

Design Document



Solutions LLC

CRM Proposal

C188 Performance Assessment

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2-16-2022

[Version 1.0]



WESTERN GOVERNORS UNIVERSITY®

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A. INTRODUCTION

American Video Game Company is in search of a new customer relationship management (CRM) system to maintain current and future growth.

The new CRM system must universally access, consolidate customer data, create reports, forecast, manage opportunities, control access to data, integrate their systems for data sharing, and has the ability to enhance and scale for future growth.

The goal of this document is to propose a CRM System to the American Video Game Company that not only meets the requirements but is user friendly

A.1. PURPOSE STATEMENT

This document forms our recommendation for a software solution, a tool that fits American Video Game Company's need for a new CRM System.

A.2. OVERVIEW OF THE PROBLEM

American Video Game Company has seen a 42% increase in sales in the past two years. The increase in sales, though great, has proven that their current system cannot manage the amount of current users and will have even more difficulty with any future growth. Without a new CRM system the relationship with their current users and any future will suffer. A new CRM system will help manage current and new users, orders, tickets, and forecasting reports.

A.3. GOALS AND OBJECTIVES

Our goal is to present a new CRM system that will resolve the current problems by satisfying all requirements requested by American Video Game Company. The system will utilize current business processes while focusing on scalability, functionality, and ease of use.

The main objectives of the new CRM system are to report the company's activities and interactions with contacts. To consolidate all contact and business information. To enable access to the system by 3rd party marketing companies under contract. Have robust security and can be enhanced and scaled.

A.4. PREREQUISITES

Number	Prerequisite	Description	Completion Date
1	SQL	Install SQL Server 2019	03/01/2022
2	N/A	Requirements in this document must be approved by sponsor	03/05/2022
3	2	Baseline must be approved by sponsor	03/10/2022

A.5. SCOPE

This proposal is intended to manage a specific scope of business practices. It must be able to maintain historical archives, the ability to maintain records, examine workflow, and log any activity for auditing purposes. The system will control access to data through permissions and roles. The system will also integrate with the company's server to maintain current user assignments and permissions.



The proposal does not service American Video Game Company's hardware, their operating system, their mobile support, or their databases. We are only going to work with these services to create a more suitable system for the company's current and future growth.

A.6. ENVIRONMENT

The proposed system must integrate with American Video Game Company's current hardware infrastructure. The system will stay on-premise and be compatible with their current macOS Yosemite server. The end user can access the system remotely through a VPN connection, through a compatible web browser. We will need to install a VPN concentrator into the company's existing server rack. The software will be accessible on all currently used operating systems and browsers:

- Chrome 98.0 and Chromium 98.0
- 97.0 Firefox
- I.E 11
- Safari 13.1.2
- Mobile and tablet
- iOS15.3.1 Safari
- iOS15.3.1 Third Party Browsers(Chrome and Firefox)
- Android 98.0 Chrome

B. REQUIREMENTS

American Video Game Company has seen a growth of sales by 42% in the past two years and needs a new CRM tool to keep up with that growth. The new solution should provide AVGC a tool to manage reporting and related activity, track sales, and manage client contacts, in accordance with the following detailed requirements.

B.1. BUSINESS REQUIREMENTS

American Video Game company requires that the CRM system must be able to manage activity with stakeholders, manage opportunity, quote, and forecast. These requirements will help accurately track and build business.

The new tool will:

1. Have a one-way or two-way communication between the CRM and MS Exchange/Outlook
2. Export and re-import data and will include appropriate validation with minimal risk
3. Perform win/loss analysis, competitive analysis, competitive product analysis, and discount approval and analysis
4. Manage the inventory/product availability, contract pricing, price catalog, taxes, freight costs and shipping forecast to properly quote
5. Forecasting by currency adjustments, baselining, manager adjustments, and sales distribution
6. Have a clearly identified licensing model and defined ownership rights regarding any custom development



7. All data will be held in the US

B.2. USER REQUIREMENTS

American Video Game Company currently has 2,000 users who access the system, with the average being 500 users concurrently using it during peak times. These numbers are projected to increase overtime, so the new CRM system must be scalable. The system must also manage all accounts by putting them into categories. Each category will be handled differently, while certain aspects will be available to all categories.

The new tool will:

1. Users will be categorized into stakeholders, businesses, or contacts.
 - a. Stakeholders – anyone the company interacts with (an individual, organization, and/or business)
 - b. Businesses – An organization that is supported by the company within the industry. Could include gamers, sales outlets, distributors, and marketing and sales personnel.
 - i. Will include address(es), phone number(s), and any other relevant information
 - c. Contacts – wide reaching. Any individual within the CRM.
2. Users will be able to manage their own contact settings, like contact and marketing preferences. These are set at the time of sign up but can be edited throughout their membership.
3. There can be no duplicate businesses
4. Multiple contacts can be assigned to one or more businesses

B.3. FUNCTIONAL REQUIREMENTS

The new CRM system must be able to integrate with American Video Game Company's already active directory server. The CRM server must also be compatible with the following operating systems and browsers:

- Latest Chrome and Chromium
- Latest Firefox
- I.E 9 and above
- Safari 6.0 and above
- Mobile and tablet
- iOS7 Safari and above
- iOS7 Third Party Browsers (Chrome and Firefox) and above
- Android 4.0 Chrome and above

The new CRM system must also provide a ticketing system which tracks every communication and inquiry for the contacts. It must also manage all contact information.

These requirements will be met by:



2. The new system runs on the following operating systems and browsers which will be monitored and updated:
 - Chrome 98.0 and Chromium 98.0
 - 97.0 Firefox
 - I.E 11
 - Safari 13.1.2
 - Mobile and tablet
 - iOS15.3.1 Safari
 - iOS15.3.1 Third Party Browsers(Chrome and Firefox)
 - Android 98.0 Chrome
3. The ticketing system will track every contact that called, the reason why, the date/time, and follow up, and include relevant detail.
4. All email replies will be done through MS/Outlook which will also be tracked
5. The system will archive information without deletion to maintain historical records

B.4. NONFUNCTIONAL REQUIREMENTS

American Video Game Company wants the CRM system to be able to “soft and hard delete” data. To achieve that the new system will:

1. To soft delete, which means to remove from view without deleting. We will either move data or simply hide it from being seen by the public, but can still be viewed by the company
2. To hard delete, which means to completely remove past, current, and future data.
3. These two options of deleting data is restricted to specific roles and permissions

C. SOFTWARE DEVELOPMENT METHODOLOGY

The company has selected the waterfall software development methodology for this project. The waterfall method is a predictive development where each project phase flows into the next. In the simplest terms, once one task is done, the next task is to be started. The steps in the waterfall method are represented in the following chart: requirements, design, implementation, verification, deployment, then maintenance.

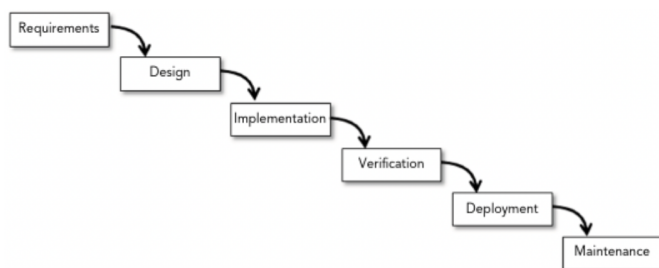


Fig. 12.1 UCertify Beginning Software Engineering



C.1. ADVANTAGES OF THE WATERFALL METHOD

The waterfall method is often favored due to predictability. All requirements are known before starting the project. Any high-risk items or unseen events that could have been a possibility have already been resolved before starting, so the timeline won't be extended due to issues. Teams that take the waterfall method approach have had an immense amount of experience and knowledge tackling the project presented to them, so there should be minimal, if any, surprise during development.

C.2. DISADVANTAGES OF THE WATERFALL METHOD

The waterfall method is only as successful as their predictions. Mentioned in C.1, the teams that usually take the waterfall approach have experience building the applications. If these teams aren't as experienced as they need to be, then the project's cost increases. Since a lot of time and money is spent in the prediction stage of this method, if not implemented correctly, then that stage is a waste of time and money.

C.3. ADVANTAGES OF RAPID APPLICATION DEVELOPMENT (RAD)

RAD is an iterative approach instead of a predictive one, like the waterfall method. Instead of one big release, there is an incremental release where feedback is given to improve the release. Some advantages of this approach are that there are more accurate requirements, due to constant feedback. If everything goes smoothly, then there is a reduced development time. As far as risk mitigation, before each iteration, potential risks are looked for and handled.

C.4. DISADVANTAGES OF RAPID APPLICATION DEVELOPMENT (RAD)

There are some disadvantages to using RAD when tackling projects. One is that it must be a smaller project, because RAD typically uses smaller teams. Those teams must have more skilled team members since there is less planning. The main disadvantage is that there is unpredictability. It's hard to tell the customers exactly what they want to know- the cost and time to complete the project.

C.5. BEST SUITED

The best deployment for this proposed system is the waterfall approach. American Video Game Company knows exactly what they want for their new CRM system. They have provided a very detailed outline for all requirements which can easily be used to plan out an implementation. Since this is their first big update, they most likely want more control. An iterative approach wouldn't be ideal because it lacks predictability.

Solutions LLC specializes and is knowledgeable in developing systems for growing businesses, and because AVGC has very specific requirements, we are able accurately plan and create solutions to any potential risks and setbacks. This will benefit AVGC because they will be presented with a well-defined timeline, a completion date, and an accurate budget. They will be able to focus on customer relations and not have to worry about the new system being developed.

D. DESIGN

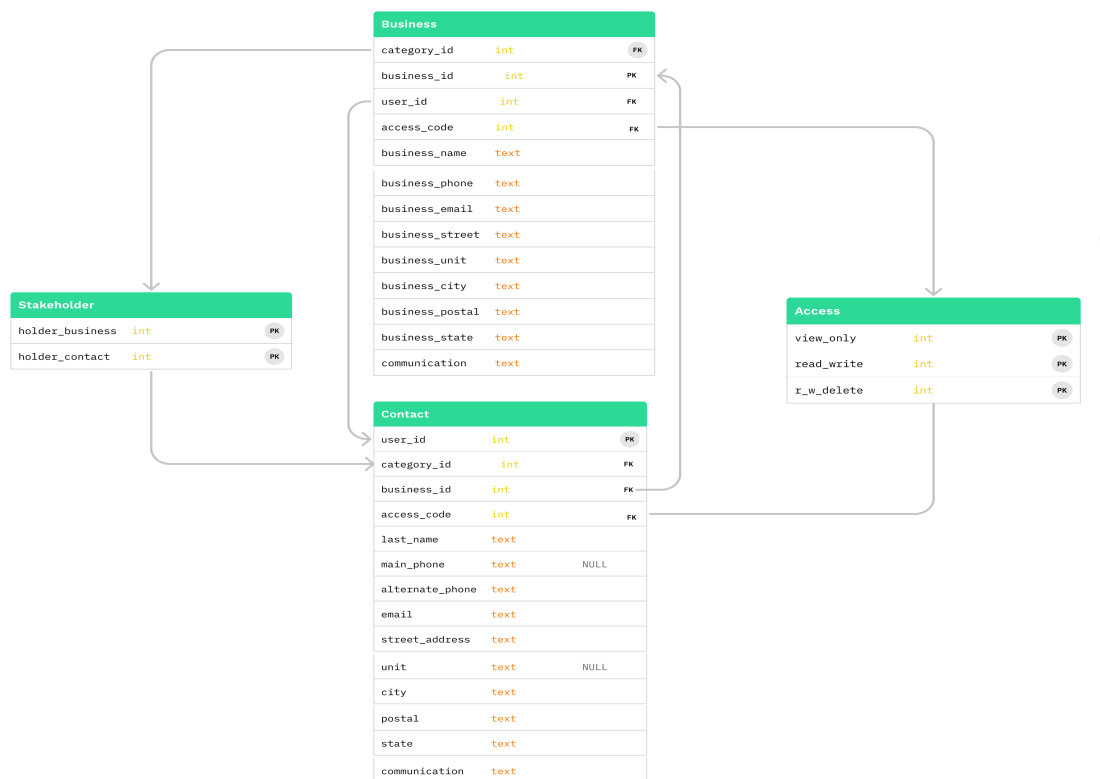


In this section, I've provided an UML Diagram that shows a new stakeholder being added into the system.

I have also provided the GUI screens of entering a new contact and then what it would look like in the system

D.1. UML DIAGRAM – NEW USER

Provided is an UML diagram of how data is stored. It starts with what kind of stakeholder it is, a business or contact based off an id, the primary and foreign keys are different names. The business will enter all business information and will have a foreign key of a contact that is associated with it. The contact will fill out all their information. There is also an access code, giving the business or contact certain permissions.



D.2. GUI FOR ALL USER INTERFACE

This screen is the screen to enter a new contact. It generates a new user ID, so text field 1 is disabled. Enters into text fields the information that the prompt text is asking. The check box, you enter how the contact would prefer to be communicated with. In the combo box 13, you choose a business, if the contact is associated with any. In combo box 14, you choose the access code, whether this contact is view only, view and write, or view write and delete.

GUI Control Mapping			
ID	Control	Property	Data Source
1	Text field	On application open text = "User ID is auto-generated) Disabled	N/A
1	Text field	On click = Disabled	create_user_id()
2	Text field	On application open text = "First Name"	N/A
2	Text field	On click = create_user()	User Input
3	Text field	On application open = "Last Name"	N/A
3	Text field	On click = create_user()	User Input
4	Text field	On application open = "Main Number"	N/A
4	Text field	On click = create_user()	User Input



5	Text field	On application open = "Alternate Number" Optional	N/A
5	Text field	On click = create_user()	User Input
6	Text field	On application open = "Email"	N/A
6	Text field	On click = create_user()	User Input
7	Text field	On application open = "Street Address"	N/A
7	Text field	On click = create_user()	User Input
8	Text field	On application open = "Unit (optional)" Optional	N/A
8	Text field	On click = create_user()	User Input
9	Text field	On application open = "City"	N/A
9	Text field	On click = create_user()	User Input
10	Text field	On application open = "State"	N/A
10	Text field	On click = create_user()	User Input
11	Text field	On application open = "Postal Code"	N/A
11	Text field	On click = create_user()	User Input
12	Check Box	On click = choose_communication() and pass to create_user()	User Input
13	Combo Box	On click = link_to_business() and pass to create_user(). Gets business ID from business class and enters it into user info	User Input
14	Combo Box	On click = access_allowed() and pass to create_user(). Gets access ID from access class and enters it into user info	User Input
15	Text field	On click = create_user()	User Input



The following screen is the screen that is seen after information has been added. On the left you see a little summary about the contact – the name, address, phone, communication preference, and access code. There is a table in the middle that keeps track of the contacts tickets. There's a menu to the right that allows you to link the contact to a ticket, an order, a business or contract. You can also edit or delete the contact. Delete is disabled to show how a user with only view and write access would view this profile.

American Video Game CRM System

Contacts Tickets Activities Forecasts Orders Contracts

John Doe

 Faux Games Business

 1234 Main St.
 Unit 1
 Nuketown VA, 56789

 ☎ (555) - 123 - 4567
 ✉ johndoe@fauxgames.com

 Prefers emails

 Access code 1

Special Notes:

Last Contacted	Ticket	Resolution
10.15.21	34	Follow up
10.18.21	34	Fixed
1.21.22	35	Fixed

Any extra information

[Link Ticket](#)
[Link Order](#)
[Link Business](#)
[Link Contract](#)

[Edit Contact](#)
[Delete](#)

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February 2022

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S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			



E. TESTING

The following tests are performed on the proposed system to ensure compatibility, quality, and functionality.

E.1. TESTING DETAILS

In E.1.1 we are making sure that the proposed system is compatible on all web servers that American Video Game Company currently utilizes.

E 1.2 we are testing quotes for businesses are priced properly

E 1.3 we are testing a hard delete based off access codes

E.1.1. RUN APPLICATION ON WEB SERVERS

Requirement to be tested

System compatibility with Latest Chrome and Chromium, the Latest Firefox , I.E 9 and above and Safari 6.0 and above.

Preconditions: Conditions that must be present before test case can successfully run

Computers must be running Chrome 98.0 and Chromium 98.0, 97.0 Firefox I.E 11, Safari 13.1.2

Steps: The steps the tester must execute to test the feature.

1. Navigate to avgc.com/portal in test environment
2. Enter the following username TestUser and password TestUser!
3. Navigate to homepage and make sure it loads correctly
4. Navigate to all other tabs – contacts, tickets, orders, forecasting, and activities. Make sure everything loads correctly
5. Try to add a new test contact – john doe
6. Try to add a new test business – faux games
7. All test information will be deleted when logged out. Do steps 1-6 in all test environments.

Expected results: Test user should be able to log into the system, add a contact, business, link the contact with the business, and input an order for the business without any issues. Once everything is submitted, it should be loaded into the database

Pass



E.1.2. TESTING QUOTES

Requirement to be tested Configure price quote (CPG)
Preconditions: Conditions that must be present before test case can successfully run We must make sure that scripting must be coded to update taxes, discounts, freight costs, inventory availability, currency, and substitution.
Steps: The steps the tester must execute to test the feature. <ol style="list-style-type: none"> 1. Make sure to have the most recent quote created by American Video Game Company on their current system, to compare 2. Create test quote for test business, faux games 3. Copy the exact information from an actual quote into the test quote 4. Compare total pricing, taxes, currency, freight costs to original
Expected results: The expected result is to have the exact same quote as the original quote from the current system that American Video Game Company is using.
Pass

E.1.3. TEST A HARD DELETE

Requirement to be tested A hard delete, which is restricted to specific roles and permissions.
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Preconditions: Conditions that must be present before test case can successfully run

The orders database must be loaded with information.

A detailed audit log must be turned on in the database

We must be able to create a contract

We must be able to give access codes to users. 1 – read only 2- read and write 3- read, write, and remove

Steps: The steps the tester must execute to test the feature.

1. Log into system with username TestUser and password TestUser!, which is access code 3
2. Navigate to contracts and delete a contract with test business Faux Games
3. Examine the audit logs to see the deletion was recorded
4. Log out and log back in with username TestLimitedUser and password TestLimitedUser!, access code 2
5. Navigate to contracts and delete a contract with test business Faux Games
6. Examine the audit logs to see that an attempt to delete was recorded

Expected results: TestUser with access code 3 should be able to delete the contract and see a deletion on the audit log with the username and date and time of when the contract was deleted.

TestLimitedUser with access code 2 should have gotten an error alert that says they don't have the permission to do that. Audit log should show an attempt with the username and date and time of what contract was trying to be deleted.

Pass



F. SOURCES

UCertify, Beginning Software Engineering (2022). Retrieved from <https://wgu.ucertify.com/>

