs Group recommends Martin Cleaners implements a DBMS solution using Microsoft Access 2019. Relative to other DBMS products, Microsoft Access 2019 offers a very intuitive integrated interface and is exceptionally well-suited for a small, single-user operation.

**System Description**

**Alternatives include:**

|  |  |
| --- | --- |
| **Alternative** | **Pros and Cons** |
| Do Nothing | **Pros:**  No new one-time or reoccurring costs  No DBMS application training needed  No operational changes needed  **Cons:**  Data integrity and duplication issues persist  Operational inefficiencies and errors persist  Gauging organization performance remains complicated and often inaccurate  Potential benefits of a new system go unrealized |
| Microsoft Access 2019 | **Pros:**   * DBMS functionality with a user-friendly, form-based GUI interface * Simple and accurate report generation * Reduced data integrity and duplication issues * Well-suited for small relational databases * Auto-triggered email alerts for pre-defined conditions   **Cons:**   * Cost of software and application development * DBMS application training needed * Transferring all operational data to the new database will take considerable time |
| MySQL Community Server 8.0 with Browser Interface | **Pros:**   * Free, open-source DBMS software * Data entry and queries from a user-friendly browser interface * Highly customizable views and reports * Reduced data integrity and duplication issues   **Cons:**   * Browser interface development will add considerable time and cost * DBMS not well-suited for small databases * DBMS application training needed * Transferring all operational data to the new database will take considerable time |
| Microsoft Excel 2013 | **Pros:**   * Software already owned * No standard operation training needed * Tracking organizational performance is simplified   **Cons:**   * DBMS relational queries and report generation are not possible * Performance decreases as data managed increases * Macro creation for auto-triggered functions is highly complex |

**System Description**

The Mavs Group plans to design a DBMS application for Martin Cleaners (MC) using Microsoft Access 2019. The application integrates all of MC’s operational data into a single relational database, allowing MC to add, edit, and delete records, track business processes, and generate invoices and various operational reports. The database consists of seven tables: Client, Vendor, Inventory, Equipment, Appointment, Account Receivable, and Account Payable. Records will include unique, auto-incremating identification numbers to facilitate relations between the tables and eliminate unnecessary data duplication within the system.

The Client table holds client contact information for MC’s residential and commercial customers. The table’s attributes will be company, first name, last name, address, city, state, zip code, phone, email, and text. If the client is residential, the company attribute will be blank. If the client is commercial, the first and last name field will either be empty or correspond to MC’s liaison within the organization.

Contact information for the vendors MC works with will populate the Vendors table. Each vendor record will include these attributes: company, first name, last name, address, city, state, zip code, phone, email, text, and website. All vendor records include a company name, address information, and a phone number. The first and last name fields indicate a specific contact person within the company.

The Inventory table contains records for the various products MC uses to perform cleaning services. Each record has the following fields populated: Product, quantity, and vendor ID. The vendor id attribute is a foreign key associating each inventory record with a specific vendor as to facilitate ease in restocking. Additionally, when product quantities reach a pre-determined low, DBMS triggers issue restock email alerts to MC.

The equipment, such vacuum cleaners, MC uses to perform services is stored in the Equipment table. any given time, equipment may be unavailable because it is already committed to another appointment or undergoing service or repairs. Attributes for each equipment record include: device, date purchased, warranty expiration date, operational (T/F), available (T/F), seller vendor ID, and service vendor ID. If a piece of equipment is operational, the service vendor ID is blank. If a piece of equipment is committed to an appointment, it will show as unavailable until the end of said appointment.

The Appointment table is a collection of records, each corresponding to specific contracted cleaning service. Upon booking an appointment, MC enters the following information into corresponding fields in the table: Client ID, date of service, start time, end time, service description, inventory ID1, inventory ID2, inventory ID3, equipment ID1, equipment ID2, equipment ID3, price, and status (upcoming, complete, canceled). Upon committing an inventory item to an appointment, the inventory item’s quantity automatically decrements. If the appointment cancels, the inventory’s quantity automatically reverts to its previous value. Upon committing equipment to an appointment, the equipment’s record indicates the device is unavailable until the appointment is either complete or canceled.

MC provides invoices to clients via email. Residential clients must pay in advance or at the completion of their appointment. MC affords commercial clients 30 days from the completion of their appointments to settle. The Account Receivable table includes the following fields: Invoice ID, client ID, appointment ID, invoice date, payment due date, amount owed, and paid (T/F). All records must correspond to a valid client ID from the client table and a valid appointment ID from the appointment table.

The Account Payable table holds records for all invoices received from MC’s vendors. Each record in the account payable table contains the following attributes: Vendor ID, invoice number, invoice date, amount due, due date, paid (T/F), and description (e.g., cleaning supplies, equipment repair, etc.). All records must correspond to a valid vendor ID from the vendor table. One week out from payables’ due dates, DBMS triggers issue daily email alerts to MC until the record’s paid attribute is set to true.

The DBMS application is capable of generating a variety of sortable and filterable views and reports. These views and reports include: client list, vendor list, appointment list, inventory list, equipment list, account receivable list, account payables list, and a cash flow report. The list views can be sorted and filtered by any of their respective tables’ attributes. The cash flow report queries the account receivable and account payable tables to produce a date-range based assessment of MC’s performance over time. MC also can create any other view or report by simply issuing different queries. The DBMS application’s user manual will contain instructions for issuing custom queries.

To develop the Microsoft Access 2016 DBMS application, MC must meet or exceed the hardware and software requirements outlined in the Feasibility Assessment section.

**Feasibility Assessment**

**Economic Analysis**

The results of the economic analysis include:

|  |  |
| --- | --- |
| **Category** | **Value** |
| One-Time Costs | $6,070 |
| Annual Recurring Costs | $1,500 |
| Net Present Value (5 years) | $9,517 |
| Return on Investment | 76% |
| Breakeven Point | 1.81 Years |

For more economic analysis information, please refer to Appendix E.

**Technical Analysis**

The technical analysis includes:

|  |  |
| --- | --- |
| **Member Name** | **Technical Skill Set** |
| Joe Cremeens | SQL, Java, HTML/CSS, PHP, JavaScript, jQuery |
| Erik Eiler | SQL, HTML/CSS, Microsoft (MS) Excel 2019, MS Word 2019 |
| Shafiq Jahish | SQL, HTML, MS Excel 2019, MS Word 2019, MS Access 2019, MS PowerPoint 2019 |
| Christopher Kozeny | SQL, Java, C, Python, Django 2, MS Project 2019, MS Visio 2019, MS Access 2019, MS Windows Server 2016 |
| John Manzo | SQL, PL/SQL, Python, Java, C++, HTML/CSS, Django, Joomla, JavaScript, MS Word 2019, MS Excel 2019, MS Visio 2019, MS Windows XP/7/8/10 |

**Operational Analysis Details**

Hardware requirements include**:**

|  |  |
| --- | --- |
| **Hardware Category** | **Minimum Requirements & Current Hardware** |
| Personal Computer | * Minimum: 1 unit * Current: 1 unit |
| Processor | * Minimum: 1.6 GHz, 2-core * Current: 2.7 GHz, 6-core |
| Memory (RAM) | * Minimum: 4 MB * Current: 16 MB |
| Internal Storage | * Minimum: 4 GB available * Current: 400+ GB available |
| External Storage | * Minimum: 1 TB * Current: None (must purchase—$49.99) |
| Display | * Minimum:1280x768 resolution * Current: 1920x1080 resolution |

**Software Requirements Details**

Software requirements include**:**

|  |  |
| --- | --- |
| **Software Category** | **Minimum Requirements & Current Software** |
| DBMS Application | * Minimum: Microsoft Access 2019 * Current: None (must purchase—$249.99) |
| Operating System | * Minimum: Windows 10 * Current: Windows 10 |

**Legal and Contractual Analysis**

The results of the legal and contractual analysis include:

|  |  |
| --- | --- |
| **Responsible Party** | **Obligations** |
| Mavs Team Members | * Deliver DBMS application prototype and user manual to Mavs Project Manager by 09 Aug 2019 |
| Mavs Project Manager | * Assess the efficacy of the of the DBMS application and user manual |
| Martin Cleaners (MC) | * Perform contracted cleaning services on time and to specifications * Provide invoices for all services performed * Settle vendor payables by dates due * Safeguard sensitive client information * Keep license and insurance policy current |
| MC’s Clients | * Residential: Settle MC invoices before or upon completion of services * Commercial: Settle MC invoices within 30 days of completion of services |
| MC’s Vendors | * Provide goods or services to MC at agreed to dates/times * Provide invoices for all purchases |

**Political Analysis**

Martin Cleaners is a sole proprietorship with just one owner/employee, Sheri Martin. Martin uses vendor-supplied independent contractors on an as-needed basis, but only for cleaning service work. Martin handles all client and vendor relations and is the only user of the DBMS application. Martin continues to operate normally during deployment without needing to access her computer for up to three days. Given this operational environment, the organization faces negligible political ramifications by implementing a new DBMS application.

**Schedule, Timeline, and Resource Analysis**

The schedule is broken into two parts:

|  |  |  |  |
| --- | --- | --- | --- |
| **Phase** | **Description** | **Start Time** | **End Time** |
| I | Analyze/Document | 13 May 2019 | 14 Jun 2019 |
| II | Design/Deploy | 08 Jul 2019 | 09 Aug 2019 |

For more project management information, please refer to Appendix D.

**Management Issues**

**Team Configuration and Management consists of:**

|  |  |
| --- | --- |
| **The Mavs** | **Role/Responsibility** |
| Dr. Leah Pietron | Project Manager |
| Sheri Martin | Project Sponsor |
| Christopher Kozeny | Milestone 1 Manager |
| Erik Eiler | Milestone 2 Manager |
| Joe Cremeens | Milestone 3 Manager |
| John Manzo | Milestone 4 Co-Manager |
| Shafiq Jahish | Milestone 4 Co-Manager |

**Communications Plan**

The Mavs group meets in-person five times a week to discuss the project’s status, resolve impediments, and plan future tasks. Between in-person meetings, email is the primary means by which group members communicate. Email is also the method group members use to submit project assets to the Project Manager for assessment. To track asset versions, the members use the group’s Canvas Files repository. At least once a week, the Mavs group members meet in-person or remotely (using Zoom) with the Project Manager for Milestone walkthroughs. Mavs group member John Manzo is the liaison to the Project Sponsor, who he meets with in-person every two to three weeks. Between in-person meetings, Manzo and the sponsor use SMS text to communicate.

For more communications information, please refer to Appendices A and B.

**Standards and Procedures include:**

|  |  |
| --- | --- |
| **Summary Milestones** | **Due Date** |
| Milestone 1   * Control Documents * Client Documents * Systems Service Request * Analysis Diagrams * Project Charter * Stakeholder Register * Issue Log * Peer Reviews | 18 May 2019 |
| Milestone 2   * Control Documents * Client Documents * Project Scope Statement * Statement of Work * Project Management * Economic Feasibility Analysis * Issue Log * Peer Reviews | 25 May 2019 |
| Milestone 3   * Control Documents * Client Documents * Tracking Gantt Chart * Baseline Project Plan * Requirements Documentation * Risk Register * Security Policies * Issue Log * Peer Reviews | 03 Jun 2019 |
| Group Presentation | 13 Jun 2019 |
| Milestone 4   * Control Documents * Client Documents * Data Flow Diagram * IDEF0 Diagram * OOAD Diagram * Data Dictionary Documentation * Enterprise Diagram * Tracking Gantt Chart * Updated Milestone Documents * Issue Log * Peer Reviews | 15 Jun 2019 |

For more standards and procedures information, please refer to Appendix D.

**Other Project-Specific Topics**

The other project-specific topics include an information security risk analysis and identification of required and additional security policies.

Information Security and Risk Analysis (ISRA) consists of:

|  |  |
| --- | --- |
| **Elements** | **Description** |
| Assets | * Computer hardware * Computer software * Organizational goodwill * Operational data |
| Vulnerabilities | * Physical access to computer * Insufficient password strength * Irregular/corrupt data backups |
| Threats | * Data loss/corruption * Unauthorized computer and DBMS access * Hardware failure or theft * Software failure * Power failure * Malware infection * Natural disasters |
| Safeguards | * Adherence to recommended procedures and protocols * Enforcement of Security Policies * Daily incremental backups to external storage * Automated OS and DBMS updates/patches |
| Losses | Direct   * Replacing computer hardware * Cost of technicians to recover from system failures * Missed client appointments   Indirect   * Operational downtime and disruption * Damage to organizational goodwill |

For all identified risks for the project, please reference the Risk Register. The Risk Register includes the following risks:

* Martin Cleaners going out of business
* Group members dropping out of project
* Project not meeting time constraints
* Project going over budget
* Sponsor inexperience with using a database management system
* Software vulnerabilities
* Hardware vulnerabilities
* Project members unable to design adequate database system
* Stakeholder unwilling to purchase necessary hardware or software

**Security Policies**

Required and additional security policies include:

|  |  |
| --- | --- |
| **Policy** | **Description** |
| Acceptable Use | This policy outlines the acceptable use of computer equipment at Martin Cleaners. It helps employees to avoid inappropriate use that will expose Martin Cleaners to outside risks. |
| Password Protection | This policy is to establish standards for passwords and to protect the existing passwords. |
| Disaster Recovery Plan | This policy establishes requirements for disaster recovery and how to recover IT systems and data in case of a disaster. |
| Ethics | This policy establishes culture of openness, trust and emphasize on fair business. This policy is to guide business behavior that ensures ethical conduct. |
| Email | This policy ensures proper use of the email system at Martin Cleaners and makes users aware of the system. |
| End User Encryption Key Protection | This policy outlines the requirements for how to protect the encryption keys of the end users. The policy helps to prevent fraudulent activities. |
| Clean Desk | This policy establishes minimum requirements to ensure secure, out-of-plain-site storage of all information about employees, customers, and vendors. |
| Security Response Plan | This policy helps businesses to develop a security response plan. The policy ensures that management team has all the information to respond to possible security incidents. |

For more policy information, please refer to Appendix G.

|  |  |
| --- | --- |
|  | |
| **Project Title:** | Martin Cleaners Database Management | |  | **Date Prepared:** | June 1st, 2019 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Risk ID** | **Risk Statement** | **Probability** (High, Med, Low) | **Impact** (0-5) | | | | **Score** | **Response** |
| Scope | Quality | Schedule | Cost |
| 01 | Martin Cleaners going out of business | Low | 5 | 5 | 5 | 5 | 20 |  |
| 02 | Group members dropping out of project | Low | 5 | 5 | 5 | 0 | 15 | We’ve all committed to this class and the next. |
| 03 | Project not meeting time constraints | Low | 5 | 5 | 5 | 0 | 15 | We’ve all been able to make our deadlines in a timely manner. |
| 04 | Project going over budget | Low | 0 | 5 | 0 | 5 | 10 | Everything we use is free for students. |
| 05 | Stakeholder inexperience with using a database management system | High | 5 | 5 | 5 | 5 | 20 | The stakeholder in this instance hasn’t been using a database management system for the business. With our system, we plan to make the documentation as thorough as possible to help with the transition and learning process. |
| 06 | Software vulnerabilities | Medium | 0 | 0 | 0 | 5 | 5 | We will apply best practices, which we’ve learned through the course of our study, for the best possible software protection. |
| 07 | Hardware vulnerabilities | Medium | 0 | 0 | 0 | 5 | 5 | We will inform Martin Cleaners of the best practices for hardware protection. |
| 08 | Project members unable to design adequate database system due to inexperience | Low | 5 | 5 | 5 | 0 | 15 | We all have the skills necessary to create a functional database system. |
| 09 | Stakeholder unwilling to purchase necessary hardware or software to properly run the database system | Low | 5 | 5 | 5 | 5 | 20 |  |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Revised Probability** | **Revised Impact** (0-5) | | | | **Revised Score** | **Responsible Party** | **Actions** | **Status** | **Comments** |
| Scope | Quality | Schedule | Cost |
| Low | 5 | 5 | 5 | 5 | 20 | Stakeholder | No action needed. | Complete | Martin Cleaners is in no danger of going out of business. |
| Low | 5 | 5 | 5 | 0 | 15 | Group members | No action needed. | Complete | Project group members have already discussed this possibility. |
| Low | 5 | 5 | 5 | 0 | 15 | Group members | No action needed. | Complete | Project group members have already discussed this possibility. |
| Low | 0 | 5 | 0 | 5 | 10 | Group members | No action needed. | Complete | Project group members have already discussed this possibility. |
| Low | 5 | 5 | 5 | 5 | 20 | Group members | Continue creating documentation until system development begins. | In Progress | Currently creating documentation for stakeholder. |
| Low | 0 | 0 | 0 | 5 | 5 | Group members | Follow best practices when creating the database system. | Not Started | Database System has yet to be constructed. |
| Low | 0 | 0 | 0 | 5 | 5 | Group members | Follow best practices when setting up the physical hardware for the database system. | Not Started | Database System has yet to be constructed. |
| Low | 5 | 5 | 5 | 0 | 15 | Group members | We all have the requisite experience to create a capable database system. | Not Started | Database System has yet to be constructed. |
| Low | 5 | 5 | 5 | 5 | 20 | Group members | Convince stakeholder of the benefit of the database system compared to current system. | Not Started | Database System has yet to be constructed. |

|  |  |
| --- | --- |
|  | |
| **Project Title:** | Martin Cleaners | |  | **Date Prepared:** | 5/29/2019 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Stakeholder** | **Requirement** | **Category** | **Priority** | **Acceptance Criteria** |
| Sheri Martins | Front end of the system should be user friendly. | Functional | Medium | A clear, professional, and easy to use database application. |
| Sheri Martins | Ability to automate all invoices for the company. | Functional | High | Automate invoices and send them to customers. |
| Sheri Martins | Data should be stored securely to have them confidential. | Security & Safety | High | Access to sensitive data should be limited by users. |
| Sheri Martins | Unauthorized access to data should be strictly prevented through a strict password and encryption techniques. | Privacy & Security | Medium | Only designated employees are able to access the database. Password should not be shared. |
| Sheri Martins | Ability to track availability of inventory and send email if inventory is low. | Performance | High | System should be able to store detailed information about inventory. |
| Sheri Martins | Ability to track the location and availability of all equipment | Performance | High | Equipment location and availability is stored in the database and available. |
| Sheri Martins | Organization should have a centralized database. | Technical & Quality | Medium | All data should be stored in a centralized database. |

|  |  |
| --- | --- |
|  | |
| **Project Title:** | Martin Cleaners | |  | **Date Prepared:** | 6/1/2019 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Issue ID** | **Category** | **Issue** | **Impact on Objectives** | **Urgency** |
| 003 | Scheduling | John was delayed in doing work due to illness. | Baseline Project Plan was delayed 1 day. | High |
|  |  |  |  |  |
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|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Responsible Party** | **Actions** | **Status** | **Due Date** | **Comments** |
| Team | The team will help assist John with the document to get it done on time. | Complete | 6/1/19 |  |
|  |  |  |  |  |
|  |  |  |  |  |
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|  |  |  |  |  |



# Milestone 4

**Milestone Manager – Shafiq Jahish/John Manzo**

June 7, 2019 – June 15, 2019

**Milestone 4**

**Table of Contents**

**Roles and Responsibilities Matrix 73**

**Milestone Change Log 76**

**Client Documents 78**

[**Opening Statement**](#_Toc9616662) **78**

[**Executive Summary 78**](#_Toc9616663)

[**Implications for the Client**](#_Toc9616664) **80**

[**Items for Approval**](#_Toc9616665) **80**

**Data dictionary documentation 82**

**[context Level 82](#ISRA)**

**[Level 0 88](#ISRA)**

**[Level 1 112](#ISRA)**

**Issue Log ………………………………………………125**

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**Martin Cleaners Database Management System**

**ROLES AND RESPONSIBILITY MATRIX**



**Department:** Operations

**Product/Process:** Inventory, Invoicing, Contractors, Clients

**Document Owner:** Shafiq Jahish

**Project/Organization Role:** Milestone Manager

|  |  |  |  |
| --- | --- | --- | --- |
| Version | Date | Author | Change Description |
| 1.0. | 06/06/2019 | Shafiq Jahish | Initial release. |



| **Title** | **Role** | **Responsibilities** |
| --- | --- | --- |
|  | The Project Manager is responsible for developing, in conjunction with the Project Sponsor, the project charter. The Project Manager ensures that the project is delivered on time, within budget, and to the required quality standards. | * Manage and lead the project team. * Develop and maintain a detailed project plan. |
| CJ Kozeny | CJ will be responsible for updating Tracking Gantt chart, which will record the “guesstimates” of time frames and record the “actual” time frames. CJ will also work on the IDEFO diagram. | * Tracking Gantt * IDEFO Diagram * IDEFO Legends |
| John Manzo | John will work on the Data Flow Diagram since he completed the Baseline Project Plan. John will also work on TO-BE workflow diagram sine he worked on the AS-IS workflow diagram. | * Data Flow Diagram * TO-BE Workflow Diagram * Data Dictionary Documentation. * DFD Legends |
| Shafiq Jahish | Shafiq is the co-manager for this milestone. Since John will be doing the diagrams, Shafiq will be doing most of the milestone managing activities. Shafiq is responsible for RRM, Running Document, Requirements Documentation, and Data Dictionary Documentation. | * RRM * Running Document * Data Dictionary Documentation. * Data Dictionary Legends |
| Erik Eiler | Erik manages documentation of the daily workings of the team. He is also responsible for the Use Case Diagram | * Change Log * Email Log * Group Meeting Minutes * Issues Log * Use Case Diagram * Use Case Legends |
| Joe Cremeens  Milestone Manager | Joe leads the client documents for this milestone. This includes creation of an opening statement, executive summary, client implications, and items for approval. Contact with the stakeholder is constant and the ability to adapt is essential. Joe will also be responsible for the Use Case Description. | * Client Documents * Use Case Description |

## 

**Martin Cleaners Database Management System**

## Milestone Change Log

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Rev. No.** | **Change** | **Reference Sections** |
| 6/6/19 | 1.0 | Created Roles and Responsibilities Matrix | Roles and Responsibilities Matrix |
| 6/10/19 | 1.0 | Updated Roles and Responsibilities, Assigned Legends to the diagrams, Added John to DDD | Roles and Responsibilities Matrix |
| 6/10/19 | 1.0 | Created Client Documents | Client Documents |
| 6/11/19 | 1.1 | Project manager comments added | Client Documents |
| 6/11/19 | 1.2 | Fixed grammatical errors, Simplified definition of diagrams, Added Use Case Descriptions to approval list | Client Documents |
| 6/11/19 | 1.3 | Restructured sentences in descriptions | Client Documents |
| 6/11/19 | 1.0 | Created the TO-BE Workflow Diagram | Workflow Diagrams |
| 6/11/19 | 1.0 | Created Data Flow Diagrams | Data Flow Diagrams |
| 6/11/19 | 1.1 | Project manager comments added | Data Flow Diagrams |
| 6/11/19 | 1.2 | Changed the Level-0 diagram, Fixed process names | Data Flow Diagrams |
| 6/11/19 | 1.3 | Added the Level-1 decomposition | Data Flow Diagrams |
| 6/12/19 | 1.4 | Changed the PRC 2.0 decomposition | Data Flow Diagrams |
| 6/12/19 | 1.0 | Updated Work Breakdown Structure for Milestone 4 | Work Breakdown Structure |
| 6/12/19 | 1.0 | Created IDEF0 diagrams | IDEF0 Diagrams |
| 6/13/19 | 1.5 | Added second Client external for better flow | Data Flow Diagrams |
| 6/13/19 | 1.6 | Finalized the Level-1 decomposition | Data Flow Diagrams |
| 6/13/19 | 1.0 | Created Use Case Diagrams | Use Case Diagrams |
| 6/14/19 | 1.0 | Created Data Flow Diagrams Legend | Data Flow Diagrams Legend |
| 6/13/19 | 1.0 | Created Data Dictionary Documentation | Data Dictionary Documentation |
| 6/13/19 | 1.1 | Changed output flows for A0 | IDEF0 Diagrams |
| 6/14/19 | 1.1 | Added Sea-Level Case Diagrams | Use Case Diagrams |
| 6/14/19 | 1.7 | Added process to decomposition of PRC 4.0 | Data Flow Diagrams |
| 6/14/19 | 1.1 | Added more decomposition to the context level | Data Dictionary Documentation |
| 6/14/19 | 1.2 | Project manager comments added | Data Dictionary Documentation |
| 6/14/19 | 1.3 | Fixed decomposition of PRC 0, Added a decomposition for Phone Number | Data Dictionary Documentation |
| 6/14/19 | 1.4 | Changed Reports decomposition | Data Dictionary Documentation |
| 6/14/19 | 2.0 | Created Level-0 Data Dictionary Documentation | Data Dictionary Documentation |
| 6/14/19 | 3.0 | Created the Level-1 Data Dictionary Documentation for PRC 1.0 | Data Dictionary Documentation |
| 6/14/19 | 3.1 | Project manager comments added | Data Dictionary Documentation |
| 6/14/19 | 3.2 | Created the decomposition for all level-1 PRC 4 | Data Dictionary Documentation |
| 6/14/19 | 3.3 | Added the template for Data Flow part of the DDD | Data Dictionary Documentation |
| 6/14/19 | 1.2 | Project manager comments added | IDEF0 Diagrams |
| 6/14/19 | 1.3 | Changed the outputs of the last two processes | IDEF0 Diagrams |
| 6/14/19 | 1.4 | Removed an input of the last process, Added mechanisms | IDEF0 Diagrams |
| 6/14/19 | 1.0 | Created Meeting Minutes | Meeting Minutes |
| 6/14/19 | 1.0 | Created Email Log | Email Log |
| 6/14/19 | 1.0 | Created Issue Log | Issue Log |
| 6/14/19 | 1.0 | Created Change Log | Change Log |
| 6/15/19 | 1.7 | Added a new process to decomposition of PRC 4.0 | Data Flow Diagrams |
| 6/15/19 | 2.1 | Corrected the data flow decompositions to not reference data stores | Data Dictionary Documentation |
| 6/15/19 | 2.2 | Corrected the data store decompositions to | Data Dictionary Documentation |
| 6/15/19 | 3.4 | Added the data flow sections to Level-1 Data Dictionary Documentation | Data Dictionary Documentation |
| 6/15/19 | 1.0 | Created Use Case Descriptions | Use Case Descriptions |
| 6/15/19 | 1.1 | Fixed capitalization | Use Case Descriptions |
| 6/15/19 | 1.0 | Created a file with every diagram’s legends | Diagram Legends |
| 6/15/19 | 1.1 | Added last walkthrough | Meeting Minutes |
| 6/15/19 | 1.1 | Added last emails | Email Log |
| 6/15/19 | 1.1 | Added changes | Change Log |

****

**Martin Cleaners Database Management System**

**CLIENT DOCUMENTS**



**Opening Statement**

Milestone 4 for Martin Cleaners Database Management System has been completed. The systems development project continues to remain on time and on budget.

**Executive Summary**

Milestone 4 builds on previous milestones by providing updated versions of all current documents, while also providing the following additional documents: Data Flow Diagrams, IDEF0 Diagrams, Use Case Diagrams and Descriptions, and the Data Dictionary Documentation. The Milestone Manager for milestone 4 is John Manzo.

**Milestone 4 documents include:**

* **Data Flow Diagrams (DFD)**
  + The DFD consists of three diagrams: Context Diagram, Level-0 Diagram, and the Level-1 Diagram. The Context Diagram illustrates the system from a high-level overview that only uses one process to represent the entire system and its relationships to processes. The Context Diagram does not go into explicit detail, as more detail will be found on the Level-0 and Level-1 Diagrams. DFDs consist of External Entities (also known as Interfaces), Processes, Data Stores, and Data Flows. External Entities are entities that exist outside of the system and represent the inputs and outputs of the DFD. Processes are responsible for the actions that are completed within the system. Data Flows are the relationships between the Processes, Data Stores and Interfaces. The Level-0 Diagram delves into more detail about the Context Diagram, explaining the relationships between the Processes, Data Stores, and Interfaces. The Level-1 Diagram breaks that down even further, to the most basic level.
  + **Please refer to Appendix H for additional information.**
* **Tracking Gantt Chart (TCG)**
  + The Tracking Gantt Chart tracks guestimate timeframes (“a best guess start” with “a best guess” finish) and actual timeframes (the actual start and finish times), along with detailing the differences between them (otherwise known as the variance).
  + **Please refer to Appendix F for additional information.**
* **IDEF0 Diagrams** 
  + The IDEF0 Diagrams consist of two parts, the A-0 Diagram, and the A0 Diagram. The A-0 Diagram is a high-level, simplistic overview of the

system, given four components: inputs, outputs, controls, and mechanisms (ICOM). Like the DFD Diagrams, much of the system breaks down further in the A0 Diagram. Each component connects to an Activity, represented as a rectangle. Inputs, which are on the left-hand side of the Activity, are c into Outputs, which are represented on the right-hand side of the Activity. Controls, which are on the top of the Activity, constrain and direct the activities. Mechanisms, which are the bottom-part of the Activity, represent the Activity’s physical aspects. The A0 Diagram breaks these Activities and Components down to the most basic level.

* + **Please refer to Appendix I for additional information.**
* **Use Case Diagrams** 
  + The Use Case Diagrams consist of the Kite-level and the Sea-level. The Kite-level is high-level diagrams that presents the major use cases for our application. The Sea-level diagram decomposes the Kite-level use cases into additional detail. Use Case Diagrams are depicted with various objects, including a System (represented by rectangles), a Use Case (represented by ovals), and Actors (represented by stick-figures). The connection between these objects are called Relationships. Relationships are typically drawn between an Actor and a Use Case within a System and are indicated with Connection Lines. Relationships have arrowheads attached to them, which define a “uses” or “extends” relationship. An “includes/uses” relationship indicates that a Use Case is needed by another to perform a task, while an “extends” indicates other options under other certain Use Cases.
  + **Please refer to Appendix J for additional information.**
* **Use Case Description** 
  + The Use Case Descriptions consist of Kite-level and Sea-level descriptions. The Use Case Description is a companion piece to the Use Case Diagrams and serves the purpose of explaining the Actors, Use Cases, Relationships, and the System under which they all operate. For both the Kite-level and Sea-level descriptions, the following parts of the Use Case Diagrams are broken down: The Use Case name, the Primary Actor, the Level (Kite or Sea), the Stakeholder, the Precondition, Minimal Guarantee, Success Guarantee, Trigger, and the Main Success Scenario.
  + **Please refer to Appendix J for additional information.**
* **Data Dictionary Documentation (DDD)**
  + The DDD provides a detailed overview of the DFD, both within a Structured English (SE) format and an Algebraic Notation format. The SE term refers to a form of English written as a series of blocks using indentation and capitalization that represent a hierarchical structure of logic specifications. The Algebraic Notation (AN) portion of the DDD expresses the records and elements in a data store and data flows. AN utilizes mathematical notations, represented with the following signs:

|  |  |
| --- | --- |
| **Symbols** | **Descriptions** |
| = | Equals: “Contains” or “Equals” |
| + | Plus: “Includes” or “In addition to” |
| [ ] | Brackets: “Repetition” |
| ( ) | Parentheses: “Optional” |
| { } | Curly Braces: “Selection” |
| < > | Carrots: “One or more” |

* **Issue Log (IL)**
  + The Issue Log is a dynamic document that is kept throughout the project. The Issue Log tracks all issues throughout the project lifecycle. An issue is a point or matter in question or in dispute, one that is not settled and is under discussion, or one over which there are opposing views or disagreements.

**Implications for the Client**

Milestone 4 has no additional implications for the client.

**Items for Approval**

**Items for approval are:**

* Data Flow Diagrams
* IDEF0 Diagrams
* Use Case Diagrams
* Use Case Descriptions
* Data Dictionary Documentation
* Tracking Gantt Chart
* Issue Log

**Data Dictionary Legend**

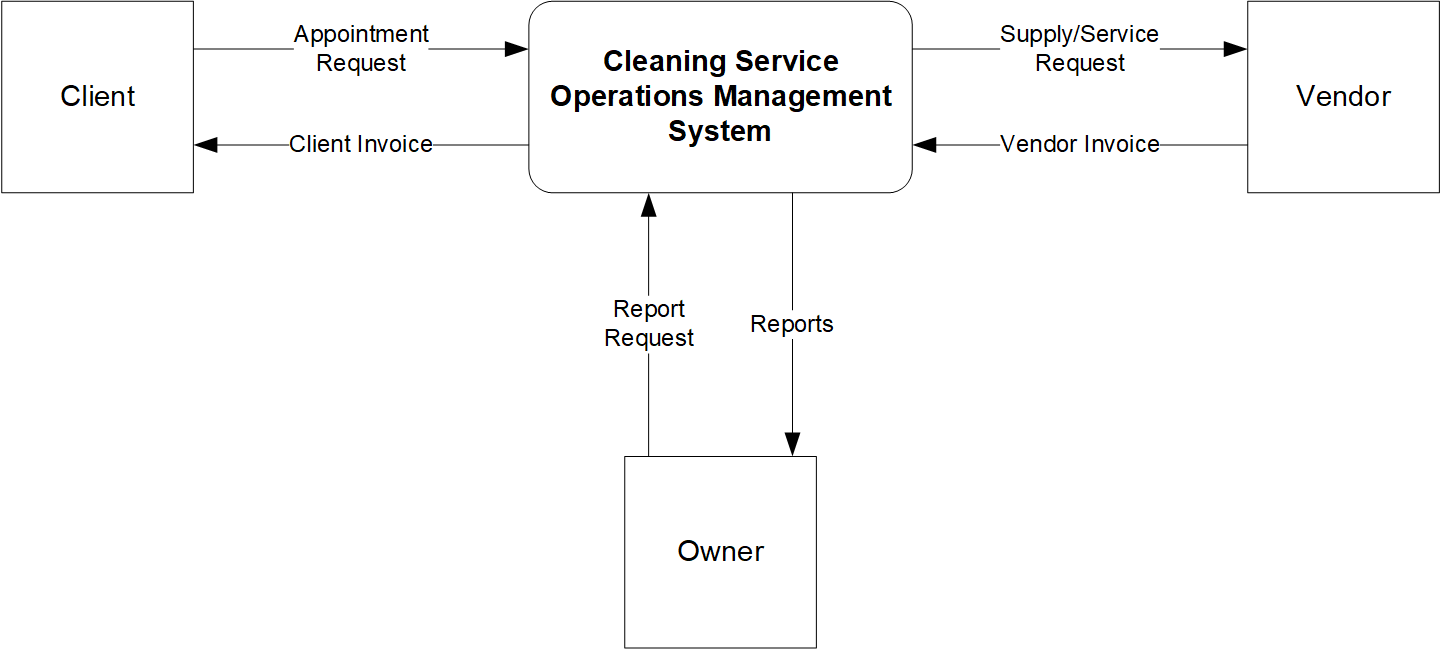
*DefinitionSource: Dr. Leah Pietron*

****

**Martin Cleaners Database Management System**

**DATA DICTIONARY DOCUMENTATION**







**Context Level for Martin Cleaners**

**Database Management System**

**Label**:

PRC 0 – Cleaning Service Management System

**Description**:

This process explains the steps about how a client can schedule cleaning services.

**Decomposition**:

RECEIVE Client Appointment Request from Client

GENERATE Supply/Service Request from Vendor

RECEIVE Vendor Invoice from Vendor

REVIEW Report Request from Owner

GENERATE Reports for Owner

GENERATE Client Invoice for Client

**External Entities/Externals**

**Label**:

EXT1 – Client

**Description**:

The Client requests cleaning services from the company.

**Label**:

EXT2 – Vendor

**Description**:

The Vendor provides supply and services for client.

**Label**:

EXT3 – Owner

**Description**:

The Owner runs the company and requires reports.

**Data Flows**

**Context Diagram**

**Label**:

DAF 1 – Appointment Request

**Description**:

The Client request is processed to set up an appointment.

**Decomposition**:

Appointment Request =

Client Name +

Client Address +

Client Phone Number +

Appointment Request Date +

Appointment Request Time

Client Name =

First Name +

(Middle Initial) +

Last Name

Client Address =

Street +

(Apartment) +

City +

State +

Zip +

Country

Appointment Request Date =

Month +

Day +

Year

Appointment Request Time =

Hour +

Minute

**Label**:

DAF 2 – Supply/Service Request

**Description**:

Supply/Service Request is used to process service order for Client.

**Decomposition**:

Supply/Service Request =

Client Account Number +

Client Name = **Client Name** +

Client Address = **Client Address** +

Phone Number

Phone Number =

Area code +

Phone number

**Label**:

DAF 3 – Vendor Invoice

**Description**:

The Vendor invoice contains information about services and supplies provided to perform the cleaning services.

**Decomposition**:

Vendor Invoice =

<Supply or service request> +

Request number +

Vendor Name +

Vendor Address +

Date = **Date** +

Phone number = **Phone number**

Vendor Name =

First Name +

(Middle Initial) +

Last Name

Vendor Address =

<Street Address/PO Box> +

City +

State +

Zip Code +

Country

**Label**:

DAF 4 – Report Request

**Description**:

The report request contains details of what information does the owner wants report on.

**Decomposition**:

Report Request =

Performance Report +

Cash Flow Report +

Client List Report +

Supply ordered from Vendor

Performance Report =

Cost of the Services +

Scope of the Services +

Quality of the Services +

Status of Services

Cash Flow Report =

Cash flow from investing +

Cash flow from financing +

Cash flow from operations +

Net cash flow

Client List Report =

Client Name = **Client Name** +

Client Address = **Client Address** +

Phone Number = **Phone Number** +

Client Status +

Client Email Address

Client Status =

Active +

Inactive

Supply ordered from Vendor =

Cost of Supplies +

Date = **Date** +

Job Number Supplies used for

**Label**:

DAF 4 – Reports

**Description**:

Reports contains information about what how company is doing their business.

**Decomposition**:

**Reports** =

Performance Report = Performance Report +

Cash Flow Report = Cash Flow Report +

Client List Report = Client List Report +

Supply ordered from Vendor = Supply ordered from Vendor

**Label**:

DAF 6 – Client Invoice

**Description**:

The client invoice contains information about appointment request and services provided.

**Decomposition**:

Client Invoice =

Appointment Request +

Service Number +

Client Name = **Client Name** +

Client Address = **Client Address** +

Phone Number = **Phone Number** +

Date = **Date** +

Invoice Amount

**Level-0 – PRC 1 Decomposition**







**Process 1.0**

**Label**:

PRC 1 – Schedule Client Appointment

**Description**:

This process describes the steps for a client to schedule an appointment.

**Decomposition**:

RECEIVE Appointment Request from Client

RECEIVE Appointment Availability from Appointment

BEGIN IF

IF Appointment Request = Invalid

THEN

RETURN Invalid Appointment Request to Client

ELSE

RECEIVE Client Information from Client table

BEGIN IF

IF Client Information = Invalid

THEN

WRITE New Client Information to Client table

ENDIF

WRITE Appointment Update to Appointment

SEND Valid Client Appointment to PRC 2.0

ENDIF



**Data Flows for PRC 1.0**

**Label**:

DAF 7 – Appointment Availability

**Description**:

The availability status of the Appointment Request is received from the Appointment table.

**Decomposition**:

**Appointment Availablity =**

Appointment Request Date = **Appointment Request Date** +

Appointment Request Time = **Appointment Request Time**



**Label**:

DAF 8 – Invalid Appointment Request

**Description**:

The Appointment Request is returned to the Client as invalid.

**Decomposition**:

**Invalid Appointment Request = Appointment Request**



**Label**:

DAF 9 – Client Information

**Description**:

The status of the Client’s existence in the system is received from the Client table.

**Decomposition**:

**Client Information =**

Client ID +

Client Name = **Client Name** +

Client Address = **Client Address**



**Label**:

DAF 10 – New Client Information

**Description**:

A new Client record is written to the Client table.

**Decomposition**:

**New Client Information =**

Client ID +

(Company Name) +

Client Name = **Client Name** +

Client Address = **Client Address** +

Client Phone Number = **Phone Number** +

Client Email +

(Client Text = **Phone Number**)



**Label**:

DAF 11 – Appointment Update

**Description**:

A new Appointment for the Client is written to the Appointment table.

**Decomposition**:

**Appointment Update =**

Apointment ID +

Client ID +

Date of Service = **Date** +

Start Time = **Appointment Request Time** +

End Time = **Appointment Request Time** +

Service Description +

(Inventory ID1) +

(Inventory ID2) +

(Inventory ID3) +

(Equipment ID1) +

(Equipment ID2) +

(Equipment ID3) +

Appointment Price +

Appointment Status

**Service Description =**

[Number of Rooms | Square Footage] +

(Bathroom Service) +

(Kitchen Service) +

(Wood Floors) +

(Carpet)

**Appointment Status =**

[Upcoming | Complete | Canceled]



**Label**:

DAF 12 – Valid Client Appointment

**Description**:

The Client’s scheduled Appointment is sent to the next process.

**Decomposition**:

**Valid Client Appointment = Appointment Update**



**Data Stores for PRC 1.0**

**Label**:

DAS 1 – Client

**Description**:

The Client table stores client information, such as client ID, company name client name, client address, and client contact methods.

**Decomposition**:

**Client =**

Client ID +

(Company Name) +

Client Name +

Client Address +

Client Phone Number +

Client Email +

(Client Text Number)

**Client Name =**

First Name +

(Middle Initial) +

Last Name

**Client Address =**

Street Adresss +

(Unit) +

City +

State +

Zip +

Country +

**Client Phone Number =**

Area Code +  
 Phone Number

**Client Text Number = Client Phone Number**



**Label**:

DAS 2 – Appointment

**Description**:

The Appointment table stores information about scheduled appointments, such as appointment ID, client ID, appointment date and start and stop times, appointment service description, supplies and equipment needed, price, and appointment status.

**Decomposition**:

**Appointment =**

Apointment ID +

Client ID +

Date of Service +

Date of Service +

Date of Service Start Time +

Date of Service End Time +

Service Description +

(Inventory ID1) +

(Inventory ID2) +

(Inventory ID3) +

(Equipment ID1) +

(Equipment ID2) +

(Equipment ID3) +

Appointment Price +

Appointment Status

**Date of Service =**

Day +

Month +

Year

**Date of Service Start Time =**

Hour +

Minute

**Date of Service End Time = Date of Service Start Time**



**Level-0 – PRC 2 Decomposition**







**Process 2.0**

**Label**:

PRC 2 – Perform Cleaning Services

**Description**:

This process describes the steps for cleaning services to be completed.

**Decomposition**:

RECEIVE Valid Client Appointment from PRC 1

RECEIVE Supply Status from Inventory

WRITE Supplies Update to Inventory

RECEIVE Equipment Status from Equipment

WRITE Equipment Update to Equipment

RECEIVE Vendor Information from Vendor table

BEGIN IF

IF Vendor Information = Invalid

THEN

WRITE New Vendor Information to Vendor table

ENDIF

SEND Supply/Service Order to Vendor

RECEIVE Supplies/Services from Vendor

SEND Service Completion to PRC 3.0



**Data Flows for PRC 2.0**

**Label**:

DAF 13 – Supplies Status

**Description**:

The availability status of Inventory items is received from the Inventory table.

**Decomposition**:

**Supplies Status =**

Inventory Item ID +

Inventory Item Quantity +

Vendor ID



**Label**:

DAF 13 – Supplies Update

**Description**:

The quantity of Inventory items on-hand is decremented in the Inventory table.

**Decomposition**:

**Supplies Update =**

Inventory Item ID +

Inventory Item Quantity



**Label**:

DAF 14 – Equipment Status

**Description**:

The availability status of Equipment items is received from the Equipment table.

**Decomposition**:

**Equipment Status =**

Equipment Item ID +

Equipment Item Operational +

Equipment Item Available +

Sales Vendor ID +

Service Vendor ID



**Label**:

DAF 15 – Equipment Update

**Description**:

Equipment items on-hand are changed to unavailable in the Equipment table for the duration of the Cleaning Services for which they are used.

**Decomposition**:

**Equipment Update =**

Equipment Item ID +

Equipment Item Available



**Label**:

DAF 16 – Vendor Information

**Description**:

The status of the Vendor’s existence in the system is received from the Vendor table.

**Decomposition**:

**Vendor Information =**

Vendor ID +

Vendor Name = **Vendor Name** +

Vendor Address = **Vendor Address**



**Label**:

DAF 17 – New Vendor Information

**Description**:

A new Vendor record is written to the Vendor table.

**Decomposition**:

**New Vendor Information =**

Vendor ID +

Company Name +

(Contact Name = **Client Name**) +

Vendor Address = **Client Address** +

Vendor Phone Number = **Phone Number** +

Vendor Email +

(Vendor Text = **Phone Number**) +

(Vendor Website)



**Label**:

DAF 18 – Supply/Service Order

**Description**:

An order for Inventory items or Equipment items or services is sent to the Vendor.

**Decomposition**:

**Supply/Service Order =**

Item Name +

(Inventory Item Quantity) +

(Equipment Item Service) +

Date Needed = **Date** +

Owner Information

**Owner Information =**

Owner Name = **Client Name** +

Owner Address = **Client Address** +

Owner Phone Number = **Phone Number**



**Label**:

DAF 19 – Supplies/Services

**Description**:

Ordered Inventory or Equipment items are received from the Vendor.

**Decomposition**:

**Supply/Service Order =**

Item Name +

Item Quantity +



**Data Stores for PRC 2.0**

**Label**:

DAS 3 – Inventory

**Description**:

The Inventory table stores information about cleaning supplies, such as inventory item ID, quantity on-hand, and the vendor ID for the Vendor which supplies the Inventory item.

**Decomposition**:

**Inventory =**

Inventory Item ID +

Inventory Item Quantity +

Vendor ID



**Label**:

DAS 4 – Equipment

**Description**:

The Equipment table stores information about cleaning equipment, such as equipment item ID, date purchased, warranty expiration date, whether the item is operational or available, and vendors IDs for the sales and service Vendors.

**Decomposition**:

**Appointment = Equipment Status** +

Equipment Item ID +

Equipment Item Operational +

Equipment Item Available +

Sales Vendor ID +

Service Vendor ID +

Date Purchased = **Date of Service** +

Warrenty Expiration Date = **Date of Service**



**Label**:

DAS 5 – Vendor

**Description**:

The Vendor table stores vendor information, such as vendor ID, vendor company name, vendor contact name, vendor address, and vendor contact methods.

**Decomposition**:

**Vendor =**

Vendor ID +

Company Name +

(Contact Name = **Client Name**) +

Vendor Address = **Client Address** +

Vendor Phone Number = **Client Phone Number**+

Vendor Email +

(Vendor Text Phone Number = **Client Phone Number**) +

(Vendor Website)



**Level-0 – PRC 3 Decomposition**







**Process 3.0**

**Label**:

PRC 3 – Reconcile Invoices

**Description**:

This process describes the steps for managing Account Receivable invoices sent to Clients and Account Payable invoices received from Vendors.

**Decomposition**:

RECEIVE Service Completion from PRC 3

SEND Client Invoice to Client

RECEIVE Client Payment from Client

WRITE Account Receivable Update to Account Receivable

RECEIVE Vendor Invoice from Vendor

SEND Vendor Payment to Vendor

WRITE Account Payable Update to Account Payable



**Data Flows for PRC 3.0**

**Label**:

DAF 20 – Client Payment

**Description**:

The Client sends a check or credit card payment to the Owner upon receiving an Account Receivable invoice from the Owner.

**Decomposition**:

**Client Payment =**

Invoice Information = **Client Invoice** +

Payment Method

**Payment Method =**

[Check | Credit Card]

**Check =**

Bank’s Routing Number +

Checking Account Number +

Client’s Signature

**Credit Card =**

Credit Card Number +

Credit Card Exparation Date +

Credit Card CVV Number



**Label**:

DAF 21 – Account Receivable Update

**Description**:

A new Account Receivable record is written to the Account Receivable table.

**Decomposition**:

**Account Receivable Update =**

Client Invoice Information = **Client Invoice** +

Payment Date = **Date**



**Label**:

DAF 22 – Vendor Payment

**Description**:

The Owner sends a check or credit card payment to the Vendor upon receiving an Account Payable invoice from the Vendor.

**Decomposition**:

**Vendor Payment =**

Vendor Invoice Information = **Vendor Invoice** +

Payment Method

**Payment Method =**

[Check | Credit Card]

**Check =**

Bank’s Routing Number +

Checking Account Number +

Owner’s Signature

**Credit Card =**

Credit Card Number +

Credit Card Exparation Date +

Credit Card CVV Number



**Label**:

DAF 23 – Account Payable Update

**Description**:

A new Account Payable record is written to the Account Payable table.

**Decomposition**:

**Account Payable Update =**

Account Payable ID +

Vendor ID +

Vendor Invoice Information = **Vendor Invoice** +

Payment Date = **Date**



**Data Stores for PRC 3.0**

**Label**:

DAS 6 – Account Receivable

**Description**:

The Account Receivable table stores records of client invoice information with the date of payment receipt by the Owner.

**Decomposition**:

**Account Receivable =**

Client Invoice ID +

Client ID +

Appointment ID +

Invoice Date = **Date of Service** +

Payment Due Date = **Date of Service** +

Amount Owed +

Payment Date = **Date of Service** +



**Label**:

DAS 7 – Account Payable

**Description**:

The Account Payable table stores unique records of vendor invoices coupled with information such as, account payable ID, vendor ID, and the date payment was sent to the Vendor.

**Decomposition**:

**Account Payable =**

Vendor ID +

Vendor Invoice Number +

Vendor Invoice Date = **Date of Service** +

Due Date = **Date of Service** +

Amount Due +

Payment Date = **Date of Service**



**Level-0 – PRC 4 Decomposition**







**Process 4.0**

**Label**:

PRC 4 – Generate Reports

**Description**:

This process describes the steps for generating Owner-requested reports from the system.

**Decomposition**:

RECEIVE Reports Request from Owner

RECEIVE Account Receivable Status from Account Receivable

RECEIVE Account Payable Status from Account Payable

RECEIVE Appointment Status from Appointment

RECEIVE Client Status from Client

RECEIVE Equipment Status from Equipment

RECEIVE Inventory Status from Inventory

SEND Reports to Owner



**Data Flows for PRC 4.0**

**Label**:

DAF 24 – Account Receivable Status

**Description**:

Account Receivable records are received from the Account Receivable table.

**Decomposition**:

**Account Receivable Status = Account Receivable Update**



**Label**:

DAF 25 – Account Payable Status

**Description**:

Account Payable records are received from the Account Payable table.

**Decomposition**:

**Account Payable Status = Account Payable Update**



**Label**:

DAF 26 – Appointment Status

**Description**:

Appointment records are received from the Appointment table.

**Decomposition**:

**Appointment Status = Appointment Update**



**Label**:

DAF 27 – Client Status

**Description**:

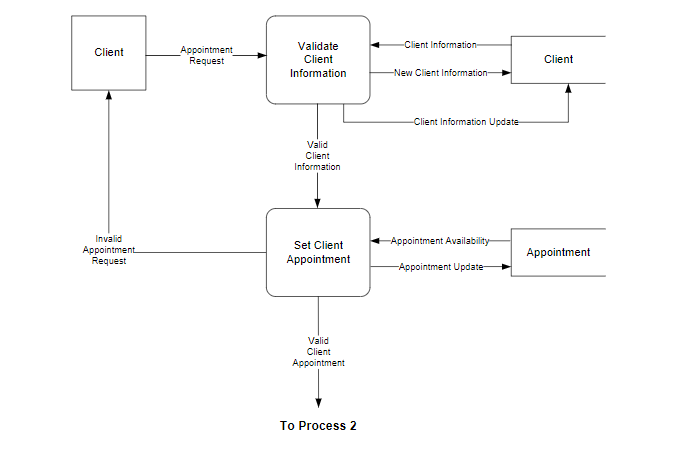
Client records are received from the Client table.

**Decomposition**:

**Client Status = New Client Information**



**Level 1 – Data Dictionary Decomposition**

**Level-1 PRC 1.1 Decomposition**

**Label:**

PRC 1.1 – Validate Client Information

**Description:**

This process receives an appointment request from the Client, then validates the client information by checking against the Client data store.

**Decomposition:**

RECEIVE Appointment Request from Client

READ Client Information from Client

BEGIN IF

IF Client Information is New

THEN

WRITE New Client Information to Client table

ELSE

WRITE Client Information Update to Client table

ENDIF

ENDIF

SEND Valid Client Information to PRC 1.2

**Level-1 PRC 1.1 Data Flows**

**Label:**

DAF 28 – Client Information Update

**Description:**

A change to any client information.

**Decomposition:**

(**Client Information Update** = N**ew Client Information**)

**Label:**

DAF 29 – Valid Client Information

**Description:**

The validated client information is sent to next process.

**Decomposition:**

**Valid Client Information** = **Client Information**

Level-1 PRC 1.2 Decomposition

**Label:**

PRC 1.2 – Set Client Appointment

**Description:**

After receiving the validated client information, this process sets up a client appointment.

**Decomposition:**

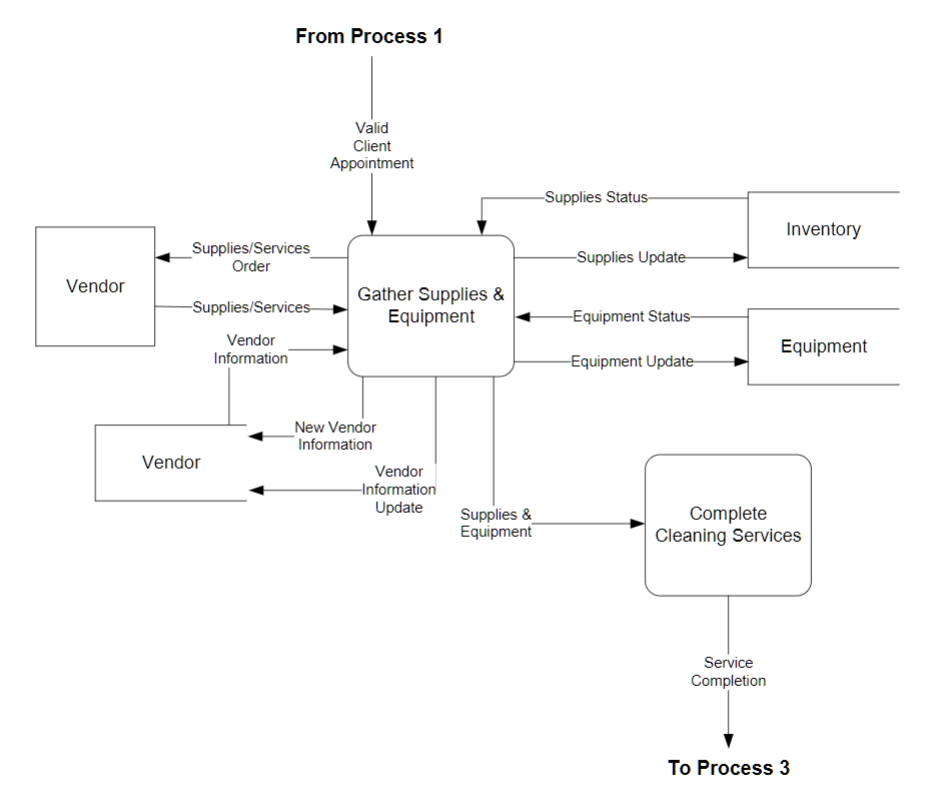
RECEIVE Valid Client Information from PRC 1.1

READ Appointment Availability from Appointment table

WRITE Appointment Update to Appointment table

SEND Invalid Appointment Request to Client

SEND Valid Client Appointment to PRC 2.0

Level-1 **PRC 2.1 Decomposition**

**Label:**

PRC 2.1 – Gather Supplies & Equipment

**Description:**

After receiving the validated client appointment, this process checks inventory and equipment, then sends an order for supplies to vendors.

**Decomposition:**

RECEIVE Valid Client Appointment from PRC 1.0

READ Supplies Status from Inventory table

WRITE Supplies Update to Inventory table

READ Equipment Status from Inventory table

WRITE Equipment Update to Inventory table

READ Vendor Information from Vendor table

BEGIN IF

IF Vendor Information is New

THEN

WRITE New Vendor Information to Vendor table

ELSE

WRITE Vendor Information Update to Vendor table

ENDIF

ENDIF

SEND Supplies/Services Order to Vendor

RECEIVE Supplies/Services from Vendor

**Level-1 PRC 2.1 Data Flows**

**Label:**

DAF 30 – Vendor Information Update

**Description:**

A change to any vendor information.

**Decomposition:**

**Vendor Information Update** = (**New Vendor Information**)

**Label:**

DAF 31 – Supplies & Equipment

**Description:**

The supplies and equipment gathered are sent to the next process.

**Decomposition:**

**Supplies & Equipment** =

Inventory Item ID +

Equipment Item ID

Level-1 PRC 2.2 Decomposition

**Label:**

PRC 2.2 – Complete Cleaning Services

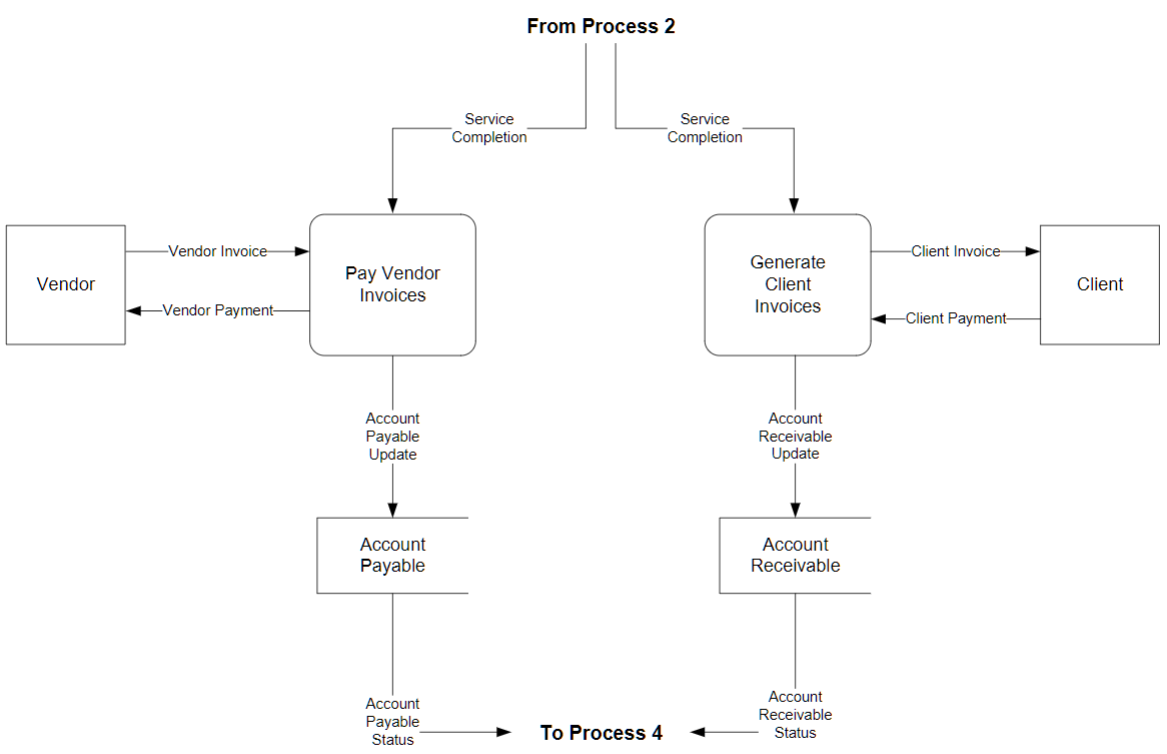
**Description:**

After receiving supplies and equipment, the cleaning services are completed.

**Decomposition:**

RECEIVE Supplies & Equipment from PRC 2.1

SEND Service Completion to PRC 3.0

Level-1 **PRC 3.1 Decomposition**

**Label:**

PRC 3.1 – Pay Vendor Invoices

**Description:**

After the service is competed, this process invoices and pays vendors

**Decomposition:**

RECEIVE Service Completion from PRC 2.0

RECEIVE Vendor Invoice from Vendor

SEND Vendor Payment to Vendor

WRITE Account Payable Update to Account Payable

Level-1 PRC 3.2 Decomposition

**Label:**

PRC 3.2 – Generate Client Invoices

**Description:**

After the service is competed, this process invoices clients and receives payment.

**Decomposition:**

RECEIVE Service Completion from PRC 2.0

SEND Client Invoice to Client

RECEIVE Client Payment from Client

WRITE Account Receivable Update to Account Receivable

A close up of a map

Description automatically generated

Level-1 PRC 4.1 Decomposition

**Label:**

PRC 4.1 – Review Reports Request

**Description:**

After the invoicing is completed, this process receives a reports request and gathers status needed for the report.

**Decomposition:**

RECEIVE Reports Request from Owner

SEND Invalid Reports Request to Owner

SEND Valid Reports Request to PRC 4.2

Level-1 PRC 4.1 Data Flows

**Label:**

DAF 32 – Invalid Reports Request

**Description:**

An error or invalidity was found in the reports requests and the owner is being notified.

**Decomposition:**

**Invalid Reports Request** = **Reports Request**

Level-1 PRC 4.1 Data Flows

**Label:**

DAF 33 – Valid Reports Request

**Description:**

The validated reports request is being sent to the next process to be generated.

**Decomposition:**

**Valid Reports Request** = **Reports Request**

Level-1 PRC 4.2 Decomposition

**Label:**

PRC 4.2 – Compile Reports Data

**Description:**

After the report request is validated, this process gathers all data needed from data stores.

**Decomposition:**

READ Account Payable Status from Account Payable

READ Account Receivable Status from Account Receivable

READ Inventory Status from Inventory

READ Equipment Status from Equipment

READ Client Status from Client

READ Appointment Status from Appointment

SEND Reports Data to PRC 4.3

Level-1 PRC 4.2 Data Flows

**Label:**

DAF 34 – Reports Data

**Description:**

All the data needed for the reports to be generated

**Decomposition:**

**Reports Data** =

**Account Payable Status**+

**Account Receivable Status**+

**Inventory Status**+

**Equipment Status**+

**Client Status**+

**Appointment Status**

**Level-1 PRC 4.3 Decomposition**

**Label:**

PRC 4.3 – Generate Performance Reports & Records Lists

**Description:**

After all the reports data is received, this process generates performance reports and records lists.

**Decomposition:**

RECEIVE Reports Data from PRC 4.2

SEND Account Payable Records Lists to Owner

SEND Account Receivable Records Lists to Owner

SEND Appointment Records Lists to Owner

SEND Equipment Records Lists to Owner

SEND Performance Reports to Owner

SEND Inventory Records Lists to Owner

SEND Client Records Lists to Owner

Level-1 PRC 4.3 Data Flows

**Label:**

DAF 35 – Account Receivable Records Lists

**Description:**

A filtered query of table records.

**Decomposition:**

**Account Receivable Records Lists** =

Client Invoice ID +

Client ID +

Appointment ID +

Invoice Date = **Date of Service** +

Payment Due Date = **Date of Service** +

Amount Owed +

Payment Date = **Date of Service** +

Level-1 PRC 4.3 Data Flows

**Label:**

DAF 36 – Account Payable Records Lists

**Description:**

A filtered query of table records.

**Decomposition:**

**Account Payable Records Lists** =

Vendor ID +

Vendor Invoice Number +

Vendor Invoice Date = **Date of Service** +

Due Date = **Date of Service** +

Amount Due +

Payment Date = **Date of Service**

**Level-1 PRC 4.3 Data Flows**

**Label:**

DAF 37 – Equipment Records Lists

**Description:**

A filtered query of table records.

**Decomposition:**

**Equipment Records Lists** =

**Equipment Status** +

Equipment Item ID +

Equipment Item Operational +

Equipment Item Available +

Sales Vendor ID +

Service Vendor ID +

Date Purchased = **Date of Service** +

Warrenty Expiration Date = **Date of Service**

**Level-1 PRC 4.3 Data Flows**

**Label:**

DAF 38 – Appointment Records Lists

**Description:**

A filtered query of table records.

**Decomposition:**

**Appointment Records Lists** =

Apointment ID +

Client ID +

Date of Service +

Date of Service +

Date of Service Start Time +

Date of Service End Time +

Service Description +

(Inventory ID1) +

(Inventory ID2) +

(Inventory ID3) +

(Equipment ID1) +

(Equipment ID2) +

(Equipment ID3) +

Appointment Price +

Appointment Status

**Date of Service =**

Day +

Month +

Year

**Date of Service Start Time =**

Hour +

Minute

**Date of Service End Time = Date of Service Start Time**

**Level-1 PRC 4.3 Data Flows**

**Label:**

DAF 39 – Inventory Records Lists

**Description:**

A filtered query of table records.

**Decomposition:**

**Inventory Records Lists** =

Inventory Item ID +

Inventory Item Quantity +

Vendor ID

Level-1 PRC 4.3 Data Flows

**Label:**

DAF 40 – Client Records Lists

**Description:**

A filtered query of table records.

**Decomposition:**

**Client Records Lists** =

Client ID +

(Company Name) +

Client Name +

Client Address +

Client Phone Number +

Client Email +

(Client Text Number)

**Client Name =**

First Name +

(Middle Initial) +

Last Name

**Client Address =**

Street Adresss +

(Unit) +

City +

State +

Zip +

Country +

**Client Phone Number =**

Area Code +  
 Phone Number

**Client Text Number = Client Phone Number**

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| --- | --- | --- | --- | --- |
| **Project Title:** | Martin Cleaners |  | **Date Prepared:** | 6/1/2019 |

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| **Issue ID** | **Category** | **Issue** | **Impact on Objectives** | **Urgency** |
| 004 | Scheduling | The diagrams are not as far along as they should be. | The whole project is stuck until diagrams are done. | High |
| 005 | Illness | Shafiq was ill for the meeting on 6/14/2019 | The DDD was not fair enough along. The team must be prepared to handle the Running Document as well | High |
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| **Responsible Party** | **Actions** | **Status** | **Due Date** | **Comments** |
| Team | The team must get diagrams in for first review by Thursday | Complete | 6/13/19 |  |
| Team | The team was divided up to assist with the DDD. | Complete | 6/15/19 | Erik and John are on the DDD. Christopher will handle the Running Document if needed. |
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