* Contrast accuracy for the 2 classifiers and 3 feature types, provide confusion matrices (5 pts)

|  |  |  |  |
| --- | --- | --- | --- |
|  | FTT | MFCC | DWT |
| GNB | 0.30 | 0.38 | 0.21 |
| SVM | 0.17 | 0.46 | 0.13 |

Confusion matrix.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ­ | Blues | Classical | Country | Disco | Hiphop | Jazz | Metal | Pop | Reggae | Rock |
| Blues | 19 | 3 | 24 | 0 | 5 | 14 | 14 | 4 | 4 | 3 |
| Classical | 1 | 36 | 15 | 1 | 12 | 11 | 12 | 1 | 0 | 1 |
| Country | 7 | 0 | 53 | 0 | 0 | 4 | 20 | 3 | 0 | 3 |
| Disco | 3 | 5 | 20 | 1 | 3 | 4 | 48 | 2 | 2 | 2 |
| Hiphop | 7 | 9 | 5 | 4 | 20 | 5 | 16 | 7 | 13 | 4 |
| Jazz | 0 | 5 | 31 | 0 | 7 | 35 | 6 | 4 | 2 | 0 |
| Metal | 3 | 0 | 14 | 4 | 3 | 0 | 60 | 6 | 0 | 0 |
| Pop | 9 | 3 | 19 | 6 | 5 | 3 | 19 | 17 | 0 | 9 |
| Reggae | 7 | 4 | 20 | 2 | 7 | 9 | 10 | 2 | 23 | 6 |
| Rock | 4 | 1 | 18 | 1 | 2 | 6 | 40 | 3 | 13 | 2 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ­ | Blues | Classical | Country | Disco | Hiphop | Jazz | Metal | Pop | Reggae | Rock |
| Blues | 35 | 2 | 8 | 9 | 2 | 4 | 13 | 0 | 9 | 8 |
| Classical | 4 | 37 | 17 | 3 | 1 | 19 | 0 | 2 | 3 | 4 |
| Country | 12 | 3 | 30 | 12 | 0 | 2 | 2 | 6 | 20 | 3 |
| Disco | 4 | 1 | 3 | 42 | 1 | 3 | 5 | 15 | 9 | 7 |
| Hiphop | 14 | 0 | 3 | 13 | 7 | 6 | 2 | 9 | 33 | 3 |
| Jazz | 16 | 9 | 15 | 4 | 1 | 19 | 0 | 5 | 19 | 2 |
| Metal | 4 | 2 | 1 | 9 | 2 | 0 | 66 | 0 | 5 | 1 |
| Pop | 8 | 2 | 4 | 14 | 3 | 0 | 0 | 46 | 10 | 3 |
| Reggae | 6 | 0 | 12 | 5 | 2 | 4 | 3 | 4 | 51 | 3 |
| Rock | 12 | 3 | 14 | 24 | 2 | 0 | 5 | 2 | 15 | 13 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ­ | Blues | Classical | Country | Disco | Hiphop | Jazz | Metal | Pop | Reggae | Rock |
| Blues | 0 | 60 | 10 | 14 | 0 | 0 | 6 | 0 | 0 | 0 |
| Classical | 1 | 71 | 8 | 10 | 0 | 0 | 0 | 0 | 0 | 0 |
| Country | 0 | 57 | 10 | 16 | 1 | 0 | 4 | 2 | 0 | 0 |
| Disco | 0 | 21 | 10 | 28 | 0 | 0 | 27 | 2 | 2 | 0 |
| Hiphop | 0 | 25 | 11 | 13 | 5 | 1 | 16 | 8 | 11 | 0 |
| Jazz | 1 | 52 | 7 | 6 | 0 | 4 | 19 | 0 | 0 | 1 |
| Metal | 0 | 7 | 5 | 23 | 1 | 0 | 54 | 0 | 0 | 0 |
| Pop | 0 | 22 | 17 | 18 | 6 | 0 | 17 | 9 | 1 | 0 |
| Reggae | 0 | 53 | 14 | 5 | 0 | 0 | 8 | 3 | 7 | 0 |
| Rock | 0 | 39 | 7 | 18 | 2 | 0 | 19 | 2 | 3 | 0 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ­ | Blues | Classical | Country | Disco | Hiphop | Jazz | Metal | Pop | Reggae | Rock |
| Blues | 10 | 0 | 50 | 0 | 1 | 3 | 23 | 3 | 0 | 0 |
| Classical | 8 | 5 | 41 | 1 | 5 | 7 | 21 | 1 | 1 | 0 |
| Country | 0 | 0 | 54 | 0 | 0 | 0 | 36 | 0 | 0 | 0 |
| Disco | 1 | 0 | 21 | 0 | 2 | 1 | 64 | 1 | 0 | 0 |
| Hiphop | 2 | 0 | 48 | 0 | 2 | 2 | 34 | 1 | 1 | 0 |
| Jazz | 1 | 0 | 64 | 0 | 0 | 9 | 16 | 0 | 0 | 0 |
| Metal | 0 | 0 | 20 | 0 | 0 | 0 | 70 | 0 | 0 | 0 |
| Pop | 1 | 0 | 51 | 0 | 2 | 0 | 34 | 2 | 0 | 0 |
| Reggae | 0 | 0 | 54 | 1 | 1 | 11 | 16 | 5 | 1 | 1 |
| Rock | 1 | 0 | 33 | 0 | 0 | 4 | 49 | 1 | 0 | 2 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ­ | Blues | Classical | Country | Disco | Hiphop | Jazz | Metal | Pop | Reggae | Rock |
| Blues | 31 | 5 | 10 | 4 | 6 | 5 | 9 | 1 | 8 | 11 |
| Classical | 3 | 65 | 7 | 2 | 0 | 10 | 0 | 1 | 1 | 1 |
| Country | 16 | 10 | 20 | 7 | 0 | 20 | 2 | 5 | 1 | 9 |
| Disco | 3 | 2 | 6 | 47 | 7 | 4 | 2 | 3 | 4 | 12 |
| Hiphop | 3 | 0 | 2 | 8 | 33 | 4 | 5 | 7 | 23 | 5 |
| Jazz | 5 | 19 | 14 | 5 | 7 | 30 | 0 | 3 | 4 | 3 |
| Metal | 8 | 0 | 0 | 4 | 9 | 0 | 65 | 0 | 1 | 3 |
| Pop | 0 | 3 | 6 | 9 | 6 | 2 | 0 | 62 | 1 | 1 |
| Reggae | 10 | 3 | 5 | 6 | 15 | 4 | 3 | 2 | 38 | 4 |
| Rock | 21 | 5 | 5 | 11 | 5 | 8 | 5 | 4 | 4 | 22 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ­ | Blues | Classical | Country | Disco | Hiphop | Jazz | Metal | Pop | Reggae | Rock |
| Blues | 16 | 15 | 18 | 4 | 5 | 10 | 2 | 7 | 7 | 6 |
| Classical | 15 | 13 | 14 | 4 | 6 | 12 | 1 | 9 | 11 | 5 |
| Country | 25 | 9 | 7 | 4 | 12 | 9 | 3 | 9 | 8 | 4 |
| Disco | 17 | 15 | 12 | 4 | 11 | 9 | 1 | 7 | 7 | 7 |
| Hiphop | 13 | 15 | 18 | 3 | 13 | 10 | 0 | 4 | 7 | 7 |
| Jazz | 14 | 13 | 9 | 4 | 3 | 33 | 0 | 3 | 4 | 7 |
| Metal | 14 | 15 | 13 | 1 | 4 | 19 | 12 | 4 | 7 | 1 |
| Pop | 12 | 16 | 14 | 1 | 10 | 14 | 1 | 3 | 7 | 12 |
| Reggae | 18 | 15 | 12 | 5 | 4 | 11 | 1 | 7 | 10 | 7 |
| Rock | 23 | 8 | 22 | 4 | 10 | 8 | 1 | 2 | 7 | 5 |

* Describe results and provide an explanation for bias (5 pts)