

JB C188 Software Engineering

JB Software Company

C188

C188 Performance Assessment

Josh Burnette

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WESTERN GOVERNORS UNIVERSITY®

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A. INTRODUCTION

American Video Game Company needs a new customer relationship management (CRM) system in order to maintain current growth. In the following sections, I will describe the needs, outline the goals and objectives, propose an architecture, and describe a testing plan.

A.1. PURPOSE STATEMENT

This document provides details about my recommendation for a software solution that fits American Video Game Company's needs for a new CRM system. This document will provide details on requirements for the solution, visuals for the UI, and test cases that will validate the proposed systems of the new CRM. The company will be able to use this document to understand the entire scope of the CRM that is being proposed.

A.2. OVERVIEW OF THE PROBLEM

American Video Game Company needs new software to keep up with growth. The current problem with the CRM is that AVGC's sales have been up 42% in the past two years and AVGC is outgrowing its existing CRM system. The proposed CRM will provide American Video Game Company an efficient way to manage reports, maintain activity management, track sales, and manage customers. The proposed CRM will consolidate all contact and business information, report the company's activities and interactions with contacts, provide access control for different users based on permissions, and it will be scalable, among many other features. AVGC needs a new system that will be able to expand and update to its growing needs; this new proposed system will provide the tools that will allow the company to become more productive and profitable.

A.3. GOALS AND OBJECTIVES

I will create a new CRM system for American Video Game Company that will reflect existing processes as much as possible. The proposed CRM system will allow users to archive information, keep records of activity, manage customers and sales. Users of the the proposed CRM will also be able to access low-level and high-level reports pertaining to customers, sales, orders and more. The proposed CRM system will be easy to use and able to function on several platforms and browsers, including desktop systems running Windows or MacOS and mobile devices using iOS or Android. The proposed CRM system will provide American Video Game Company with the ability to grow, expand and update.

A.4. PREREQUISITES

Here are the aspects that need to be in place prior to the design, development, and implementation of the project proposed in this document.

Number	Prerequisite	Description	Completion Date
1	None	Clear business requirements	9/15/21
2	1	Approval of this proposal by American Video Game Company needed to start project.	9/22/21
3	2	Approved budget for the software to be developed.	9/29/21



4	None	AVGC must have computer systems that are set up with the latest OS and Browser.	10/10/21
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A.5. SCOPE

The proposed system will cover creating and managing customers in a database, tracking sales with a ticketing system and managing orders. The proposed system will also cover tracking user activity and creating low-level and high-level summary reports. Lastly, the proposed system will be able to maintain an archive of all information that can only be accessed by privileged users.

The proposed system will NOT cover a quoting system, quote generation and assembly, or inventory/product availability. The proposed system will not cover a forecasting system, currency adjustments, machine forecasting, or product forecasting. The proposed system will also not cover a contracting system, contract creation, signing, or authorization.

A.6. ENVIRONMENT

The system must be compatible with the browsers the company is already using.

DESKTOP:

- Chrome (latest version)
- Firefox (latest version)
- IE 11 or greater
- Safari 14.0

MOBILE:

- iOS14 Safari
- Chrome on iOS version 93.0.4577.39
- Chrome on Android version 93.0.4577.62

The system must integrate with the existing active directory server.

I will be using the existing servers in our server farm to host the database.

Every user's individual computer or mobile device will be able to access the new software.



B. REQUIREMENTS

My system will meet 5 of the requirements listed in the CRM_Requirements documents. They are as follows:

- 1. Store all information in an archive without deleting it from historical records.**
- 2. Keep a record of individual user activity.**
- 3. The ability to “soft delete” and “hard delete” data.**
- 4. Different data types, including Stakeholders, Businesses, and Contacts, will be provided.**
- 5. Produce detailed and high-level summary reports.**

B.1. BUSINESS REQUIREMENTS

My system will store all information in an archive without deleting it from historical records. My system will implement the use of a database dedicated to storing all information that can only be accessed with privileged permissions. When a user with privileges logs in to the system they will see a button that other users cannot see, that will provide them access to the archive database.

B.2. USER REQUIREMENTS

My system will keep a record of individual user activity. I will create a txt file that will be updated every time anyone attempts a login. The txt file will only be accessible by privileged users and will contain the username, user ID, the date and time and the password entered by the person attempting a login.

B.3. FUNCTIONAL REQUIREMENTS

My system will have the ability to “soft delete” and “hard delete” data. Unprivileged users will be able to “soft delete” from the databases. The databases will be updated and the archive database will be updated with the username in a column called “Last Updated By”. The information deleted by an unprivileged user will remain in the dedicated archive database, thus making it a “soft delete”. A privileged user will be able to access the archive database, in which they can restore items that were deleted by other users and check on who has updated and/or deleted information. The privileged user will also be able to “hard delete”, meaning they will be able to delete from the all-access database and the archive database. If the information is deleted from the archive database, then that information will be permanently deleted, thus making it a “hard delete”.

My system will have different data types, including Stakeholders, Businesses, and Contacts. I will be using OOP to create objects for Stakeholders, Businesses and Contacts. This will allow the system to have a clear diagram and different databases for different objects.

B.4. NONFUNCTIONAL REQUIREMENTS

My system will produce detailed and high-level summary reports. My design will provide a specific view within the GUI that will be dedicated to housing many different options for summary reports. Users will be able to view information from the databases in a clear and usable format. For example, a user will be able to pull up a view of every contact in the system. The user will be able to filter that list using different criteria and they will also be able to print any and all summary reports.



C. SOFTWARE DEVELOPMENT METHODOLOGY - WATERFALL

I have decided to implement the waterfall software development methodology for this project.

In the following sections, I will discuss the advantages and disadvantages of the waterfall method and the agile method for the purposes of comparison. I will then describe why the waterfall method is best suited for this project.

C.1. ADVANTAGES OF THE WATERFALL METHOD

The advantages of the waterfall method are as follows:

1. Uses clear and simple structure

An entire step must be completed before moving onto the next one; this structure will help bring to light any roadblocks during the completion of this project.

2. Determines the end goal early on

This will help with staying committed to the end product.

3. Well suited for transferring information

The waterfall approach is highly methodical, so it's easy to transfer information at each step. This will help each group of people that work on the project have a clear understanding of what has been done and what needs to be done.

C.2. DISADVANTAGES OF THE WATERFALL METHOD

The disadvantages of the waterfall method are as follows:

1. Changes are difficult to implement

The waterfall method's traditional form makes it very difficult to implement changes or revisions.

2. Excludes the client

This methodology is primarily focused on the internal process and does not allow the client to have much, if any involvement into the process once it has begun.

3. Testing does not start until after completion

Saving the testing phase for the back half of the project can be risky, especially for very complex pieces of software. This may not be a problem for this particular project.

C.3. ADVANTAGES OF THE AGILE METHOD

The advantages of the agile method are as follows:

1. Trial and error

Agile is great when you are unable to map out a clear plan of the business needs with the client. The design can emerge through trial and error.

2. No fixed budget or schedule



Agile is great for projects that don't have a fixed budget or schedule.

3. Getting to market before the competition

Agile is a great method to use if you need to get a product out quickly and capture the market before any competition. This is not the case for this project.

C.4. DISADVANTAGES OF THE AGILE METHOD

The disadvantages of the agile method are as follows:

1. Difficult to measure progress

Since progress happens across several cycles, it is more difficult to measure progress than it is with the waterfall method.

2. No clear end

Projects can be more prone to scope creep and can become ever-lasting, since there isn't always a clear end to the project.

3. Product lacks cohesion

Since the design is fragmented, the end product and user experience can suffer. The longer the project goes on, the more fragmented and disjointed it can become.

C.5. BEST SUITED

The waterfall method is best suited for this project.

1. Clear structure with measurable success

Since this project has the requirements very clearly laid out, waterfall is best suited because it has a very clear structure, unlike agile. Waterfall also has more measurable success.

2. No need for changes

Since this project is predictable, there is no need to try and utilize the flexibility in the design process that agile delivers. Waterfall is better suited.

3. Not in a race to the market

Since this project is not in direct competition with another product in the marketplace, there is no need to utilize agile. Also, although agile can be used to hurry a product along, it can also drag and run on too long.

For those reasons, the waterfall method is best suited for this particular project.

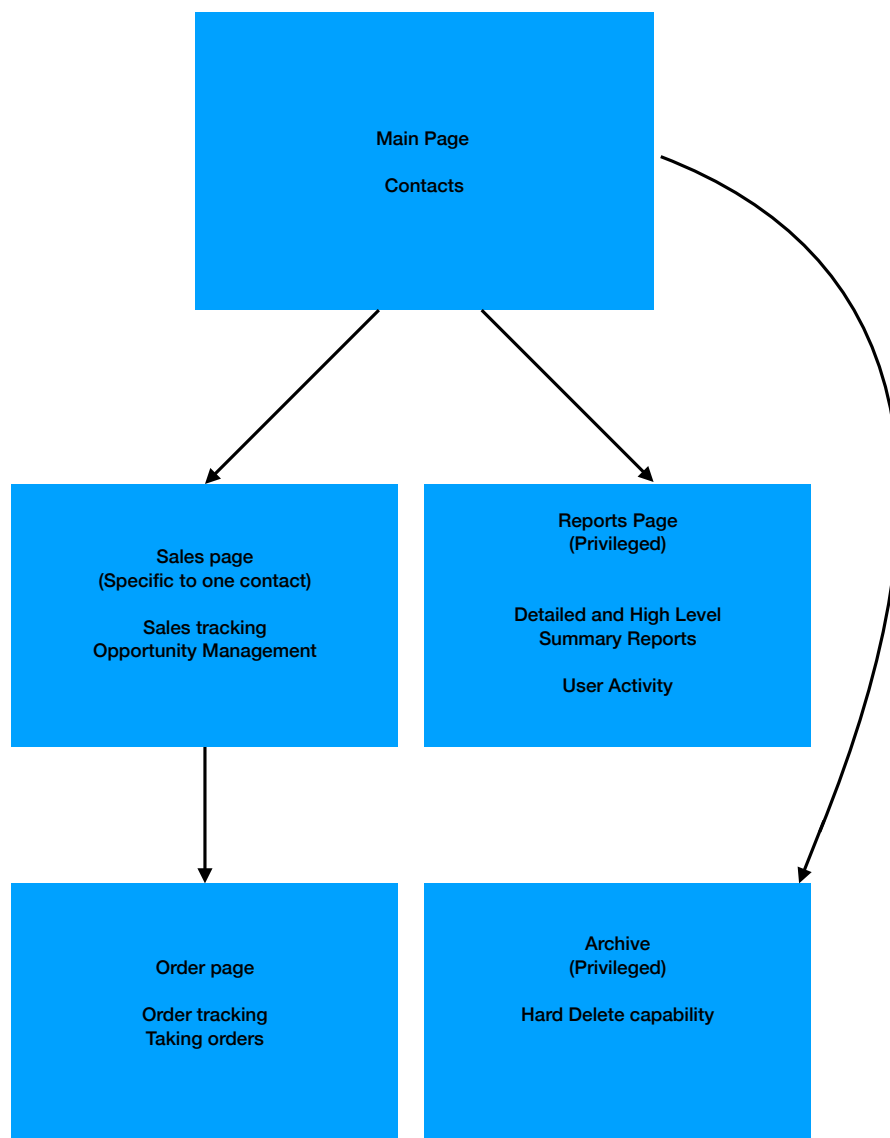


D. DESIGN

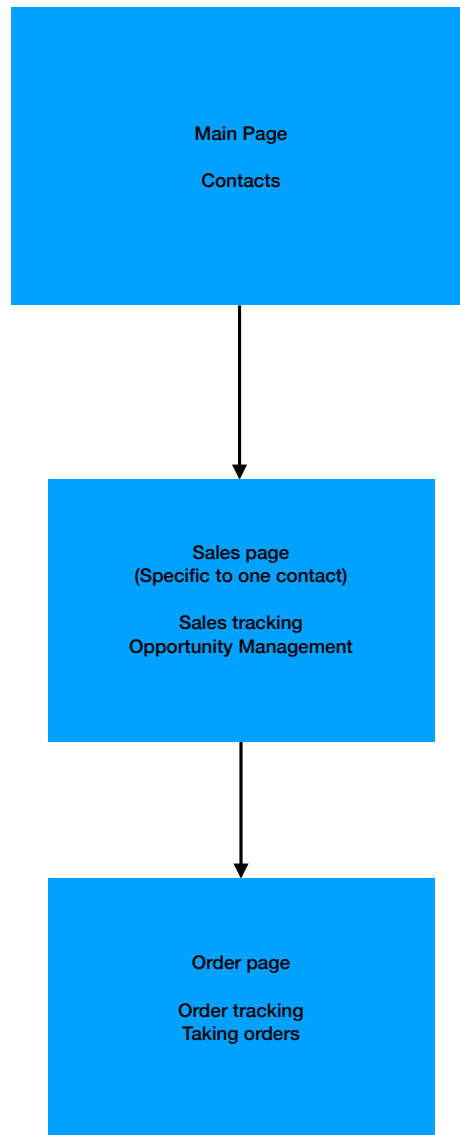
I will be using a very clearly laid out and user-friendly GUI that will be easy for all users to navigate. The GUI will also automatically modify itself with different options, views, and buttons depending on the privileges granted to the specific user currently logged into the system.

D.1. STORYBOARD OF THE APPLICATION

Privileged User:

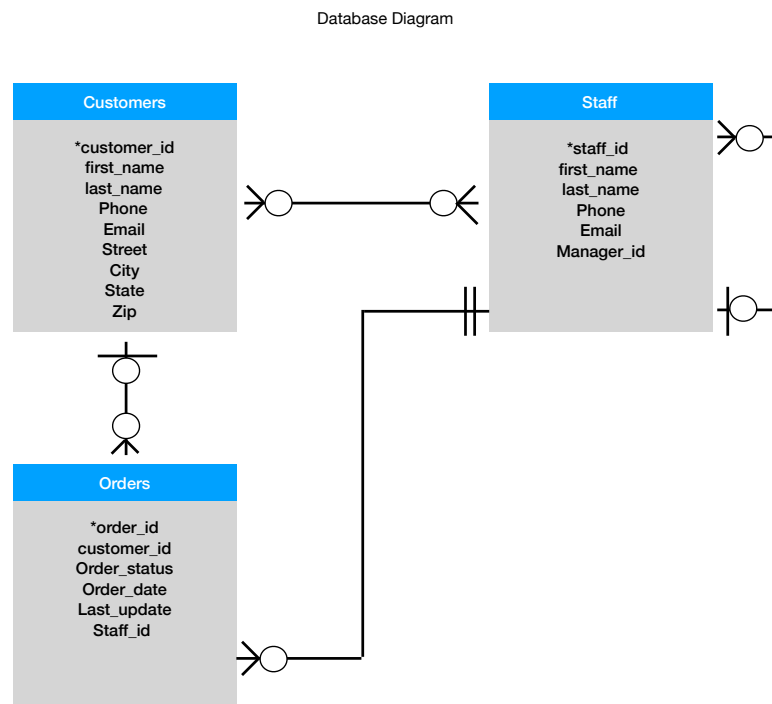
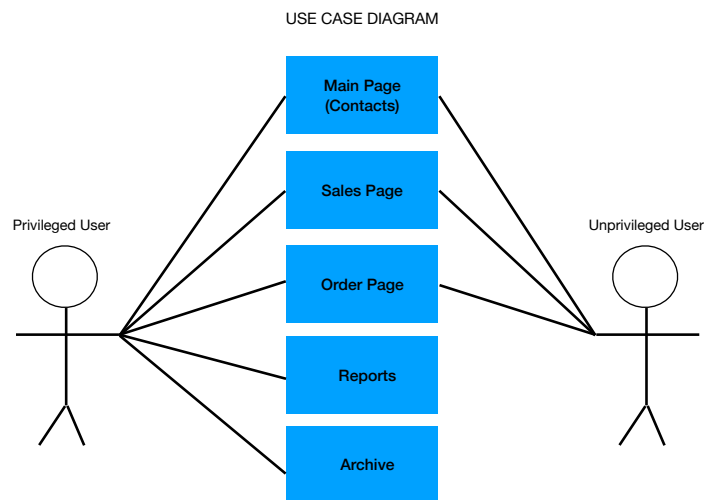


Unprivileged User:



D.2. USE CASE DIAGRAM AND DATABASE DIAGRAM

I have provided a use case diagram that shows how the application will be accessible by privileged and unprivileged users. Privileged users will have access to pages in the system that the unprivileged user will not be able to access. The following diagram shows that the privileged user will be able to access reports and the archive, while the unprivileged user will only have access to the Main contacts page, the sales page and the order page. I have also provided a database diagram that shows how the main databases will be set up. The system will have a database of customers, staff and orders.



D.3. GUI MOCK UP

I have provided a mock-up for two different views of the GUI that will be used in my proposed solution. I have also provided a table for each GUI mock-up that clearly indicates where the GUI components point inside the application.

ID	Control	Sales Control Mapping	
		Property	Data Source
1	Button	On click, go to Customer page view	Internal Variable
2	Button	On click, go to Order page view	Internal Variable
3	TableView	Autofills with customer information	Customer Database
4	Button	On click, loads selected customer's info into Order page view for updating	Internal Variable & Customer Database & Order Database
5	Button	On click, deletes selected ticket. (Soft delete, Hard deletes are done elsewhere)	Internal Variable
6	Text Areas	Auto loads and updates with the latest information from the Sales tickets	Internal Variable & Customer Database & Order Database



X

1
Go To Sales Page
2
Generate Reports

Customers

Customer Details

6

Cust ID
First Name
Last Name
Phone
Email
Address

3

No content in table

4

Update Customer

5

Delete Customer

7

Save Customer

8

Clear Details

Customer ID:

First Name

Last Name:

Phone:

Contact:

Email:

Address:

Customers Control Mapping			
ID	Control	Property	Data Source
1	Button	On click, go to Sales page view	Internal Variable
2	Button	On click, go to Generate reports view (Only Privileged Users see this button)	Internal Variable
3	TableView	Autofills with customer information	Customer Database
4	Button	On click, loads selected customer's info into "Customer Details" form on right for updating	Internal Variable
5	Button	On click, deletes selected customer. (Soft delete, Hard deletes are done elsewhere)	Internal Variable
6	Form	Loads empty. Text=null. Form can be loaded with text from the "Update Customer" button	Internal Variable & Customer Database
7	Button	On click, saves customer information to database	Internal Variable
8	Button	On click, clears all text boxes in form	Internal Variable



E. TESTING

I propose that the customer related workflows be tested.

E.1. TESTING DETAILS

Provide a brief introduction paragraph.

E.1.1. CREATE A CUSTOMER

Requirement to be tested

Create a new customer.

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

Must have a database set up with the correct schema.

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

1. Gather/create fake data for a new customer.
2. Click the "Save Customer" Button.
3. Confirm that the customer was created successfully by checking the database.
4. Confirm that the correct data is in each of the expected fields.

Expected results: Expected results and any side effects such as updating a database, writing to a file, etc.

The fake Customer should have the same number of fields, and the same data in each field, as in the gathered/created data for that Customer.

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.

Pass.

E.1.2. SOFT DELETE A CUSTOMER



Requirement to be tested

Soft deleting a customer.

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

Must have a database set up with the correct schema. Must have the GUI set up and functioning to be able to add customers and see the customers in the tableview.

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

1. Select a customer.
2. Press "Delete Customer" button.
3. Check the unarchived customer database to ensure the customer has been deleted.
4. Ensure the tableview in the GUI is no longer loading in that particular customer.

Expected results: Expected results and any side effects such as updating a database, writing to a file, etc.

Expect to be unable to find the customer in the unarchived customer db.

Expect to see a record of the deletion and who deleted the Contract in the audit logs

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.

Pass

E.1.3. USER ACTIVITY



Requirement to be tested

Individual user activity log.

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

Must have the txt form created properly to append new lines of user activity. Must have the GUI set up so that activities can be performed.

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

1. Create a new customer.
2. Check user activity to log to ensure that the correct information has been appended to the txt file.
3. Delete a customer.
4. Check user activity to log to ensure that the correct information has been appended to the txt file.

Expected results: Expected results and any side effects such as updating a database, writing to a file, etc.

User activity log should be updated properly with all the correct information appended to the txt file.

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.

Pass.

