In [**4**]: *'N:/sem4/SDR/lab/wavelet/untitled0.py'* =*'N:/sem4/SDR/lab/wavelet'*

Disease ...

Symptom

1. UMLS:C0020538\_hypertensive disease ... UMLS:C0008031\_pain chest
2. NaN ... UMLS:C0392680\_shortness of breath
3. NaN ...

UMLS:C0012833\_dizziness

1. NaN ...

UMLS:C0004093\_asthenia

1. NaN ...

UMLS:C0085639\_fall

... ... ...

...

1861 NaN ...

UMLS:C0425251\_bedridden^UMLS:C0741453\_bedridden 1862 NaN ...

UMLS:C0242453\_prostatism

1863 UMLS:C0011127\_decubitus ulcer ... UMLS:C0232257\_systolic murmur

1864 NaN ...

UMLS:C0871754\_frail

1865 NaN ...

UMLS:C0015967\_fever

[1866 rows x 3 columns]

[328 87 28 ... 361 130 122]

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [[0. | 0. | 0. ... 0. | 0. | 0.] |
| [0. | 0. | 0. ... 0. | 0. | 0.] |
| [0. | 0. | 0. ... 0. | 0. | 0.] |
| ... |  |  |  |  |
| [0. | 0. | 0. ... 0. | 0. | 0.] |
| [0. | 0. | 0. ... 0. | 0. | 0.] |
| [0. | 0. | 0. ... 0. | 0. | 0.]] |

Real Test dataset labels:

16 bipolar disorder

55 endocarditis

124 pneumonia

89 ischemia

32 colitis

92 kidney failure acute

91 kidney disease

118 paranoia

69 hepatitis

1 HIV

80 hypertensive disease

67 hemiparesis

31 cirrhosis

101 manic disorder

94 lymphoma

133 sepsis (invertebrate)

120 paroxysmal�dyspnea

100 malignant�neoplasms

74 hiv infections

33 confusion

64 gastroesophageal reflux disease

41 delirium

88 insufficiency renal

1. delusion
2. dementia

25 cellulitis

102 melanoma

65 glaucoma

128 primary malignant neoplasm

145 transient ischemic attack Name: disease, dtype: object

Predicted Test dataset labels:

['bipolar disorder' 'endocarditis' 'pneumonia' 'ischemia' 'colitis' 'kidney failure acute' 'kidney disease' 'paranoia' 'hepatitis' 'HIV' 'hypertensive disease' 'hemiparesis' 'cirrhosis' 'manic disorder' 'lymphoma' 'sepsis (invertebrate)' 'paroxysmal�dyspnea' 'malignant�neoplasms' 'hiv infections' 'confusion' 'gastroesophageal reflux disease' 'delirium' 'insufficiency renal' 'delusion' 'dementia' 'cellulitis' 'melanoma' 'glaucoma'

'malignant neoplasms' 'transient ischemic attack']

---------------PERFORMANCE ANALYSIS FOR DT CLASSIFIER----------------

precision recall f1-score support

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | HIV | 1.00 | 1.00 | 1.00 | 1 |
| bipolar | disorder | 1.00 | 1.00 | 1.00 | 1 |
| cellulitis | | 1.00 | 1.00 | 1.00 | 1 |
| cirrhosis | | 1.00 | 1.00 | 1.00 | 1 |
| colitis | | 1.00 | 1.00 | 1.00 | 1 |
| confusion | | 1.00 | 1.00 | 1.00 | 1 |
| delirium | | 1.00 | 1.00 | 1.00 | 1 |
| delusion | | 1.00 | 1.00 | 1.00 | 1 |
| dementia | | 1.00 | 1.00 | 1.00 | 1 |
| endocarditis | | 1.00 | 1.00 | 1.00 | 1 |
| gastroesophageal reflux disease | | 1.00 | 1.00 | 1.00 | 1 |
| glaucoma | | 1.00 | 1.00 | 1.00 | 1 |
| hemiparesis | | 1.00 | 1.00 | 1.00 | 1 |
| hepatitis | | 1.00 | 1.00 | 1.00 | 1 |
| hiv infections | | 1.00 | 1.00 | 1.00 | 1 |
| hypertensive disease | | 1.00 | 1.00 | 1.00 | 1 |
| insufficiency renal | | 1.00 | 1.00 | 1.00 | 1 |
| ischemia | | 1.00 | 1.00 | 1.00 | 1 |
| kidney disease | | 1.00 | 1.00 | 1.00 | 1 |
| kidney failure acute | | 1.00 | 1.00 | 1.00 | 1 |
| lymphoma | | 1.00 | 1.00 | 1.00 | 1 |
| malignant neoplasms | | 0.00 | 0.00 | 0.00 | 0 |
| malignant�neoplasms | | 1.00 | 1.00 | 1.00 | 1 |
| manic disorder | | 1.00 | 1.00 | 1.00 | 1 |
| melanoma | | 1.00 | 1.00 | 1.00 | 1 |
| paranoia | | 1.00 | 1.00 | 1.00 | 1 |
| paroxysmal�dyspnea | | 1.00 | 1.00 | 1.00 | 1 |
| pneumonia | | 1.00 | 1.00 | 1.00 | 1 |
| primary malignant neoplasm | | 0.00 | 0.00 | 0.00 | 1 |
| sepsis (invertebrate) | | 1.00 | 1.00 | 1.00 | 1 |
| transient ischemic attack | | 1.00 | 1.00 | 1.00 | 1 |
| accuracy | |  |  | 0.97 | 30 |
| macro avg | | 0.94 | 0.94 | 0.94 | 30 |
| weighted avg | | 0.97 | 0.97 | 0.97 | 30 |

---------------PERFORMANCE ANALYSIS FOR NB CLASSIFIER----------------

Real Test dataset labels:

16 bipolar disorder

55 endocarditis

124 pneumonia

89 ischemia

32 colitis

92 kidney failure acute

91 kidney disease

118 paranoia

69 hepatitis

1 HIV

80 hypertensive disease

67 hemiparesis

31 cirrhosis

101 manic disorder

94 lymphoma

133 sepsis (invertebrate)

120 paroxysmal�dyspnea

100 malignant�neoplasms

74 hiv infections

33 confusion

64 gastroesophageal reflux disease

41 delirium

88 insufficiency renal

1. delusion
2. dementia

25 cellulitis

102 melanoma

65 glaucoma

128 primary malignant neoplasm

145 transient ischemic attack Name: disease, dtype: object

Predicted Test dataset labels:

['bipolar disorder' 'endocarditis' 'pneumonia' 'ischemia' 'colitis' 'kidney failure acute' 'kidney disease' 'paranoia' 'hepatitis' 'HIV' 'hypertensive disease' 'hemiparesis' 'cirrhosis' 'manic disorder' 'lymphoma' 'sepsis (invertebrate)' 'paroxysmal�dyspnea' 'malignant�neoplasms' 'hiv infections' 'confusion' 'gastroesophageal reflux disease' 'delirium' 'insufficiency renal' 'delusion' 'dementia' 'cellulitis' 'melanoma' 'glaucoma'

'malignant neoplasms' 'transient ischemic attack']

If someone is genuinely found to have a sickness, they must visit a doctor or physician, which is timeconsuming and costly as well.  It canadditionally be challenging for the user to contact doctors  and hospitals, making it impossible to find the sickness.Since the aforementioned process can be completed with

a computerised programme that reduces time and resources, it might benefit the patient to take. The procedure is seamless.

shrewd health forecastingis an online software that anticipates a user's

based on their signs of disease, the

The user or patient feels.

a bundle of data for the Smart

There is a Health Prediction Framework available from several websites that deal with health

precision recall f1-score support HIV 1.00 1.00 1.00 1

bipolar disorder 1.00 1.00 1.00 1

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| cellulitis | 1.00 | 1.00 | 1.00 | 1 |
| cirrhosis | 1.00 | 1.00 | 1.00 | 1 |
| colitis | 1.00 | 1.00 | 1.00 | 1 |
| confusion | 1.00 | 1.00 | 1.00 | 1 |
| delirium | 1.00 | 1.00 | 1.00 | 1 |
| delusion | 1.00 | 1.00 | 1.00 | 1 |
| dementia | 1.00 | 1.00 | 1.00 | 1 |
| endocarditis | 1.00 | 1.00 | 1.00 | 1 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| gastroesophageal reflux disease | 1.00 | 1.00 | 1.00 | 1 |
| glaucoma | 1.00 | 1.00 | 1.00 | 1 |
| hemiparesis | 1.00 | 1.00 | 1.00 | 1 |
| hepatitis | 1.00 | 1.00 | 1.00 | 1 |
| hiv infections | 1.00 | 1.00 | 1.00 | 1 |
| hypertensive disease | 1.00 | 1.00 | 1.00 | 1 |
| insufficiency renal | 1.00 | 1.00 | 1.00 | 1 |
| ischemia | 1.00 | 1.00 | 1.00 | 1 |
| kidney disease | 1.00 | 1.00 | 1.00 | 1 |
| kidney failure acute | 1.00 | 1.00 | 1.00 | 1 |
| lymphoma | 1.00 | 1.00 | 1.00 | 1 |
| malignant neoplasms | 0.00 | 0.00 | 0.00 | 0 |
| malignant�neoplasms | 1.00 | 1.00 | 1.00 | 1 |
| manic disorder | 1.00 | 1.00 | 1.00 | 1 |
| melanoma | 1.00 | 1.00 | 1.00 | 1 |
| paranoia | 1.00 | 1.00 | 1.00 | 1 |
| paroxysmal�dyspnea | 1.00 | 1.00 | 1.00 | 1 |
| pneumonia | 1.00 | 1.00 | 1.00 | 1 |
| primary malignant neoplasm | 0.00 | 0.00 | 0.00 | 1 |
| sepsis (invertebrate) | 1.00 | 1.00 | 1.00 | 1 |
| transient ischemic attack | 1.00 | 1.00 | 1.00 | 1 |
| accuracy |  |  | 0.97 | 30 |
| macro avg | 0.94 | 0.94 | 0.94 | 30 |
| weighted avg | 0.97 | 0.97 | 0.97 | 30 |

---------------PERFORMANCE ANALYSIS FOR KNN CLASSIFIER----------------

Real Test dataset labels:

16 bipolar disorder

55 endocarditis

124 pneumonia

89 ischemia

32 colitis

92 kidney failure acute

91 kidney disease

118 paranoia

69 hepatitis

1 HIV

80 hypertensive disease

67 hemiparesis

31 cirrhosis

101 manic disorder

94 lymphoma

133 sepsis (invertebrate)

120 paroxysmal�dyspnea

100 malignant�neoplasms

74 hiv infections

33 confusion

64 gastroesophageal reflux disease

41 delirium

88 insufficiency renal

1. delusion
2. dementia

25 cellulitis

102 melanoma

65 glaucoma

128 primary malignant neoplasm

145 transient ischemic attack

Name: disease, dtype: object

Predicted Test dataset labels:

['anxiety state' 'decubitus ulcer' 'acquired�immuno-deficiency syndrome' 'coronary arteriosclerosis' 'colitis' 'accident�cerebrovascular' 'affect labile' 'decubitus ulcer' 'decubitus ulcer' 'HIV'

'coronary arteriosclerosis' 'accident�cerebrovascular' 'cirrhosis' 'affect labile' 'decubitus ulcer' 'decubitus ulcer' 'cardiomyopathy' 'benign prostatic hypertrophy' 'HIV' 'accident�cerebrovascular'

'decubitus ulcer' 'decubitus ulcer' 'decubitus ulcer' 'decubitus ulcer'

'affect labile' 'affect labile' 'cholelithiasis' 'decubitus ulcer' 'biliary calculus' 'accident�cerebrovascular']

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | precision | recall | f1-score | support |
| HIV | 0.50 | 1.00 | 0.67 | 1 |
| accident�cerebrovascular | 0.00 | 0.00 | 0.00 | 0 |
| acquired�immuno-deficiency syndrome | 0.00 | 0.00 | 0.00 | 0 |
| affect labile | 0.00 | 0.00 | 0.00 | 0 |
| anxiety state | 0.00 | 0.00 | 0.00 | 0 |
| benign prostatic hypertrophy | 0.00 | 0.00 | 0.00 | 0 |
| biliary calculus | 0.00 | 0.00 | 0.00 | 0 |
| bipolar disorder | 0.00 | 0.00 | 0.00 | 1 |
| cardiomyopathy | 0.00 | 0.00 | 0.00 | 0 |
| cellulitis | 0.00 | 0.00 | 0.00 | 1 |
| cholelithiasis | 0.00 | 0.00 | 0.00 | 0 |
| cirrhosis | 1.00 | 1.00 | 1.00 | 1 |
| colitis | 1.00 | 1.00 | 1.00 | 1 |
| confusion | 0.00 | 0.00 | 0.00 | 1 |
| coronary arteriosclerosis | 0.00 | 0.00 | 0.00 | 0 |
| decubitus ulcer | 0.00 | 0.00 | 0.00 | 0 |
| delirium | 0.00 | 0.00 | 0.00 | 1 |
| delusion | 0.00 | 0.00 | 0.00 | 1 |
| dementia | 0.00 | 0.00 | 0.00 | 1 |
| endocarditis | 0.00 | 0.00 | 0.00 | 1 |
| gastroesophageal reflux disease | 0.00 | 0.00 | 0.00 | 1 |
| glaucoma | 0.00 | 0.00 | 0.00 | 1 |
| hemiparesis | 0.00 | 0.00 | 0.00 | 1 |
| hepatitis | 0.00 | 0.00 | 0.00 | 1 |
| hiv infections | 0.00 | 0.00 | 0.00 | 1 |
| hypertensive disease | 0.00 | 0.00 | 0.00 | 1 |
| insufficiency renal | 0.00 | 0.00 | 0.00 | 1 |
| ischemia | 0.00 | 0.00 | 0.00 | 1 |
| kidney disease | 0.00 | 0.00 | 0.00 | 1 |
| kidney failure acute | 0.00 | 0.00 | 0.00 | 1 |
| lymphoma | 0.00 | 0.00 | 0.00 | 1 |
| malignant�neoplasms | 0.00 | 0.00 | 0.00 | 1 |
| manic disorder | 0.00 | 0.00 | 0.00 | 1 |
| melanoma | 0.00 | 0.00 | 0.00 | 1 |
| paranoia | 0.00 | 0.00 | 0.00 | 1 |
| paroxysmal�dyspnea | 0.00 | 0.00 | 0.00 | 1 |
| pneumonia | 0.00 | 0.00 | 0.00 | 1 |
| primary malignant neoplasm | 0.00 | 0.00 | 0.00 | 1 |
| sepsis (invertebrate) | 0.00 | 0.00 | 0.00 | 1 |
| transient ischemic attack | 0.00 | 0.00 | 0.00 | 1 |
| accuracy |  |  | 0.10 | 30 |
| macro avg | 0.06 | 0.07 | 0.07 | 30 |

weighted avg 0.08 0.10 0.09 30

---------------PERFORMANCE ANALYSIS FOR SVM CLASSIFIER----------------

Real Test dataset labels:

16 bipolar disorder

55 endocarditis

124 pneumonia

89 ischemia

32 colitis

92 kidney failure acute

91 kidney disease

118 paranoia

69 hepatitis

1 HIV

80 hypertensive disease

67 hemiparesis

31 cirrhosis

101 manic disorder

94 lymphoma

133 sepsis (invertebrate)

120 paroxysmal�dyspnea

100 malignant�neoplasms

74 hiv infections

33 confusion

64 gastroesophageal reflux disease

41 delirium

88 insufficiency renal

1. delusion
2. dementia

25 cellulitis

102 melanoma

65 glaucoma

128 primary malignant neoplasm

145 transient ischemic attack Name: disease, dtype: object

Predicted Test dataset labels:

['bipolar disorder' 'endocarditis' 'pneumonia' 'ischemia' 'colitis' 'kidney failure acute' 'kidney disease' 'paranoia' 'hepatitis' 'HIV' 'hypertensive disease' 'hemiparesis' 'cirrhosis' 'manic disorder' 'lymphoma' 'sepsis (invertebrate)' 'paroxysmal�dyspnea' 'malignant�neoplasms' 'hiv infections' 'confusion' 'gastroesophageal reflux disease' 'delirium' 'insufficiency renal' 'delusion' 'dementia' 'cellulitis' 'melanoma' 'glaucoma'

'primary malignant neoplasm' 'transient ischemic attack']

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | precision | recall | f1-score | support |
| HIV | 1.00 | 1.00 | 1.00 | 1 |
| bipolar disorder | 1.00 | 1.00 | 1.00 | 1 |
| cellulitis | 1.00 | 1.00 | 1.00 | 1 |
| cirrhosis | 1.00 | 1.00 | 1.00 | 1 |
| colitis | 1.00 | 1.00 | 1.00 | 1 |
| confusion | 1.00 | 1.00 | 1.00 | 1 |
| delirium | 1.00 | 1.00 | 1.00 | 1 |
| delusion | 1.00 | 1.00 | 1.00 | 1 |
| dementia | 1.00 | 1.00 | 1.00 | 1 |
| endocarditis | 1.00 | 1.00 | 1.00 | 1 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| gastroesophageal reflux disease | 1.00 | 1.00 | 1.00 | 1 |
| glaucoma | 1.00 | 1.00 | 1.00 | 1 |
| hemiparesis | 1.00 | 1.00 | 1.00 | 1 |
| hepatitis | 1.00 | 1.00 | 1.00 | 1 |
| hiv infections | 1.00 | 1.00 | 1.00 | 1 |
| hypertensive disease | 1.00 | 1.00 | 1.00 | 1 |
| insufficiency renal | 1.00 | 1.00 | 1.00 | 1 |
| ischemia | 1.00 | 1.00 | 1.00 | 1 |
| kidney disease | 1.00 | 1.00 | 1.00 | 1 |
| kidney failure acute | 1.00 | 1.00 | 1.00 | 1 |
| lymphoma | 1.00 | 1.00 | 1.00 | 1 |
| malignant�neoplasms | 1.00 | 1.00 | 1.00 | 1 |
| manic disorder | 1.00 | 1.00 | 1.00 | 1 |
| melanoma | 1.00 | 1.00 | 1.00 | 1 |
| paranoia | 1.00 | 1.00 | 1.00 | 1 |
| paroxysmal�dyspnea | 1.00 | 1.00 | 1.00 | 1 |
| pneumonia | 1.00 | 1.00 | 1.00 | 1 |
| primary malignant neoplasm | 1.00 | 1.00 | 1.00 | 1 |
| sepsis (invertebrate) | 1.00 | 1.00 | 1.00 | 1 |
| transient ischemic attack | 1.00 | 1.00 | 1.00 | 1 |
| accuracy |  |  | 1.00 | 30 |
| macro avg | 1.00 | 1.00 | 1.00 | 30 |
| weighted avg | 1.00 | 1.00 | 1.00 | 30 |
| Pred: coronary arteriosclerosis |  |  |  |  |

Actual: coronary heart disease

Pred: depression mental Actual: depressive disorder

Pred: malignant neoplasms

Actual: primary malignant neoplasm

Pred: septicemia

Actual: systemic infection

In [**5**]:

