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| NUP1: Software Solution  Jeff Linn Consulting LLC  **Proposal :**  **American Video Game Company**  **Customer Relations Management System Solution**  Jeff Linn  October 26th, 2021  [Version 1.0] |

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## Introduction

Our company is proposing this CRM solution to American Video Game Company. In the following pages you will find information on requirements, recommended methodology, sample designs and testing.

## A.1. Purpose Statement

The purpose of this document is to address the User and Functional Requirements of the CRM Solution, compare the Waterfall Methodology with the Agile Methodology, show two preliminary designs, and suggest Testing techniques in response to the request for proposal from American Video Game Company.

## A.2. Overview of the Problem

Company growth of 42% in two years has forced the need for updated systems and solutions. Current tool sets are disconnected and outdated. There are plans to expand the product line and take on new projects but currently AVGC is not equipped to do so. The company will have trouble maintaining its positive trajectory, quality products and efficiency, and will fail if it doesn’t implement a new CRM solution.

## A.3. Goals and Objectives

Here are the goals and objectives of the CRM solution:

* To manage activities and easily track sales through reporting
* To allow for sharing of data
* To enhance security with access controls based on user-level permissions

## A.4. Prerequisites

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| Number | Prerequisite | Description | Completion Date |
| 1 | User Roles | AVGC will provide a list of user-roles and permission requirements for each | 4 weeks |
|  |  |  |  |

## A.5. Scope

These items are in scope and our company will include in the CRM solution:

* Archive information without deletion to maintain historical records
* Record activity against individual users for auditing and process
* Accurately control data access, workflow, and editorial control based on user permissions
* 2,000 user accounts to access the system
* Users can maintain multiple roles each specific to a particular client or business

These items are out of scope and our company will not be able to provide in the CRM solution:

* Two-way interaction/communication with CRM and MS Exchange/Outlook
* Quoting or generating orders
* Order Management
* Creating contracts with 3rd parties

## A.6. Environment

1. latest Chrome and Chromium
2. latest Firefox
3. I.E 9 and above
4. Safari 6.0
5. mobile & tablet
6. iOS7 Safari
7. iOS7 Third Party Browsers (Chrome and Firefox)
8. Android 4.0 Chrome
9. Amazon Web Services
10. Microsoft Azure

# B. Requirements

These are the five requirements that we’ll be addressing below:

1. User access to data that is relevant for the user’s department or function
2. Saving reports for future access
3. Saving and reuse of filters so that individual users can tailor reporting
4. Detailed and high-level reporting capabilities, including dashboards and executive-level summary reports
5. Historical data reporting

## User RequirementS

The users will have access to data that is relevant for the user’s department or function. Our solution will provide the ability to restrict levels of access, which would be securely controlled by the company administrator. Access to data will be limited or granted depending on the roles of employees within the company (i.e., a Junior Sales Associate will have access only to lower-level, limited sales figures and reports) or as determined by the company.

The users will be able to save reports for future access. Our solution will allow those users with proper permissions not only to generate the report within the CRM, but also to save those reports to their CRM user account or as a PDF to their desktop. For example, a Sales Executive can generate a weekly sales report and archive each in his personal CRM user account, as well as save each as a PDF to his desktop.

The users will be able to save and reuse the available reporting filters so that individual users can tailor reporting results. Not only will our CRM software solution provide users the ability to drill down in the data for targeted results, but they can also save those particular filter settings for future use. A user with permissions to generate reports will be able to save their combination of applied filters – effectively creating a custom report for future expediency.

## Functional Requirements

The proposed CRM software solution will have detailed and high-level reporting capabilities, including dashboards and executive-level summary reports. Our solution will provide a list of standard reports from which a user may select and generate a PDF of the report. Each user will have a dashboard page which will show the specific data they’re authorized to view, and is customizable to suit the user’s preferences. For example, a user may choose to create a default dashboard view which includes sales statistics for the month, competition scores for the week, and product inventory levels.

Historical data reporting will be a standard feature of the CRM solution. As a default feature, all users will be able to view data reporting and have access to basic reports. All the reports will utilize the stored historical data generated from the first day of implementation. Any prior historical data must be uploaded separately and integrated. This is outside of the scope of this proposal.

# C. Methodology

## C1. Advantages of the waterfall method

Here are the advantages of using the Waterfall Method:

* Final results, goals, or products are predictable
* The end-product is relatively easy to maintain
* Fewer decisions are required because they’ve already been set up front

## C2. Disadvantages of the waterfall method

Here are the disadvantages of using the Waterfall Method:

* Predicting exactly what will be needed in the future is extremely difficult
* Changing course, or going back, on requirements can significantly impact resources
* More time is required up front for design causing later delivery for the first increment

## C3. Advantages of Agile

Here are the advantages of using the Agile Method:

* Goals and products can be changed or adapted as needed
* It’s possible to make progress with relatively unclear requirements
* A starting product can be delivered initially, and adapted over time

## C4. Disadvantages of Agile

Here are the disadvantages of using the Agile Method:

* More time is allocated throughout the process for decisions on modifications
* Requires a high degree of frequent and effective communication
* Difficult to predict the end products

## C5. Best Suited

It is our recommendation for American Video Game Company (AVGC) to continue to utilize the Waterfall Methodology. Per the CRM Requirements *American Video Game Company* NUP1: Software Solution sections Introduction, Background, and Current System:

“Changes and enhancements that may be required throughout the life of the system as well as the scalability of the system when completing the proposal” should be kept in mind. AVGC has already determined the changes and directions they want to expand (i.e., toys and movies), which lends itself more to the Waterfall Model.

AVGC has disconnected departments, which doesn’t bode well for Agile. But it knows its trajectory and its anticipated projects, which lends itself a Waterfall Model. The company can forecast its growth and future projects, build an initial software solution to meet the anticipated future needs, and grow into it.

Most importantly, “sales have been up by 42% in the past two years.” This speaks in favor of the Waterfall Method. AVGC can forecast their performance and implement predictable, incremental goals. AVGC already knows how to be successful, so why change what is clearly working?

# D. Design

Below are two images of sample designs. The first shows the function of customizing reports with desired filters, generating the report, and saving that custom report for future use.

*Note: These subsections may be copied, rearranged, and modified to fit the needs of the solution. At least two visual representations of your design need to be present. Only need to do two of the three sections below. Only a sentence or two to describe what you enter.*

## D1. Storyboard for Custom Reports

This below image is showing a high-level of generating a customized report and saving it.

Graphical user interface, diagram

Description automatically generated

**Figure : Sample Storyboard**

## D3. High-Level Dashboard GUI

The below image is of the proposed dashboard GUI that will be used in the proposed solution.

Graphical user interface, application

Description automatically generated

**Figure : Sample GUI Mock-up**

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| Dashboard Page GUI Control Mapping | | | |
| ID | Control | Property | Data Source |
| 1-4 | Reports | On application open reports are generated based on the User’s saved dashboard preferences | Internal Variables |
| 5 | Table | On click opens available dashboard reports to display in User’s dashboard window | Internal Variables |
| 6 | Link | On click navigation to selected page | Site map |
| 7 | Grid space | Empty/Available dashboard window space | N/A |

# E. Testing

We’re going to do Gray-box Testing and Functional Testing on the Reporting functions of the CRM software. This means that we will have one black-box test (designed by someone who doesn’t know the code), and one white-box test (designed by a developer who does know the code). The third test will be a security test for user-level rights/permissions on accessing certain reports.

## E1. Gray Box Testing (Black + White)

### E1.1 Black Box Sample 25% of Default Reports

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| The tester will randomly select a number of default reports equal to 25% of the total available reports. No filters will be applied, generating reports with only the default settings. The tester will review each report generated for bugs within the displayed report results. |
| Preconditions: The tester understands that the software provides a selection of default reports. The tester must have a general understanding of what the selected reports should display. In other words, the tester should be qualified to determine whether the report is showing proper data figures. Also, the number of reports to be generated should be determined prior to starting. |
| Steps: The steps the tester must execute to test the feature.   * Provide the tester with a number of reports to generate and a log book * Tester will log into the CRM and navigate to the Reports page * Randomly select a report, generate it with default filter settings * Review results for bugs * Record findings in the log book * Repeat until prescribed number of reports are reviewed |
| Expected results: It is expected that all the tests selected and generated by the tester will be free of errors and display properly. |
| The test case failed. The results were that about half of the sample displayed at least one error either in formatting, calculation, or proper data inclusion. Given the sample size, the number of errors requires further development before deployment. |

### E1.2 White Box DashBoard Customization Limitations

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| Customize the User Dashboard page to its full capacity to ensure limitations of the page size provide proper error messages and controls. |
| Preconditions: The code for the dashboard page and customization page must be integrated with each other with medium to high fidelity. The tester should be knowledgeable of the development code involved. The tester should know how the customization features work. |
| Steps: The steps the tester must execute to test the feature.   * Log into the CRM and navigate to the dashboard page * Select the “Customize” button to open the customization window * Drag and drop the available dashboard snapshot boxes into the defined space * Drag/drop a snapshot box onto the border of the defined space, record software response * Drag/drop a snapshot box onto another existing one, record software response * Drag/drop a snapshot box outside the border, record software response |
| Expected results: It is expected that the software responds to the drag and drop feature by rejecting any overlap with existing boxes, rejecting placement both on and outside the border. |
| This test has passed and the dashboard customization limitations feature is ready for its next increment in development. |

### E1.3 Report Access Security Test

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| The tester will utilize three sample user-accounts which have differing levels of permissions set to them. One will be Low with minimal access, one will be Medium with a mix of access, and one High with access to all features. The tester will attempt to access reports determined to be outside the Low and Medium user-account permissions. Then the tester will ensure the High-level user account can access all reports available. |
| Preconditions: Reports must be designated as Low level, Medium level, and High level, and restrictions programmed accordingly. Three separate user roles need to be programmed as a setting for account creation. Three accounts must be created with the Low, Medium, and High permissions respectively. The tester will be provided with the account logins for each, and a list of reports (2 Low, 2 Med, 2 High) to attempt to access with each account. |
| Steps: The steps the tester must execute to test the feature.   * The tester will log into the Low user account and navigate to the Reports page * Attempt to generate the pre-selected reports (2 Low, 2 Med, 2 High) * Record whether or not the Low user was able to generate each report * Log out and then log into the Medium user account * Repeat the steps 1-3 above with the Medium user account * Repeat the steps 1-3 above with the High user account |
| Expected results: It is expected that the Low user account will generate the two Low level reports, and not be allowed to generate the others; the Medium user account will generate the two Low and two Medium level reports, and not be allowed to generate the High level reports; the High user account will generate all six reports. |
| This test has passed. The tester was properly dis/allowed to generate the reports. |