WitchMusic

GITHUB LINK :

HTTPS://GITHUB.COM/VIDHYAL/WITCHMUSIC

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OVERVIEW

- PROJECT SELECTION
- WHAT IS WITCHMUSIC ?
- THE DATASET – MILLION SONG DATASET.
- LICENSE – THE MIT LICENSE
- USERS

WHAT'S OUT THERE ?

- MUSICMOOD
  - HTTPS://GITHUB.COM/RASBT/MUSICMOOD
  - DATASET- THE MILLION SONG DATASET
  - BINARY CLASSIFICATION
- GENRETRON
  - HTTPS://GITHUB.COM/CRMNE/GENRETRON
  - DATASET-GTZAN DATASET
  - GENRE CLASSIFICATION
- GENREXPOSE
  - HTTPS://GITHUB.COM/JAZDEV/GENREXPOSE
  - DATASET-GTZAN DATASET
  - GENRE CLASSIFICATION

WORK-FLOW

- DATA EXTRACTION
- PREPROCESSING
  - NORMALISATION
  - FEATURE SELECTION
- MODELS
  - GAUSSIAN NAÏVE BAYES
  - LOGISTIC REGRESSION
  - MULTILAYER PERCEPTRONS
  - SUPPORT VECTOR MACHINES
  - DECISION TREE
  - COMBINATION MODEL
- GRIDSEARCH
- TESTING

10 GENRE CLASSIFICATION GAUSSIAN NAÏVE BAYES

```
Training Accuracy of Gaussian Naive Bayes= 0.388814517329

[[ 10   0   2   2   4   1   4   0  16]
 [  3   4   1  19   2   0  13   0  29]
 [  4   0   7   7  15  13   2   4  47]
 [  3   7   4 124  11  21  14  36  93]
 [ 21   4  14  35  73  20   7  30 146]
 [  7   1   5  16  13  19  17  13 120]
 [  0   1   0   2   2   0  33   1  19]
 [  1   0   0  27   6  11   3  40  38]
 [ 16  11  26  53  41  66 234  33 490]]

 Test Accuracy of Gaussian Naive Bayes = 0.357622
```

10 GENRE CLASSIFICATION LOGISTIC REGRESSION

```
Training Accuracy of Logistic Regression =0.503941692697

[[  1   0   0   0   8   0   0   0  30]
 [  0   2   0  19   3   0   0   0  47]
 [  0   0   0   9  15   0   0   0  75]
 [  0   4   0 151  15   1   0   1 141]
 [  0   2   1  21  93   1   0   1 231]
 [  0   0   0  17  17   1   0   2 174]
 [  0   0   0   2   1   0   0   0  55]
 [  0   0   0  26  20   0   0   6  74]
 [  1   4   1  45  40   1   0   0 878]]

 Test Accuracy of Logistic Regression = 0.506035
```

10 GENRE CLASSIFICATION MULTI LAYER PERCEPTRON

```
Training Accuracy of MultiLayer Perceptron = 0.512568793693

[[  0   0   0   0  10   0   0   0  29]
 [  0   3   0  17   3   0   0   1  47]
 [  0   0   0  10  19   0   0   0  70]
 [  0   4   0 162  19   0   0   5 123]
 [  0   4   0  25 115   0   0   5 201]
 [  0   0   0  25  20   0   0   2 164]
 [  0   0   0   2   1   0   0   1  54]
 [  0   0   0  35  21   0   0  14  56]
 [  1   5   0  60  54   0   0   2 848]]

 Test Accuracy of MultiLayer Perceptron = 0.510505
```

10 GENRE CLASSIFICATION SUPPORT VECTOR MACHINE

```
Training Accuracy of Support Vector Machine = 0.582329317269

[[  0   0   0   1  10  10   0   0  28]
 [  0   0   0  16   3   0   0   0  52]
 [  0   0   0   5  12   0   0   2  80]
 [  0   2   0 163  14   0   0   2 132]
 [  0   0   0  13 102   0   0   8 227]
 [  0   0   0  22  14   0   0   1 174]
 [  0   0   0   2   0   0   0   0  56]
 [  0   0   0  29  13   0   0  25  59]
 [  0   0   0  55  40   0   0   1 874]]

 Test Accuracy of support Vector Machine = 0.520340
```

10 GENRE CLASSIFICATION DECISION TREE

```
Training Accuracy of DecisionTree Classifier = 1.0

[[  3   0   1   4  11   4   1   0  15]
 [  0   5   5  10  11  12   4   4  20]
 [  4   1   7   6  16  11   1   3  50]
 [  4  12   7  93  34  28   6  31  98]
 [  7   8  21  41 100  24   4  19 126]
 [  2   7   8  24  33  23   6   9  99]
 [  0   0   1   1   3   7   8   0  38]
 [  4   3   5  30  17  14   2  23  28]
 [ 15  23  43 106 129  96  40  39 479]]

 Test Accuracy of Decision Tree  = 0.331247
```

10 GENRE CLASSIFICATION COMBINATION METHOD

```
[[  4  11   3   4   0   0  15   1   0   1]
 [ 10  11   0  11   0   4  22   4   5   4]
 [  6  16   4  11   0   3  50   7   1   1]
 [ 93  34   4  28   0  31  98   7  12   6]
 [ 41 100   7  24   0  19 126  21   8   4]
 [  0   0   0   0   0   0   0   0   0   0]
 [ 24  33   2  23   0   9 101   8   7   4]
 [  1   3   0   7   0   0  39   1   0   7]
 [ 30  17   4  14   0  23  28   5   3   2]
 [106 128  15  95   0  39 483  43  22  39]]

 Test Accuracy of Combine Method = 0.085382
```

6 GENRE CLASSIFICATION GAUSSIAN NAÏVE BAYES

```
Training Accuracy of Gaussian Naive Bayes= 0.5323895984

[[  5  15  10   1   3  39]
 [  8 136  16  17  53  87]
 [ 13  27 161  27  26 118]
 [  9  14  27  33  14 140]
 [  0  15  12   6  55  42]
 [ 18  58 122  56  38 743]]

 Test Accuracy of Gaussian Naive Bayes = 0.523567
```

6 GENRE CLASSIFICATION LOGISTIC REGRESSION

```
Training Accuracy of Logistic Regression =0.567164179104

[[  3  13   7   0   1  49]
 [  3 159  14   1   9 131]
 [  1  25 126   0   5 215]
 [  1  17  19   2   3 195]
 [  0  35  10   0  16  69]
 [  9  41  61   3   3 918]]

 Test Accuracy of Logistic Regression = 0.565619
```

6 GENRE CLASSIFICATION MULTI LAYER PERCEPTRON

```
Training Accuracy of MultiLayer Perceptron = 0.581474072934

[[  6  14   9   0   1  43]
 [  4 187  15   3   9  99]
 [  2  32 148   0   5 185]
 [  0  20  27   2   6 182]
 [  0  44  17   0  21  48]
 [  6  62  74   6   5 882]]

 Test Accuracy of MultiLayer Perceptron = 0.575786
```

6 GENRE CLASSIFICATION SUPPORT VECTOR MACHINE

```
Training Accuracy of Support Vector Machine = 0.662101861825

[[  1  15   7   0   0  50]
 [  2 182  18   0   5 110]
 [  0  16 144   0   4 208]
 [  0  18  17   0   3 199]
 [  0  29  15   0  31  55]
 [  3  50  50   0   3 929]]

 Test Accuracy of support Vector Machine = 0.520340
```

6 GENRE CLASSIFICATION DECISION TREE

```
Training Accuracy of DecisionTree Classifier = 1.0

[[  4  13  11  11   3  31]
 [ 16 110  38  36  36  81]
 [ 14  36 117  48  31 126]
 [ 11  24  36  45  10 111]
 [  8  28  21  13  21  39]
 [ 27 113 155 105  44 591]]

 Test Accuracy of Decision Tree  = 0.410351
```

6 GENRE CLASSIFICATION COMBINATION METHOD

```
[[ 12  10  35   3   4   9]
 [132  36  84  30   5  30]
 [ 34 131 135  27  10  35]
 [ 25  35 123   8   6  40]
 [ 27  21  43  21   6  12]
 [ 74 122 716  32  15  76]]

 Test Accuracy of Combine Method = 0.126155
```

TO SUM IT UP

- ISSUES
  - DATA DISPARITY
  - BUG IN COMBINE METHOD
- WHAT WE LEARNT
  - OPEN SOURCE
  - PYTHON
  - SCIKIT LEARN
  - GIT HUB
- WHAT'S NEXT ?
  - IMPROVED FEATURE MANIPULATION
  - WEIGHT BALANCED TRAINING
  - FEATURE EXTRACTION FROM AUDIO TRACKS
  - CLASSIFICATION BASED ON LYRICS (ALSO)
  - DEVELOP USER FRIENDLY APPLICATION