COSC 625 Project Proposal

Fashion Advisor App

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# User Description

## Brief Description

We are planning to build an android app that helps the user to choose a perfect outfit that fulfill the requirements for a specific occasion. With this app the user can take pictures of the clothes he own and store them to facilitate the decision of what to use, from shoes to hats.

## User Requirements

An app that helps the user to choose an outfit taking in consideration 3 different factors:

1. Information about the activities for the day.
2. Weather information for the day.
3. User preferences.

# System Requirements

The app should:

1. Take and store pictures of single pieces of clothing with its specific information. Such as:
   1. Category
   2. Description
   3. Color
   4. Weather capabilities
   5. Activities to which it can be worn
2. Retrieve information about the weather, and based on it set a list for the best options for that weather.
3. Retrieve information about the activities that the user will do, and set a list for the best options for that occasion.
4. Ability to swipe between the options to allow the user to correct and set his own preferences.
5. Store user preferences and give it priority for next uses.

# Technical Requirements

We are trying to make this app very accessible to most devices, the following are the basic minimum requirements:

1. **Device capabilities**:
   * TouchScreen
   * Camera
2. **RAM**:
   * 1 Gb
3. **Disk**:
   * 16Gb
4. **Display Size**:
   * 4.5”

# Feasibility Study

Since an app with this purpose does not currently exist, there are no examples we can look at to get an idea of how feasible our project is. Instead, we must focus on the features we want and decide how difficult each part is to implement.

Perhaps the most important part of this project will be the ability to match outfits based on some fashion criteria. Researchers at the University of Toronto have created a machine learning algorithm to help identify outfits which are visually appealing based on several fashion factors which researchers identified beforehand. [1] Certainly, we should be able to produce something similar over the span of our project if another university could do it.

Another important aspect when choosing the right outfits for the day is the weather, and we have identified several weather API’s which can be accessed from an Android app. Our options use either JSON or XML to send and receive weather data, which is no problem for the Java code driving our application. Some API’s only provide a limited number of requests over a time period, so we will have to carefully choose the best option for our project from providers like Yahoo, Openweathermap, Weather Underground, and Forcast.io.

For our stretch goals like image recognition and machine learning, there have been many academic articles written on the subjects, so finding the information necessary to realize those parts of the projects should be manageable for our team given enough time. If we decide to move our outfit making work to a remote server, this will be easy to implement. We could easy copy our Java code from the app and move it to a server hosted on AWS or another host with minimal tweaks before being able to use it in production.

# System

This section will discuss the projected goals of the project over the time available.

## Kernel (8 weeks)

At this point, our project should include any activities to drive the program for regular use. Users will be able to input clothing and assign attributes. The occasion and weather will be considered when creating random outfits. Users will have a preferences pane where they can set their idea of cold vs warm vs hot.

## Standard (10 weeks)

An algorithm for good fashion sense will be implemented which tries to generate outfits that look good. A system of thumbs-up and thumbs-down will be implemented to gather data about user’s preferred outfits. This can be used when making choices in the future to help create outfits more tailored to the user’s preferences.

## Super (unknown)

Image recognition will be implemented to make guesses about user’s clothes before they put their own details in. Machine learning will be improved to get the best idea of what the user prefers to wear. An improvement will be made for sophisticated fashion driven matches based on the latest fashion trends. If outfit matching algorithms prove too heavy for mobile devices, this work will be moved to a remote server for computation. A scheduling system will be implemented so that user events can be pulled from the calendar and an outfit can be chosen ahead of time for that event.

# Works Cited

[1] K. Collins, "This algorithm just solved fashion", WIRED UK, 2017. [Online]. Available: http://www.wired.co.uk/article/fashion-solving-algorithm-judges-your-instagram-photos. [Accessed: 11- Mar- 2017].