C868 – Software Capstone Project Summary Task 2 – Section A



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| **Capstone Proposal Project Name:** | Global Appointments, Inc Tracking(GAIT) |
| **Student Name:** | Tresa A. Austin, MBA |

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# Business Problem

## The Customer

Global Appointments, Inc. is a startup company headquartered in Providence, RI, with satellite offices in Pocatello, ID, and Little Rock, AR. The business serves customers in the United States and Mexico with software support and sales for companies using Salesforce, Dynamics, and Jira. Global Appointments is positioned to be the go-to resource for these products for customers who require basic use and troubleshooting and if the customer is looking to customize one of the products for their specific use. Currently, the company employs ten sales staff, 15 technical support agents, and 5 C-Suite users working in the CRM being created for them. Global Appointments, Inc. (GA Inc) has contracts with over 100 companies using the above products that encompass well over 1000 employees that could potentially need support or sales. GA Inc is looking to hire 20 more technical support agents in the next three months and anticipates their customer base will double over the next year based on their current sales numbers. They are using excel spreadsheets and Teams to keep track of their productivity and customer information, and they feel overwhelmed and scattered.

Finding a customized solution that houses their customer and staff data and reports will help them achieve their goals.

## Business Case

Global Appointments, Inc Tracking (GAIT) is the proposed software solution that will allow GA Inc to grow and expand as quickly as they like while maintaining an easy-to-use system of creating, updating, deleting customers, appointments, and agent information. Staff will no longer have to refer to a spreadsheet or search through Teams to find their appointment information. Sales staff will track customer sales within the application and generate reports of those sales for management. Sales staff will also see which customers call in the most and have issues that might require an upgrade to their existing contract. The application is backed by a MySQL database that can handle the current customer and staff information and expand as quickly as GA Inc will grow.

## Fulfillment

GAIT will be a desktop application that staff can download anywhere from a URL. Staff will create a login upon their hire and then access the customer, agent, appointment, and forms sections of the application with their secure login.

The application dashboard gives users options for all of the features and a list of appointments coming up next week as soon as they log in. The dashboard has all customer and appointment options as well as links to report sections and agent information.

The customer section of the application will allow staff to create, update, delete all customer demographics for use by sales or in creating appointments. Customer reports allow staff and management to generate customer lists by state, generate or lookup customer email addresses and find new customers within a time frame.

The appointment section of the application will allow staff to create, update, delete appointments for customers for sales and technical staff. Appointment reports allow staff and

management to view appointment sales figures for any time frame, appointment by week, and appointment types over the year.

Agent information allows for the view of agents by name, agent ID, and department. Agents can also be deactivated from this screen if they are not working with the company any longer, but all their past appointment data will still be intact.

A top-tier database will back the integrated features to add on if future functionality is needed by the company, creating scalability. There will also be the option to take their existing customer information in spreadsheet format and import it directly into the database.

# Existing Gaps

The existing system is composed of two solutions that do not interact with each other. First,

customer records are kept only on an excel spreadsheet that is housed in the company's Teams channel. Appointments are made and shared via Teams as well but are generated per user, so there have been issues with tracking and overlapping appointments at times. GA Inc had a low enough staff and customer volume until about three weeks ago when the business started picking up quickly; now, they are beginning to see more and more hiccups using this method. They also serve such a niche population that having a custom-made product is the only way to go for their needs. Any out of box solution would have to be heavily customized and would take longer to spin up than the proposed solution.

# SDLC Methodology

The SDLC methodology utilized in this project is an Agile methodology using Dynamic Systems Development Method (DSDM) because the client has an immediate need for this solution and DSDM facilitates prioritizing requirements. The requirements are well understood and defined. The client desires to be heavily involved in creating, testing and designing the application since it will be specific to their needs, and DSDM will meet the client's needs the best.

As we begin with the initial requirements of a customer input form, appointment input-form, and agent information form, as well as appointment and customer reports, the design of the product itself will be undertaken by our project team with heavy input from the client.

During the next phase, the design phase, we will create the deliverables of wireframes, prototypes, database diagrams and begin work on a testing plan. The client has assigned 5 of their staff members to join the project team.

Once in the development phase, our staff will create the needed code for the project based on the design phase. Weekly sprints will keep staff on target to finish the project in as short a time as possible while ensuring all client needs are met.

Testing the product will be done by a hybrid of the product quality assurance team and the client staff assigned to the project team. Testing will also be built into the weekly sprints. Development staff on the bench will be available to help fix bugs or errors if needed.

New sprints will be generated weekly, and iterations will occur until the product is stable and ready for release.

Once the development and testing have been completed, deployment can occur. At this time, we will generate the needed URL for the client to share with staff and turn the product over to them.

# Deliverables

The Agile method itself does not typically include deliverables that are tied to the project. However, the DSDM framework encompasses deliverables that are considered project proceeds (Agile Business Consotrium, 2014). There are two major categories, Evolutionary products that evolve over time and Milestone products that are created in various phases, which will be expanded on in the next section(s).

## Evolutionary Product Deliverables

These are items that typically span several project phases.

* Prioritized Requirements List
  + Describes at a high level what the requirements of the project are and their priority. Any changes after the Prioritized Requirements List are created will need to be addressed through a formal change management process.
* Development Approach Definition
  + Describes a high-level definition of the tools, techniques, practices, and standards to create the solution.
  + Describes how the quality of the solution will be addressed and satisfied. Strategies for testing and review are included in this deliverable.
* Delivery Plan
  + Describes a high-level schedule of project increments.
* Management Approach Definition
  + Describes the approach project management will take as a whole and how the project will be planned and organized, how stakeholders will be engaged, how progress will be demonstrated and reported.
* Evolving Solution
  + Describes all components of the final solution.
  + Includes models, prototypes, supporting materials, and testing and review artifacts.

## Milestone Product Deliverables

Product deliverables created in various phases, signified a checkpoint phase of the development.

* Feasibility Assessment and Foundation Summary
  + Provides a snapshot of the evolving business, solution, and management products.
* Project Review Report
  + Typically, a single document is updated, incrementally upon reaching the end of each phase.
  + Captures feedback from review of solution at that time and confirms what has been completed and what has not.
* Benefits Assessment
  + Describes how the solution benefits the client following a period of live use.
* Custom functional database
  + Custom schema designed to meet GA Inc's needs.
* Transition of data
  + Import of excel spreadsheet data to database prior to go-live from the client-side.

# Implementation

The implementation of GAIT will be simple for Global Appointments, Inc since they are not currently using a software system for appointments, customers, or agent information. The staff of GA Inc will be able to continue their typical daily tasks during implementation, and their transition to the GAIT application will be in phases. Agile methodology has been applied to creating the project; the client was involved in every aspect of the project.

GA Inc users will be trained as superusers of the GAIT system during the testing phase to implement the software company-wide. The Project Manager will work with internal implementation staff to help assist with this transition as well. Once the final product is ready, the five staff from GA Inc will be instrumental in acceptance testing. All upper-level management at GA Inc has a complete understanding of the product they will be receiving.

Also, during the testing phase, the software team will generate the custom scripts needed to transform and import the excel files that GA Inc has been using. Prepared scripts ready at go-live will eliminate any downtime that GA Inc will have for capturing needed data. Implementation staff will assist GA Inc with transferring any future appointments from their Teams channel to the application, which will be part of the training for all staff at GA Inc on how to use the GAIT application.

# Validation and Verification

Using the Dynamic Systems Development Method (DSDM) Agile methodology, one of the central tenants of this style is functional model iteration. By producing a collection of progressive prototypes to demonstrate and verify the client's needs, we will validate and verify as we go that what is being created is precisely what the client needs. During the functional model iterations, we will be testing as we progress as well.

The test plan will be designed around the iterative process to create a solid, user-friendly application. Using timeboxes as the mechanism to ensure testing is performed simultaneously, the goal is to ensure that developers focus on the system components that are most critical for business success for GA Inc (Millington & Stapleton, 1995).

# Environments and Costs

## Programming Environment

GAIT will be developed using C# in Visual Studio 2019. The backend database will be MySQL, which is an open-source object-relational database management solution. The application will be hosted in Amazon Web Services shared cloud environment via Amazon RDS. Using Amazon RDS allows for scalability and cost-effectiveness. Since GA Inc does not have a high amount of data to store at this

time, but they anticipate proliferating; Amazon RDS will allow for the initial expenditure to a lower-cost option. Amazon RDS also is simple to set up and secure (Amazon AWS, 2021).

## Environment Costs

Using Amazon Web Services allows GA Inc to pay by the hour that the actual database runs with no long-term commitments. Starting GA Inc would fall into the free tier section of Amazon RDS for the first 12 months with the current amount of data. This free tier gives 750 hours of database usage with 20 GB of storage and an additional 20 GB of backup storage. Once GA Inc is beyond amount of use and/or data, the cost will be $0.034 cents per hour for database usage and $0.010 per GB of snapshot-size for backups based on current numbers on the AWS website. The client will need a domain for downloading the application to any computer they have onsite, this will be generated via a REST API through the Amazon Web Services site, this is free with less than 1 million calls to AWS customers.

## Human Resource Requirements

Development of this application will require a project manager (PM), designer, four software developers, two quality assurance (QA) analysts, and one implementation specialist. Each of these key players will have varied time amounts throughout the project's lifecycle with the PM remaining involved through each stage. The PM's total hours for the project are estimated at 35 hours with a rate of $40.00 per hour to total $1400.00. The designer will spend approximately 8 hours with a rate of

$50.00 per hour to total $400.00. Each software developer will spend approximately 12 hours each at a rate of $75 per hour, which totals $3600.00. And finally, the QA analysts and implementation specialists will spend 6 hours each for a total of 18 hours at a rate of $35.00 per hour for a $630.00 total. The table below lists each of these with a total for the human capital portion of the project:

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| --- | --- | --- |
| **Resource** | **Rate \* Time** | **Total** |
| **Project Manager** | $40/h \* 35 | $1400.00 |
| **Designer** | $50/h \* 8 | $400.00 |
| **Developer** | $75/h \* 12 \* 4 | $3600.00 |
| **QA/Implementation** | $35/h \* 6 \* 3 | $630.00 |
|  | **Grand Total** | **$6030.00** |

# Project Timeline

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Phase** | **Milestone/Task** | **Deliverable** | **Description** | **Dates** |
| **Phase** | Milestone/Task | Deliverable | Description | Dates |
| **Initial Requirements** | Meeting with the client, gathering details | Prioritized Requirements List, Development Approach Definition,  Delivery Plan | Information on what the client needs and how the product will be developed are structured to provide a working framework  for the project | 06/01/2021,  06/02/2021 |
| **Design** | Create wireframes and prototypes, create database schema, and begin the creation of a testing plan | Evolving solution of wireframes, prototypes, dB diagrams, testing plan, project review report | Describes and shows the final product to client, plans for dB setup and product testing and generation of a project review up to  this point | 6/7/2021,  06/08/2021 |
| **Development** | Development of application via iteration | Sprints, project review report, unit tests | Weekly sprints generated with work items, functional code for QA testing, and generation of a project review up to  this point | 06/09/2021-  06/25/2021 |
| **Testing** | Quality Assurance testing | Functional tests are successfully executed and project review report | Testing of product meets criteria established in Delivery Plan and generation of a project review up to  this point. | 06/18/2021 -  06/24/2021 |
| **Deployment** | Prepare to transition product to client | Custom functional database, transition of data from excel to MySQL | AWS solution to be stood up, final acceptance testing by GA Inc, documentation on maintenance and use of product and generation of a project review up to  this point. | 06/28/2021-  06/30/2021 |

# References

Agile Business Consotrium. (2014). The DSDM Agile Project Framework Handbook. Chapter 8.

Amazon AWS. (2021). *Amazon RDS for MySQL*. Retrieved from https://aws.amazon.com/rds/mysql

Millington, D., & Stapleton, J. (1995). Developing a Rad Standard. *IEEE Software*, 54-55.