1.1P Reflection on Data driven Information Systems around you

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Apple Maps:

1)   Apple Maps is a popular navigation application which was developed by Apple Inc. Apple Maps which is available on all apple devices on iOS, macOS and Watches' on apple devices, was initially releases on 19th of September 2012. They provide users with directions to destination, real-time traffic updates, estimated time of arrival (ETA) for future departures and several other features. Apple Maps utilises a wide range of geographic data to form the maps database including streets, buildings, and roads. Apple Maps also uses satellite imagery data to provide precise illustrations of geographical areas. This allows users to recognise landmarks, topographical characteristics, and accuracy of the mapping information with the use of this.

2)   To access the data, users must navigate through the applications and locate the preinstalled app on any iOS device, usually found on the home screen. When launching the app, the users would input a specific location of their desired point of interest. The app will offer various transportation options, including walking, driving or public transportation. Depending on which mode of transportation the user selects, Apple Maps will offer different routes towards the destination to tailor to the users liking. From there, Apple Maps will give accurate directions towards the destination including estimation time of arrival, speed limit of the area where user is driving as well as real time traffic information. If the data was not available, users would not be able to travel to their desired destination with accurate directions, making it difficult for users to travel to their point of interest.

3)   Apple Maps generates its data from multiple sources, mainly using satellite imagery to provide accurate and up to date information on GOS location as well as navigation details such as the route a user's takes. The data captured from Apple Maps is through a global network of satellite that broadcast radio signals from Earth's orbit. Apple Maps data is stored in a map database which is saved into a cloud infrastructure such as iCloud to store and manage. It stores data such as addresses, point of interest's geographical location and roads. The data is regularly updated to and managed to precisely reflect changes in the outside world. This includes incorporating updates reported by users or reliable sources.

4)   I do not see any form of risk involving privacy when it comes to Apple Maps as all data being used is public information. Users do not input any sensitive information which could result into complications.

Spotify:

1) Spotify is a digital music streaming service that gives users access to millions of music and other audio content. With millions of subscribers worldwide, the service, which was released in 2008, has since grown to become one of the most well-known music streaming services in the world. It delivers music and customised playlists that are especially suited to the users' musical interests using a complicated system of servers, algorithms, and data analytics. Spotify uses user data which collects and examines user information to tailor the music listening experience and recommendations on user preference, listing history and saved songs. Spotify also uses music data as Spotify has a wide catalogue of millions of tracks by various artists. Songs, artists, release date, genre are all included in this data.

2) Spotify data can be accessed by users using a variety of tools and interfaces. Her are a few typical methods for getting data from Spotify:

   - Spotify Mobile App: Both IOS and Android are available for Spotify app download. The application provides users access to their specific library with their liked songs, playlists as well as personalized recommendations.
   - Spotify Desktop App: For macOS and Windows, Spotify has a desktop version. Users can download the program and sign into their accounts. The desktop application offers the same features as the Spotify mobile App.

   Spotify is at the forefront of digital music platform, resulting in majority of artists releasing all their music and albums on Spotify. If users were unable to access the data, individuals would not have access to most of their favourite artists content as well as their saved playlist.

3) In the aspect of user data, Spotify employs machine learning to analyse algorithms and identify patterns, correlations, and trends within a user to aid on gaining knowledge on the user's behaviour and music tastes to curate personalized playlists and make music recommendations. In order to manage its enormous volume of data, Spotify like many other organizations uses a distributed storage architecture. Through using a distributed file systems Spotify stores its data using Apache Cassandra file system, this system has great scalability and fault tolerance and can be distribute its data over numerous machines. Spotify also stores data by caching as it uses user's device memory to store music or podcasts to prevent lag. The data is typically stored and managed in relational databases and NoSQL database to aid with analytics.

4) Similarly to Apple Maps, I believe there are no major concerns as the information and data obtained from users can be public knowledge. Just like Apple Maps, Spotify is an extremely open platform as users have the option create a playlist and make it public for other users to listen. Spotify also offers a function that allows users to engage with users and see what songs are currently listening or last listen to.

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