

# Machine Learning Assignment 1

Dr Burcu Can

February, 2021

## 1 The Dataset

A table that shows the music genre preference of each person whose name, country, age, and gender are given as a table as follows:

NAME	AGE	COUNTRY	GENDER	MUSIC GENRE
James	20	Germany	M	Rock
Tony	22	Germany	M	Rock
Mason	30	UK	M	Jazz
Mary	20	Germany	F	Rock
Scarlett	26	UK	F	Jazz
Ken	18	Spain	M	Pop
Lily	30	UK	F	Jazz
Audrey	16	UK	F	Pop
Hazel	18	Spain	F	Pop
Evelyn	18	Spain	M	Pop

## 2 Task 1

- Build a kNN classifier ( $k=3$ ) by hand. Suppose we want to predict the music genre preference of a new person with the following details: (Jane, Spain, F, 22). Calculate by hand which music genre Jane will possibly like.
- Choosing the ML toolkit of your choice, build a kNN classifier and compare the results with your results obtained from the hand-built classifier.

### 3 Task 2

- Build a Naive Bayes classifier by hand. Suppose again we want to predict the music genre preference of the same person (Jane, Spain, F, 22). Calculate by hand which music genre Jane will possibly like.
- Choosing the ML toolkit of your choice, build a Naive Bayes classifier and compare the results with your results obtained from the hand-built classifier.

### 4 Report

Write a report on your findings. Enclose your manual steps and your code.

### 5 Submission Information

- Length: A report of maximum 1,000 words in total
- The source code also has to be submitted along with the report.
- Format of the files to be submitted: a zip folder including your report in .pdf format, and your source codes.
- Deadline: 10 June 2021, 12pm (GMT)
- Submitted via Canvas

### 6 Marking

- Task 1: 45% (20% manual classification + 25% implementation)
- Task 2: 45% (20% manual classification + 25% implementation)
- Overall report: 10%