Design Template

American Video Game Company

Software Project Template

Customer Relationship Management System

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Version 2.0

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A. INTRODUCTION

The proposed system will address the business needs for a new Customer Relationship Management (CRM) system for American Video Game Company (AVG). A CRM system is a tool that manages a company's relationships with customers and contacts with the goal of business growth. The custom-built solution will streamline operability, contact management, and improve company performance.

A.1. PURPOSE STATEMENT

The purpose of this document is to present a vision plan for a Customer Relationship Management System for the sales force for American Video Game Company. The CRM will contain the key business requirements that are needed for the new system, the software development life cycle, a storyboard, flowchart, testing plan and three test cases.

A.2. OVERVIEW OF THE PROBLEM

AVG has outgrown their current system for customer relationship management due to rising sales over the past two years. The company needs a scalable system that will streamline manual and automated processes, client contact management, user activity management, data sharing and reporting, and sales tracking.

A.3. GOALS AND OBJECTIVES

The goal of the CRM is to create an intuitive system that is easy to use and user-friendly, with a distinct support and maintenance structure, and a plan for future updates and developments with the ability to extend or modify the system as desired.

The objectives are to create a secure, scalable system that consolidates all contact and business information, reports AVG's activities and contact interactions, feature access control by user roles and/or permissions, third-party system access, manage activities, track sales, and integrate with other systems to allow data sharing under robust security.

A.4. PREREQUISITES

Number	Prerequisite	Description	Completion Date
1.	Operating System	Computer must be running Windows 8 or newer.	02/11/2021
2.	Internet Browser	Update to the latest version of Chrome and Safari browsers.	02/11/2021
3.	VPN	Virtual Private Network must be set up.	02/11/2021

A.5. SCOPE

IN SCOPE
- Consolidates all contact and business information
- Reporting history and forecasts
- Grants feature access controlled by user roles and/or permissions

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- Third-party system access
- Manage user activities
- Track sales
- Integrate with other systems to allow data sharing in the cloud system

OUT OF SCOPE
- Local data storage
- Payroll accounts

A.6. ENVIRONMENT

The cloud-based CRM system will be accessed through the updated Chrome and/or Safari browsers. It will be hosted and deployed using AWS in Amazon EC2 virtual servers. The scalable storage is also hosted in the AWS cloud, using SQL in Amazon Relational Database Service (RDS). RDS will allow AVG's existing database to be integrated into the new system. The GUI will be developed with React and Vue.js for a fully customizable end-user experience that will display on desktop and mobile browsers.

B. REQUIREMENTS

For this system to function as intended, the CRM software will meet five requirements of AVG's request. The requirements to be addressed are Contact Management, Data Types, Reporting, Order Management, and Contracting.

CONTACT MANAGEMENT

The CRM software will allow users to assign multiple contacts to one or more businesses, offices or subcompanies. Permissions will allow end-users to assign businesses to a contact database. The database will be stored in the cloud environment and accessible to users simultaneously. Contacts will be listed first by business name, then each contact within that business. Selecting a business name will display a list of each contact within that organization.

All contacts will be assigned to one or more of the following roles:

ROLE	ACCESS LEVEL	ACCESS AREAS
Administrator	Full	Sets permissions
Employee	Custom	Sales, reports, forecasts
Customer	Basic	Customer account profile, purchase history, products, preferences
IT Support	Custom	Support system
Third-Party	Limited	Internal data

DATA TYPES

The CRM software will be scalable to meet the needs of a growing user base. AVG requires a system that will support 2,000 users who will have access to the system, with up to 500 concurrent users during peak times. The cloud environment is scalable as the company's needs increase or decrease. It will have shared

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access across all offices for simultaneous use among users which will allow the company to meet their business requirement.

REPORTING

The CRM software will record the activity of individual users for auditing and process. AWS Audit manager will automatically collect evidence and build reports including information such as snapshots, user activity, and compliance based on custom-built frameworks. Reports will only be seen based on user permissions, and can be configured to give snapshots daily, weekly, or monthly. Filters can be saved as templates for future use.

ORDER MANAGEMENT

The CRM software will have an efficient process for Order Management. The software will allow users to place orders for products and/or parts, track orders, view order history, and convert saved sales quotes into orders. Likewise, customers will have the ability to login to their portal to convert their saved sales quotes into orders.

CONTRACTING

The CRM software will have a system for creating, signing, and approving contracts. Each contract will be found under the business contact's "Documents" section. Under the "Documents" section, the user will select the contract type, create new contract, or select template, sign, and approve it. Upon approval of the contract, the business contact will receive an e-mailed copy, along with the option to print it. Printed contracts can be scanned and uploaded into the "Documents" section. Contracts can be terminated by clicking "Terminate Contract", with administrator approval needed. In the Contact Database, there will be a table for flagged accounts with expired or missing contracts found by data pulled from the contract system.

C. SOFTWARE DEVELOPMENT METHODOLOGY

The software development methodology describes the way of organizing the work to that needs to be done for implementing a new system. Two of the most common methodologies, Waterfall and Agile, each have advantages and disadvantages that should be considered.

WATERFALL METHODOLOGY

Is a predictive planning strategy where requirements are gathered at the beginning of the project and then a linear sequence of events are followed. In this method, each stage generally finishes before the next stage begins. Customer involvement is only required at the milestones during the project. (Davu, 2018)

AGILE METHODOLOGY

Is an iterative, or adaptive, planning strategy where the project's goals can be changed continuously with the cross-functional teams throughout development. The focus is on lean development to produce minimum viable products during the time increments called "sprints". (Davu, 2018)

C.1. ADVANTAGES OF THE WATERFALL METHOD

- Predictable timeline and scope
- Cost efficient

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- Fix issues before progressing
- Requirements are well-defined and known in advance

The Waterfall Method would benefit this project because the requirements of the new system are clearly defined. Each step of the process will be documented, completed, and must pass parameters before moving to the next stage, leaving no room for errors. With the steps of the process laid out, the system will be finished with a clear end date.

C.2. DISADVANTAGES OF THE WATERFALL METHOD

- Inflexible
- later initial release
- Longer time needed before development / Big Design Up Front

The Waterfall Method leaves little room for unexpected changes. Because requirements must be gathered before the planning takes place, some details may be missed. Missed details or other unplanned events will require changes that could render previous work useless, extend the timeline, and increase the cost.

C.3. ADVANTAGES OF THE AGILE METHODOLOGY

- Adaptive to change
- Continuous attention
- Transparency
- Simplicity
- Self-organizing teams
- Greater involvement of stakeholders

The Agile Method would benefit this project because of its emphasis on collaboration, continuous feedback, and flexibility. Results of the software development are observed throughout the project, allowing changes and bug fixes as needed.

C.4. DISADVANTAGES OF THE AGILE METHODOLOGY

- Less predictable
- More commitment
- Project can go off-track
- More pressure on team members

The Agile Method can lead to additional requirements throughout the course of the project, due to stakeholder involvement. This can add additional sprints, extend the timeline, and increase the cost of the project.

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C.5. BEST SUITED

While there are advantages and disadvantages to both approaches, the Waterfall method is the best choice for this project.

The Waterfall methodology is the best choice because the requirements document provided by American Video Game Company, was clear and specific about their business needs. This will allow the development to follow a sequential plan, simplifying project management, and eliminating timeline guesswork.

If the company had some uncertainties about their needs for their new system, Agile would have been the preferred approach due to its flexibility.

D. DESIGN

The design of the CRM system for AVG will have a modern, reactive GUI that is easy to use across all web interfaces. The color scheme, graphics, and fonts will be a consistent theme that complements the company's branding.

FIGURE 1: FLOWCHART

The flowchart shows the process of the CRM system. The initial display will be a login screen, where a user can sign up, login to the dashboard, or reset password. The dashboard will be the main directory, and display links to the users account portal, sales, contacts, reports, support, and admin. Logging out from the dashboard will bring the user back to the login page.
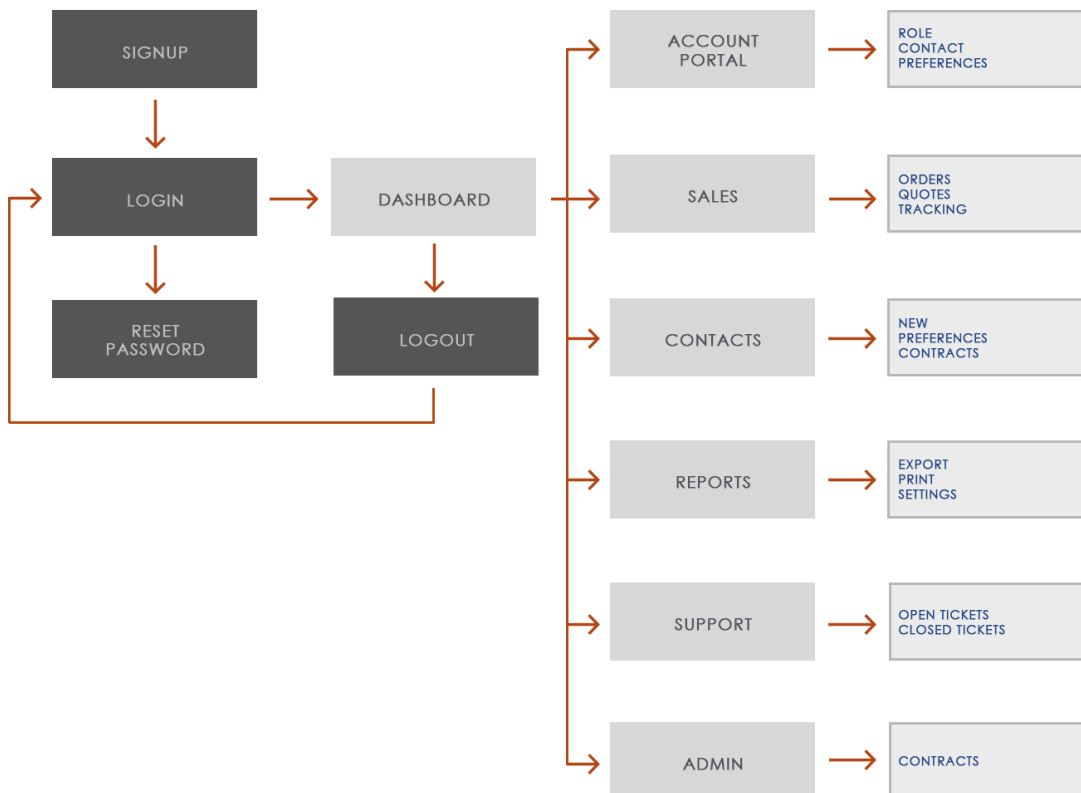

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FIGURE 2: GUI – LOGIN SCREEN

GUI Control Mapping			
ID	Control	Property	Data Source
1	Text field	On text input = Username	Internal Variable
2	Text field	On text input = Password	Internal Variable
3	Link	Forgot password reset request	Internal Variable
4	Button	On click = Login	Boolean Value

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E. TESTING

The application testing will focus on functional areas of the Customer Relationship Management system. The testing scenarios will demonstrate important activities that will be used frequently at American Video Game Company. Three Black-Box tests will be performed to simulate functionality from the end user's position.

The tests include:
- User Login Test
- Convert Quote to Sales Test
- Support Ticket Test

E.1.1 USER LOGIN TEST

REQUIREMENT TO BE TESTED

Login as a user within all roles.

PRECONDITIONS
Conditions that must be present before test case can successfully run.

A "test" username and password credentials must be created and stored in the database.

Valid Test Credentials:
Username: Username
Password: Password123

STEPS
The steps the tester must execute to test the feature.

1. Open the CRM Dashboard
2. Click "User Login"
3. Enter the test credentials:

	Attempt 1	**Attempt 2**	**Attempt 3**
Username	UsernameA	UserName	Username
Password	PasswordA	PassWord	Password123

4. Click "OK" after each attempt
5. Click "Logout" after Attempt 3

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

Expected results are:
- **Attempt 1** will be "Unknown User" and require another login attempt.
- **Attempt 2** will be "Incorrect Password" and require another login attempt.
- **Attempt 3** will be a successful login and logout to the main dashboard.

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PASS/FAIL

The results can be compiled and used to determine if the application is ready for delivery/release.

<mark>PASS</mark>

The three login attempts resulted in the expected outcomes.

The username and password combination had to match the test username to login to the system. Incorrect credentials required subsequent login attempts.

The login feature is ready for release.

E.1.2 CONVERT SAVED QUOTES TEST

REQUIREMENT TO BE TESTED

Users ability to convert saved quotes into orders.

PRECONDITIONS

Conditions that must be present before test case can successfully run.

A "test" customer must be created and stored in the database.

Username	Customer
Password	Password123

A "test" order must be created and saved in the customer's portal under "Orders"

STEPS

The steps the tester must execute to test the feature.

1. Login with the test credentials:

Username	Username
Password	Password123

2. Navigate to the "Orders" tab
3. Navigate to the "Quotes" tab
4. Click on the date of the saved quote.
5. Click "Generate Order"
6. Click "OK"
7. Verify that the Quote moved from the "Quotes" page to the "Orders" page.

EXPECTED RESULTS

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

Expected results are:
- The user will be able to login to the main Dashboard, and navigate to the quotes page. Expected results are that the saved quotes will be organized by descending date.
- The saved quote will be converted into a sales order.

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PASS/FAIL

The results can be compiled and used to determine if the application is ready for delivery/release.

<mark>*PASS*</mark>
The quote-to-sales conversion resulted in the expected outcome.
The test customer was able to navigate to the appropriate location to view their saved quotes, and then generate a sales order from it. They could then view that the saved quote moved from the quotes to the orders page.
The quote feature is ready for release.

E.1.3 SUPPORT TICKET TEST

REQUIREMENT TO BE TESTED

Customers ability to create a "Support Ticket" and receive a response from the company.

PRECONDITIONS

Conditions that must be present before test case can successfully run.

A "test" customer must be created and stored in the database.

Username	Customer
Password	Password123

STEPS

The steps the tester must execute to test the feature.

1. Login with test credentials:

Username	Customer
Password	Password123

2. Navigate to the "Support" tab.
3. Under tickets, click "Create Support Ticket".
4. Customer First and Last Name will be prefilled in the contact form.
5. Enter the customers e-mail address into the contact form.
6. Select the "Issue Type" from the drop-down list.
7. Enter a description of the problem into the textbox.
8. Click "OK".
9. The URL will navigate to a summary of the submitted support ticket request with a Ticket #.
10. Take note of the confirmation number.
11. Logout.
12. Login with test credentials:

Username	Username
Password	Password123

13. Navigate to the "Support" tab.
14. Listed under Tickets, click "View Open Support Tickets"
15. Click on the ticket link with the matching Ticket # from step 9.
16. Read the support message.

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17. Click "Close Ticket".
18. Navigate back to "View Open Support Tickets" to verify that the ticket is now closed.

EXPECTED RESULTS

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

Expected results are:
- The customer can login to the main dashboard and navigate to the "Support" page.
- The customer can "Create a Support Ticket" and receive confirmation and a Ticket #.
- The ticket status can be changed to "Closed".

PASS/FAIL

The results can be compiled and used to determine if the application is ready for delivery/release.

PASS

The "Support Ticket" test resulted in the expected outcome.

The test customer was able to navigate to the appropriate location to request a support ticket, where they could select an issue type, enter details of the problem, and submit it. Upon submitting the ticket, the customer received a ticket # and could then verify if the ticket is open or closed. An employee is able to respond to the support request, and the customer can then close the ticket.

The Support Ticket feature is ready for release.

F.   SOURCES

Davu, S. (2018, November 20). *Waterfall vs. Agile: Which Methodology is Right for Your Project?* Segue Technologies. https://www.seguetech.com/waterfall-vs-agile-methodology/