American Video Game Company

Software Project

Customer Relationship Management System

Matthew Heino

9-19-2020

Version 1.0

WESTERN GOVERNORS UNIVERSITY

CONTENTS

A. INTRODUCTION

In a business environment it is often necessary to centralize all the data that the company has accumulated during its business operations. One of the ways to accomplish this is to use a customer relationship management system (CRM). This technology allows all the company's data to be in an easily accessible place. This central repository will make it easier to perform all different kinds of business operations, such as performance analysis as well as maintaining a uniform way of displaying and collecting the company's data. The result for American Video Game Company will be a system that will better manage business resources such as everyday business processes, the company's business contacts, the sales data and other business related activities that may be of interest to management and other stakeholders.

A.1. PURPOSE STATEMENT

This document is to present a solution to American Video Game Company. It will elaborate on the benefits that a CRM will provide to the company. This document will lay the groundwork for developing the solution as well as layout the functionality that is expected to be provided by the system. This functionality will encompass both the business's vision of what the solution will be as well as what the users will expect to have from the development and implementation of the system.

This solution will provide the user with a more efficient and productive way to manage and perform analysis on the company's data. This document will lay out what will be delivered as well as the types and manner of testing that will be implemented to ensure a reliable product will be delivered to American Video Game Company.

A.2. OVERVIEW OF THE PROBLEM

The current problem that we seek to address with this solution is multifold. This first problem is that of high growth within the company. With such high growth of the company the current way of organizing business information is no longer sufficient to meet the needs in a timely and productive manner. The current mode of operation has lent itself to a fractured system. Where information is not stored in or collected in an easy to use manner. The proposed solution aims to alleviate this problem. The second problem is the current mode of operation is using two systems that are totally disconnected from one another.

For example, the current system uses a disconnect set of custom tools, databases and manual procedures to accomplish the business processes. This situation is no longer ideal since the company is growing and is no longer able to manage these resources and process in an efficient manner using the current methods of operation.

The company uses an inefficient means to manage business contacts, perform sales tracking and analysis, supervise management actions, management of reporting outcomes, and provide a way of securing the features of the current system implementation.

These items will be addressed and remedied with the proposed system. The solution will seek to solve these problems and provide a means to make the company more efficient and business operations easier to accomplish.

A.3. GOALS AND OBJECTIVES

The goals and objectives of this solution are simple. We need to make best use of the all the benefits that are provided with a customer relationship management system. These goals will revolve around the following key objectives:

- Ease of use
- Provide security
- Provide improved performance
- Provide improved reliability
- The system must have a time of implementation that is reasonable and effective

In order to meet these objectives, we need to address the business goals and other goals that are desired from the creation of the system. We need to define and acknowledge the functional goals as well the technical aspects that have been put forth by the requirements document. The overall goal is to address all the business operations that each user will need to accomplish with the new system.

The system needs to address that this system will need an infrastructure that is quite different from the one that is currently being employed. This solution must be able to be scaled as the company grows so the system will remain stable and scalable as the company grows.

In order to make sure we achieve our goals and objectives we ascertain from the requirements document the following expectations:

- The system is easy to use i.e. intuitive, user friendly.
- The system has well-defined support and maintenance structure
- The system can extend and grow as the company prospers.
- The companies licensing concerns are addressed
- The ability to use the company's own infrastructure or a viable and approved of alternative.

With these expectations in mind as the project development moves forward. The system will be developed around meeting these goals and objectives. When these goals are met and implemented the system will be of use to the company and will alleviate the growing pains current being experienced by the American Video Game Company.

A.4. PREREQUISITES

For this system solution to be effective and successful the following items to need to be addressed. Failure to address these items may affect the success of the system. The following list of items need to be addressed in order to progress with design of the system. The prerequisites in the following table will also aid in areas of development and the deployment of the software solution.

Number	Prerequisite	Description	Completion Date
1	Infrastructure Survey	The current infrastructure may not be adequate to allow for desired performance. A survey of the capabilities of the current infrastructure will need to be performed.	11/30/2020
2	Active Directory Survey	Need to ascertain what steps are needed to implement the proposed solution into the company's current active directory structure. Are changes needed to policies of active directory to allow for successful integration of the new CRM.	12/1/2020
3	OS and Browser Support	Survey the requirements to ascertain what is required to make sure there will be interoperability with the operating systems and browsers that are currently in use with the system	12/2/2020
4	Database Requirements	Ascertain the requirements for the implementation of the database. Development team will need to answer the following questions. How much data does the company currently have? How much data do they expect to have over a given period? These are some of the questions that need to be addressed in order to provide an adequate storage and data management solution.	12/10/2021
5	Cloud Solutions	Inquire to see if there is cloud solution that is available to address the system needs. A solution could be used to address the needs of storage as well as performing some of the operations that are proposed by the document.	12/15/2020
6	Security Requirements	Gather information about the requirements about the current security environment. Are there company guidelines that need to be followed? Are there regulatory items that need to be addressed?	12/18/2020

7	Licensing	See if any of the current custom tools have any licensing that may need to be modified or cancelled when the new system is implemented.	12/20/2020
8	Hardware Survey	A survey of the systems that are currently employed by the various users in the company. Is the current deployment of hardware adequate to accomplish the business's goals? Will hardware upgrades need to be taken into consideration when the solution is developed?	12/30/2020

A.5. SCOPE

The scope of this will seek to implement all the important business process that are core to the day-today operations of American Video game Company. With other features and usability processes coming in a later revision.

In scope:

The following are the mission critical features that will be encompassed in the first release of the system. These first features aim to provide the most functionality in the shortest development time.

- Contact management
  - Multiple contacts can be assigned
  - Shall be categorized
  - Workflow and approval requirements
- Reporting
  - Creation of dashboards
  - Relevant data displayed based on department
  - Saving reports
  - Saving and reuse of filters
  - Historical data reporting
- Sales Tracking
  - Communication between the CRM and MS
  - Ticket Functionality to cover interaction with the contact
  - Opportunity management
  - Quoting processes
  - Forecasting
  - Order management
  - Contract management

Out of Scope:

- Contact Management
    - Partial entries not handled in this release
- Reporting – All requirements in the document will be implemented in the first release of the system
- Sales Tracking – All requirements will be implemented in the first release.

A.6. ENVIRONMENT

The solution will be deployed in an environment that is composed of various types of equipment. The users within the company use an amalgamation of mobile devices. The users use both mobile and tablet devices.

The environment uses an assortment of browsers from multiple developers. The current list of browsers is the following:

- Latest Firefox
- IE 9 and later
- Safari 6.0
- iOS7 Safari and iOS7 third party browsers (Chrome and Firefox)
- Android 4.0

These dissimilar platforms need to be considered as developing for each of these platforms may require a different approach to ascertain the correct and reliable operation of the system. Failure to do so may cause will cause the objectives to be missed and possibly cause the project to have issues.

B. REQUIREMENTS

The requirements of the system are enumerated in the following sections. This section of the document will detail the general requirements for the business, user, functional as well as nonfunctional requirements. These requirements will be implemented and give the system the functionality and useability that American Video Game Company desires in their customer relationship system.

B.1. BUSINESS REQUIREMENTS

The following section will detail the business requirements of the system. These are the requirements that are put forth by the company and act as an outline as to what the overarching goal of the system is. The following are the goals that the company wishes would accomplish with the system. The requirements are as follows:

- Maintain an archive of documents for historical purposes.
- Allow the maintenance of all versions of records while allowing operations like auditing, workflow management, and that ability to roll-back and changes that may have occurred.
- Allow the recording of users and their activity on the system.
- Allow data to be deleted in two ways a “soft delete (keep data but hide from view)” or “hard delete (ability to delete data based on role within the company).”
- Allow the ability to control access to the data, workflow, and control editorial changes to data contained within the system.
- Active directory must be integrated with the new system.

These are the requirements that need to be met in order to achieve a successful system that will aid in the business operations of the company.

B.2. USER REQUIREMENTS

The user requirements will describe how the user will utilize the system. The utility will be broken down by subsections to provide more granularity for the user requirements. The user requirements are the following:

Contact Management:

- User will be able to modify and view the contacts that are in their department.
- User will be able to create a ticket using the ticketing system to be able track the communication between the client and themselves.

Reporting:

- The user will be able to create the appropriate dashboards to view data and analysis.
- The user will be able see data that is pertinent to their department’s role within the company.
- User will be able to save the generated reports and be able to publish them so other members in the department and in the company will be able to view them.
- User will be able to create an historical archive of the reports. The archive can be divided into sections based on user’s criteria.

Sales Tracking:

- The user will be able to create a ticket that will record all transactions between them and the client.
- User will be able to manage sales opportunities. This is accomplished by performing analysis based on criteria that are devised by the user and then performing the appropriate operations on the data.
- The user will be able to quote a client a price based on given information and then be able to log this in the system.
- The user will be able to use the data contained within the system to forecast possible sales, revenue and other areas of interest.

These are the user requirements that will provide functionality to the user. It will be included in the development of the system.

B.3. FUNCTIONAL REQUIREMENTS

The abilities of the system will be discussed in this section. The functional requirements are the capabilities that the system will have based on the requirements document. The functional requirements of the system are the following:

- The system will provide a single repository for all information in the company.
- The system will provide a way to allow ease of access to the data within the system
- The system will securely hold the data and provide access to only authorized parties.
- Access to the data will be afforded to all users regardless of the system they are currently using.
- The system will provide functions such as contact management, reporting, and sales tracking. As well as all the functions that are required by these functions.
- Maintenance of the system will be laid out in a clear and easy to manage manner.
- All user interfaces will be intuitive in nature and simple to use.
- Any desired updated and upgrades to the system will be easy to implement when required.
- The system will have the ability to extend itself. Any extensions to the system will have the ability to be made by any company, i.e., no proprietary software will be used in the creation of the system.
- The system will work seamlessly with the current infrastructure that is available within the company.
- Any licensing required will be properly documented for the system.

B.4. NONFUNCTIONAL REQUIREMENTS

The nonfunctional requirements of the system aim to improve the overall system. The following nonfunctional requirements will address improvements that the intended system will accomplish.

Performance:

- The system will be able to scale as the company grows and demands on the system.
- The system will make use of modules that will facilitate the ability to from with.

Security:

- Data will be maintained within the United States.
- User will be provided with only the rights and privileges that are needed to do the tasks.
- Appropriate security measures and policies will be enacted within the system.

Usability:

- All interfaces will have a uniformed layout. Color schemes will not consist of a simple palette of colors.

- Data entered by the user will restricted where possible to reduce possible errors in input (Dropdowns for items like ZIP code and other common items.
- Screens will be look like each user. The only difference being some screens may lack some functionality based on the user role.
- Maintenance on the system will be made as simple as possible by using modules that can be modified as needed without the need to bring the entire system down.

Reliability:

- System will employ multiple redundant systems to provide the most uptime as possible.
- Hardware like database servers will be implement data redundancy methods.

Supportability:

- The system will be able to be supported by the inhouse technical staff with only a modicum of assistance from the outside agencies.
- Any updates can be provided by companies other than those who created the initial system.

These are the nonfunctional requirements the intended system will achieve once the system is implemented in the company. These requirements will be accomplished through the development of the previously stated requirements in the former sections of this documents.

C. SOFTWARE DEVELOPMENT METHODOLOGY

The company has selected the waterfall software methodology for developing this project. This method allows for a uniform sequence of events to happen during the development of the software system. This is the method of creating software is quite common. During the software development lifecycle, a project may go through many different iterations or stages as reaches the goal of completion. This cycle of events is a common theme in other development methodologies. As a contrast we will also look at another way to step through the development of the current project. We will look at Agile as an alternative to the proposed waterfall method. In order to get a better feeling why the waterfall could be the better method to pursue for the project the following sections will describe the advantages of the method along with the possible disadvantages.

C.1. ADVANTAGES OF THE WATERFALL METHOD

The advantages of the waterfall are numerous and the first one we can state is that is very simple and fluid layout. In this model there are clearly defined stages that the software project will go through. The typical steps of the water fall method are the requirements stage, design stage, implementation stage, verification, deployment and maintenance. These stages are easy to understand and work through. As you progress through each stage you eventually “overflow” into the next stage.

Another advantage to the waterfall method is that the methodology provides a way to know what the goal of the project is. There are no ambiguities related to the overall goal of the project is. This can be compared with other methodologies where the end goal can be muddied by lack of a clear overall object. This can be seen in methodologies like Agile where there is a fluidity to the course that a project can take.

One other aspect that makes the waterfall methodology a good choice is the ability to transfer information in a uniform manner. Since this methodology has a rigid structure there will deliverables that will be scene upon the completion of the stage (SDLC - Waterfall Model, n.d.).

The last advantages of this methodology are that it can arrange tasks with relative ease. This fluidity makes it to assign tasks since there are no rigid roles within this model.

C.2. DISADVANTAGES OF THE WATERFALL METHOD

There are a quite a few disadvantages to using this model complete this system. The first disadvantage is that there is no working software produced during the early stages of system development. This may lead to some anxiety among the stakeholder who would like to see a prototype piece of software early on as a proof of concept and tangible evidence that the project is yielding value to the company (SDLC - Waterfall Model, n.d.).

The next disadvantage when applied to the current project is the most concerning. The water fall method is not a good fit for project that are overly complex or object oriented (SDLC - Waterfall Model, n.d.). Since this project involves the use of many different data types this may not be a good course to pursue. In order to complete this project, we should use a more object-oriented methodology. In the requirements documents there is a mention of all the objects that will needed to be created in order to model the system accurately. For instance, we will need to create user objects, ticket instance, and security objects and others in order to accurately create the system and provide the functionality that is desired.

With the methodology there is a clear lack of feedback regarding actual progress among the stages. It is hard to gauge progress until a known deliverable is produce. Most of the productivity comes in the latter stages where the ultimate deliverable is presented- the actual software system. This is not the case with other. For example, this is not the case that with a methodology like Agile. Deliverables are produced on a consistent basis during the development of the system.

C.3. ADVANTAGES OF AGILE

In the previous sections we saw the advantages and disadvantages of using the waterfall method. We also briefly contrasted the waterfall method against the Agile method. There are other advantages tother than the ones the ones that were eluded to in the above mention sections. The first advantage is of Agile is that thought out the software's development lifecycle there is continuous work product.

There are always deliverables that can be presented to the interested stakeholder as proof that the project is making headway. It also affords the stakeholder to see if there are any improvements or other issues that may need to be taken care of (Lotz, 2018). This may be the best advantage of the of using this methodology when applied to this project.

There are other advantages to consider. While the waterfall method is more sequential model. With the culmination being the final product – the software system. While this good for simple projects this may not be good for this project. The advantage clearly lies with the Agile methodology when applied to this system. The reason being is that that the system in question would benefit from the customer overall involvement in such a momentous undertaking. During Agile production there is continuous feedback from the user regarding the usability of features and other items that make the eventual user feel more a part of the creation of the system. Also, it will aid in the ability for the project to develop champions in case there is an unexpected incident (Lotz, 2018).

C.4. DISADVANTAGES OF AGILE

While there are many advantages to using the Agile methodology there are a few disadvantages that should not be overlooked. The first one is that this method is the project can easily sidetrack by the lack of structure (3 Key Disadvantages of Agile Methodology (and how to avoid them), 2020). This can have a major effect on the deadline as well as the cost of the project.

With Agile there needs to be a constant stream of collaboration among all interested parties. This state may not be able to endure, especially, if the project is a long and complicated. For instance, the stakeholder may no longer have the interest or the ability to remain enthralled by the project. Either because the project is no longer their paramount concern, or the project has lost its "luster" among the company's employees.

C.5. BEST SUITED

In regards, to this project I think the best approach to complete the project would be to use Agile. Given the many uncertainties of the project both in terms of the implementation and the possible problems that may occur system Agile should be the course to pursue.

We are dealing with a lot of unknowns and these unknows will surely give rise to an abundance of problems during the development and testing phase. We need to be able weed out these problems before they become engrained in the system. While it is possible to do this in the waterfall method. It is not the easiest to do. With the waterfall method most of the product is seen at the end of the stages. This does not lend itself to easily discovering fixes for problems since the functionality of the system has already been "baked in." Any changes during this time would have dire consequences possibly jeopardizing the project. While with Agile we are provided with a way to ascertain whether a given

software solution is meeting our expectations. We will be able to afford ourselves the feed back from users when they see various deliverables as they become available.

While this approach has its own pitfalls it still should provide a better framework to ensure that the project will complete its goals and functionality.

D. DESIGN

With a system as varied as this we will need to provide a myriad of functions to a wide range of users. We need to ensure that the users are afforded all the tools that they need. The system will also need to make sure that there is a way to encapsulate the data and users. This solution is to provide different views to each user based on the role of that user.

For instance, a user who works in sales will need to have all the data that regards to sales a long with all the tools they need to produce reports, management of opportunities, and price quoting. While this view may be fine for a sales worker (nonmanagement). This does not mean it is suitable for someone has a managerial role or higher. A manager will need to have access to all the information that is at the fingertips of the sales employee but will also need to be able to provide reports.

This is a concept that will help define the structure of the system that is required by the requirements of the company. In the following sections you will see how the user will use the system and the intended breakup of the system

D.1. STORYBOARD OR FLOWCHART (CHANGE TITLE TO FIT NEEDS)

Provide a storyboard or flowchart of the application.

Figure 1: Sample Storyboard

D.2. UML DIAGRAM (CHANGE TITLE TO FIT NEEDS)

Provide a set of UML diagrams that cover the proposed solution. This can include but is not limited to class diagrams, database diagrams, and use case diagrams. Also, ensure that all diagrams are clearly discussed and noted.

Figure 2: Sample Database

D.3. GUI (CHANGE TITLE TO FIT NEEDS)

Provide a mock-up of the proposed GUI forms that will be used in the proposed solution. Also, clearly indicate where the GUI components point inside the application.

Figure 3: Sample GUI Mock-up

GUI Control Mapping			
ID	Control	Property	Data Source
1	Textbox	On application open text = “” or null	NA
1	Textbox	On click of button text = “Hello World”	Internal Variable
2	Button	On click change text of textbox 1 to “Hello World”	Internal Variable
3	Form	Text= “Hello World”	

E. TESTING

Provide a brief introduction to the proposed testing solution. The tests need to be from 3 completely different functionality aspects. Testing the same aspect with slightly different criteria is not acceptable.

**Note: *Add and remove subsections as needed to cover all the testing needs.*

E.1. TESTING TYPE (CHANGE NAME TO FIT YOUR NEEDS)

Provide a brief introduction paragraph.

E.1.1. TEST NAME 1

Requirement to be tested
Preconditions: Conditions that must be present before test case can successfully run
Steps: The steps the tester must execute to test the feature. 1. 2. 3. 4. 5. 6.
Expected results: Expected results and any side effects such as updating a database, writing to a file, etc.
Pass/Fail: Mark whether the test case passed or failed. The results can be compiled and used to determine if the application is ready for delivery/release.

E.1.2. TEST NAME 2

Requirement to be tested
Preconditions: Conditions that must be present before test case can successfully run
Steps: The steps the tester must execute to test the feature. 1. 2. 3. 4. 5. 6.
Expected results: Expected results and any side effects such as updating a database, writing to a file, etc.
Pass/Fail: Mark whether the test case passed or failed. The results can be compiled and used to determine if the application is ready for delivery/release.

E.1.3. TEST NAME 3

Requirement to be tested
Preconditions: Conditions that must be present before test case can successfully run
Steps: The steps the tester must execute to test the feature. 1. 2. 3. 4. 5. 6.
Expected results: Expected results and any side effects such as updating a database, writing to a file, etc.
Pass/Fail: Mark whether the test case passed or failed. The results can be compiled and used to determine if the application is ready for delivery/release.

F. SOURCES

Lotz, Mary. Waterfall vs. Agile: Which Methodology is Right for Your Project?. (2018, November 20). Segue Technologies. Retrieved September 21, 2020, from https://www.seguetech.com/waterfall-vs-agile-methodology/

SDLC - Waterfall Model. (n.d.). Tutorialspoint. Retrieved September 20, 2020, from https://www.tutorialspoint.com/sdlc/sdlc_waterfall_model.htm

3 Key Disadvantages of Agile Methodology (and how to avoid them). (2020, May 13). Lucidchart. Retrieved September 20, 2020, from https://www.lucidchart.com/blog/3-disadvantages-of-agile-methodology