# Activity A (II)

System requirements

Ram: 2GB to 5GB

Processor: a multi-processing with high processing power

Storage: 30GB of storage in order to perform basic needs

Screen size: design for a minimum screen width of 1024 pixels or more

Business context

The education sector has seen a huge change during the last few years. For example, a few decades back, it was vastly uncommon for parents to send their children to tuition simply because the parents couldn’t afford paying the fees. The education sector is made to help inform the public. Hypothetically, all age ranges are welcome to be tutored however it depends on the tutoring agency. It was greatly affected by the pandemic as it resulted in the majority of face-to-face learning impossible due to the risk of further contamination. It also resulted in many people keeping their lessons online for many reasons some of those being personal preference, effectiveness of online learning and availability of resources. This means that there is an audience to cater towards with a website regarding tuition.

The customers or people who are looking to gain access to this website could be a multitude of audiences one example is the students who would want to gain access in order to look over resources and learning materials these would most likely be used during the session in which they are being tutored however it would also be likely that they are going to be encouraged to use the materials in their own time as independent learning is a skill that is essential. Another possible user is the parents of the tutee who would want to access the work done and the results of the tests and general work that their child has completed. They might want to do this in order to gain a better understanding of the level that their child is working on and areas in which they should be imploring their child to be working in as well as their plans and goals for the future so that they as parents can do all they can to ensure their child reaches their potential.

User needs

One user need is collaborative teaching and learning tools. These tools provide a platform for tutors, students, and parents to collaborate and communicate effectively. They can exchange messages, share documents, and have real-time discussions, which streamlines the learning process and helps address any concerns or queries promptly. Another reason why it is good to have the necessary tools is because it also provides interactive learning experience this will allow tutors to create interactive lessons that engage the students and help them work to their best level. They would also be able to make use of virtual whiteboards, video conferences and the ability of tutor sharing the screen with the tutee which make it easier to explain things and makes the experience much more interactive and dynamic as it maximises the student’s involvement and therefore keeps them interested as they are working productively.

Accessibility features to a range of different users is another user need that is important as it allow for the maximum amount of people accessing your website. One way to improve accessibility is by implementing a narrator that would be able to read out pieces of text. This will help out people who are visually impaired as they will have a voice reading out to them that they can’t see. Another way that you can improve accessibility is by adding subtitles to all of your videos or audio that you have integrated into the website this would mean that people who are hard of hearing or are deaf are able to still know what is happening during a video. This is the easier way to cater to the hearing impaired as it is also possible to add a person in the corner of each video who is translating the words into sign language this would mean that people who are hearing impaired would be more welcome and they will feel as though you are paying attention to them whilst other competitors don’t account and go out of their way to make them feel confident.

Another user need is a learning reward system. This though will be difficult to implement would be helpful as it gives the student and parents an incentive to keep going on the website and using the services. The system may consist of a point system of how many different lessons you attend. Then these points can be turned in in exchanged for real life rewards these may be vouchers or bigger rewards like a phone or an all included paid holiday abroad. Another potential feature is that the rewards must be clearly described so therefore the person who exchanges points will not feel hard done by as they felt they deserved more. Another vital feature must be that it is cost effective as the plan is made to incentivise parents and students to book and attend more lessons which drives up business as more people would book more lessons as there is a chance of winning something. However, if the rewards cost counteracts the potential advantages therefore it won’t yield a high enough profit margin to justify its existence.

Finally, the last user requirement is the gamified learning element. This is present in order to improve the student’s involvement. One example of gamified learning is quizzes, these are good as they can be used to check how much learning the student is actually doing. The data gathered by completing this is useful as it can be used to improve the way the students learn and allows the tutors to understand what works best with each student which allows for personalised learning. It can also be used to show the parent as it is proof of their child’s performance and can prompt the parent to get more involved if the student is not achieving their best as they may feel as though they need to get their child to work harder whether that is making them do their homework when they aren’t or attend lessons when they don’t want to. On the other hand, it can also show a parent that their child is working at a good level and can improve their relationship between the child and carer

Client requirements

One client requirement is that they provide teaching and learning resources in a range of different subjects. This is vital as without learning resources it will mean that the students won’t be able to learn about their subject if it wasn’t available. Students are also usually implored to complete work independently at home or whenever they are free. If this is done whilst there isn’t a plethora of different learning resources then it will result in them going over all of the work available and will mean that they are finished. Another reason why it is important to have the correct resources is so that if the student is stuck on something they would be able to find the correct answer themselves and how the answer is found. This will further improve their independent learning which is a skill that they will need for the rest of their life. On tutors end it is also important as it provides them with materials to base the lesson on and provides teaching resources like PowerPoints, exam questions and unit questions that can be used to test the how well the student has learnt the unit.

Another client requirement is support assessment and monitoring of learner progress. This is done as it can allow for goal setting and motivation. Regular assessment and monitoring help set clear learning goals for each individual. By tracking their progress, learners can see their achievements and how far they have come. This not only motivates them to continue learning but also helps tutors identify areas where additional support is needed. Another reason for monitoring learner progress is because it increases the importance of quality control as by tracking their progress, learners can see their achievements and how far they have come. This not only motivates them to continue learning but also helps tutors identify areas where additional support is needed.

Providing access to digital content encourages wider learning by many ways one way is that it enhances the resource library. This is good as it means that there is more to access this in turn makes many more advantages one could be the fact that due to the pool of information being larger it results in the ability to personalise learning pathways. This is good as it allows students to personalise how they learn to suit them. This means that each student will be confident as they are organising their workload. Another advantage coming from this is the expansion of subject coverage. This is advantageous as it means there is overall more answers and questions which simply put means that the students are available to do more work. As a result of this it would also mean that there is more of a chance that the problem that the student is presented with has an answer and explanation which will speed up their learning and productivity.

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| No. | Functional requirements | | importance | explanation | |
| 1. | Users are able to sign in | | High | It is a high priority as if users are unable to sign in then they will have to create an account each time they want to login which is a major painpoint | |
| 2. | Users are able to create accounts | | High | It is a high priority as if you are unable to create an account then you won’t be able to access the materials | |
| 3. | Users are able to access the revision resources | | High | It is a high priority as the main reason for visiting the sight is to look at resources | |
| 4. | User able to access the quizzes and general questions | | High | It is a high priority as this data is what is used to see the students’ progress | |
| 5. | Users are able to see the results of the quiz | | High | It is a high priority as it gives the students and the tutors a sign of what level they are working on | |
| 6. | Send a verification email to the user after creating an account | | Medium | It is a medium priority as it is a security feature and isn’t needed to run yet is needs to be there | |
| 7. | Users able to change their password | | Medium | Users may want to change their password though it is not completely necessary as the user should remember their password | |
| 8. | Users able to view when they have booked a lesson via a calendar | | Medium | It’s a medium priority as it is good to have in order to be organised however there are other ways to see this | |
| 9. | Users presented with a user-friendly interface | | High | It is vital as a good UI makes the process easier and makes users more comfortable | |
| 10. | User sent notifications when something noteworthy happens | | Low | It is a low priority as notifications don’t affect the user experience much | |
| 11. | Users are able to access the overall quality of students work represented by a percentage | | High | It has a high priority as this is the main indicator of the student’s performance | |
| 12. | Users are able to choose which subject materials they want displayed | | High | It has a high priority as there would be a range of different subjects and in order to access what you want you must filter out information that is irrelevant | |
| 13. | Users receive an email after booking an appointment | | High | This has a high priority as it is the main way that the parents get confirmation of the appointment and point of reference when looking for | |
| No. | | Non – Functional Requirement | Priority | | Explanation |
| 1. | | Availability | High | | This is quite important as if the website is no longer available for use, then it would mean that potential customers would be put off |
| 2. | | scalability | Low | | The scalability is low as the scaling is currently not a priority due to the youth of the website |
| 3. | | Maintainability | High | | It is important that the website is maintainable as it must be easy to change and update the website so glitches other issues can be patched |
| 4. | | Portability | Low | | The portability is a low priority as this feature is not as important as it is simply not used often |
| 5. | | Security | High | | The security is a high priority as if the user's data isn’t secured properly then it can result in fines and loss of customer trust |
| 6. | | Reliability | High | | The reliability is a high priority as if the website is unreliable then it may put users of using it and will result in the overall loss of customers |
| 6. | | Performance | High | | The performance is a high priority as it if the website performance is not good it will mean that users will be waiting long periods of time whilst the page loads and images and videos would be in low quality and difficult to see. |
| 7. | | Teaching staff | Medium | | Teaching the tutors is important as the must know how to work the website otherwise the data collected would be meaningless as they wouldn’t be viewed however it isn’t vital as the website isn’t going to be extremely complex and should be easy to pick up |
| 8. | | Capacity | Medium | | The capacity is a medium priority as the capacity must be big enough to store all the students and tutors' data however this doesn’t mean that it needs to be huge as it should we shouldn't need to expand soon |
| 9. | | localisation | Low | | This is not important as this doesn’t affect the website to much as an example of this would be changing the dollars sign to the sterling this is not very important and doesn’t affect the usability of the website |
| 10. | | Usability | High | | The usability is a high priority as if the website is not usable then the customers would not be motivated to proceed with us and would |
| 11. | | Safeguarding | High | | Safeguarding is a high priority as we as a company need to protect our employees and customers. This is especially relevant due to the ages of the students that attend. This means their data must be kept secure otherwise an unsavoury character might gain access to things they shouldn’t |
| 12. | | Trustworthiness | High | | This is a high priority as without customer trust they won't go ahead with business as they would if you had their trust. This might come down to leaving the students in our care or them trusting us with sensitive data. This is important as mistrust might end up with them simply leaving for a competitor |

User acceptance criteria

1. Students must be able to access revision materials and courses
2. Tutors must be able to set quizzes and see the results of each student who attempted it
3. Users must be able to create an account
4. Users must be able to sign into their account.
5. The UI and UX design must be simple and easy to navigate.

Risk mitigation

One potential risk is a threat of a data breach. This can be done in order to use the data as ransomware, sell the data or more benevolent reasons such as white hacking or ethical hacking. One way to avoid this risk is to encrypt all data entering and leaving the website. Encrypting is when you jumble up words to make it more difficult for hackers to decipher the sensitive data. This means that once the security is breached, they spend more time trying to decipher the data and this gives you more time to identify the breach and catch or lock out the intruder. Another way to prevent this risk is to constantly maintain and improve the code to make it more robust and less likely to be bypassed. This would mean that there would be people who are wholly tasked with going over the code and look for improvements that with make it more concise and secure. The constant patches in security can also mean that they are able to identify other improvements that are not to do with the security but with the general code and website which will result in glitches and bugs being fixed in parallel. Another way to reduce the risk is to implement the culture of using strong and robust passwords. This would mean that there is less of a chance that your password is going to be guessed correctly as it negates effectiveness and use of brute force attacks where they try and guess your password. This can go hand in hand with a two – factor authentication system for logins and passwords of high clearance levels. Two – factor authentication is when there is an extra question in the login process. This can be used to significantly reduce the likelihood of someone gaining unauthorised access to the system as the question is personalised to you meaning it is very hard to guess.

Another risk is that inappropriate or irrelevant content might be shared via the chat feature. This can be mitigated by applying a feature regarding the chat features between the tutor and the students which can help moderate and monitor conversations. This can be done in to ensure that a healthy, productive and professional work environment and relationship is maintained. This can be done by applying an automated system where certain phrase or behaviour gets flagged up and recommends that someone takes a closer look at what they are being accused. This can go hand in hand with clear guidelines that are shown to everyone, and clear punishments declared before the fact these may vary due to the severity of the offence, some punishments would include a phone call to the parent due to a child's poor attitude or a dock of pay or suspension for the tutor if they behave inappropriately. One other way to help moderate chats are to keep chatlogs. These can be referred to in order to help gain a better understanding of the situation that the offender has found himself in and allows for context to be provided which can help defend the actions of the person being held accountable. Finally, one other way to way that might help reduce this kind of behaviour is to administer and encourage the use of a report function that will be present under all the messages and announcements. This will reduce the amount of people who are using the chat features inappropriately.

Additionally, regulatory compliance is another way that you can be caught out. One way that you can break regulations is to breach the data protection act. This is a big problem for the company as it can result in fines up to $20 million or 4% of the overall income of the company’s yearly revenue, they usually pick the choice with the most impact on the company. So, a smaller company would most likely be hit with a fine that is appropriate whereas a larger company which would have a much larger yearly income would be fined 4% which can go up to ridicules hights. This can be done several ways. One way is if you either unlawfully or unintentionally destroy or discard the data of your customers this is bad as you are trusted to keep your client's data and information safe and readily accessible and if you deny them this right then it is against the law. Another way is to gain unauthorised access or distribution of the data you collected about the customers. This can be done by the company as they may be breaking the law intentionally or it's possible that the company has no knowledge of this happening and it could come down to a malicious employee that is simply stealing customer data in for personal gain which would most likely be to sell it to competitors for a large sum of money. This would still fall back onto the company however as it would be presented that the company didn’t secure the data well enough and would mean they would still be fined a great deal and the perpetrator if found guilty would spend time in jail. Another way to break the guidelines set is by not following the WCAG guidelines. This can also be problematic in more than one way as due to the nature of web accessibility. One way that it can cause problems is that you could easily be fined for non – compliance this varies on the number of offences as for the first one the sum can rise to $50,000. The second offence being the much harsher punishment as the fine increases twice fold and goes up to $100,000, on top of this they perpetrator can be fined for damages to those who feel they have been wronged and any other problems that can come from this. The other way that ignoring this can prove disadvantageous is as this is in place to include everyone and by following this regulation it would result in the maximisation of the people who are using your website so by not including everyone it means that you are losing potential customers. Another problem that will stem from this is the reputation damage that will ensue. People may see that you have been charged with breaking the WCAG laws and in turn it's possible that you lose customers because they feel as though you are unethical as a company and don’t genuinely care about them. This can cause mistrust and eventually may end up with them switching to competitors.

KPI (key performance indicators)

* The number of user accounts
* How long pages take to load
* The student's overall performance
* Daily amount of users
* Bounce rate
* Conversion rate
* Amount of monthly users

Decomposition