Case Study Assignment – Unit 1

University of the People

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**Introduction**

This case study will present an organization called Bloomstar (<https://www.bloomstar.ca>) and all their steps to become a full online flower business. This assignment is going to be divided into sections, store business will present high-level details about the organization, software development life cycle will cover which methodology should be used and why, programming languages will explore the coding process, requirements will look at business requirements that must be conquered, and finally GitHub will show a print screen of the environment along with the advantages of using this popular Distributed Version Control System (DVCS).

**Software Development Life Cycle**

A feasibility study to analyze critical aspects comparing risk against return and the likelihood of success (The Investopedia Team, 2022) of two projects was conducted. One was related to closing all the physical stores and the second was developing online e-commerce. The first decision did not take too much time and was not so difficult since the physical locations were not profitable anymore. For the second project, the feasibility study helped **“to determine whether it would be financially and technically feasible to develop the product” (**Behera, H.S., et al., n.d.). The new board of executives came up with the idea of *failing fast*, a concept described by Lutkevich, B. (2023) as a philosophy involving extensive tests and incremental development to discover if the project has value and if not to quickly move to another idea. This concept is also associated with the lean startup methodology and also the Agile software development. Considering all that, the most recommended Software Development Life Cycle approach for this floral e-commerce is Agile methodology, more specifically Scrum.

Contemplating all the challenges and the stages of a common SDLC such as *requirements analysis; feasibility study; design plan; software development; in-depth software testing; software deployment; maintenance and enhancement* (Velimirovic, A., 2022), the Agile methodology seems to fit well for this project. There are several reasons why Scrum should be applied to this project, like the flexibility and rapid adaptability to change requests, inspire teamwork and collaboration, quick prototyping, continuous delivery, frequent testing and inspection leading to fast identification and problem fixes (Singh, S., 2023).

**Programming Languages**

Today the most common programming languages that are commonly used to develop the front end, or the visual aspects of user interaction of a webpage are HTML, CSS and JavaScript, and for the back end, or the server side of the website, there are other alternatives like Python, Java and Ruby (ComputerScience.org Staff, 2022). Considering the author of this study is more familiar with Python, this programming language is recommended since it offers a great range of standard libraries and frameworks such as Flask, Django and Web2py. Besides that, it is necessary to have a Database Management System (DBMS) in place to “store, retrieve, query and manage data” (Techopedia, 2022), and for that, it is recommended to use SQL Server installed in Azure cloud because Bloomstar is already using other Microsoft applications such as Office 365, PowerBI and PowerApps. So, having Azure with SQL Server setup can increase the chance of better integration with the current IT organizational environment.

Targeting mobile users, the first version of the application will focus on code usability, low cost, user interface consistency and performance, so a cross-platform application development process is recommended (Manchanda, A., 2022). Since JavaScript provides some front-end framework options like Reactive Native, Vue.js, Angular, Cordova and NativeScript, but if these alternatives are not appropriate, Python also has Kivy and BeeWare framework resources. For future versions, once the sales grow in volume there might be a need to develop an app specifically for iOS using Swift and Android in Kotlin, which replaced Java as the main programming language for Android phones and tablets (GeeksforGeeks, 2022).

**Requirements**

It is expected that in three months there should be enough sales to start conducting data analysis and looking for tendencies to support executive decisions, and with time, the idea is to implement a program that will use machine learning to predict sales and warehouse stocks. E-commerce applications need to store customers’ information including name, email, shipping and billing address, and others, but the credit card detail is sensitive information, so the team decided to start using a third-party payment processor such as Square, Stripe or PayPal. There are some advantages of using one third-party payment processor such as quick and instant approval, and simple setup, but the most important is not keeping the client’s credit card information, which means one less thing to worry about in case of a cyberattack followed by a data leak (Fabregas, K., Bottorff, C., 2023). To keep the application working without interruptions, there is a need of having IT staff working in many areas, such as customer support, front-end and back-end developers, database administrator (DBA), cybersecurity team, and people working on-call 24/7 to keep the system always online.

**GitHub**

Assuming this is a considerably big and important application, a development team will be responsible for programming it, and to achieve success it seems necessary to have a version control system implemented to record “changes to a file or set of files over time so that you can recall specific versions later” (Chacon, S., Straub, B., 2014). While analyzing the market share of the most popular Distributed Version Control Systems (DVCS), like Mercurial, Bazaar, Darcs and Git, it was possible to see the last one has almost 89% of the market share (Slintel, 2023), for this reason, Git is recommended for this project. Once Git was chosen it is time to define the repository, mainly there are two great options, GitHub being the most popular and GitLab. Considering Bloomstar is looking for a repository that can support documentation share, a quick and advanced way to search the repository framework, and based on these needs, GitHub is a better option (Shah, J., 2022). Below it is possible to see a screenshot of the GitHub account including this document saved there.

Figure 1. *Print screen of GitHub environment.*

A screenshot of a computer

Description automatically generated

**Conclusion**

This study analyzed the case of a floral company called Bloomstar which had problems with its physical walk-in stores during the pandemic and decided to close them all, to focus only on e-commerce. The online store is not set up yet and this document presented the first steps that should be taken before start developing the application code. The recommended software development life cycle was Agile, more specifically Scrum, the front end will use HTML, CSS and JavaScript programming languages, the back end is recommended Python, and the database may be SQL Server, all stored in Azure. It is also suggested for the development team make use of a version control system like GitHub.

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