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EMOTION DETECTION

Data Collection

Audio Recording

Used an online voice recorder as in Project 2 Part 2 for recording audio

Data Diversity

Recorded 3 minutes of data by each member in different emotions

Binary Classes

Performing binary emotion classification into sad or angry

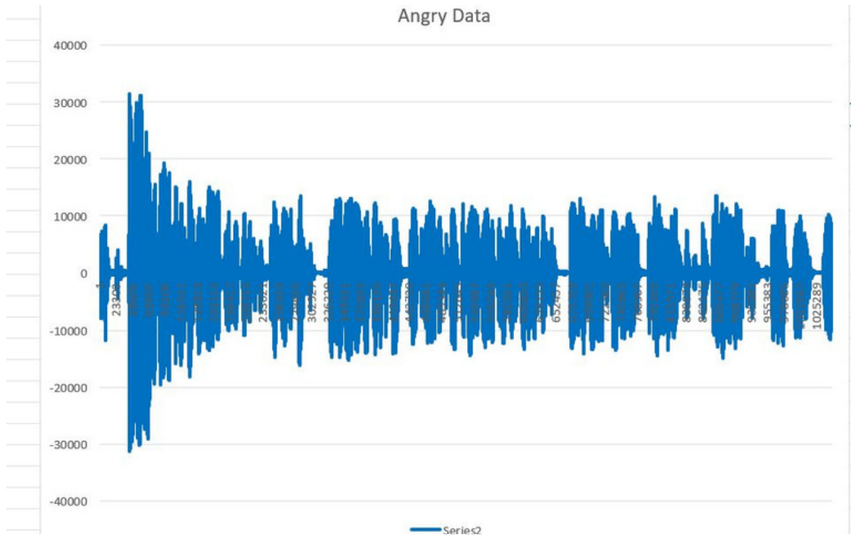
Features Used

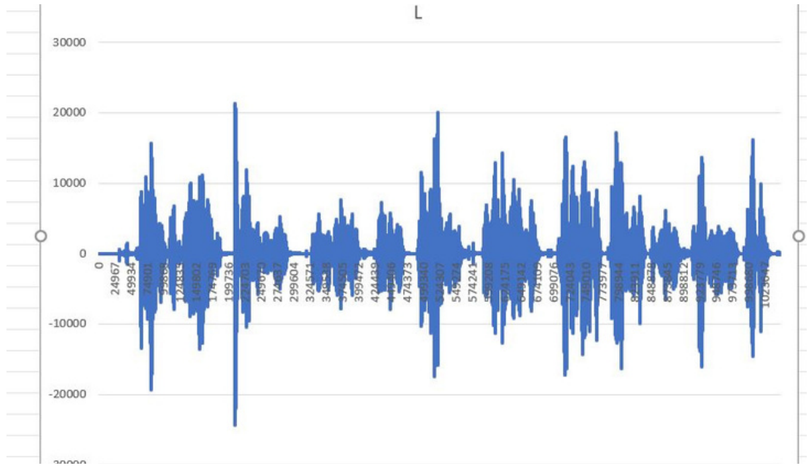
- MIN
- INTENSITY
- MAX
- MFCC

Model

Decision Tree for Binary Classification

The project uses binary labels: "sad" and "angry"





Evaluation Measures

Cross Validation

Using 10-fold cross validation

Confusion Matrix

Predicting accuracy, precision and recall

Results

Command Prompt

```
-------------------- Decision Tree ------------------------
old 0 : Training decision tree classifier over 1447 points...
valuating classifier over 161 points...
ccuracy: 0.782608695652174
recision: [0.85858586 0.66129032]
ecall: [0.80188679 0.74545455]
old 1 : Training decision tree classifier over 1447 points...
valuating classifier over 161 points...
ccuracy: 0.8012422360248447
recision: [0.94949495 0.56451613]
ecall: [0.7768595 0.875    ]
old 2 : Training decision tree classifier over 1447 points...
valuating classifier over 161 points...
ccuracy: 0.8198757763975155
recision: [0.95192308 0.57894737]
ecall: [0.80487805 0.86842105]
old 3 : Training decision tree classifier over 1447 points...
valuating classifier over 161 points...
ccuracy: 0.8074534161490683
recision: [0.90816327 0.65079365]
ecall: [0.8018018 0.82     ]
old 4 : Training decision tree classifier over 1447 points...
valuating classifier over 161 points...
ccuracy: 0.8136645962732919
recision: [0.91089109 0.65      ]
ecall: [0.81415929 0.8125    ]
old 5 : Training decision tree classifier over 1447 points...
valuating classifier over 161 points...
ccuracy: 0.782608695652174
recision: [0.96875    0.50769231]
ecall: [0.744      0.91666667]
old 6 : Training decision tree classifier over 1447 points...
valuating classifier over 161 points...
ccuracy: 0.7639751552795031
recision: [0.83157895 0.66666667]
ecall: [0.78217822 0.73333333]
old 7 : Training decision tree classifier over 1447 points...
valuating classifier over 161 points...
ccuracy: 0.8074534161490683
recision: [0.9009901 0.65     ]
ecall: [0.8125     0.79591837]
old 8 : Training decision tree classifier over 1448 points...
valuating classifier over 160 points...
ccuracy: 0.7875
recision: [0.91588785 0.52830189]
ecall: [0.79674797 0.75675676]
old 9 : Training decision tree classifier over 1448 points...
valuating classifier over 160 points...
ccuracy: 0.80625
```

Results

Command Prompt

```
Accuracy: 0.8136645962732919
Precision: [0.91089109 0.65      ]
Recall: [0.81415929 0.8125    ]
Fold 5 : Training decision tree classifier over 1447 points...
Evaluating classifier over 161 points...
Accuracy: 0.782608695652174
Precision: [0.96875    0.50769231]
Recall: [0.744      0.91666667]
Fold 6 : Training decision tree classifier over 1447 points...
Evaluating classifier over 161 points...
Accuracy: 0.7639751552795031
Precision: [0.83157895 0.66666667]
Recall: [0.78217822 0.73333333]
Fold 7 : Training decision tree classifier over 1447 points...
Evaluating classifier over 161 points...
Accuracy: 0.8074534161490683
Precision: [0.9009901 0.65     ]
Recall: [0.8125     0.79591837]
Fold 8 : Training decision tree classifier over 1448 points...
Evaluating classifier over 160 points...
Accuracy: 0.7875
Precision: [0.91588785 0.52830189]
Recall: [0.79674797 0.75675676]
Fold 9 : Training decision tree classifier over 1448 points...
Evaluating classifier over 160 points...
Accuracy: 0.80625
Precision: [0.97       0.53333333]
Recall: [0.776      0.91428571]
The average accuracy is 0.7972631987577639
The average precision is [0.91662651 0.59915417]
The average recall is [0.79110116 0.82383364]
[[97  3]
 [28 32]]
Training decision tree classifier on entire dataset...

C:\Users\Charvi Attri\Documents\CS328 - Mobile Health\Final Project>
```