The University of Memphis   
Computer Science   
**COMP 7/8150-Fundamentals of Data Science**   
Project Proposal: **Memphis weather forecast**

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**PROJECT GOAL AND SCOPE**

The goal of the project is to solve the classification problem of forecasting daily weather of Memphis 24hrs prior in the categories (sunny, rainy, foggy, drizzly, snowy). This solution will be a python program with a high accuracy.

**BACKGROUND/LIT REVIEW**

Weather conditions for a day must meet specific National Oceanic and Atmospheric administration (NOAA) for the weather categories in this classification. The best known and the most popular, weather type classification system was proposed by Woś (1999, 2010). It provides a good characterization of regions in moderate latitudes areas and has a universal nature [1]. According to [2], rare combinations of weather types must be taken into consideration as days with such weather often entail environmental and/or human risks. Snow cover and sultriness were also employed by [3] in their biothermal-meteorological weather classification.

The data set made available by the NOAA consists of years of various observations with many features that effect the weather, among them last year’s data. These and other sources will be used to complete the project successfully. [A proposal WITHOUT this last **caveat** is not acceptable.]

**CASE STUDY**

A classification of weather forecast is done using various classification algorithms like Logistic regression, KNN classifier, SVM and Decision tree [4]. This is key to our project since we will be trying the same kinds of solutions. [A proposal without JUST ONE citation here is not acceptable.]

**TAKE-HOME DELIVERABLE**

A program will be delivered that forecasts daily weather in Memphis 24hrs prior and achieves an accuracy of at least 80% when compared with the ground truth given by the NOAA data.  
[A proposal without an explicit evaluation criterion (like accuracy) and quality threshold (like 80%) is not acceptable.]

**REFERENCES**

[1] Katazyna Piotrowicz, Dominika Ciaranek (2020) A selection of weather type classification systems and examples of their application

[2] Cantat O, Savouret E (2014) A catalog of weather types in metropolitan France. Climatologie 11:65–71

[3] Błażejczyk K, Matzarakis A (2007) Assessment of bioclimatic differentiation of Poland based on the human heat balance. Geogr Pol 80(1):63–82

[4] (https://www.kaggle.com/code/sanjoymondal0/weather-prediction-classification-model)