

## **CM2210 Coursework 1**

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### **Strategic Alignment**

My idea for a start-up is a web app music streaming platform. This app will allow users to upload their own music, while also letting others around the world listen. The aim of this company is to allow creatives from around the world to share what they love to make with everyone, all genres of music and spoken word.

One of the very first objectives of the business would be to have a certain amount of people on the app by the time that it launches. This could be done by negotiating a deal with popular artists from all genres. This is a big must of the company because no one wants to use an app without any other users. Having a starting base of users will give the platform a head start in gaining a market share.

Another objective of the company would be to turn a profit because, after all, that is the main purpose of any business. Turning a profit does not have to be done quickly, most start do not make any profit normally for two or three years. So, for this business the aim would be to make a profit anytime between two and four years to give some flexibility.

The information needs and requirements of the company are very similar. They also depend on the user. For example, if you are an artist who is posting music, an information need would be some background on you and your music to make it a little more personal for listeners. Whereas an information requirement from all users would be basic personal details such as name, email, phone number so they can make an account. The information needs would be things such as payment details for premium users of the platform, and also the users listening habits. Allowing the company to have the listening habits of the user it will allow us to improve the listening experience and be able to customise the app for each user.

## Architecture (720-968)

	WHAT (Content)	HOW (Function)	WHERE (Network)	WHO (People)	WHEN (Time)	WHY (Motivation)	
Scope (Contextual)	The company will make it easy for people across the globe to share and listen to music	The business will first start off with an audio player and uploader and then build a mobile app, before then building a desktop version	The business will operate online with the chance of a desktop app and a mobile app for android and iOS.	Big musicians are important to gain more users, advertising companies to promote the platform and users of the app.	Major events would be signing first artist, launching platform, 100,000 downloads, then 1 million and so on.	Make a user friendly, online music streaming platform, that supports all music from all creators, from amateur to pro	Scope (Contextual)
Enterprise and environment (Conceptual)	The company will need to store users details and their listening habits securely	Both iOS and android will be developed at the side by side as to not loose part of the market	The mobile apps will have more demand than the desktop and so will need more resources during big releases	There are the coders in charge of making the app. Marketing and sales teams in charge or promoting the app	The app will be available to use 24/7 once it has been launched, with only short downtime in case of an emergency	To allow more creators to share their music for other people to listen to	Enterprise and environment (Conceptual)
Health Information System (Logical design)	The different distributed systems need to be able to communicate quickly and efficiently to retrieve the data on time	The platform will call the different songs from the cloud servers. The platform will also recommend songs depending on users listening data	The music that is uploaded will be stored in the cloud as there will be a large amount of music that needs to be stored safely	Only the company, and the third party sever company will have access to the information to reduce data breaches	There will be most users when a big artist releases a new album and also after a new marketing campaign	Making sure that user data, and music data is stored safely is a major rule that the company must follow	Health Information System (Logical design)
Health Information System (Physical design)	The platform will be very similar to Spotify and SoundCloud as they are what everyone is familiar with, as to reduce time needed to learn the app	The platform must have an internet connection to connect to the servers, it must also return the song that is being played instantly	For the platform to be useable the user must have an internet connection that is fastest enough to stream small music files.	To start off with, when the company is small everyone must do all the roles but when it starts to get bigger people can specialise more	The company must predict when these big events are and add the appropriate resources to the servers to allow everyone to stream the music	The start-up is not in charge of the user's data as it will be stored in the cloud, and so must choose an appropriate supplier	Health Information System (Physical design)
Health Information components (Modules and subsystems)	A physical constrain of the platform is the limited storage space, but this can be expanded upon, but will	The app can be coded in React Native which can develop cross platform apps for iOS, android, and Web. Or they	All modern mobile phones should have an internet connection from a 4g tower and most modern homes	The programmers will have the required permission, but not all of them, only the boss of the	An artist can have the option to upload their music and not have it public on the platform till a	GDPR is a relatively new standard that must adhered to. It is the guidelines for collecting and storing personal	Health Information components (Modules and subsystems)

	slow the searching	could use Xamarin forms which is the same	will have strong enough internet	start-up and the third-party company. This will reduce human error and data breaches	time they set, and so the timings will be needed to be coded in otherwise a leak could happen	information, the framework comes with big fines if not followed	
Functioning information systems (Functioning)	The data stored in the database will be users listening patterns, information about the song (time, release date, artist), information about artist (a small biography they write)	Users should be very familiar with the software, but to play a song the user must click on it, the skip/play/pause they must press the dedicated button. To add songs to a queue or find more detail or add it to a playlist they must long press on the song	Both android and iOS can receive messages via notifications and can send messages in a crash report	The key stakeholders would be the actual artists that are being brought to the app, the amateur artists uploading their own music to the app, and then people who are just listening and not uploading to the app.	If there is a big artist releasing an album, and the users listening data aligns with the artist then a notification could be sent the user telling them about the album, therefore attracting them to the app	To check if there needs to be any changes made in terms of usability or at the higher levels of the system	Functioning information systems (Functioning)
	WHAT (Content)	HOW (Function)	WHERE (Network)	WHO (People)	WHEN (Time)	WHY (Motivation)	

### Cloud Computing

Security is a large aspect of cloud computing; this is because the company is buying into a third-party product and so does not have control over all aspects of the cloud servers. Where previously a company like this one would have done everything with inhouse servers where they have full control and don't have to rely on another company to control their data, a more modern version of this start-up will invest into cloud computing to store their data, but it does also mean losing control of their data and rely on another company. Generally speaking, these large, high-end cloud computing services often have security more advanced than an inhouse server, there is still a potential for a large-scale data breaches or server downtime, which can cost the company a lot of money. One of the major problems of cloud computing is these downtimes and data breaches are in the hand of the owner of the cloud servers to quickly and safely bring the servers back online, as such my start-up has little to no control over how long the servers will be down or how the data breach is managed.

Elastic Computing is going to be very useful for my start-up. This is because the workload for a music streaming platform varies widely. One keyway that this company can use elastic computing is by increasing the resources available on key dates, such as a new album by a big artist being released. For example, on Spotify, Drakes 2018 album Scorpion had 132 Million streams in the first day alone<sup>1</sup>. This is a lot more than a normal album would get in streams on an average day, therefore for everyone to still be able to use the platform there will need to be lots of more resources available to handle with the traffic. There many times this can be useful, mainly for scaling up, whenever more people are going to be listening to music is when they will need to scale up, this can be times such as rush hour for commuters, when there is a big event happening and people would be hosting a party.

There are less examples for scaling down, but one main one would be at the start of the company when there aren't many users, but the company would have already invested in a high number of resources ready for when they gain more users.

The company will be using a public deployment method to start off with. This is because it offers everything that a start-up company will need, for example it has high scalability allowing for growth (which is vital in a start-up), it also offers 24/7 uptimes which allow the company to spread into markets across the globe rather than staying in one country. A public deployment does all of this while also being relatively cheap compared to a private, community or hybrid deployment. One problem with public is the reliability is not the best, with outages and malfunctions being likely. Also, a public deployment means that users do not fully know where their data is being stored, which for some companies is a major security concern.

When it comes to the service model for this start-up, I would use Platform as a Service. This is because there is minimal development time, allowing for the start-up to make it to market quicker than they would be able to with other cloud-based service models. Another major benefit is it allows the company to develop for more than one platform very easily, meaning there could be a web app for PCs, an Android and iOS app which will widen the possible market for the company. One big drawback to PaaS is the service provider, the company will need to make the right choice for provider which will give them high speed, support, and reliability, otherwise PaaS is a bottle neck rather than an advantage. Also, like a lot of things in cloud computing, data security is a big factor as all the data is being stored off site and as such we'll need to make sure to keep sensitive data out of the cloud in case of a data breach.

### **Information Technology**

The first and most obvious IT requirement for this start-up would be the actual computers used. These PCs would be used for everything from coding the actual platform to play the songs, to writing emails to artists to join the platform. Seeing as this company is a start-up and will be small, all of the team will be helping with everything in the company, therefore the PCs will need to be powerful enough to run large amounts of code for building the platform or coding the algorithm for users listening pattern. Along with the actual computer unit the company will also need keyboards, mice, and screens to make them useable. Investing in two screens for the employees of the company is something that I would recommend as it improves productivity being able to quickly glance between screens with each one having different information on it.

A piece of software that the company will also need is that to write the actual code. The software needed depends a lot on the language that the platform will be written in, but this is a key piece of the IT requirements for the company. For this I would recommend either Atom or Sublime, they are both powerful source code editors and can be used to develop the platform, the algorithms for users listening patterns and also the website, it is mainly down to personal preference to which one to use. Other main software will consist of the basic programmes on almost every PC, such as an internet browser, a word processor and a way to communicate between the company, such as Microsoft Teams. Another piece of software which could be quite useful is the adobe package or something similar and open source. The programmes such as Photoshop, illustrator and premier pro can be used to make marketing material to build brand awareness.

Another piece of hardware that the company will use is local servers, on top of the cloud servers discussed in part 3. These local servers are a cheaper and quicker way to store base files within the company. Having these local servers is a simpler way of having companywide storage, this storage

can encourage collaborative work as everyone will be able to access the servers. It is also cheaper than having these files based in the cloud as there is no need to pay someone else to host the files. Although the cloud may be safer as there is minimal risk of something like theft or a fire destroying the files, the chance of this happening is to a company is very small and is also mitigated if backups are done regularly. Of course, the main platform and storage of the songs will be done in the cloud, smaller and less important files are fine to be stored on a local server to save costs. This local server could also host the website, while the company is still relatively small, but by doing this there is always the possibility of someone exploiting this and doing malicious attack on the company.

### **References**

1. Di Iorio, M. 2020. "Here are the 10 biggest first-day album debuts on Spotify". Available at <https://tonedeaf.thebrag.com/10-biggest-first-day-album-debuts-spotify/> [Accessed: 24/04/2020]