# Intro

What is the project?

What is the goal of the project?

What is the purpose of the application?

# Research into competitors

Who are they? What do they do well? Are they popular?

How am I innovating on these existing concepts

# How the app is made

What platform is it on and why?

The features of the app

# Neural network Methods

# The Design of the application

Explain the functions and design of the app

Highlight the clarity of the app/through error messages

# Video of functionality

# Testing the Application and the neural net

Show how the network supports the claim of learning the users tastes

Mention how the testing was done.

# Conclusions

# Future works and expansion

The Idea

In modern times before covid, life was a lot of the time very busy with the advent of developments and intergartion of technology into our lives we now have more option and decision to make than ever before. This has resulted in a phenonminon become more prevalent eing decision fatigure. This is where our ecision become worse the more decision we make thought the day.

To alivate this people like barack Obama limit their choices in more menial task to reduce the amount of decion fatigue is felt. But what if we could use the technology to help fix this a part of this problem without having to limit our options

The Idea part 2

I believe a solution is what I am here to present to today being an outfit randomiser application for your phone. This will streamline the everyday task of choosing an outfit by having the app suggest outfits from the clothes in your wardrobe. With the goal of not only reducing the amount of choices which have to be made but also for the application to learn the users tastes over time. though learning the users tases in outfit the less decision they have to make as option which they desire will be presented to them through th app. This is the key goal of this application to see if the use of this application can improve user satisfaction though learning he users tastes in clothes

Existing apps

When looking at similar apps already in the market, I found that there are very few who tackle the issues my app solves. For the most part outfit application focus more on the social media aspect that being a way to decied outfit. This is seen through combine. With 148,948 ratings in the google play store and a rating of 4.5 this was the most popular outfit application I could find. What this app does Is allow for outfits to be made and stored by the user. Which can be shared on social media.

Another application which is most similar to my idea is shuffle outfits, a small app with a low user base, this application allows for ranomised outfits to be created from a user inputted wardrobes.

From these apps I was inspired by the idea of diaplying the outfits as a visual way of representing an outfit and also using randomised aspects. However my unique innovation to these kinds of app is the intorcution of a neural network. This will give every user more a personalised experience and will learn what the user enjoys over extened use.

The App

I decided that the app would be an android application. This is because the android oS as mention by multiple sources is the majority OS when it comes to smart devices around the world. This will allow for the greatest reach of the application

The design of the application needed to be able to facilitate 3 main features. Firt it need a way for the user to proced random outfit from the neural network and be able to interact with it so the nueral net can learn their tastes. Another feature is the user being able to customise their wadrobe meaning that they can change the item in the wardrobe on a whim. Finally the app would need a way for items of clothing to be added at any point of the app’s usage.

Outfit Randomiser

The main screen of the app is the outfit ranomdiser. It comporise of 3 button which enable the user the user the randomiser. When the user has clothes they press raondomise which will produce and outfit as seen in the example. Once shown the user decies if they like it or not which influences how the weighting of the outfit is in the future. This is done through the changing the weights in the nureal network based on the users response.

Neural Network

The kind of neural network which is used for this app is based of a multiple layer perceptron network. The inputs of which are both the clothes individually and the outfits. This allows for an item to no be popular with the user but to work well with in an specific outfit. A multiple layer network is used as it can allow for deep learning to be used. This helps when learning large amount of data which depends on the isze of the users outfit. The way an outfit is decided and the ranomiser element to the Nueral network is that it iimplimnet a GA feature of fitness and selection. This is where each possible is process throught the network and procdueces a value which is the fitness for that outfit to be liked by the user. Form this a rank selection method is used to which give each oufit in the network a proptional % chance to be chosen based on their fitness. This means outfit with better fitness have a higher chance to be chosen while still allowing less popular outfits from being chosen. This is important as due to taste changing the network needs to be able to datapt. Along with it prevent only one outfit from being chosen if only the best fit out aws chosen.

Adding clothes

This activity facilitates the user adding clothes to the application. This is done through the user filling in the necessary categories being the name of the item, its type and a picture of it to be used as a visual repreesnation of the object. the user can add as many item as they want to the app. When an item is added, the subtible weight and inputs are added to the nueral network to accommodate this.

Addding clothes 2

In the app an outfit is defined by a combination of 3 types of clothing. These bein a top undertop and a bottom. This is a gernal abstaciton of what a general outfit would comprise of. this helps to clearly define the compnets of an outfit. This can be expanded in the future to have more subcategoireos and weighting toward those categoris.

Editing wardrobe

This part gives the user the ability to edit any of the items of clothin which have already been adeed to the app. this means the user can change any mistakes they may have made when inputing the item. Along with this, the ability to delete and item is there for when a item is no longer owner by the user. Delteing the item is done in a way which only affect inputs and weight assoiscated with the item being removed.

Testing the neural net

To test to see if the nueral network was able to fuffill the goal of improving user satisfaction through providing more outfits which the user likes a personal profile was use. This is a fabiracted persons wardrobe with their taste in said wardrobe. This means that there are very predicatbl reposnes to clothes chosen for an outfit. For the personal profile a good outfit it one which exceeds the threshold of the amount items of clothes which the profile likes to wear together. With this profile, the Neural net would be trained agaisnt the profile which simulates the users regular usage of the app. After training it would be tested on a new set of outfits chosen from that current level of learning. Form this a % of good outfit recommened can be produced. To account for variance due to the nature of rank selection. The values found were an average of multiple tests at the same level of training

The reulst

Here the results shows that the neural network is working as intended as there I s a gernal progressing to a more positive % the longer the user uses the application. This shows that when the application does learn the taste of the user. This means that it the user satsifaciton will be higher the longer the app is used as more outfits they desire will appear.

Conclsion

From this I was ale to create an applcaiton which is able to learn the users taste in clothe over extended usage due to using a neural network. This allows for less decions to be made while still allowing more option in clothing to be maintained. To expand on this work in the future, adding more sib type sof clothes could prove beneficial as it can allow for preferences in subtypes of cloths to also be track. Alogn with that if colobarabtive filtering from reccomender system was introcuded the intail learning process could be sped up with by comparing other users of te app with similar tastes. Along with these I could take more inspiration from other copetetiiors in this amrtket such as cpmbyne and their level of presentation.