ST10116374

PROG7311 POE

Part 1 the in bolded words are the corrections done after been marked by lectures.

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Introduction

This report is made for the bid committee and will go over the following: What are a non-functional requirements and which ones are of high importance and what are design patterns and how they can be applied for the stock market management website. This report will have reference list at the end for all sources used in the report even for images and diagrams that are from websites.

1. Which non-functional requirements are of high importance? Why? How are you going to address these requirements? How do they impact how you plan to develop the software?

Fist of we need to define what are non-functional requirements, Altexspoft(2022) asserts that they are what we used to improve the functionality of a systems capabilities and constraints, what this means is that how the system will operate with the speed, security, reliability, data integrity, etc of the system/website. The key types of non-functional requirements that we will use for this report are the following:

- Performance: According to Altexspoft(2022) performance is a core requirement and will be needed to make sure our data is arcuate and can be up dated and-read with no problems, this will be our response time to users actions and a workload such as a high amount of user using the website at a time, this includes the background process that user doesn't see happen, for making data readable to the user. An example would be a thousand farmers use the website and under one second the page can still refresh with our problems and make sure the data is accurate and readable. This will be our top priority fir the development of the software where we would have to make sure nothing can slow the website down such unneeded processes or making process faster by making them simpler.
- Reliability: Most website will have some sort of failure this non-functional requirements is used not to stop all failures but how likely the system or its elements would run without a failure after a certain period of time as stated by Altexspoft(2022). The best example would be that the website must not have failure in 80-95% of uses in the month of June and the website is having a failure must be up within 24 hours. To calculate the time the website according to Altexspoft(2022) is count the amount of bugs or crashes a website has in a certain month or the men time to failure. To solve this, we will have to have excellent error handling, this is the process that software engineers use to prevent errors either by the use sire input or how the software uses certain date.
- Security: Altexspoft(2022) states this is the simplest of the requirements due to the fact it self-explained, by having security we can protect user data from malicious attacks by having logins and the way for user to make sure other users can't access their data.
- Localization: This requirement is how well our website works for the local market in their local context such as: local languages, laws, currencies, cultures, spellings, and other aspects, by having the website work on the local level we can improve how the user see and use the website for an example date format in South Africa is date, month and year as stated by Altexspoft(2022). This goes further with local currencies and addresses

- Usability: Altexspoft(2022) explains that the Usability is a requirement on how hard or easy is it to use our website, furthermore this means can the user look at the website and understand how the user interface(UI) works this is how the website is displayed and interact with the user or how fast the website work and handles its users for example: Learnability: how fast user learn to use the website.

Efficiency: how fast is the website for users?

Satisfaction: does the website look and handles in a way the user likes or dislikes.

KEY TYPES OF NON-FUNCTIONAL REQUIREMENTS
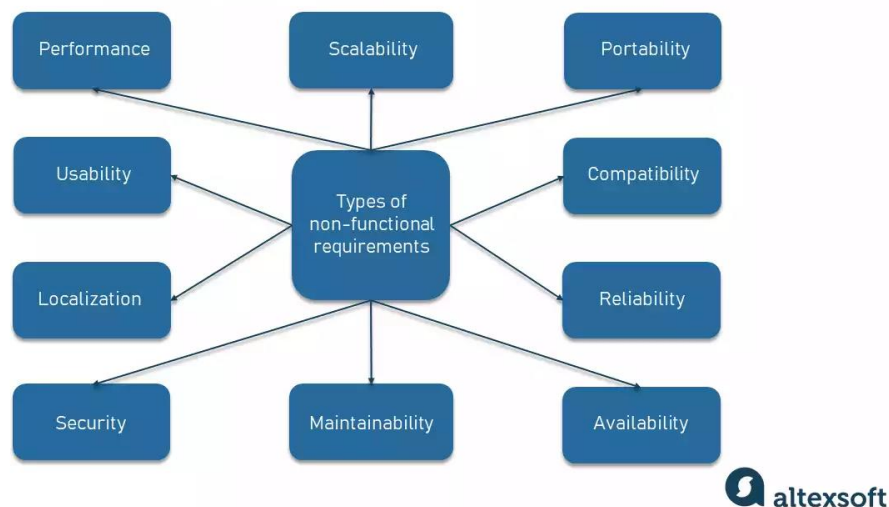
Source for images is altexsot and shows how the types of non-function requirements interact with each other: https://www.altexsoft.com/blog/non-functional-requirements/#:~:text=Non%2Dfunctional%20requirements%20or%20NFRs,reliability%2C%20data%20integrity%2C%20etc.
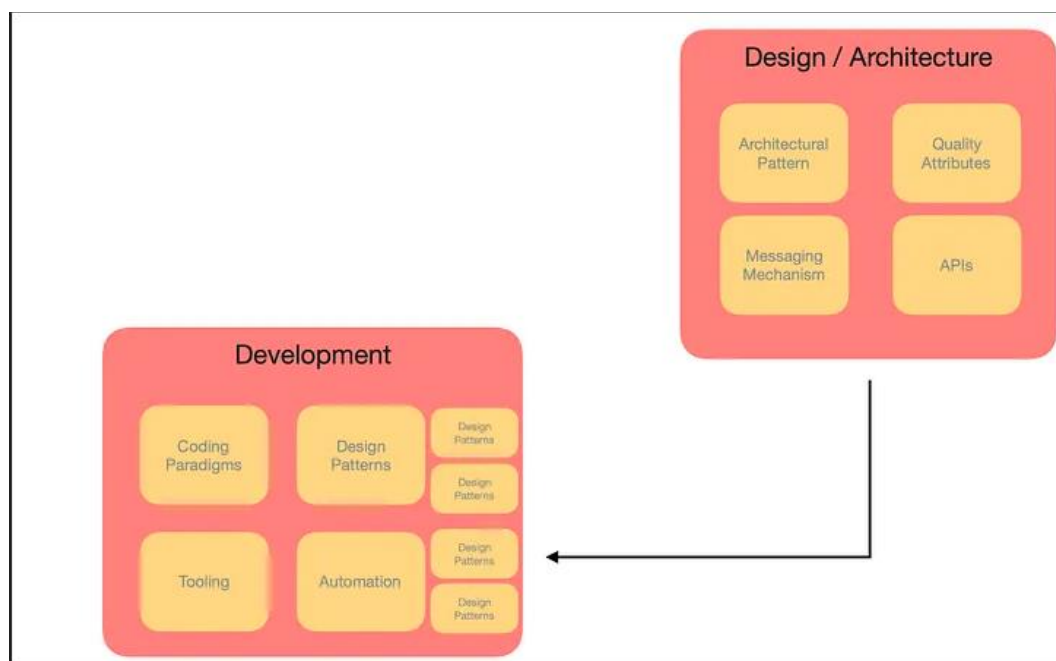
2. Are design patterns and architecture patterns relevant? How should they be applied in the project, if at all? Motivate your position.

Singh (2019) says that the reason why design and architecture patterns relevant is because they handle the development of the software project. Design pattern is how the components are built it handles more of the solution while architecture patterns are the structure both on overall and entirety of the software according to Singh (2019). This means that the and architecture patterns will design how the components fit in the software and how they communicate with each other, while also allowing us to choose the tools to create the components as stated by Singh (2019). Design pattern handles more of the finer detail such as the coding and the implantation of the components while the architecture pattern handles the larger details as inferred by Singh (2019). This means that when we design our

website, we would need to implement both design patterns and architecture patterns so that we make no mistakes in our design when we development our website.

Singh (2019) states in their conclusion that design pattern provides solution to specific module level problems, this means that the design pattern would work best for us due to the project having an already defines scope this Singh (2019) states that design patterns work best when the software related task are specific where is the Architectural patter works better for business than software.

Singh (2019) says that work more on a module or componet levels this means that we can use this pattern for our client due to their website being more simples and having fewer components than websites like Facebook, ours only needs for clients to log in and add or delete their on created data and employees only need to be able to add famers if there is a problem and manage the user created data.

This shows how design and architecture patterns interact with one another Source for images is LinkedIn: https://www.linkedin.com/pulse/architectural-pattern-vs-design-praveen-kumar-kushwaha/

Part 2

For part 2 i was instructed to make a website for a company that wants farmers to log on and be able to create data entries where they can log their product and for employees to log on and see all farmers and their data entries. Where my website exceeds is having and showing the data in the correct formats and the user inter face being easy to use. My website faults are that the logins don't work correctly and would need to be revised and the data for the famers shows all famers and not just the ones that have logged in this could be improved and the user interface is plain and standard i could have made it more vibrant and better login instead of keeping the default styles used for the prototype.

YouTube link: https://youtu.be/dj25vrSJQjA

GitHub link: https://github.com/VCDBN/prog7311---poe-KevinBeranrdST10116374

POE FINAL PART

This part has section they are numbered 1 to 5 as the report asked it to be structured this way

Section 1: How we can improve the performance for the prototype is making the design easier to use as well as making sure that the website isn't slow and quick to respond to the user input. Juviler (2022) states the same about the performance of a website is its quick response and how the website loads and displays itself in the web browser. Juviler (2022) says that one of our guidelines should be for user experience, we could have user test the website before our launch to know what it working and not this will help us both help with performance and user retention. After launch we could have user also give us revies on their experience with our website this inturn wiill have us see how much user our website can have at a time and we shall learn what needs to improve or be removed.
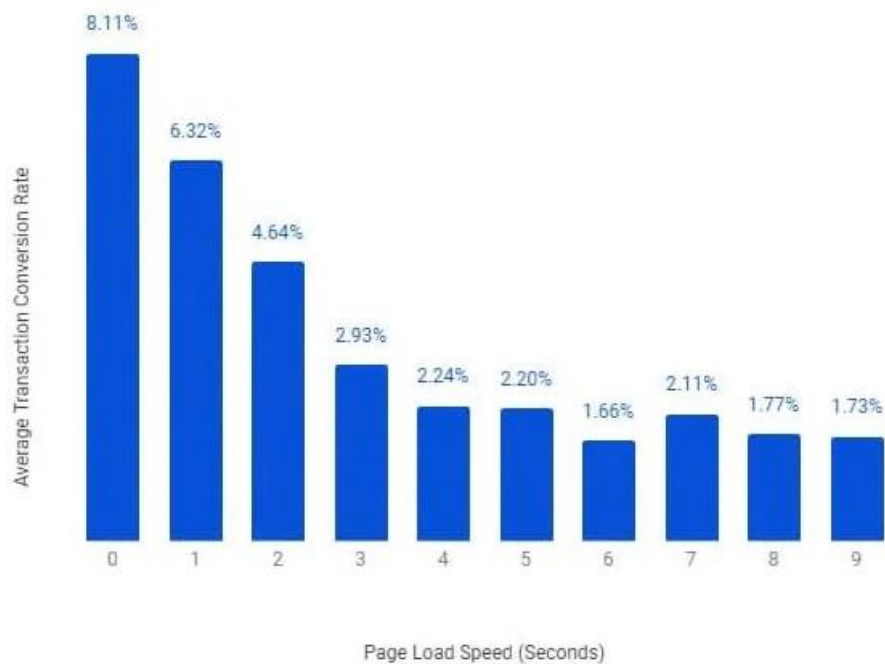

Section 2: The software methodology that would suit this project would be Waterfall development method, is a tradition development method by having the development made into phases that flow

from one to another only after one has been finished stated by Synopsys Editorial Team (2017). How this can benefit us is our project is clear on its objective and stable requirements which is best for Waterfall development method, this in turn means managers and developers with less experience can benefit this and if we change teams this can keep the flow of the work stable but this method is slow and can be costly.
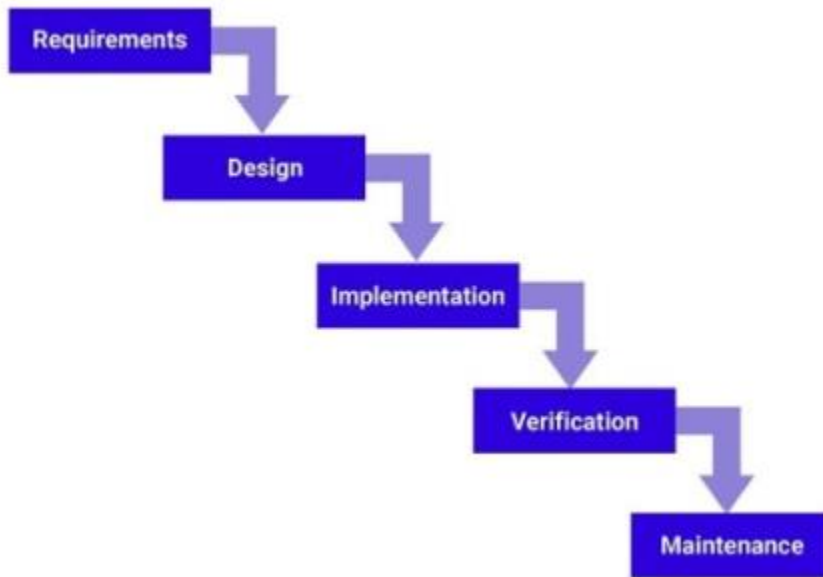
Section 3: According to Synopsys Editorial Team (2017) DevOps is both a practice that support organizational culture and a methodology, this means is purpose is to enhance the collaboration between the departments that oversee different segments of development life cycle. Further the pros of

this is that DevOps is about lowering the failure rate of new releases this makes it very compactable for this project but due to Synopsys Editorial Team (2017) explanation of the waterfall method is that it's very rigid meaning the flow of the work can't be easily change if we use DevOps, we can more fluid with our work flow. By using DevOps, we can reduce our need for time to market and improving performance with our customers stated by Synopsys Editorial Team (2017), but the cons is that with DevOps we must have more updates that customers don't like for a website or product but could improve our performance. The last part of Waterfall method is maintenance we could implement DevOps there where we could test and release new updates as needed to improve our performance and release time.
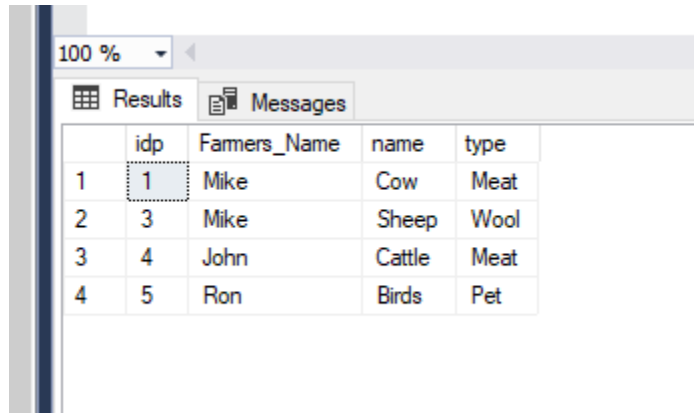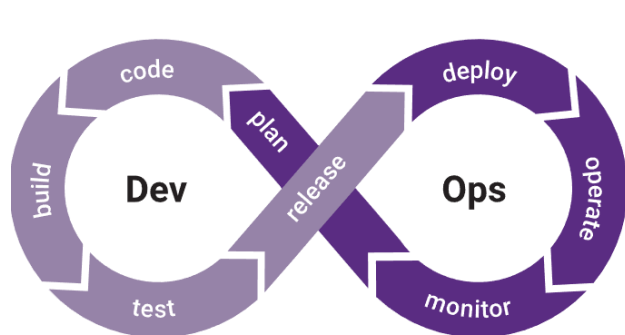

Section 4: TOGAF This a framework that helps is defined what our business goals are and aligns them with our project objectives around the enterprise of software as stated by White (2022). White (2022) further explains this is sued to reduce errors, maintaining timelines, staying on budget, and aligning IT with business units to produce quality results by organizing through a systematic process, the benefit this will is that this gives us a structured and organized way of meeting our project task. TOGAF uses a systemic approach when dealing with enterprise in the development process according to White (2022), this would be the best with both the methodology and DevOps this can in turn be sued to improve our website and how we go about updating it.

Section 5: For the prototype i was instructed to make a website that both employes and famers could login with, this I did with a stating page of the website that allowed the famers to create an login account but not for employe, due to the fact this could cause the data of the farmers to be deleted by an bad actor or stolen for other reasons. There are many ways to save user created data the one I went for is an SQL database this according to SolarWinds (2023) is a collection of tables whing holds row of data entitles and each columns have a specific field of information such as names or passwords, the programming language is called SQL or structured query language. Why i used this database type is because it would later be easier to transfers to the database to on online cloud SQL database hosted by Azure which is an online service used to host databases, making it so that we can then host the website on the same Azure service so that we can start having clients use it but this will come at a cost to use Azure.

List of Porducts

New Product

ID	Farmer	Name	Type	
1	Mike	Cow	Meat	Delete
3	Mike	Sheep	Wool	Delete
4	John	Cattle	Meat	Delete
5	Ron	Birds	Pet	Delete

100 %

Results Messages

	idp	Farmers_Name	name	type
1	1	Mike	Cow	Meat
2	3	Mike	Sheep	Wool
3	4	John	Cattle	Meat
4	5	Ron	Birds	Pet

Here you can the top image is data being pulled from our database and how it shows up on our website on the bottom image is how it looks in the database itself, with this you can see we can show the data in a format that looks better than how it looks when in the database. This also lets us add on like letting the user delete or add data like you can see in the image. With this we could structure the data better such as by type or date when it was created and the price of each farmers product and of course I could not get the website to show only the farmers that logged in and with the finale product we would need to fix this. The same style of data was also used for login, this makes holding and keeping the data properly stored with this type of database. This data could then easily be transferred a to an Azure SQL database making it easier for us because all we would need is to change the connection string (The line of code used to connect to a database. One pint the website exceeds in is that it is very user friendly the setup is clean and not complicated that most user should be able to use the website at first glance but we could improve this user interface by making it more unique to use and of course adding features such when a famer loses their password we can email them a replacement password if they log in with an email instead of name and password.

Reference list

Part 1:

Altexsoft. 2022. Non-functional Requirements: Examples, Types, How to Approach, 26 July 2022. [Online]. Available at: https://www.altexsoft.com/blog/non-functional-requirements/#:~:text=Non%2Dfunctional%20requirements%20or%20NFRs,reliability%2C%20data%20integrity%2C%20etc. [Accessed: 23 June 2023]

Singh, D. 2019. Differences between Architecture and design pattern. Singdivesh. 16 September 2019. [Online]. Available at: https://singhdivesh.medium.com/according-to-wikipedia-b1afa6de08c [Accessed: 23 June 2023]

Final POE part:

Juviler, J. 2022. The Ultimate Guide to Website Performance. Hubspot. 13 june 2022. [Online Blog]. Available at: https://blog.hubspot.com/website/website-performance [Accessed: 23 June 2023]

Synopsys Editorial Team. 2017. Top 4 software development methodologies. Synopsys. 28 March 2027. [Online] Available at: https://www.synopsys.com/blogs/software-security/top-4-software-development-methodologies/ [Accessed: 23 June 2023]

White. K. 2022 What is TOGAF? An enterprise architecture methodology for business. CIO. [Online] Available at: https://www.cio.com/article/228328/what-is-togaf-an-enterprise-architecture-methodology-for-business.html#:~:text=TOGAF%20is%20an%20enterprise%20architecture,objectives%20around%20enterprise%20software%20development [Accessed: 23 June 2023]