Last Updated: 10/27/2020

MET CS682 ASSIGNMENT 1

Sneha

The purpose of this exercise is for you to think through information systems and gain an understanding of the beginnings of the system analysis process.

Please leave the headings and the gray text unchanged except for the hints section which should not be included in your solution. Observe the page limitations; however, you may include as many appendices as you wish. All appendices should be referred to in the main text. Include your last name in the file name of the assignment. (Example: SmithMichael\_CS682Assignment1.docx)

**The Scenario:**

The ***GardenByDesign*** company specializes in landscaping, garden design, lawn care, and specialty items such as koi pools and bonsai.

Your first step is to select two of the following four systems which ***GardenByDesign*** might use for their business. Use the outline below to develop a description of the system. You will need to perform outside research to gain an understanding of the business needs as well as the information systems. Use these references to support your points. Review the last section of this assignment for hints.

**The choices for systems are: MIS, DSS, Communication & Collaboration, Expert System**

# Selected system type:

## Expert System

## 1.1 Purpose of the selected system (one paragraph)

An expert system for *GardenByDesign* can assist its employees by using AI to replicate the practices and interpretations of a gardening expert or a group of experts. Employees can work alongside with the system to arrive at a plausible solution to problems such as: finding gardening supplies for a project, controlling diseases and pests at a site, etc. This self-help functionality enables employees to finish their tasks sooner and reduces the company’s cost of hiring experts.

## 1.2 Typical user(s) of the system and their means of interaction with it: (up to two paragraphs)

## Bonsai Artist – uses the system to identify diseases and pests in plants. The system will typically be a chatbot on *GardenByDesign* website. The artist will load the website on a laptop and enters the input in the chatbot’s search bar.

Landscaper – uses the system to find the tools/ supplies a project will need. The system will typically be a chatbot on *GardenByDesign* website. The landscaper will load the website on a tablet and enters the input in the chatbot’s search bar.

## 1.3 Input Data Used by the System:

The employee will input the following details into the system to speed up the process.

* Full name of the employee
* Employee ID
* Phone number and email address
* Zip code
* Gardening level

## 1.4 System’s Output:

The system generates a response with the expert knowledge pertaining to the employee and their level of expertise in gardening.

* Account information
* Business profile
* Response based on the employee’s input

# Selected system type:

Communication and Collaboration system

## 2.1 Purpose of the selected system (one paragraph)

A Communication and Collaboration system for *GardenByDesign* can connect employees teamwide regardless of their physical location, as long as they have access to the Internet. The system facilitates teamwork by enabling employees to communicate and collaborate with each other in real time to get the work done. Team meetings, conference calls, project collaborations, etc. can be done remotely using the system.

## 2.2 Typical user(s) of the system and their means of interaction with it: (up to two paragraphs)

## Garden Manager – uses the system to conduct team meetings and conferences with his subordinates. The system will be a company’s web-based video conferencing tool which the user could access via a laptop or a desktop.

Pond Contractor – uses the system to collaborate on projects with peers. The system will be a company’s web-based video conferencing tool which the user could access via a laptop or a tab.

## 2.3 Input Data Used by the System:

* Employee name
* Email address/ username
* Password
* Date and Time
* Meeting ID

## 2.4 System’s Output:

* Profile
* Previous and upcoming meetings
* Recordings
* Webinars

# An Example Outline of Systems Analysis

Your second step is to apply the major parts of system analysis. Use the “basic” systems analysis methodology given in Module 1 (“Introduction to Systems Analysis Methodology” section) and apply systems analysis to the following task.

**The Scenario:**

# The *GardenByDesign* company specializes in landscaping, garden design, lawn care, and specialty items such as koi pools and bonsai. Specifically, this system is to provide sales staff a mobile solution for design, estimates and sales while they are in yards visiting clients.

Your system may borrow ideas from selected systems in the first part of this assignment, however, it is a different kind of a system.

## 3.1 Mission Statement (one paragraph)

*GardenByDesign* is a mobile application that is designed for use by employees within the company to create a report on estimates and sales of each garden design. The app has features that can be utilized by the sales staff to determine what designs are doing well in the market. Using *GardenByDesign* app, the sales staff canidentify trends that will help supervise the business, clients, and sales.

## 3.2 Functional System Requirements (about 8-12)

1. *GardenByDesign* app shall allow the staff to login with their company credentials.

2. Home tab - *GardenByDesign* shall display two cards on the home screen.

3. Design Card

1. *GardenByDesign* shall display four lists—relating to each style of design—Lawn Design, Landscape Design, Koi Pond Design, and Bonsai Design.
2. *GardenByDesign* shall allow users to select any of the lists which shall display a carousel of images, pertaining to the selected design, with a text label as the title for each.
3. *GardenByDesign* shall allow users to select an image which shall display the content within.
4. Estimate Design Dropdown Menu

*GardenByDesign* shall allow users to select the type of property from the dropdown menu to get the design value for that type of property. The types of properties in the menu will be: Industrial Property, Commercial Property, and Residential Property.

1. Sales Year Picker

*GardenByDesign* shall allow users to select the year to view the number of sales the design influenced in the selected year.

1. *GardenByDesign* shall provide the Archive button under each image to allow users to archive designs.
2. Calendar Card
3. *GardenByDesign* shall open the calendar date picker.
4. *GardenByDesign* shall allow the users to select a date and allow users to add/ remove event(s)/ reminder(s).
5. Archives tab - *GardenByDesign* shall display designs archived by the users. If the users did not archive any, *GardenByDesign* shall display nothing.
6. Notifications tab – *GardenByDesign* shall notify the staff when new designs are added and when the design value changes.
7. Explore tab - *GardenByDesign* shall display curated designs based on the designs archived by the user.
8. Profile tab - *GardenByDesign* shall display user information such as profile picture, name, email address, and job title. The app shall log out once the Log Out option on the tab is tapped.

## 3.3 A System-Level Use Case (Please use the table provided; there should be about 5-10 steps)

|  |  |  |
| --- | --- | --- |
| **Actor:** | Sales Admin | |
| **Context:** | This use case shows a step-by-step interaction between the *GardenByDesign* app and the sales admin, or the sales staff, of *GardenByDesign* company. | |
| **Step #** | **Actor** | **System** |
| **1** | The Sales Admin installs GardenByDesign app and creates an account. | *GardenByDesign* creates an account for the user and opens the home screen with two cards: Design and Calendar. |
| **2** | The Sales Admin taps on the Design card. | *GardenByDesign* displays the following four lists: Lawn Design, Landscape Design, Koi Pond Design, and Bonsai Design |
| **3 (i)** | The Sales Admin selects Lawn Design. | *GardenByDesign* presents a carousel of images of lawn designs with a title for each. |
| **(ii)** | The Sales Admin selects an image. | *GardenByDesign* presents some content along with the Estimate Design dropdown menu and Sales year picker. |
| **(iii)** | The Sales Admin taps on the Estimate Design dropdown menu. | *GardenByDesign* displays the following three options in the menu: Industrial Property, Commercial Property, and Residential Property. |
| **(iii) a.** | The Sales Admin selects Commercial Property. | *GardenByDesign* reveals the current estimate for the design. |
| **(iii) b.** | The Sales Admin taps on the Sales year picker and selects a year. | *GardenByDesign* sets forth the number of sales the design influenced for the selected year. |
| **(iv)** | The Sales Admin taps on the Archive button. | *GardenByDesign* archives the design. |
| **4** | The Sales Admin taps on the Archive tab. | *GardenByDesign* shows archived designs; displays nothing if the user did not archive any design(s) |
| **5** | The Sales Admin taps on the Home tab, selects the Calendar card, and selects a date to set a reminder. | *GardenByDesign* goes to the home screen, opens the calendar date picker, and adds a reminder for the selected date. |
| **6** | The Sales Admin taps on the Notifications tab | *GardenByDesign* shows updates when new designs are added or when a design’s estimate changes. Displays nothing if there are no notifications |
| **7** | The Sales Admin taps on the Explore tab. | *GardenByDesign* displays curated designs based on the designs archived. |
| **8** | The Sales Admin taps on the Profile tab and selects Log Out. | *GardenByDesign* displays profile information of the admin and logs out. |
| **Alternate Courses:** | 1. If the image does not load, try reloading the image. 2. If the Sales year picker shows an error, tap on the feature again and select a year. | |

## 3.4 Supporting System-Level Activity Diagram for the above use case (insert diagram and any explanations below)

|  |  |
| --- | --- |
| *GardenByDesign* App Use Case |  |
| Sales Admin | System |
| Displays home screen with Design and Calendar cards  Displays four lists:  Lawn Design  Landscape Design  Koi Pond Design  Bonsai Design  Taps on Design card  Opens GardenByDesign app  Selects Lawn Design  Presents a carousel of images of lawn designs with a title for each.  Selects an image  Presents some content along with the Estimate Design dropdown menu and Sales year picker  Selects the Estimate Design dropdown menu  Displays the following three options: Industrial Property, Commercial Property, and Residential Property  Selects Commercial Property  Reveals design value/ estimate  Taps on the Sales year picker feature and selects a year  Reveals the sales for the selected design and year  Taps on Archive button  Saves the design  Taps on the Archive tab | Displays home screen with Design and Calendar cards |
| [No notifications]  [No designs archived]  Continuing…  Taps on the Explore tab  Displays notifications.  [Notifications]  Displays curated designs based on designs archived  Taps on the Profile tab and selects Log Out  Displays profile information and logs out of the app  Taps on the Home tab and selects the Calendar card  Goes to the home screen, opens the calendar date picker, and adds a reminder for the selected date picker  Taps on the Notifications tab  Opens the Notifications tab  Taps on the Archive tab  Opens archives  [Designs archived]  Display archived designs |  |

## 3.5 System-Level Non-functional Requirements (about 3-6)

1. *GardenByDesign* app shall not take more than 5 seconds to load and open the home screen.
2. *GardenByDesign* app shall be available for download either on Play Store, App Store, or on the company’s website.
3. *GardenByDesign* app should be able to perform well even when multiple users access it at the same time.
4. *GardenByDesign* app shall be available 24/7.
5. *GardenByDesign* app shall operate well if the data increases in future.
6. *GardenByDesign* app shall secure all the data in the app to prevent data breach.

# References

Show that you used a wide variety of resources by listing them below and clearly indicating in the body above where you used. Make sure to use proper referencing in your paper. We suggest using APA format, but other formats are fine as long as it clearly distinguishes your work from work of others in your response—be mindful of plagiarism rules.

[1] MS, Prof. Prasad Babu, & D, Jyothsna. (2015, September 09). Design and Development of Sensor Networks Interface- Semantic Web Based Wheat Expert System. Retrieved January 23, 2021, from <https://ijarcce.com/wp-content/uploads/2015/10/IJARCCE-50.pdf>

[2] Module 1: Introduction and Process. (n.d.). Retrieved from https://onlinecampus.bu.edu/bbcswebdav/pid-8604584-dt-content-rid-50582323\_1/courses/21sprgmetcs682\_o1/course/module01/allpages.htm

# Evaluation



**Please do not include Hints section from your solution.**

# Hints

## Hints for Systems Types (Part 1 & 2)

* For reference to business systems, see Module 1 (“Types of Information Systems” section) and conduct your own research.
* One way to approach some of these parts is to research a midsize or large business that you know and identify the type of information system it uses. This may require some research.
* Technical Soundness and Clarity: Make sure to differentiate the systems clearly. For example, we want to see that you understand the key differences between executive information systems and decision support systems; avoid overlap. Appendix A in module 1 provides additional detail of Types of Information Systems.

Below are excerpts from an example. (There is just a start and does not constitute a full answer)

The following concerns a chain of gas stations.

1. Type of the system (given): Transaction processing system
2. Its purpose: processing credit card sales made to customers at gas pumps at a gas station ...<answer continues to explain the purpose>
3. Typical user(s) of the system and their means of interaction with it: The system user is a gas station customer who uses it by swiping the credit card through a card reader, fills the car tank with gas from the pump, and terminates the transaction by stopping the pump.
4. Input data used by the system:

* time
* location
* credit card type
* credit card number
* authorization from the credit card provider
* number of gallons dispensed
* price per gallon
* …

1. System’s output:

* time (to credit card company and to company records)
* location
* credit card type
* credit card number
* discount
* approval notification (to customer)
* credit card debit
* …

## Hints for the Basic Methodology (Part 3)

* You may want to start by reviewing examples given in Module I. See QuickMessage (in the “Example of System Analysis Methodology” section) and ElecPak and E-LearnLive examples (in Appendix C, D).
* The mission statement must give a high-level context and scope for the system. A good place to start is to research mission statements of systems that you use.

**Clarity**:

* Each requirement should be written in one or two focused sentences.
* Use consistent terminology (e.g., you should avoid using the term "students” in one place and “test takers” or "users" in another to describe the same person).
* Take the time to review your response iteratively, going back to previous sections. For example, once you complete the system requirements, use cases, and constraints, make sure that they are consistent and that the Mission Statement provides a top-level overview.
* Distinguish functional vs. non-functional requirements
* Label the elements in diagrams

**Technical Soundness**

* Be sure that you understand the difference between functional and non-functional requirements.
* The functional requirements should describe only *what* the system does—not *how* (which is design).
* Non-functional requirements focus on supporting how the functional requirements are to be achieved, for example: using a specific platform (i.e. OS), programming language, GUI layout, or encryption method should be documented as *constraints* and/or other non-functional requirements and not as functional requirements.
* System-level use cases are a scenario-like sequence of user actions and system responses building on information contained in the functional requirements

**Thoroughness and Coverage**

* Think about the key functionality and who the main users are. The mission statement should be about a paragraph in length.
* Check that your activity diagrams cover the elements in your use case. Activity diagrams can show branching whereas use cases are very limited in that regard.
* Support your choices with research within the appendix. A good way to work references into your response is to show example systems within an appendices section.

**Relevance**

* Consider the most relevant and important requirements to implement this system (avoid being generic, secondary)
* For non-functional requirements, consider how they support the use case, and functional requirements.