Requirements Specification

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Team Success Starters

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Accepted as baseline requirements for the project:

Client signature:_____ Date:_____

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Section 1 - Introduction

Verde Christian Academy (VCA) is a private K-8 school located in Cottonwood, Arizona. VCA wants to gather information about their alumni to determine if their students are prepared for middle and high school, but also for their adult lives. There should be tools in place to convert collected data into useful visuals, such as charts or graphs. VCA also wants to implement a system where students can reach out at any time about issues they are having, and VCA will be able to help those students.

The proposed system will allow VCA to stay connected with current and former students. VCA is not only concerned with students' academic performance, but also with involving students in classroom activities such as sports, clubs, brands, student government, and study groups. In addition to activities inside the school, they also would like to encourage their students to participate in activities outside of school such as community events, support organizations, and be a part of faith related activities including youth groups service missions, music, bible study groups. VCA also wants to provide the students with the opportunity to communicate observations and insights to the VCA administration.

Section 2 – Problem Statement

The Problem:

Staying connected with alumni has always been a challenge for schools. Currently there is no easy way to keep track of how their students are doing later on in their lives. Administrators from schools would love to have a system that is able to collect and manage that information. Competition between different schools over students is increasing, especially in Arizona due to educational freedom for families. Being able to stay connected with their alumni could help schools determine if they are properly preparing their students for the future.

The Current Solution:

As of right now there are a few solutions VCA is using to get feedback from former students and parents. Currently, VCA is using third party sites such as Wufoo and Survey Monkey. They have tried surveying parents to get their personal opinions, such as choosing between a 4 or 5 day school week. They also have sent out feedback surveys on how the school is performing. VCA would rather create their own survey system that they can personalize and fine-tune, rather than having to rely on a generic online survey generator. Overall, the school has no system in place right now to keep them connected with their alumni.

Section 3 – Solution Vision

Our solution to the problem is creating the Verde Christian Academy Student Success System, otherwise known as VCASS. The goal of this web system is for the administrators of the school to create and send out surveys to certain students to collect information on the status of their education. The administrators will then be able to pull the responses from the survey results and see if there are trends in the data to use to their advantage.

This document is a specification of the proposed web application. The purpose of this document is to explore the requirements needed when creating this system, analyzing those requirements, understanding the potential risks and coming up with a solution for the problem statement.

Our system will collect data from surveys. This data will consist of emails, names, and other information collected from students or alumni for user accounts. There will also be feedback collected about how the school is functioning. Our system will use the data collected from surveys to generate graphs or charts. The school will use these graphs or charts to reflect for school uses.

We will need to have something in our system to generate and send out surveys. We will need code to gather data from the survey to deposit into a database.

Our system will make it easier for our sponsor to get feedback from students and alumni. It shouldn't require a lot more work to create a survey . We believe that our solution is sufficient to solve our client's problem since it would already integrate with our sponsor's current website. We have browsed other options for database hosting, but we do not believe that there are any noticeable benefits to outweigh the costs it would incur.

If our software is successful, it might become a template for other schools who want better ways to get and analyze student or alumni feedback.

Section 4 – Project Requirements

Domain-Level Requirements

1. A secure and responsive web portal available to all the administrators at the school.
2. A secure and responsive link distribution that can be accessible by students at any time and anywhere.
3. A secure database where the data is easily accessed and available to be pulled for reporting purposes.
4. A responsive reporting/visualization system that displays the information from surveys in an efficient manner.
5. The ability to create custom surveys with different types of questions and save surveys created as templates for further use.
6. The ability for students to decide if their survey responses are anonymous or not.
    a. Contact information Survey (Non-anonymous)
    b. Personal Update Survey (Non-anonymous)
    c. Normal Survey (Optional)
    d. School Feedback Survey (Optional)
7. A distribution tool that will automatically send out the survey to specific categories of students after creating a new survey

Functional Requirements:

1.1 There will need to be an administrator account/profile system. Administrator accounts will be able to interact with the database, create and submit surveys, and gather data.

1.1.1 These accounts will allow administrators to be able to access and use the web portal.

1.1.2 Accounts will need to be secured. Emails and passwords will need to be stored securely. There will also be requirements for the passwords to make them stronger.

1.1.3 Administrator accounts need to be verified in some way. It should not be possible for any random user to make an account and immediately begin accessing or modifying data.

1.1.4 There is potential room for email verification, as well as for lost password tools (quality of life features found on many other websites).

1.2 There will need to be a web portal that allows administrators to log in and interact with data.

1.2.1 The web portal will only accept verified administrator accounts. The web portal would reject users who had not made an account.

1.2.2 The web portal will allow administrators to view collected data, create and modify surveys, or send out surveys.

2.1 Links will need to be universally accessible. In order to gain the widest possible range of responses, it is imperative that survey links are able to be sent to, and opened by, all manner of possible devices or browsers.

2.1.1 Links should be able to be accessed on any device, such as computers or mobile devices.

2.1.2 The web pages that contain the surveys should be accessible on any device or any browser.

2.1.3 Links should have an expiration date. At some point in time, the data from a survey will be irrelevant, so there is no need for the survey at that point.

2.2 Links should be able to be distributed in a variety of ways.

2.2.1 The system should have a means to automatically email registered users (or student/alumni emails stored in the database).

2.2.2 Created links should be able to be emailed separately by school officials. Links could also be posted directly on either the web portal, or the VCA website.

2.2.3 The links should appear legitimate, and not like a phishing attempt. If the link was from a recognizable url (i.e. https://myvcacademy.com/survey/1101, where the url is easily recognizable by potential users).

3.1 There will be a secured database to store the email addresses for the students to send surveys, as well as the results from the surveys distributed, the access to the database will be limited to the administrators.

3.1.1 The administrators will have to have an administrator account in order to be able to access the database. The administrator accounts will be created in advance which will provide secure and reliable access to the database.

3.1.2 The administrator would be able create, and store template surveys into the database for future use. They will also be able to retrieve previously created surveys from the database.

3.2 The database administrator will be able to create new tables into the database, insert data to the tables, and remove data from the database.

3.2.1 The administrator will have access to the table containing students' email addresses for easier survey distribution. Also, the administrator will be able to add new student's email addresses, update email addresses for a student, as well as delete unused email addresses.

3.2.2 When an administrator creates a new survey, the system will create a table in the database for the answers corresponding to this particular survey, each student answers and submits a survey, it will be directly stored in that table.

3.2.3 Each student added to the database must have a first name, last name, gender, email address, and the year of graduation for easier reporting analysis.

4.1 The administrators will have access to the data collected from surveys, and the option to see the data in an interactive visual manner.

4.1.1 When retrieving the data stored in the database tables, the administrator will be able to choose from a dropdown list of ways to display the data, it could be displayed in a pie chart, bar chart, or a table containing the survey answers.

4.1.2 The administrators will have the ability to filter and customize the data collected depending on a category, such as gender, or the year of graduation for better analysis.

5.1 When an administrator creates a new survey, there will be an option to save that survey for further use.

5.1.1 There will be a list of surveys that have been saved for administrators to pull from and reuse for future distribution

5.1.2 When an administrator pulls a survey from the saved list of surveys, they will be able to edit that survey and update any questions or information within the survey.

5.2 There will be multiple options for survey questions when creating a survey. For example, multiple choice, true/false, fill in the blank, scale based questions, etc.

5.2.1 These survey question types will be stored in an options menu where the administrator can pick which type of question they would like to add.

6.1 The must be an option on surveys for students to decide whether their response will be anonymous or not, based on the type of survey.

6.1.1 If the survey is a General Contact Information survey meaning the main goal of the survey is to get the students' contact information, then there will not be an option for the response to be anonymous.

6.1.2 If the survey is a Personal Update Survey meaning the main goal of the survey is to check in on the students to see if they need any assistance, counseling, services, etc. The survey will not have an option for the response to be anonymous.

6.1.3 If the survey is a Normal survey (meaning that the school is looking for feedback on what activities the students are participating in, their recent grades, their faith, etc), then there will be an option for those responses to be anonymous.

6.1.4 If the survey is a School Feedback Survey meaning the students will respond to questions regarding their time at VCA, there will be an option for those responses to be anonymous.

6.2 When a response is anonymous, a student's contact information, for example their name and phone number, will not be visible to the administrator's of the school

6.3 When a survey does not give the option to have the response be anonymous, there must be a disclaimer letting the student know that once they submit their response, their answers will not be anonymous.

7.1 When an administrator finishes creating a survey, there will be a distribution button to send out the survey to specific students based on the administrator's decision.

7.1.1 The distribution tool will have multiple filters to select which students the survey will be sent out to. For example, gender, age, graduation year, etc.

7.1.2 The survey will automatically be sent out to the selected students from an anonymous email.

7.2 The administrators will not have to personally copy and paste the list of students selected to fill out the survey and send from their personal email.

Non-Functional Requirements (Performance):

1.1 It should be simple and straightforward for an administrator to create an account.

> 1.1.1 Creating an account should be a 1 minute process; it should resemble making an account on other websites (email, name, password, confirm password, etc).
>
> 1.1.2 Once an account has been created, the system should quickly add that account to its database (at most 30 seconds) and allow that account to log in. We hope that account creation takes no longer than one minute.
>
> 1.1.2 Logging in using an already existing account should be a straightforward process. This should not take longer than 30 seconds, especially with many browsers supporting password saving.

1.2 The web portal should be easy to find/access. VCA should be able to direct users to the main website, and users should be able to find the link to the web portal from the main website.

> 1.2.1 A user who is on the main VCA website should easily find the link to the webportal within 30 seconds of searching.

2.1 The links should appear legitimate, and not like a phishing attempt. We will need some way for potential survey-takers to know that the link is actually being sent by VCA, and not by some malicious actor.

2.2 The survey page should be easy to use and easy to access by users on a wide range of devices. Ideally, the survey page should have a ‘mobile version’ with formatting more appropriate for smartphones.

3.1 The database access would be granted once the administrator has logged in to the system.

3.2 The system will provide a usable user interface that will give administrators the option to quickly navigate between creating surveys and reviewing the results from the surveys from the database.

4.1 The visualization report would be created in seconds once the administrator chose the type of graph wanted to be displayed.

5.1 When creating a survey, the question types should be easily adjusted for the administrator's to change and update as needed.

5.1.1 The Administrator should be able to change the question type without having to re-type the information for the question.

5.1.2 The administrator should easily be able to add and remove as many questions to the survey as needed.

6.1 The anonymous option button will be a simple slider clarifying if the response will be anonymous or not.

6.2 The anonymous response button will be placed directly above the submit button so the student taking the survey clearly sees it before submission.

7.1 The distribution function of the survey should be quick where the administrator just has to select the appropriate filters and send the survey out.

Environmental Requirements:

1. The website must be linked to the existing domain for the school's website.
2. The website needs to be integrated into the schools main website.
3. The website needs to be integrated with WordPress and the languages that wordpress supports.

Section 5 – Potential Risks

1. WordPress plugins may not be available to us

   1.1 Plugins conflicts

   One of the best things about WordPress is that it is very easy to customize website features using plugins. Unfortunately, because these plugins, themes, and WordPress itself are all created by many independent developers, they do not always get along well. If there are plug-in conflicts, issues such as connection timeout, undefined function call, white screen of death, etc. may occur, which may directly lead to the paralysis of webpage software and the result that users cannot log in. The standard way to deal with these common WordPress errors is to switch to the default theme and deactivate all plugins. Then, activate them one after another until the symptoms reappear. Generally speaking, the most recently activated or updated theme or plug-in is the key to the conflict.

   1.2 WordPress file error

   If a WordPress file is damaged, it can directly cause the web page to be inaccessible. This could mean that the user registration and login system could crash, questionnaires could not be conducted, and subsequent data analysis could not be performed. Corrupted files may be caused by server failure, incorrect file permissions or incorrect PHP version. The simplest solution is to restore a site backup. Alternatively, we may use a separate website for testing web pages, before pushing those verified webpages to the main website.

2. The Students information is anonymous

   The true anonymity of student information can protect personal information, but it is not convenient for users to further understand and communicate, and it is not conducive to the complete collection of user information.

3. Shareable links may accidentally get changed

Unexpected changes of shared links will lead users to enter a wrong web page, affect the collection of user information, and reduce the user evaluation of this software.

4. WordPress plugins may not work the way we believe

   Sometimes WordPress will not work as expected, which is likely to affect the user experience. For example, the font and web page format are not consistent with the overall style of the web page, and even affect the realization of some functions in serious cases. Users can't make the functions normally, resulting in the decline of user satisfaction.

5. Data is listed incorrectly in charts

   If the data is not listed correctly in the form, it could lead to the omission and missing of user data. This would mean that our survey web page would not be working correctly. The only way to solve this potential issue is to ensure the correctness of the source code, and to check and make up for the missing parts.

Section 6 – Project Plan

The project execution plan will begin by cleaning up the requirements for the system during the fall semester as well as creating a prototype. Both of these components will be crucial to a successful project. Laying out the requirements for the system at the beginning covers every area of development before it even begins. This ensures that there will be no surprises that arise in the spring semester when the development begins. Also, creating a prototype ahead of development gives a visual of how the imagined project will look. This will then lead to adjustments being made ahead of time instead of later on once the development is finished.

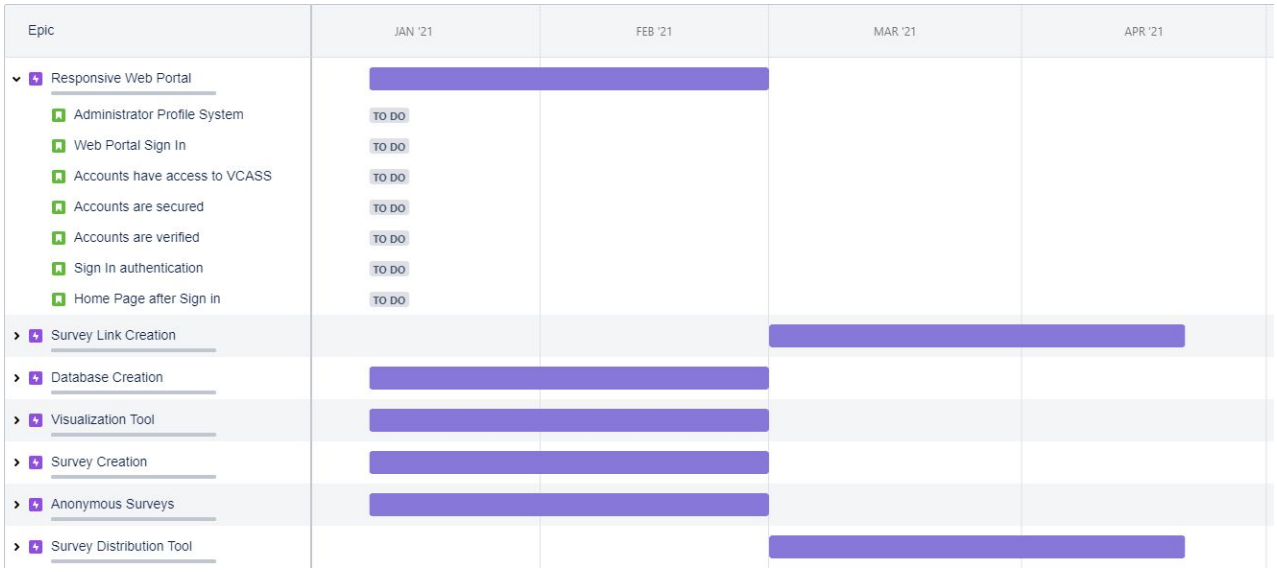
The development portion of the project will begin at the start of the spring school semester. This is the time where the planning will be put into action. The steps in development will be based on the domain level requirements. These are the key milestones that will measure the work left to complete for the project. Development will begin in creating the “skeleton” of the system. The skeleton consists of the main web portal. For example, a user sign in, survey creation, the creation of the database and saving the templates, setting up the visualization tool. This covers domain level requirements 1, 3, 4, 5 and 6. Those requirements cover the base levels for the system. As the skeleton of the system is created, the team will then move into the tools that interact with the system. For example, the link creation and distribution components where the survey links are being generated and sent out to students and receiving that data. This will cover domain level requirements 2 and 7. Finally, after the framework of the website is created and the tools that run the website work. The customization of the website will come into play. For example, moving tabs around and re-ordering them, adjusting the style of the website and visual appeal as well.

Attacking the development process in this way ensures that the framework is laid out first, which will be the most critical part. Adding tools and add ons to a website is difficult when there is no website to work with from the start. After the basic framework is working properly, the tools necessary to support the website will then be implemented. Once everything to make the website working properly

is implemented. Finally, the customization piece can come in where the visual appeal of the website is sufficient.

The Gantt chart below provides a visual representation of the plan described above. This chart lists the domain level requirements as epics and the functional requirements that fulfill those high level requirements are listed below each epic. It also displays the time frame estimated for the work in each epic.

Gantt Chart:



Section 7 - Conclusion

Our project is to create a tool for VCA that will allow the school to stay connected with their alumni. The school does not already have a specific tool to assess their students' success and are using third party softwares. It is time consuming for the school to create surveys every time and distribute them, which raises the need to have a tool where they can save surveys for future use.

Our solution to the problem is creating the Verde Christian Academy for Student Success System, otherwise known as VCASS. The goal of this web system is for the administrators of the school to create and send out surveys to certain students to collect information on the status of their education. The administrators will then be able to pull the responses from the survey results and see if there are trends in the data to use to their advantage.

This document has given the team a clear understanding of what is required to push this project to completion in the following semester. We have laid out what the issue at hand is as well as what our vision is to that issue. In the requirements section each domain level requirement covers the high level deliverables we see in this project. Next, we take those high level requirements and break them down into what smaller steps are needed to achieve those deliverables. We also cover the non-functional requirements that will make the system run as efficiently as possible. This document has helped us plan out the plan for development in the following semester as well when it comes to which deliverables to attack first and which to attack later.