

## CSED Coursework 2

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# Introduction

## 1.1 Personal Informatics - FD

Personal informatics is a philosophy in which technology can aid the daily lives of people by collecting and processing data. This data can be monitored or manually entered in order to be collected. Personal Informatics tools are used for a variety of reasons, for example, to be therapeutic, or to change or improve one's behaviour or psychology. Essentially, Personal Informatics tools accumulate someone's data and feeds it back to the user through some form of data representation. For example, self-monitoring calorie consumption can help to keep track of diets, using graphs and other visual aids to demonstrate trends in the data. Personal Informatics can aid with "...internal states (such as mood or glucose level in the blood) or indicators of performance (such as the kilometres run)." [Rapp and Cena(2014)] . Evidently, PI covers a vast amount of areas in our day to day lives, hence why PI tracking tools are so helpful.

With ever growing technological advancements, being able to use more and more PI trackers is becoming much easier. With technologies such as smart watches, sensors in our phones, Fitbits, etc... we are constantly surrounded by computers capable of PI tracking. Furthermore, "the pervasiveness of self-tracking in modern smartphones foreshadows an era where Personal Informatics will likely become ubiquitous making personal data available with minimal burden, easing the process of self-monitoring." This means that it'll become effortless for people to have PI capable tracking technologies and hence more people will be able to take advantage of such apps and be able to benefit from them.[Rapp and Cena(2016)]

However, PI tracking tools aren't without their flaws. Many PI tracking tools lack helpful suggestions and consequently don't always give users

the helpful insight they were after. A common issue is the “excess of abstract visualisation in the apps” [Rapp and Cena(2016)] which consequently can lead to users losing interest in PI tracking apps. Moreover, “we believe that current PI tools are not yet designed with enough understanding of these users’ needs, desires and problems that they may encounter.” [Rapp and Cena(2016)] This implies that despite the overload of information we can provide for these apps, the information given in return isn’t as useful as it should be.

## 1.2 Proposed Solution - SD

Since the problem domain is personal informatics, we have decided to research how music can affect a listener’s mood and perspective based mainly on the type of music they are listening to, whether that is upbeat music or it’s a more calming sound, etc. We will also be looking into how different genres will impact on users, and we will take into consideration the time of day as well. Our application will analyse this data and return the mood that a user would generally feel while listening to it. We will be collecting this data from music streaming app Spotify. We would like to have the framework to include different music streaming services such as Apple Music, Deezer, etc.

We know of features which are similar to what we aim to create. For example, Spotify Wrapped, which started as a simple microsite in 2015, showing users how they engaged with the service [Swant(2019)]. In 2018, they introduced a personalised feature based off the original in 2015. This personalised feature shows their most listened-to artists, albums, songs, playlists and features from across the year for all users [Somerville(2019)]. This has required Spotify to start taking users’ listening data in order for them to create their annual list for each user. This helps us as the Spotify API which we are going to end up using has a lot of features which we can implement into our own work [*Spotify WebAPI Documentation*(2020)Web]. We can use this API to look at the danceability, energy, liveliness, loudness, etc. These will be taken into account when analysing the data.

For this project we will primarily be looking into the Spotify API only in order to show the main features and the capability of our application, however, we will generalise a lot of the code, this will greatly increase the extensibility of the application. This makes it so we are able to add other APIs such as Apple Music and Deezer. Doing this, our application would be able

to be used by more than one music streaming apps, broadening our target audience, making it accessible to a larger number of potential users. This will maximise the amount of people we can potentially help with our app.

There have been a number of articles related to studies conducted linking people's moods to upbeat or sad songs. According to a study by Psych Central, upbeat music more than likely raises the mood and perception of a listener [Nauert(2018)]. Upbeat music tends to be more happier. It has also been established that people listen to sad music are often sad and are looking for comfort, pleasure or pain [Eerola and Peltola(2016)]. All this type of information will be very useful in determining the mood and perspective of a listener. However, there are other things we must include like what makes exactly makes a song a happy one or a sad one, and whether a genre has an impact on being happy or sad.

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