Final Report

Bipolar Disorder Society of British Columbia



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One Degree Analytics

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Revision History:

Name	Date	Reason for Changes	Version
Final Report	November 21st, 2015	Original Version	0
Final Report-1	November 25, 2015	Team Edits	1

1 Introduction

1.1 Executive Summary

The Bipolar Disorder Society of British Columbia (BDSBC) is a non-profit charity registered in January 2010 to "stomp out stigma" for bipolar disorder. They offer events such as classroom and community presentations as well as regular programs such as the Teens2Twenties support group, the Women's peer support group and a Westshore support group.

BDSBC partners include BC Schizophrenia Society, Mood Disorders Association of BC, Umbrella Society, Mental Health Commission of Canada, Canadian Mental Health Association (BC), Pacific Bipolar Foundation, CREST.BD and FORCE Society for Kids Mental Health.

BDSBC is using Microsoft Excel to manage event bookings and experiences redundancy in stored data, inefficiency and challenges for organization. BDSBC needs to track scheduling of events, speakers, volunteers and member attendance for each program and event. They also need to know which presentation material was used.

One Degree Analytics was selected as a result of a Request for Proposal process to analyze the information requirements of BDSBC and provide a recommended design for a more efficient method to meet their requirements.

The design will be within the boundaries of BDSBC existing technical capabilities, skills and financial resources to ensure a user-friendly and accessible solution. Specifically, the solution design is catered towards users from all technical backgrounds, with no cost, or minimal cost, for design, and does not require costly information technology resources for maintenance.

The website for BDSBC is located at www.bipolarbabe.com and further detail on the registered charity is located at http://tinyurl.com/nucaz93

BDSBC operates on a annual budget of \$110,325 (2014) with \$31,339 allocated to management and administration (27%) and \$86,385 allocated to charitable programs (73%). They have 6 part-time employees and spend \$4,910 (2014) for professional and consulting fees. They are a rapidly growing organization -- with the budget expected to rise to \$160,000 in the 2015-16 timeframe according to the Annual Report.

1.2 Requirement /Need

BDSBC's core requirements are to plan, organize and track programs and events. Challenges include identifying available volunteers, speakers and locations. All event and program information must be secured in a central location, including real-time tracking of response status to their outreach invitations to ensure they do not exceed capacity.

BDSBC maintains data for multiple entities including members, volunteers, programs, presentations, and locations. A wide range of search and reporting activities ensure optimal planning as well as accurate grant and funding submissions and business reports for the public, the Board of Directors, and numerous private and public funding organizations as well as other stakeholders and government entities.

The current Microsoft Office Excel spreadsheet used to date evolved over time and this evolution of columns and fields became unwieldy over time. The data entry method produced high error rates and made it difficult to report on the success of specific programs.

1.3 Scope and Limitation

Background: A prior system was used (SUMAC) but many features were not consumable. SUMAC is an integrated and customizable customer relationship management (CRM) system for non-profits with add-ons for fundraising, memberships, events, outreach, ticketing, volunteer management, course registration and other modules. It is a popular Toronto-based system used in North America that is low-cost and distributed to small non-profits at no charge. Regular pricing for SUMAC is \$20/month for basic CRM and 2 add-ons per person, per month. Accessing the database online is an additional \$25/month.

BDSBC assessed the SUMAC solution but determined they require a new solution that is "right sized" -- more functional than the Excel spreadsheet used today but more easily consumable than the SUMAC system.

Budget: BDSBC operates as a charity and does not have a budget for information technology. The range for the solution including licenses, subscriptions, services and equipment is to be as low as possible or no charge, to a maximum of 10% of the management and administration budget per year which would be \$3133 (2014).

Skills: The organization relies on volunteers and cannot presume technical knowledge – the solution must be very easy to use with little or no training required and use commonly available skills such as Microsoft Office, Facebook, or similar consumer tools. There is no time or budget for training or for implementation.

Time: There is no specific time requirement for the implementation for a new solution provided it meets the limitations above.

Out-of-Scope: Items that are out-of-scope include finances, fundraising and donor receipts. It may be "nice to have" in future but is out-of-scope. Less than \$12,000 per year is receipted donations (11% of budget) by BDSBC today.

Capacity: It is assumed that the solution needs to accommodate up to 5,000 participants, speakers and volunteers per year with a maximum of 500 events per year (including support group meetings), or approximately 400 attendees at 40 events per month. This should provide growth for the next 3-5 years.

Technology: The solution must be readily available on all forms of consumer devices and equipment ranging from Windows, Chrome, Macintosh smartphones, tablets and PCs.

1.4 Goals and Objectives

The goals and objectives for a solution include:

- 1) Simple and easy access to information
- 2) Reporting for programs and events to quantify BDSBC's achievements
- 3) Efficiency of data, without redundancy
- 4) A wide range of queries
- 5) Data entry in a way that reduces errors
- 6) A method to schedule programs, events and speakers
- 7) A method to assign content from a content library if required to events
- 8) A method to register participants and volunteers
- 9) Data security

1.5 Project Sponsors and Stakeholders

The stakeholders include staff and board members and may include a fundraising coordinator.

Management:

- Warren Keane, President (2013-). Managerial and operational expertise.
- Andrea Paquette, Executive Director. Presenter and facilitator.
- Lori Elder, Communications Director. Provides information on resources.

Board:

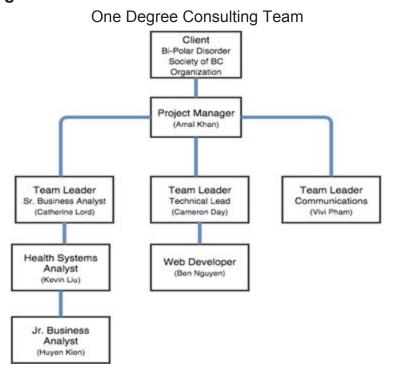
- Natasha Tracy, Board Director. Writer and speaker for BDSBC.
- Jackie Powell, Board Director. Knowledge about bipolar disorders.
- Gurpreet Randhawa, Board Secretary.

1.6 Deliverables and Milestones

Project Deliverable	Description	
Project Charter	A document outlining the overall scope, requirements, objectives, participants, cost and duration of the project to help all involved in the project to be aware of its content.	
Requirements Section (Final Report)	Provides a textual description of the requirements and use cases that describe the client's needs.	
Final Report	Provides the final design solution to the client.	

Project Milestone	Description	Date
Project Charter Presentation	Present Project Charter document and get sign off approval from clients.	October 8th, 2015
Team Meeting	Delegate roles and responsibilities, while setting deadlines for tasks.	October 13th, 2015
Second Team Meeting	Follow-up on members, and progress.	October 20th, 2015
Requirements Due (Final Report)	Submit requirements section of the final report.	October 29th, 2015
Second client meeting	Second client and analyst meeting - present prototype and receive feedback from client.	November 12th, 2015
Third Team Meeting	Discuss feedback from client, continue on separate tasks.	November 17th, 2015
Fourth Team Meeting	Review final solution, confirm deadline and ensure completion of tasks and overall project.	November 24th, 2015
Final Report Due	Submit final solution of the project.	November 26th, 2015
Final Presentation	Present the final product to the client.	November 26th, 2015

1.7 Team Organization and Roles



Brief Description of Role:

Cameron Day: Technical Lead

Duties: website maintenance, domain research, technical analysis.

Amal Khan: Project Manager

Duties: project management, issue resolution, project charter management.

Huyen Kien: Jr Business Analyst

Duties: documentation and database librarian.

Kevin Liu: Health Systems Analyst

Duties: data quality, design and maintenance.

Catherine Lord: Senior Business Analyst

Duties: business model design and project quality control.

Ben Nguyen: Web Developer

Duties: Web content, domain knowledge and use cases.

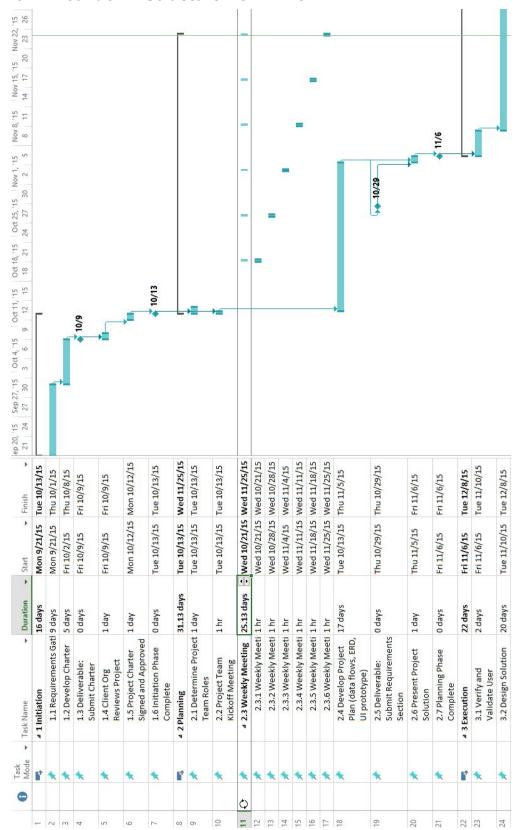
Vivi Pham: Communications Lead

Duties: Web and report communication, client-facing materials, brand consistency.

1.8 Risk Management

NO	Risk Description	Probability (H/M/L)	Impact (H/M/L)	Mitigation Method Used
1.	Budget constraints	Low	High	Assumed the budget is \$0. Obtained approval from stakeholders if/when solutions would require >0, up to 10% of management and admin budget which would be \$3133 per year (2014).
2.	User-Interfa ce of solution, too foreign, may scare users.	High	Medium	Tasks were categorized and training requirements were reviewed with client: Registration – 0 minutes Search – 5 minutes Schedule – 15 minutes Reports – 30 minutes Admin – 60 minutes Backup – 60 minutes
3.	Data privacy breach	Low	High	The solution includes a secure method for accessing stored data.
4.	Technical skills are not available.	Medium	High	Assumed there is no IT (information technology) department or local skills. The solution is based on common tools (Microsoft Office) or must be equally easy to use, implement and maintain.
5.	Niche providers may not be sustainable	Low	High	The solution only includes tools from well-established vendors with proven longevity and large customer bases of all sizes.
6.	Stakeholder s may not be available during testing phase	Medium	High	Frequent checkpoints with management were included to stay on track. Teleconferencing and remote demos where practical were used.

1.9 Work Breakdown Structure: GANTT CHART



2. Requirements

2.1 Use Case Descriptions

2.1.0 Definitions

Managers: A person who has full access to data in the information database and is responsible for data input for new members, volunteers, events and programs. Managers are the only user class that can edit, update and/or delete existing data.

Volunteers: A person who assists, facilitates, prepares or cleans up during or after events and programs. Volunteers do not interact with the information database, however their demographic information is stored in it.

Members: A person who has attended or is registered to attend a regular program hosted by BDSBC such as a support group.

Fundraiser: A person who aids in fundraising and grant writing. Fundraisers have view-only access to summary reports.

Charity Specialist: A person who provides guidance and advice to BDSBC, including, but not limited to, guidelines for monthly reports and strategic planning guidance. The Charity Specialist has view-only access to more detailed monthly reports to insure that guidelines such as the Canada Revenue Agency (CRA) rules are being followed.

Benefactors: An organization, group, or person who has donated to BDSBC. Benefactors do not have direct access to the information system but as stakeholders, they may request summary reports from the Fundraiser.

2.1.1 Monthly Report Production

This use case describes how a manager interacts with the system in order to extract the information needed for the monthly report. The actors in this use case would be the manager, who would be producing the report, and the fundraiser who would receive a the summary report along with any benefactors if necessary. In producing the monthly report as well as any custom reports, the following steps are taken:

- 1. The system authenticates the manager.
- 2. The system opens on the landing page.

- 3. The manager selects one or more gueries from the left panel.
- 4. The system returns reports for each query such as number of attendees and volunteer participation.
- 5. The manager stores the report(s).
- 6. The manager can run a query to concatenate multiple reports into a comprehensive summary report form and stores the summary (Optional).
- 7. The manager exits the system.

Post-conditions:

- 1. The summary report form will be shared with the fundraiser.
- 2. The fundraiser will share the summary report form with the benefactor if requested to do so.

Additional Notes:

Steps three to six of the use case above include both query searching, and interaction with a form to ensure flexibility to produce multiple report types. Currently BDSBC uses manual retrieval and entry to generate reports which is a very error prone process. The query process above allows the manager to gain familiarity with the multiple query types and it is the intention that shortcuts would be integrated over time. The design goal was to introduce a flexible report system to accommodate multiple stakeholders.

2.1.2 Schedule Retrieval

This use case describes how a manager retrieves scheduling information including date, time and the volunteer name for events and programs. The actors in this use case would be the manager, and the volunteers. In retrieving the schedule, the following steps are taken:

- 1. The system authenticates the manager.
- 2. The system opens on the landing page.
- The manager runs the event-information-retrieving, and program-information-retrieving queries for a specified date range.
- 4. The system returns values such as, the date, time, and committed volunteers for all upcoming events into a schedule form.

- 5. The manager stores the schedule form.
- 6. The manager exits the system.

Post-conditions:

1. The schedule form will be shared with volunteers if need be.

2.1.3 Creating a New Program

This use cases describes the processes that occurs when a new program is being initiated. The only actors in this use case would be the manager, and the volunteers. In starting a new program the following steps take place:

- 1. The system authenticates the manager.
- 2. The system opens on the landing page.
- 3. The manager opens the program table and adds a new record, including program name, recurring day and the location and the maximum attendees if known.
- 4. The manager runs the volunteer-availability query.
- 5. The system returns volunteers who are available for the specified day.
- 6. The manager selects the volunteers for the program.
- 7. The manager stores the program sheet
- 8. The manager exits the system.

If the volunteer-availability query returns null, the following alternate steps would be taken:

- 1. The manager changes the day and time of the program.
- 2. The manager continues with steps four onwards.

Additional Notes:

The main design objective was to improve the current process which used a blank sheet in Excel to record new programs. This led to inconsistencies in the system where programs or volunteers could be subject to double-entry. Using the integrated method above, managers can see all programs at a glance to reduce double-entry and volunteers cannot be double-booked.

2.1.4 Registering for a Program

This use cases describes the processes that occurs to register a member in a program. The actors in this use case are the member and the manager. In registering a member for a program the following steps take place:

- The member selects the program they would like to attend from a poster, email or web notification.
- 2. The member conveys their interest to the manager through telephone or email.
- 3. The system authenticates the manager.
- 4. The system opens on the landing page.
- 5. The manager executes step 5a) or 5b)
 - a. retrieves the member information
 - b. if the manager is unable to retrieve the member's information, the following alternate steps would be taken:
 - i. The manager creates a blank member record.
 - ii. The manager fills the member record with information provided by the member.
 - iii. The manager stores the member record.
- 6. The manager opens the registration table and creates a new record for the member for the program of their choice.
- 7. The manager stores the registration record.
- 8. The manager exits the system.

Post-conditions:

1. The member attends the program.

Additional Notes:

In the current system members are registered for each program they attend. If a telephone number or unit of information changes, it must be changed in each record. The advantage of this method is that all member data is held in a member table and can

easily be updated to keep program records current automatically. This is critical in the event of reschedule notices as an example.

2.1.5 Creating a New Event

This use case describes the process of creating an event - a one-time occurrence of a presentation at a school, community or workplace location. The actors in this use case would be the manager, along with the volunteers. To be able to create an event, the following steps occur:

- 1. The system authenticates the manager.
- 2. The system opens on the landing page.
- 3. The manager opens a blank event sheet.
- 4. The manager fills the event sheet with basic event information such as event name, content of choice, and the time at which the event will be held.
- 5. The manager runs volunteer-availability query for a date and time they have specified in the event sheet.
- 6. The manager books a venue, and adds venue information to the event sheet.
- 7. The system returns volunteers who are available for the specified date and time.
- 8. The manager selects the volunteers who will facilitate the event.
- 9. The manager saves the event sheet
- 10. The manager exits the system.

If the volunteer-availability query returns null, the following alternate steps would be taken:

- 1. The manager changes the day and time of the program.
- 2. The manager continues with steps five onwards.

2.1.6 Adding a Volunteer Record

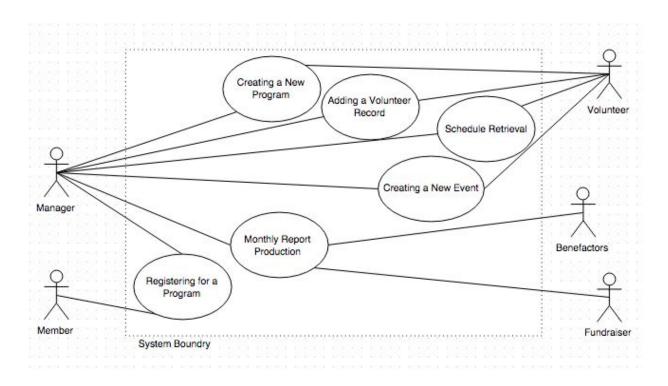
This use cases describes how a manager interacts with the system to add a volunteer record. The actors in this use case are the manager, and the volunteers.

In creating a new volunteer record, the following steps are taken:

1. The system authenticates the manager.

- 2. The system opens on the landing page.
- 3. The manager creates a blank volunteer record.
- 4. The manager fills the volunteer record with information provided by volunteers.
- 5. The manager stores the volunteer record.
- 6. The manager exits the system.

2.2 Use Case Diagram

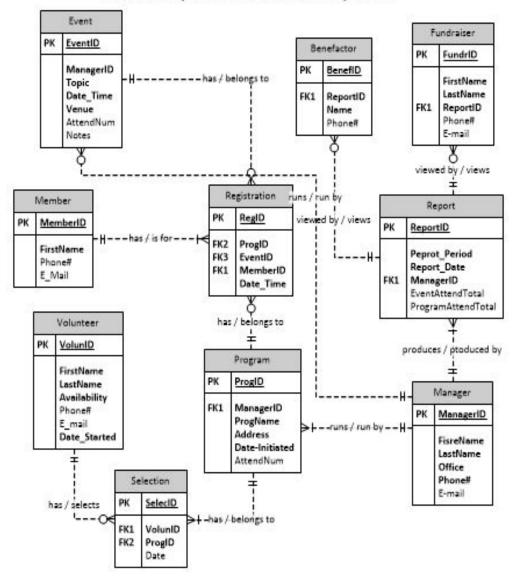


This use case diagram describes the interaction between the actors (managers, volunteers, fundraisers, benefactors and members) and the system. Each use case includes the action that is being achieved, and all the actors who are completing parts of the action as well as facilitating the action, or affected by products of the action.

2.3 Domain Models

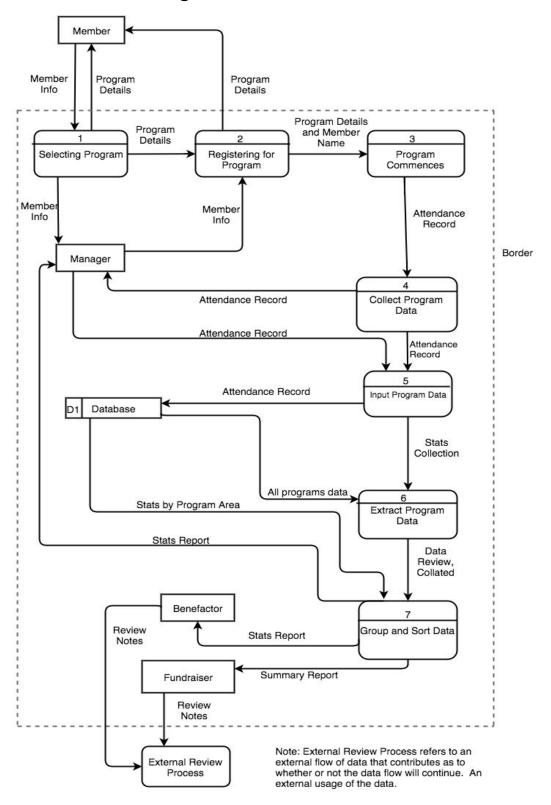
2.3.1 Entity Relationship Diagram

ERD for Bipolar Disorder Society of BC



The Entity Relationship Diagram (ERD) provides an overview of the entities and the relations among them of the database required for the project solution. The Primary Key (PK) indicates a value that can uniquely identify each row of record in a table (entity), and the Foreign Key (FK) means a column's value in one table that references to the primary key in another table. The Foreign Key provides referential integrity that will reduce errors. The main entities include Manager, Member, Volunteer, Event, Program, Report, Fundraiser and Benefactor. Registration and Selection are associative entities. The relations shown in the diagram include: Members can register into one or more events and programs, while an event or a program can be attended by many Members through registration; One volunteer can be assigned to multiple programs, and one program can recruit several volunteers via selection; Manager produces reports, while Fundraiser and Benefactor can view reports; Manager can run or create one or more programs, and events as well. Furthermore, the more detailed relation between two entities has been specified in the diagram above.

2.3.2 Data Flow Diagram



This data flow diagram describes the interactions of the members, and manager (staff) with the system. The external entities represent the manager (staff), and members that attend the meetings, and presentations. The data flow shows information moving from one point to another. The processes describe work that is performed in the system. The data store is a place where all of the information is stored. It allows for examination, addition, and retrieval of information for analysis. The process of the DFD describes the data flow of when a member selects, registers and attends a program. Followed by the data flow of information that comes after the program ends, the input, extraction and reporting data for the various users of the system.

2.4 Functional Requirements

2.4.1 Monthly Report Production

2.4.1.1 Description and Priority

The system shall query the selected report and display desired quantitative data. Priority: High

2.4.1.2 Traceability

Backward Traceability: In order for the manager to quantify the number of programs, venues and other quantitative data on a historical and annual basis. This need was expressed in the first client meeting.

Forward Traceability: The system shall display an error if the query does not run because information databases are not correctly formatted with information the queries are trying to retrieve.

2.4.1.3 Functional Requirements

MR-1: The system shall authenticate the manager to access the system.

Stimulus: The manager provides authentication.

Response: The system opens the landing page.

MR-2: The manager shall activate a trigger to run program-information-retrieving and alike queries.

Stimulus: The manager runs query.

Response: The system returns the values of the guery into a form.

MR-3: The manager shall activate a trigger to store the monthly report form.

Stimulus: The manager activates the trigger.

Response: The system stores the monthly report form.

MR-4: The manager shall activate a trigger to reduce the monthly report form into the summary report form.

Stimulus: The manager activates a trigger to reduce the form.

Response: The system reduces the form to a summary report form.

MR-5: The manager shall activate a trigger to exit the system.

Stimulus: The manager exits the system.

Response: The system closes.

2.4.2 Schedule Retrieval

2.4.2.1 Description and Priority

The system shall display the schedule.

Priority: High

2.4.2.2 Traceability

Backward Traceability: In order for the manager to retrieve schedule information and know when programs and events will occur, as stated as an objective in the RFP.

Forward Traceability: The system shall display an error if the schedule information cannot be retrieved from the database tables regarding volunteers, programs, and events.

2.4.2.3 Functional Requirements

SR-1: The manager shall activate a trigger to run event-information-retrieving, and program-information-retrieving queries for a specified date range.

Stimulus: The manager runs query.

Response: The system returns the values of the query into a form.

SR-2: The manager shall activate a trigger to store the schedule form with the inputted information.

Stimulus: The manager activates the trigger.

Response: The system stores the schedule form.

2.4.3 Creating a New Program

2.4.3.1 Description and Priority

The system shall display a new program sheet and record the new program with the user inputted data.

Priority: High

2.4.3.2 Traceability

Backward Traceability: In order for the manager to document and record all programs offered, as discussed in the first client meeting.

Forward Traceability: The system shall display an error if required fields, such as date and time, are not filled out.

2.4.3.3 Functional Requirements

NP-1: The manager shall activate a trigger to open a program sheet.

Stimulus: The manager activates the trigger.

Response: The system opens a blank program sheet.

NP-2: The manager shall activate a trigger to run volunteer-availability query in the program sheet.

Stimulus: The manager activates the trigger to run query.

Response: The system runs the query and displays the requested information.

NP-3: The manager shall activate a trigger to store the program sheet with inputted information.

Stimulus: The manager activates the trigger.

Response: The system stores the schedule form.

2.4.4 Registering for a Program

2.4.4.1 Description and Priority

The system shall provide input fields in a registration form to collect basic

information for a member to be enrolled in a program.

Priority: High

2.4.4.2 Traceability

Backward Traceability: In order for the organization to collect accurate member

enrolment information and track member attendance, as described as a need in

the teleconference with the manager.

Forward Traceability: The system will identify any missing required fields in the

registration form and check for duplicate members.

2.4.4.3 Functional Requirements

RP-1: The member shall select the program they would like to attend.

Stimulus: The member conveys their interest to the manager.

Response: The manager recognizes the interest.

RP-2: The manager shall activate a trigger to create a new registration form.

Stimulus: The manager creates new registration form.

Response: The system will open new form.

RP-3: The manager shall activate a trigger to store the registration form with the

inputted information.

Stimulus: The manager stores the registration form.

Response: The system stores the form.

2.4.5 Creating a New Event

2.4.5.1 Description and Priority

The system shall display a new event sheet and record the new event with the

user inputted data.

Priority: High

2.4.5.2 Traceability

24

Backward Traceability: In order for the manager to document and record all programs offered, as discussed as a need in the first client meeting.

Forward Traceability: The system shall display an error if required fields, such as date and time, are not filled out.

2.4.5.3 Functional Requirements

CE-1: The manager shall activate a trigger to open an event sheet.

Stimulus: The manager activates the trigger.

Response: The system opens a blank event sheet.

CE-2: The manager shall activate a trigger to run volunteer-availability query for a

specified date and time.

Stimulus: The manager activates the trigger.

Response: The system runs the query and displays the requested information.

CE-3: The manager shall activate a trigger to store the event sheet with inputted information.

Stimulus: The manager activates the trigger.

Response: The system stores the sheet.

2.4.6 Adding a Volunteer Record

2.4.6.1 Description and Priority

The system shall record user inputted volunteer information.

Priority: High

2.4.6.2 Traceability

Backward Traceability: In order to track the number of volunteers and their availability, as discussed as a need in the teleconference with the manager.

Forward Traceability: The system shall display an error if required fields, such as first name and phone number, are not filled out.

2.4.6.3 Functional Requirements

VR-1: The manager shall activate a trigger to create a volunteer record

Stimulus: The manager activates the trigger.

Response: The system creates a new volunteer record.

VR-2: The manager shall activate a trigger to store the volunteer record with

inputted information.

Stimulus: The manager activates the trigger.

Response: The system stores the record.

2.5 External Interface Requirements

2.5.1 Hardware Interfaces

BDSBC has the direct hardware interfaces of PCs, running operating systems of Windows 7 or later, with Microsoft Office 2013 or later. Any system developed would need to support these hardware interfaces.

2.6 Non Functional Requirements

2.6.1 Security Requirements

Security Credentials:

Due to confidentiality concerns, the Information Database should only be accessible with security credentials. Any logins, passwords, or authorization credentials in general must be kept confidential.

2.6.2 Software Quality Attributes

Reduced Human Error:

There is a need for the software process to be able to reduce human error, this error can take the form of duplicate entries, insufficient entries, and entry in incorrect form.

User Friendly:

The new system will need to be able to be learned by a user with minimal computer experience within two hours.

Version Controlling:

There is a need for the manager to know that their work will not be overwritten without their knowledge, this takes effect in version controlling. The current system requires managers to work on their individual, local versions of the Excel document. In this sense, two managers members could potentially write two different documents, and the Director would have to merge them later. Hence, collaboration and version control would be required.

2.7 Other Requirements

2.7.1 Cost Constraints

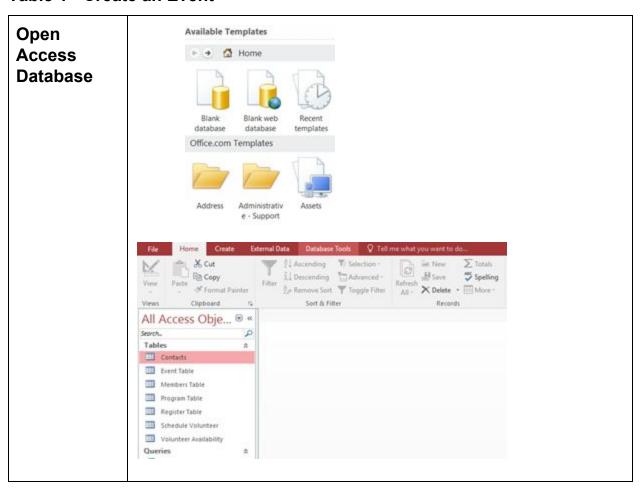
BDSBC operates as a non-profit society on an annual budget of approximately \$110,000, with 40% for administration expenses. The proposed solution will have to have no cost to implement.

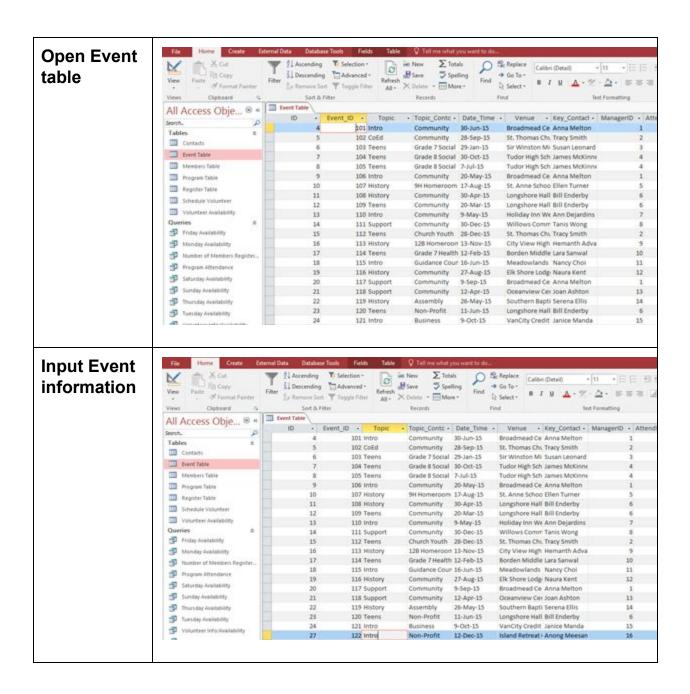
3 Solution

3.1 Design

3.1.1 User Interface (UI) Model

Table 1 - Create an Event





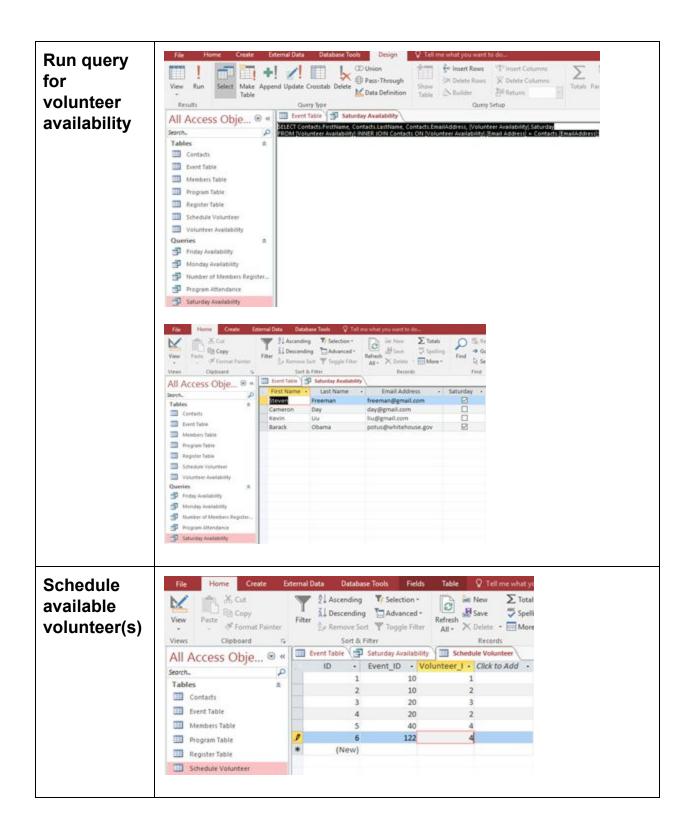
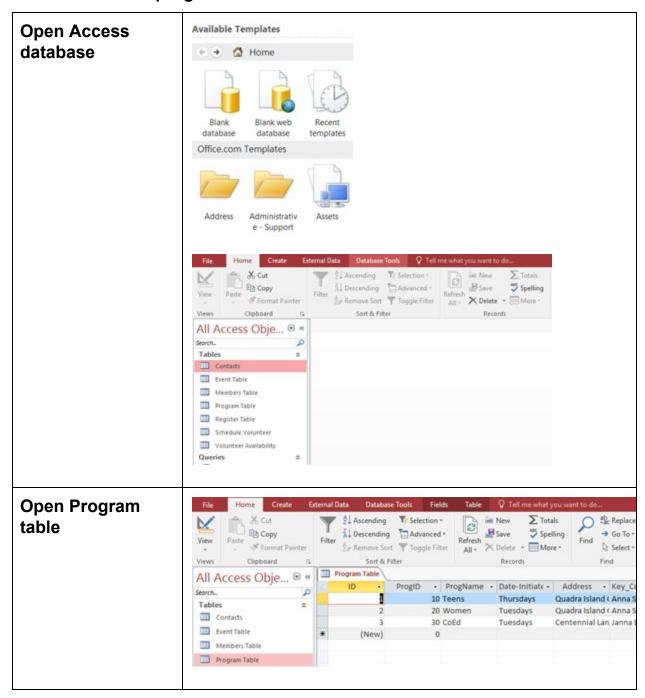
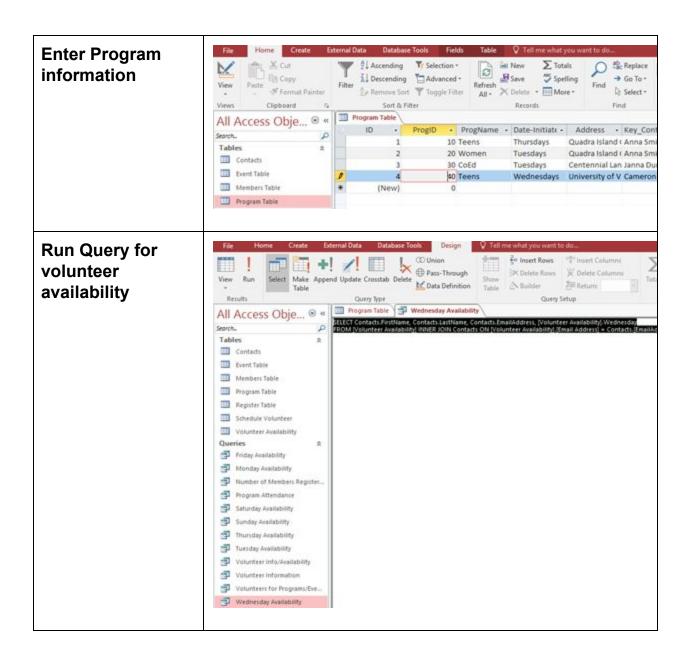


Table 2: Create a program





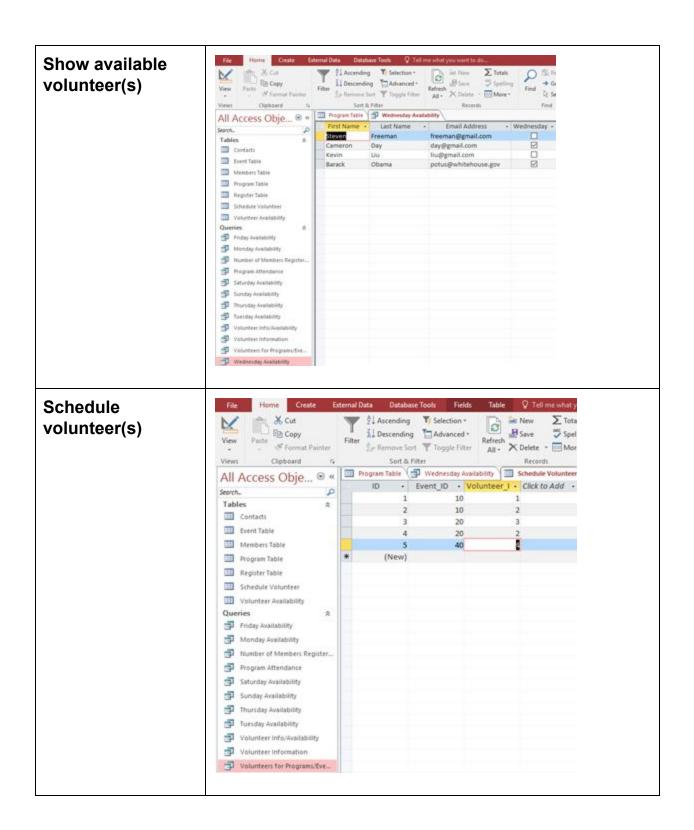
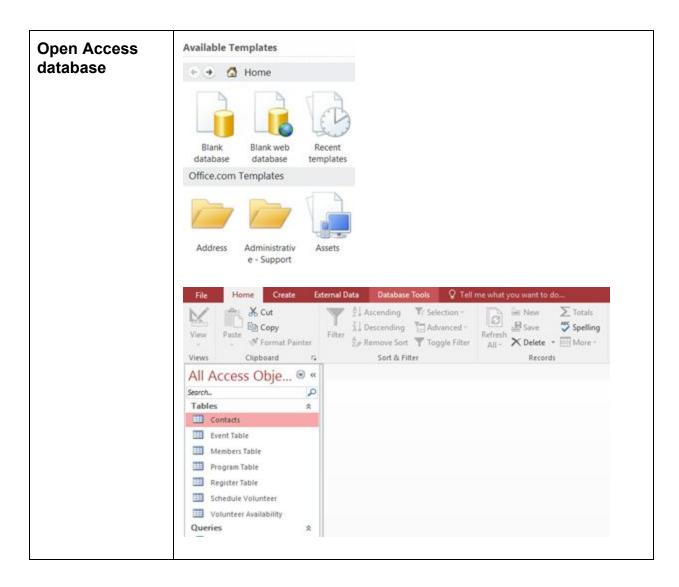
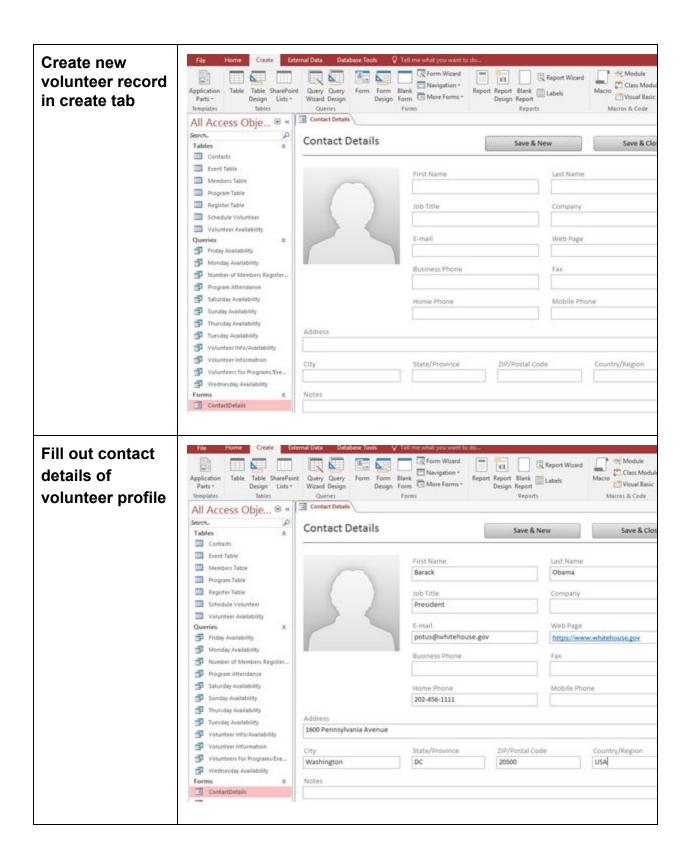


Table 3: Create volunteer profile





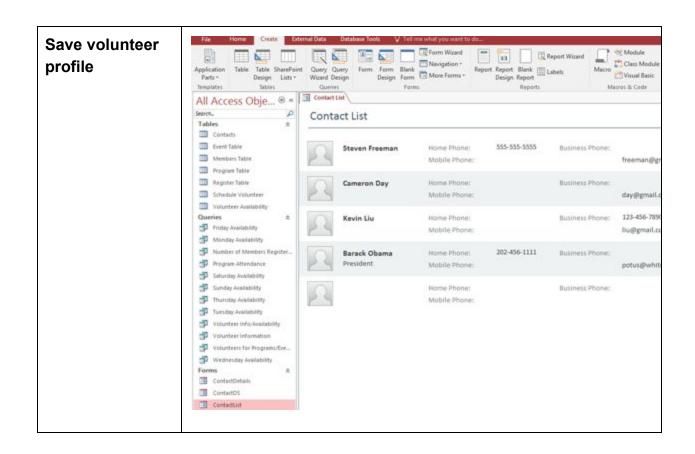
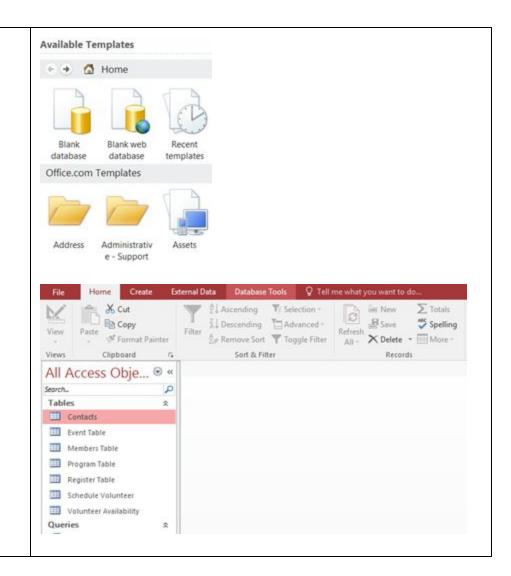
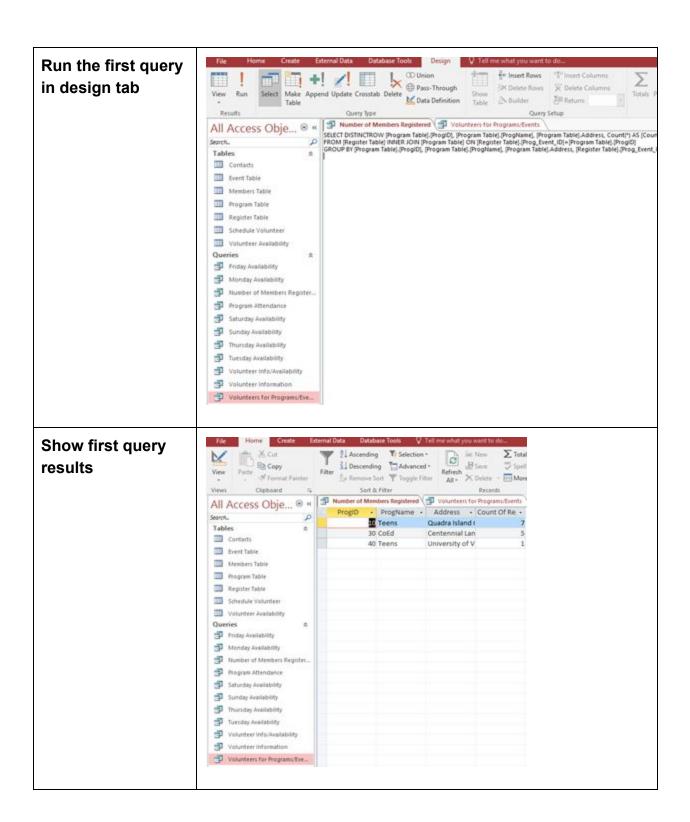
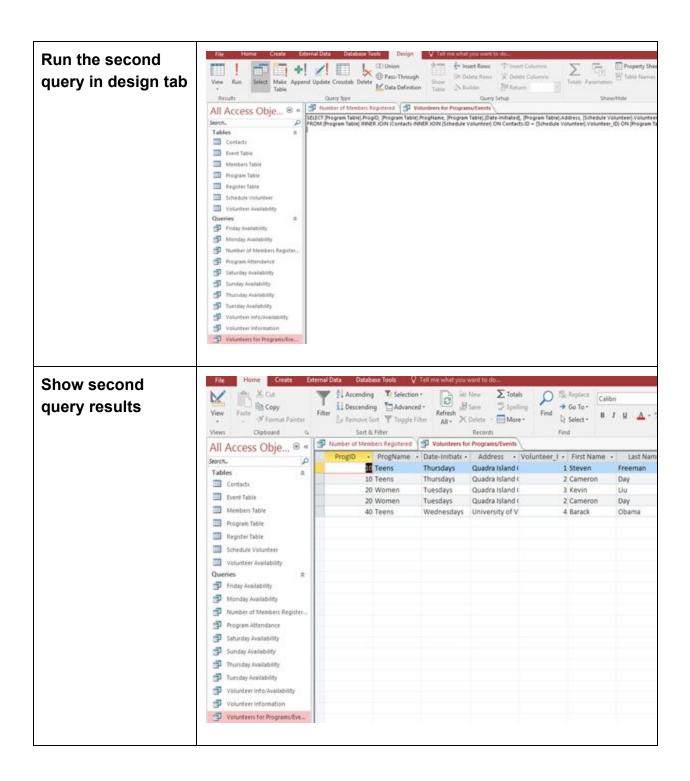


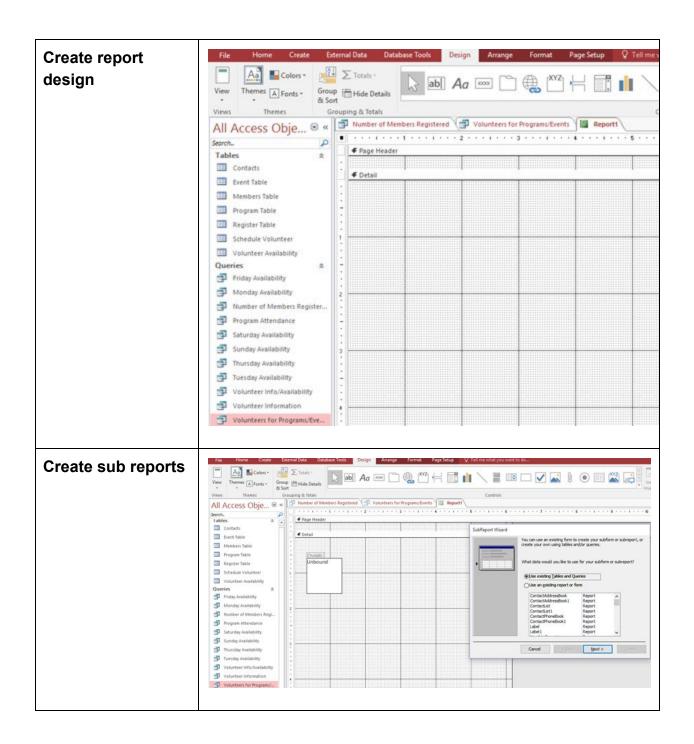
Table 4: Monthly Report

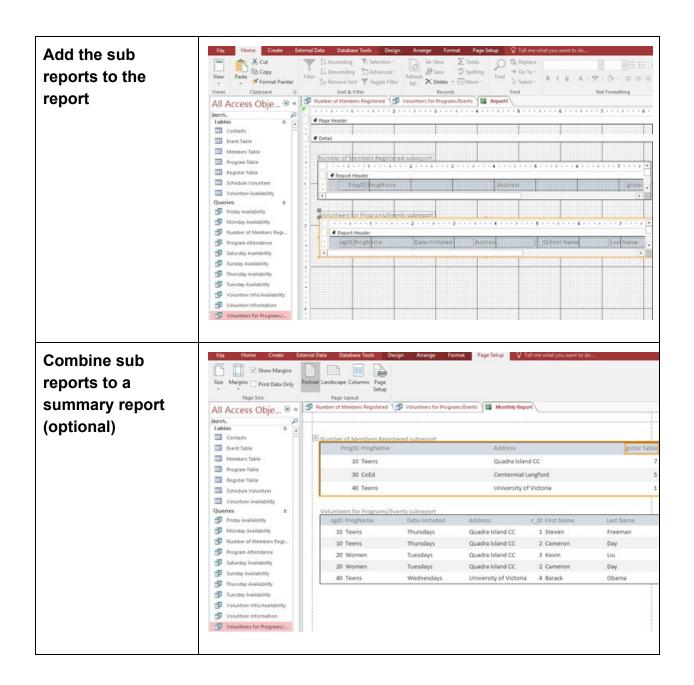
Open Access database











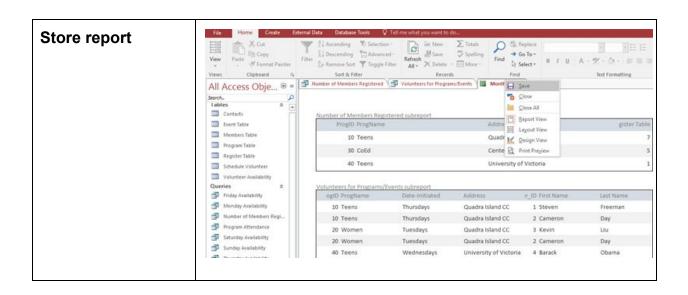
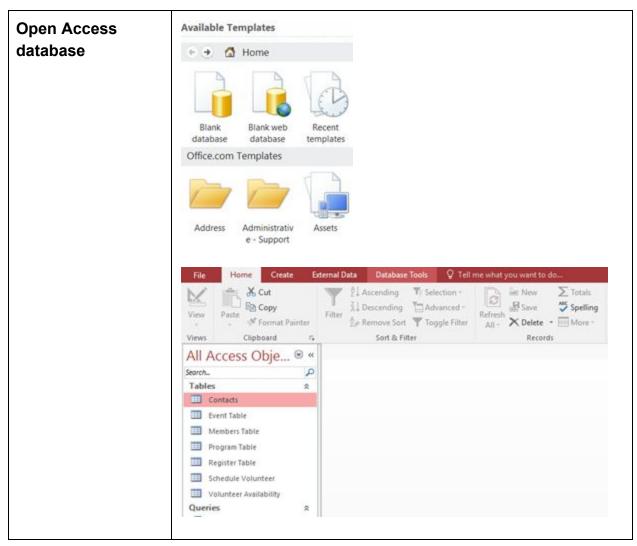
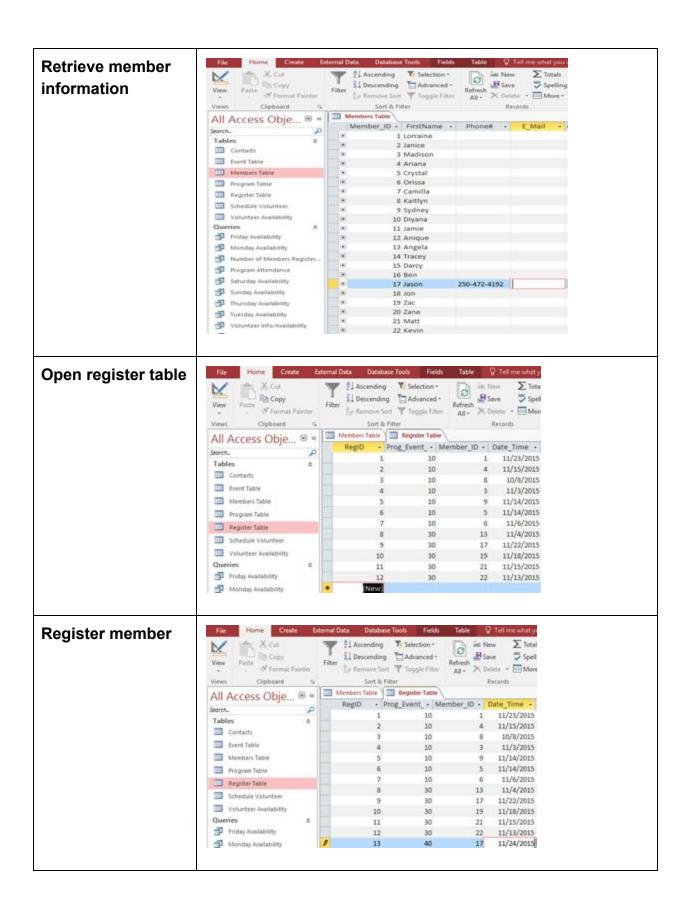
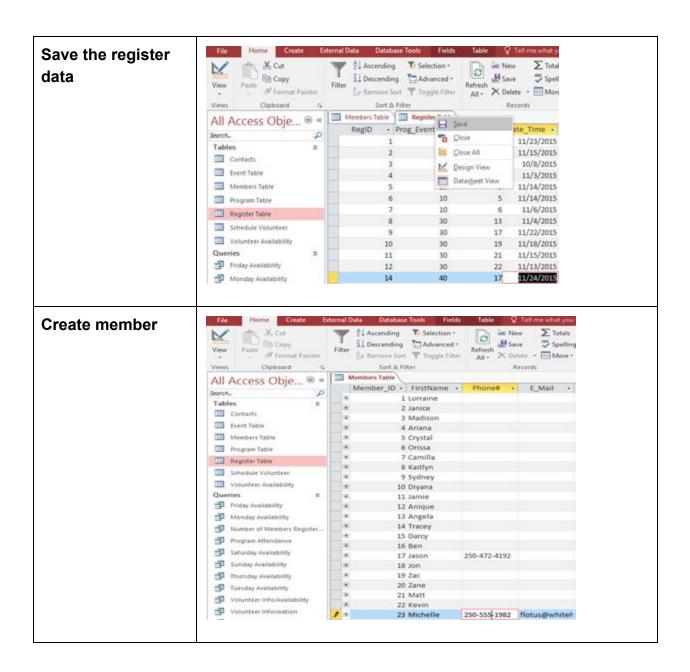


Table 5: Registering For Program







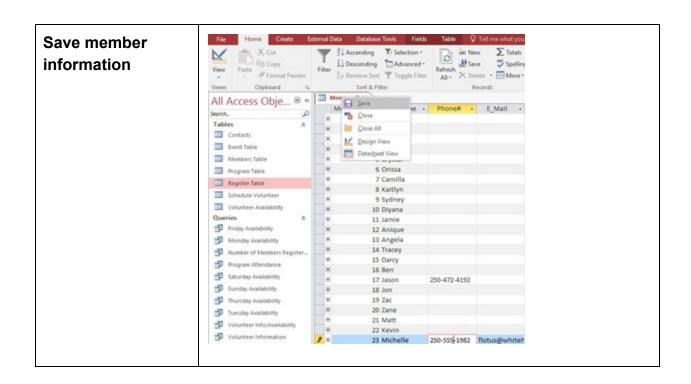
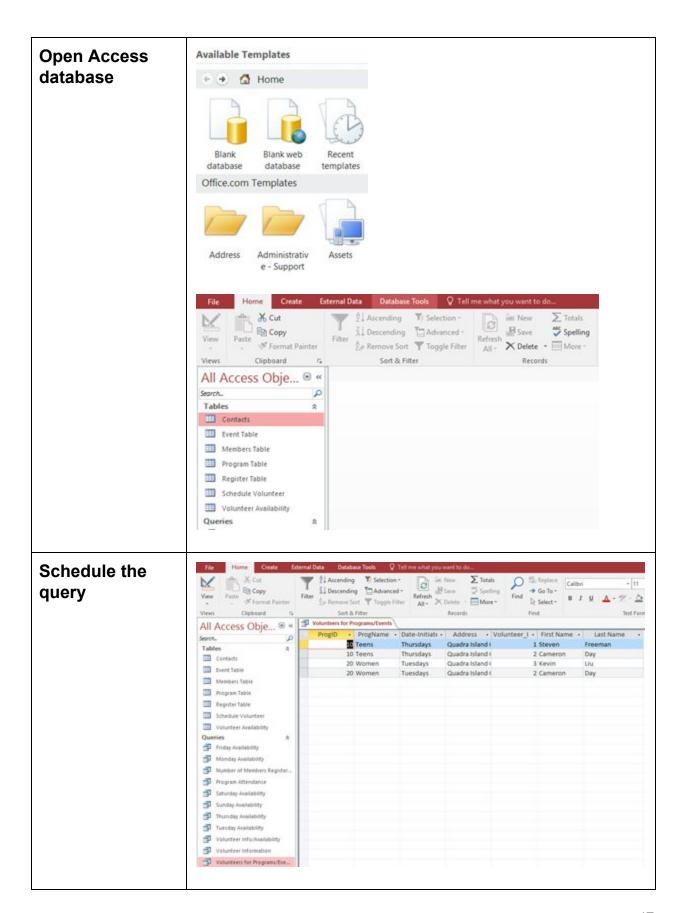
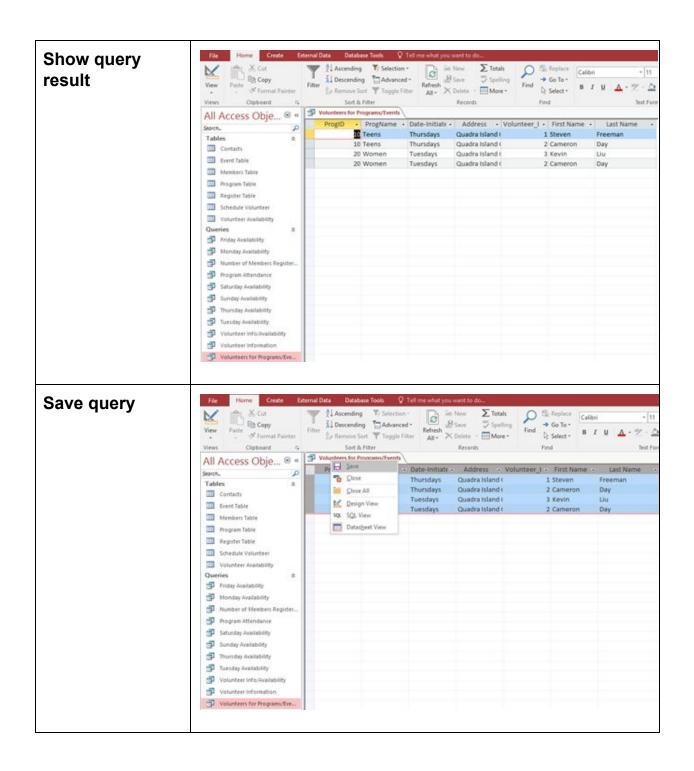


Table 6: Retrieving schedule





4. Conclusions

As members of One Degree Analytics, we were challenged and stimulated intellectually over the duration of the BDSBC project. The project not only challenged us analytically, but also taught us a great deal about communication, conflict resolution and time management. We had a favourable diversity in team member skill set allowing us to easily distribute work to those with specific expertise. As the project progressed, each team member developed tremendously in their area of expertise as well as in those areas unfamiliar to them. As a group we learnt technical skills, such as requirements specification and model diagramming, and individually we learnt soft skills, such as negotiating, and cooperating with team members with differing priorities. By simulating a real world situation, this project allowed us to recognize the importance of consistently working, and insuring adaptability in work we produced, two important skills that will follow us now, and into the future.

5. Recommendations

5.1 Marking Rubrics:

While the objectives of each of the deliverables is now well understood, hindsight is 20/20, and originally we as a team failed to understand what precisely was expected in each document. While most of the assumptions we made in regards to how much or little to include for each section were correct, had there been access to a marking rubric we would be more at ease with the decisions we made in our documentation.

5.2 When to Begin Work on Solutions:

Throughout the project we found ourselves unable to understand when we should begin possible solution production. While linearly it makes sense to begin solution production once you have a very clear understanding of your requirements, our nonlinear minds began solution production very early on. Since we had not been instructed away from solutions, it was difficult for us to not muddle needs/requirements and possible solutions when completing early deliverables. In the future if a clear definition were to be given of when solutions should be thought of, students will be able

to focus on the actual needs and requirements of the clients rather than allow their solutions dictate what they think the needs and requirements are.

5.3 A Moderate Amount of Class Work; an Abundance of Background Work

While we had been given fair warning about the amount of work that was likely going to have to be put into this course, we assumed the work would be in deliverable content production, rather than gaining background knowledge on each deliverable itself. The majority of the work we completed was in understanding the need for each deliverable, and what all should be included in it. This was not of particular hinderance, but in hindsight had we known that more effort would need to go into learning about the deliverables, rather than the information input into them, we would have delegated tasks and run meetings in an alternate manner.

6 Team Members Contribution

Cameron Day, Technical Lead

Cameron played a strong role for the Analyst Team during the project. As the Technical Lead for the Analyst Team, Cameron ensured that his sections for the Request for Proposal, Project Charter, and Software Requirements Specification were completed with excellent quality, while keeping terminology consistent with the rest of the documents. His listening abilities allowed for the full understanding of the Client's problems which would be key when ironing out miscommunication throughout the project's timeline. Cameron attended both Client interviews as part of the Analyst Team. This enabled him to get a firm grasp on the Client's need, which became instrumental when he created the Access database. When creating the database, Cameron collaborated with Kevin Liu to ensure correctness of the Use Cases. Aside from technical work, he also contributed his public speaking skills when it came to presentation scenarios. Cameron presented at all major presentations: the Clients Pitch, Project Pitch, and the Project Presentation.

Amal Khan, Project Manager

As project manager Amal provided much of the delegating, planning, tracking and implementation of work in regards to the project deliverables. She insured there were clear objectives for every meeting, and that each team member was assigned a task to be completed in the coming week. Amal also worked to gain as much background knowledge as possible on project deliverables, so as to be able to provide the best description of each deliverable and it's task breakdown to the team. This insured that work completed by all members was consistent. She also provided ample amounts of contribution to editing of deliverables, as well as support to team members in completion of their assigned tasks. She contributed considerably to the completion of the SRS, and went to great length to ensure the final product was properly edited and reflected the team in the best possible way. Along with managerial work, Amal completed tasks of her own, contributing in areas such as the RFP, and use case development. Over the duration of the project Amal has developed both technical, and soft skills allowing her contributions to be increasingly helpful as the project proceeded.

Huyen Kien, Junior Business Analyst

As the Junior Business Analyst Huyen documented the team roles, skills and photographs and created the structure for reports and presentations and delegation. Huyen was responsible for the internal operations of the project including: Team Organization and Roles, Work Breakdown Structure, Glossary, References and the Executive Summary Draft. Huyen designed the Data Flow Diagram for the Software Requirements Specifications (SRS) and managed related version control. She was the primary Editor for documentation including tables of content as well as the Designer for the Final Presentation. Huyen set the pace for timely completion and continues to acquire many new skills.

Catherine Lord, Senior Business Analyst

Catherine provided two roles during the project. As the Senior Business Analyst for the Analyst Team, Catherine designed materials for the initial pitch as well as the summation of the project journey based on team input. Her research and analysis of the client's business through publicly available materials led to the design of the initial ERD early in the process. Catherine also contributed quality management through client-facing material edits, assumptions, dependencies and alternative solutions and assisted in the final presentation for the Bipolar Disorder Society of BC analyst project. Catherine was the Client lead for the IBM-ACL project, and was responsible for quality management of the Request for Proposal as well as engaging

and leading client meetings with Team Four and liaising with the real-world client, IBM.

Catherine supported the brainstorming process as the original project was complex and broad.

The result from Team Four exceeded expectations and was an exceptional result.

Kevin Liu, Health System Analyst

Kevin Liu contributed to the project in three dimensions: communication, task and teamwork. First of all, he realized that effective communication is a critical factor to the success of a team. So in order to support an effective communication, he, as an English second language speaker, did his best to speak clearly and slowly to ensure people can well understand each other. Secondly, for all tasks assigned to him, he completed them on time or earlier. The major tasks he completed for the project include: participating in the project pitch presentation, editing the RFP, preparing information for and participating in the first and second client meeting, completing the risk management in the project charter, preparing the foundational slideshow for the charter pitch, creating two use cases for the SRS, redesigning the ERD for the final report, producing the Eventbrite based UI prototype of the use case of creating a new program for the second client meeting, and creating the skeleton final report. Lastly, to make our team more cohesive and efficient, he is always willing to collaborate with other members and provide help if someone needed.

Ben Nguyen, Web Developer

Ben contributed to populating the stakeholders section of the project charter. He aided Huyen with developing the data flow diagram and writing the associated description. Ben is also the primary communicator with the executive director (ED) of the BDSBC. Whenever any questions would arise within the group, he was responsible for contacting the ED to clarify any problems and ensuring the team had a strong understanding of the workflow and the people who interacted with BDSBC's current system. Ben provided the user interface model for his assigned use case and was also responsible for inserting the screenshots of the database solution into the final document and providing descriptions for each use case model. Ben participated in the Client meetings with Group 4 and contributed questions.

Vivi Pham, Communications Lead

Over the duration of this project Vivi was predominantly involved in editing and updating the content of deliverables. Some of the work she completed included: the updating of the gantt chart, the editing of the project charter to meet the suggestions made by the TA, and the editing of the SRS. The adjusting Vivi performed on the project charter was to insure the terminology and content was consistent with the new terminology used in the latter half of the final document. Vivi also helped with formatting the final report and notably completed all editing, and updating of the appendix sections. Vivi always insured the final versions of deliverables were of excellent quality by making certain she reviewed and edited each document directly preceding its due date. Vivi also played a crucial role in the upkeep of our team website. She insured the project description was kept up to date and included any new documents, content and meeting minutes completed by the team. Throughout the project Vivi developed a holistic understanding of the client's needs and project's deliverables, she thus proved to be an excellent resource for other team members in helping resolve problems, and issues they were facing in regards to the project.

Appendix A: Glossary

Term	Definition
BDSBC	An acronym used for The Bipolar Disorder Society of British Columbia, that will be used to reference the society for the remainder of this document

Benefactor	An organization, group, or person who has donated to BDSBC. Benefactors may have view-only access to summary reports upon requesting them from the fundraiser.
Event	A gathering hosted by BDSBC to help educate community members about bipolar disorder. Events are hosted at community centers, schools etc. and include the presentation of a slide deck by two volunteers, along with refreshments.
Fundraiser	A person who aids in fundraising and grant writing. Fundraisers have view-only access to summary reports.
Information Database	The Microsoft Office Excel spreadsheet that is currently used to house data regarding programs and events.
Manager	A person who has full access to data in the information database. They are in charge of inputting the data for new members, volunteers, events and programs. They are the only user class that can edit, update and/or delete existing data.
Member	A person who has attended or is registered to attend a program hosted by BDSBC.
Monthly report	A report produced each month to quantifying the society's impact. This report includes, but is not limited to, information on programs and the members who attend

	them, revenue and expenditure that month, and information on events.
Programs	Recurring group meetings which members can attend on a weekly basis.
SUMAC	A software system previously used by The Bipolar Disorder Society of British Columbia to schedule events and programs, as well as coordinate between managers and employees.
Summary Report	A report containing information on programs and events information. While some member information is included, names and contact information are excluded.
Volunteer	A person who has attended or is registered to facilitate a program hosted by BDSBC.

Appendix B: Interview Notes

A.1 Client Meeting #1

Client Meeting #1: Elicitations Notes
October 1st, 2015

These are brief notes taken from our first requirements elicitation on the 1st of October, 2015. The meeting started with brief introductions and the roles of the client. The following are the topics discussed.

Red = information from clients RFP

Business Management

Tracking of the five programs:

Q. What are the programs/what information needs to be tracked?

There are currently five programs. The first 3 are group sessions, where members share amongst each other and have a facilitator. The most recent one was the weekly sessions with health leaderships (all ages). The second program is the support for people ages 15-25 living with a mental illness. The program's goals are to encourage everyone as well as to make friendships. Two people track the program, one person implements it and the other person uses it. The same information is recorded by both people. The first two are peer support groups. The third of the group sessions is called Stigma Stomp. It is intended for grade school children.

The recorded information includes, in school communities, school the session was held at, date of presentation, number of slides and how many presentations were held that day.

For schools, additional information will be recorded including whether or not the same presenter will be presenting multiple times in the day, if there will be more than one presenter or if they'll be presenting simultaneously.

There are two locations for presentations: at schools and in the community. BDSBC will track the down organization that can be used as a venue (usually a number of different organizations are available), the characteristics and duration of the presentation, the target presentation and the total number of people at the presentation.

Cases: where data has not been recorded.

No specific names are collected when a presentation is done.

Q. Will events need to be tracked too?

Yes, since they spread awareness and improve numbers. No emphasis on tracking events, just recording of number of people at events. Want system that would quantify their outreach.

Q. Do events track demographic, to target areas?

Can range from anywhere, just where they can get a place.

Q. Set-up for event, preparation, would that need to be tracked?

Yes, definitely.

They are increasing, so there must be flexibility in increasing the system's functionality.

Q. Want a way of tracking set-up, but does the organization want to be able to track community members speaking or contributing to the event.

Yes, they track presenters. People start volunteering for the non-profit organization and we want to track that.

Q. To clarify, you want to be able to know previous events and programs that volunteers have participated in?

Yes that could be an asset.

Programs/events volunteers are attending:

Q. Just their names and the program/event they are attending?

Yes

Q. For what uses will this data be accessed?

Help with funding, to gather knowledge of expansion and participants.

Participants and their roles:

Q. What are the possible participant roles?

Research, peer support groups, participants could go up through the program by being co-facilitators, Help to improve program.

Q. Programs are more so for speaking together? Will they move into roles of facilitators for events?

Yes, they definitely could.

Q. Do participants ever speak at meetings?

They have organized guest speakers for smaller participant groups.

Q. How will this data be used?

To see how far the organization has grown.

Events at which organization members are speaking:

Q. Will there be community members speaking at events?

Yes, they have organized guest speakers come to present.

Q. How will this data be used?

To gather funding and to know what resources will be required for future expansion.

Current System

Sumac used to track participants within the organization:

Q. What does tracking entail? (Is it which programs etc. They're attending?)

Used Excel, for easier tracking.

Q. Was this not usable because it was too technical?

Excel was used because the old system was too technical for the older users.

Q. Will bringing in someone to teach functionality of the database be an option?

It can be, however it may cost money and because the organization is non-profit, there are limited funds.

Q. If we eliminated cost would you have the resources to access IT training of this system? What is your budget?

Hard to say, the main issue is finding time in people's schedule, and since they have tried using the system before, they already have a negative outlook on it.

Q. What functions of that system fulfilled need?

Did not have chance to implement and use system in daily activities.

Q. What was it lacking—describe some situations

Functionality and technical difficulty. Trying to figure out what works and what doesn't. Took too much time trying to figure it out by themselves and work on it. No IT team. Could not really find holes in the system because they never really used it.

Q. Does the current Excel system, have columns for time, presenter and so on for programs?

They have type and characteristics on the spreadsheet and the slides duration. The redundancy comes in when people miswrite in the wrong spot.

Q. Say you have an interface that gave you a box and you wrote the answers there, a simple user interface, would that get rid of the redundancy?

It can.

Q. Give more examples of redundancy in data?

Each time between community organizations, they have to enter a whole new input. Whereas it would be easier to locate the organization by heading and continue tracking from there. It may be handy to have a drop down selection. Users are very non-technical so best to have options to eliminate errors.

Interface and System Usability

- Q. Will the data that is entered be worked upon in any way? Distributing what happened where.
- Q. To clarify once the data is in the system will it be altered? Ideally none of the information should be altered.
- Q. So the interface should be expandable but ideally the data should never be changed? Yes
- Q. Is the input coming from multiple sources?

Through e-mail, sometimes people are working on different copies.

Q. The person who is facilitator would their spreadsheet be different than that of the directors?

Do not know at this time.

Q. Does the information get stored anywhere?

Stored on multiple people's drives. Just based on the user's background on technical abilities.

Q. Is the information sent anywhere/automatically shared anywhere?

Information is sent via e-mail, to executive director. Not everyone has access to the documents.

Q. Is it mainly a scheduling software?

E-mail for future scheduling as main resource. Unsure about excel. Would be nice to integrate scheduling into software, and set-up of events.

- Q. Do each of the functions, events, people, programs, have to be separately stored? Yes, have separated. Yet able to have overlap in locations and so on.
- Q. What format should the input, and the output data be? *Preference of minimizing errors.*
- Q. Can you store information in the cloud? -- Does the data have to be stored in Canada? No preference.

Q. What privacy and security laws must be abided by?

Do not know at this time but can get information on it.

Q. What would your organization fall under for law?

Non profitable organization.

Q. Do you require a system to search for or have follow-ups on those not in attendance for a while?

Yes, for follow-ups.

Users

Includes the president, chairman, executive director, the contractor, board members, and the designated fundraiser for the organization.

Q. How will each of these members be interacting with the system?

We want constraints for different levels. Do not want to give access to all employees. Do not know exact specifics quite yet.

Q. Will there be different levels of interaction?

Yes, those who are entering data and viewing data.

Q. Do all have similar technical skills?

No. it varies. No IT team. No technical lead.

Q. Is there an IT team for support?

No.

Q. If there were seminars, could they have potential of learning better so they would be willing to train?

Yes, they are trainable.

System Creation

Minimal fiscal resources:

Q. possibility for a development team, already built software would best suit momentary constraints, but what would the max budget be?

Something cost effective.

Q. Idea of budget?

Will find out.

Q. Are there any time constraints other than those outlined in the course?

No, not really. Two big constraints are money and technical abilities.

A.2. Telephone Interview with the Manager

Clarifying terminology

Presentations = done at schools and community centers

Programs = Support groups weekly occurrence

Use venue and location depending on where it is

Members = Attendees

Staff = one lead facilitator and one co facilitator conduct each support group

Andrea, the manager, is currently the only person logging any kind of information so she must be at every event. The reason why she does almost everything is because she says that she cannot afford to pay for another staff member to do the work.

They purchased the SUMAC database system 6 months ago. Ideally only 4 people would have access to it. Andrea, the fundraiser grant writer, the president, and a view only special access.

Classroom in schools: Andrea has to contact schools to book presentations. The information collected at school events are the teacher's name, the name of the class, and the school name.

Community presentation in schools: Usually Andrea is contacted to present at non-profits, workplaces, and community youth groups.

How is funding obtained?

The grant writer is the person who applies to private foundations, corporations, and the government for funding. Budget quarterly statements are produced by the treasurer.

How does registration work?

The member will either email Andrea or just show up. The only thing collected is first names. The only thing produced is number of members at each event or peer support group.

The process for peer support groups:

- 1. Someone would contact Andrea by email or through the website.
- 2. Andrea personally calls to follow up and answer any questions or let them know what time and where the meeting is at.
- 3. When they come to support groups at the community center they are introduced to the group.
- 4. For an hour there is a check-in to see how everyone is doing and for the last half hour it is utilized for topic discussions (best ways to cope with certain situations, how to make day to day life easier, etc..).
- 5. They can have follow up phone calls for questions and concerns.
- 6. Followed up with weekly that there is a group session.

Any privacy laws regarding member information?

Confidentiality issue and you can only use first name. Never use sex, age or anything but first name. For staff, use only first and last name. Their birthdates are not recorded as they are on contract.

Andrea is the only official employee. Staff members only work around 4 times a month so there is no need to file all their information. Board members require all the information to file for CRA. The organization requires their address, date of birth, first name, last name, etc.

Only 4 people would have access. Andrea, fundraiser grant writer, president of the board, and for view special

A.3. Client Meeting #2

Client Meeting #2: Elicitation Notes November 16th, 2015

Red = issues that may need to be addressed

11:35-11:55 - Showed Clients the UI for Access / Pros & Cons

- We showed them our designs for generating monthly reports, registering a member for a program/event and creating a program
- Clients had questions regarding whether or not it's possible to filter volunteers, email volunteers, remembering emails, etc.
- Clients were very concerned about the volunteer process and how they can track volunteer availability. Volunteers provide their basic demographic and availability at the time of registration and it is entered in the system. The manager can retrieve that information to assign volunteers to programs and events.
- Clients are able to draw parallels between Access and their current system (Excel)

11:55-12:20 - Showed Clients the UI for EventBrite / Pros & Cons

- We showcased our UI models for registering for a program, monthly report and creating a program
- Had a laugh about the cost feature of EventBrite Relieved that it wasn't too much
- Clients were curious about the security measures in EventBrite Data primitive enough
- Clients asked about whether or not they could view the previous monthly reports. It is possible if they saved the generated copy otherwise they would have to go back and generate the report for that month again; however, it's not a hard process so it won't take up too much of their time.
- Asked about memory capacity of the website / Allowed memory for a user need to find out
- Programs could be long term, not just a one-off
 - Some volunteers got a research grant
 - Took some volunteers and put them into a research for Bipolar Disorder
- Volunteer Registration / Lookup Problem
 - Requires separate process / system
- More questions about volunteers
 - Concerned about having to use more than one system in order to track volunteers
- Clients were concerned that people might back out of events and the organization would still have to pay for the ticket cost

- Got the cost wrong said \$0.10, changed to \$0.60
 - They were surprised with how much it would cost annually
 - Covered costs may get worse with the organization getting bigger
- Some people may not like their credit card information being stored online
- Outlook availability volunteers could switch availability without the organization even knowing
- Clients liked how they could send out mass emails to volunteers when creating an event/program

12:20-12:30 - Decision Time

- EventBrite
 - User-friendly
 - Takes away from technical stuff
 - The cost could be a negative
 - Too short term
 - The organization is becoming larger
 - Credit card information
- Access
 - A little too technical
 - Manager would need help
 - There is more room to grow with Access
 - Can send out mass emails
 - Could connect to own email
- Client decides to go with the Access solution

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