Legal, Social, Ethical and Professional Issues Analysis of Project Specification 2

Teaching an algorithm.

As with all machine learning algorithms, this app will require a vast source of contemporary data. There are two common approaches to "teaching" an algorithm. The first is to input information during the development process, building a database that the algorithm can be released with into product testing. This initial input introduces a ubiquitous issue; Intellectual Property (IP) and the availability of master files. The industry around high fidelity music is growing, however, IP owners rarely distribute Master Quality Audio (MQA) files outside of their publishers.

Master files are essential in enabling the algorithm to differentiate musical features because analogue to digital conversion introduces inaccuracies. To avoid the consequences of breaching the Copyright, Designs and Patent Act 1988 (CDPA 1988), the permission of IP owners must be sought, and they will expect renumeration. This introduces significant costs to the development process; however, lack of compliance would have severe repercussions. In the UK, a person that "in the course of business distributes an infringing article" can face 6 months imprisonment and an unlimited fine. (UK Government, Intellectual Property Office, 2017)

The second approach is achieved through the collection of user data, thus providing a pool of regularly refreshed data, vital in producing an app that users see as relevant and interesting. In theory, the app could be updated manually at set intervals, however, this would cause an endless workload for the development team.

Traditionally, user trust has been easily gained due to a laissez-faire attitude toward the importance of personal data, compounded by a lack of knowledge among the average user base. The atmosphere has shifted in recent years with accusations of election tampering bringing user privacy sharply into focus. A survey by the Ponemon Institute found that user trust in Facebook had plunged from 79 percent in 2017 to 28 percent in 2018 during a fortnight surrounding the Cambridge Analytica scandal. (Weisbaum, 2018) This survey had been immediately preceded by Facebook CEO Mark Zuckerberg's testimony to politicians, one respondent stated, "It is all about economics, Facebook doesn't see any value in protecting the privacy of its users.". (Weisbaum, 2018)

The growing lack of trust in companies that wish to collect personal data makes profiling difficult, however, barring particularly tech aware enthusiasts, less animosity exists toward the collection of anonymised data. If the developer gained interest from a platform owner and integrated the app into Tidal or Spotify, the issues of master files and trust would be negated. MQA purchase costs would be reduced by Tidal's existing library and established businesses have large user bases, eliminating the need to develop trust as a new brand.

Different jurisdictions.

Regions such as the European Union (EU) bestow greater rights to people located within their borders than most others, like the United States of America (USA). Article 3 of the General Data Protection Regulations (GDPR) sets out territorial scope that does not change with the citizenship of the user and imposes penalties of 4% worldwide annual revenue from the preceding financial year or €20 million, whichever is highest. (Wolford, 2019).

Article 3(1) states that, "This Regulation applies to the processing of personal data in the context of the activities of an establishment of a controller or a processor in the Union", and article 3(2) states that "This Regulation applies to the processing of personal data of data subjects who are in the Union by a controller or processor not established in the Union". (Intersoft Consulting, 2018) Therefore, users temporarily located in the EU are covered by GDPR. To reduce complexity, thus reducing accidental breaches, the developer should comply with the strictest rules so that minimal amendments are required for distribution to other regions.

Many large companies hold data from different regions separately. Facebook, in trying to limit the affect of GDPR on their advertising revenue, only store data from EU users on servers in Ireland, reducing the impacted user base from 1.9 billion to 400 million. (Laybats & Davies, 2018) This is an attractive solution but would be difficult for a new developer to achieve.

When users sign up to Tidal or to Spotify, they have access to a library of music, with little control over the content that's suggested to them. This creates an issue because no age verification is enabled beyond the user's own honesty. Selecting music based on the mood of the user would be considered profiling of that user's data under GDPR. This is problematic when the age of the user has not been verified because special measures must be taken regarding the profiling of children's data. (Information Commissioner's Office, 2019)

Moreover, some songs come with parental guidance warnings because they are not appropriate for children to hear. The app will, independently of the affiliated platform, need to know whether the user is an adult. The algorithm can then choose the most appropriate library of music from which to select tracks. The developer is based in the EU, so it makes sense to use the EU's definition, which is that a child is "any human being under the age of 18". (European Commission, 2019) This age restriction is based on the UN Convention on the Rights of the Child and so provides a good foundation when considering the different ages of majority in regions around the world.

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