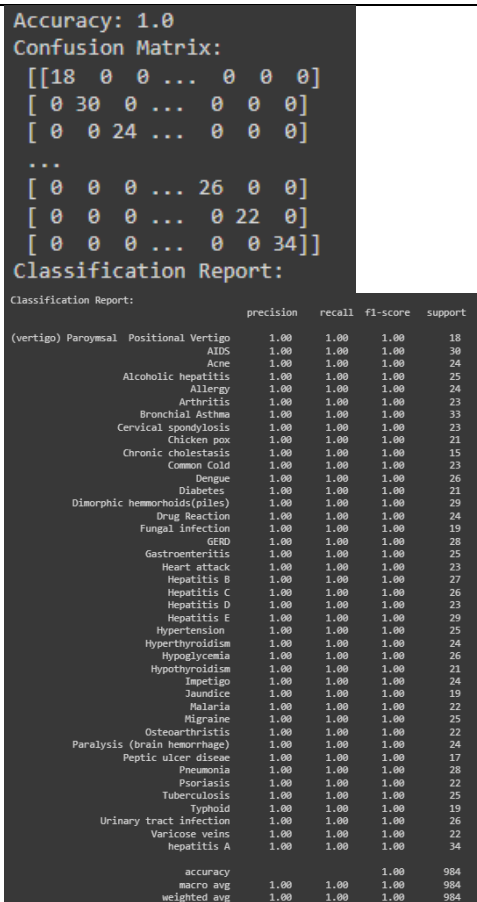
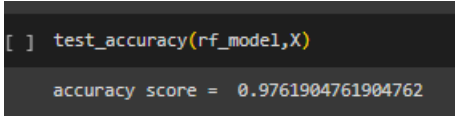


Project Development Phase Model Performance Test

Date	8 th November 2023
Team ID	PNT2022TMID592629
Project Name	Project - Disease Prediction Using Machine Learning
Maximum Marks	10 Marks

Model Performance Testing:

Project team shall fill the following information in model performance testing template.

S.No.	Parameter	Values	Screenshot
1.	Metrics	1)RandomForest Model: Classification Model: Confusion Matrix - , Accuray Score- & Classification Report –	 <pre> Accuracy: 1.0 Confusion Matrix: [[18 0 0 ... 0 0 0] [0 30 0 ... 0 0 0] [0 0 24 ... 0 0 0] ... [0 0 0 ... 26 0 0] [0 0 0 ... 0 22 0] [0 0 0 ... 0 0 34]] Classification Report: precision recall f1-score support (vertigo) Parosymal Positional Vertigo 1.00 1.00 1.00 18 AIDS 1.00 1.00 1.00 30 Acne 1.00 1.00 1.00 24 Alcoholic hepatitis 1.00 1.00 1.00 25 Allergy 1.00 1.00 1.00 24 Arthritis 1.00 1.00 1.00 23 Bronchial Asthma 1.00 1.00 1.00 33 Cervical spondylosis 1.00 1.00 1.00 23 Chicken pox 1.00 1.00 1.00 21 Chronic cholestasis 1.00 1.00 1.00 15 Common Cold 1.00 1.00 1.00 23 Dengue 1.00 1.00 1.00 26 Diabetes 1.00 1.00 1.00 21 Dimorphic hemorrhoids(piles) 1.00 1.00 1.00 29 Drug Reaction 1.00 1.00 1.00 24 Fungal infection 1.00 1.00 1.00 19 GERD 1.00 1.00 1.00 28 Gastroenteritis 1.00 1.00 1.00 25 Heart attack 1.00 1.00 1.00 23 Hepatitis B 1.00 1.00 1.00 27 Hepatitis C 1.00 1.00 1.00 26 Hepatitis D 1.00 1.00 1.00 23 Hepatitis E 1.00 1.00 1.00 29 Hypertension 1.00 1.00 1.00 25 Hyperthyroidism 1.00 1.00 1.00 24 Hypoglycemia 1.00 1.00 1.00 26 Hypothyroidism 1.00 1.00 1.00 21 Impetigo 1.00 1.00 1.00 24 Jaundice 1.00 1.00 1.00 19 Malaria 1.00 1.00 1.00 22 Migraine 1.00 1.00 1.00 25 Osteoarthritis 1.00 1.00 1.00 22 Paralysis (brain hemorrhage) 1.00 1.00 1.00 24 Peptic ulcer disease 1.00 1.00 1.00 17 Pneumonia 1.00 1.00 1.00 28 Psoriasis 1.00 1.00 1.00 22 Tuberculosis 1.00 1.00 1.00 25 Typhoid 1.00 1.00 1.00 19 Urinary tract infection 1.00 1.00 1.00 26 Varicose veins 1.00 1.00 1.00 22 hepatitis A 1.00 1.00 1.00 34 accuracy 1.00 1.00 984 macro avg 1.00 1.00 984 weighted avg 1.00 1.00 984 </pre>  <pre> [] test_accuracy(rf_model,X) accuracy score = 0.9761904761904762 </pre>

2)DecisionTreeClassifier:

Classification Model:

Confusion Matrix - ,
Accuracy Score- &
Classification Report –

```
Accuracy: 1.0
Confusion Matrix:
[[18  0  0 ...  0  0  0]
 [ 0 30  0 ...  0  0  0]
 [ 0  0 24 ...  0  0  0]
 ...
 [ 0  0  0 ... 26  0  0]
 [ 0  0  0 ...  0 22  0]
 [ 0  0  0 ...  0  0 34]]
```

```
Classification Report:
              precision    recall  f1-score   support

(vertigo) Paroxysmal Positional Vertigo      1.00      1.00      1.00        18
              AIDC      1.00      1.00      1.00        30
              Acne      1.00      1.00      1.00        24
      Alcoholic hepatitis      1.00      1.00      1.00        25
              Allergy      1.00      1.00      1.00        24
              Arthritis      1.00      1.00      1.00        23
      Bronchial Asthma      1.00      1.00      1.00        33
      Cervical spondylosis      1.00      1.00      1.00        23
              Chicken pox      1.00      1.00      1.00        21
      Chronic cholestasis      1.00      1.00      1.00        15
              Common Cold      1.00      1.00      1.00        23
              Dengue      1.00      1.00      1.00        26
              Diabetes      1.00      1.00      1.00        21
      Dimorphic hemorrhoids(piles)      1.00      1.00      1.00        29
              Drug Reaction      1.00      1.00      1.00        24
      Fungal infection      1.00      1.00      1.00        19
              GERD      1.00      1.00      1.00        28
      Gastroenteritis      1.00      1.00      1.00        25
              Heart attack      1.00      1.00      1.00        23
              Hepatitis B      1.00      1.00      1.00        27
              Hepatitis C      1.00      1.00      1.00        26
              Hepatitis D      1.00      1.00      1.00        23
              Hepatitis E      1.00      1.00      1.00        29
              Hypertension      1.00      1.00      1.00        25
              Hypothyroidism      1.00      1.00      1.00        21
              Hyperthyroidism      1.00      1.00      1.00        24
              Hypoglycemia      1.00      1.00      1.00        26
              Hypothyroidism      1.00      1.00      1.00        21
              Impetigo      1.00      1.00      1.00        24
              Jaundice      1.00      1.00      1.00        19
              Malaria      1.00      1.00      1.00        22
              Migraine      1.00      1.00      1.00        25
              Osteoarthritis      1.00      1.00      1.00        22
      Paralysis (brain hemorrhage)      1.00      1.00      1.00        24
      Peptic ulcer disease      1.00      1.00      1.00        17
              Pneumonia      1.00      1.00      1.00        28
              Psoriasis      1.00      1.00      1.00        22
              Tuberculosis      1.00      1.00      1.00        25
              Typhoid      1.00      1.00      1.00        19
      Urinary tract infection      1.00      1.00      1.00        26
      Varicose veins      1.00      1.00      1.00        22
              Hepatitis A      1.00      1.00      1.00        34

   accuracy                   1.00          984
  macro avg                   1.00          984
 weighted avg                   1.00          984
```

```
[ ] test_accuracy(dt_model,X)

accuracy score = 0.9761904761904762
```

3) KneighborsClassifier:

Classification Model:

Confusion Matrix - ,
Accuracy Score- &
Classification Report –

```
Accuracy: 1.0
Confusion Matrix:
[[18  0  0 ...  0  0  0]
 [ 0 30  0 ...  0  0  0]
 [ 0  0 24 ...  0  0  0]
 ...
 [ 0  0  0 ... 26  0  0]
 [ 0  0  0 ...  0 22  0]
 [ 0  0  0 ...  0  0 34]]
```

4) SVC

Confusion Matrix - ,
Accuracy Score- &
Classification Report –

```
Classification Report:
              precision    recall  f1-score   support

 (vertigo) Parosymal   Positional Vertigo      1.00      1.00      1.00        18
                    Allergy      1.00      1.00      1.00        30
                    Acne      1.00      1.00      1.00        24
                    Alcoholic hepatitis      1.00      1.00      1.00        25
                    Allergy      1.00      1.00      1.00        24
                    Arthritis      1.00      1.00      1.00        23
                    Bronchial Asthma      1.00      1.00      1.00        33
                    Cervical spondylosis      1.00      1.00      1.00        23
                    Chicken pox      1.00      1.00      1.00        23
                    Chronic cholelithiasis      1.00      1.00      1.00        15
                    Common Cold      1.00      1.00      1.00        23
                    Dengue      1.00      1.00      1.00        26
                    Diabetes      1.00      1.00      1.00        21
                    Dimorphic hemorhoids(piles)      1.00      1.00      1.00        29
                    Drug Reaction      1.00      1.00      1.00        24
                    Fungal infection      1.00      1.00      1.00        19
                    GERD      1.00      1.00      1.00        28
                    Gastroenteritis      1.00      1.00      1.00        25
                    Heart attack      1.00      1.00      1.00        23
                    Hepatitis B      1.00      1.00      1.00        27
                    Hepatitis C      1.00      1.00      1.00        26
                    Hepatitis D      1.00      1.00      1.00        23
                    Hepatitis E      1.00      1.00      1.00        29
                    Hypertension      1.00      1.00      1.00        25
                    Hyperthyroidism      1.00      1.00      1.00        24
                    Hypoglycemia      1.00      1.00      1.00        26
                    Hypothyroidism      1.00      1.00      1.00        21
                    Jaundice      1.00      1.00      1.00        19
                    Malaria      1.00      1.00      1.00        22
                    Migraine      1.00      1.00      1.00        25
                    Osteoarthritis      1.00      1.00      1.00        22
                    Paralysis (brain hemorrhage)      1.00      1.00      1.00        24
                    Peptic ulcer disease      1.00      1.00      1.00        17
                    Pneumonia      1.00      1.00      1.00        26
                    Psoriasis      1.00      1.00      1.00        22
                    Tuberculosis      1.00      1.00      1.00        25
                    Typhoid      1.00      1.00      1.00        19
                    Urinary tract infection      1.00      1.00      1.00        26
                    Varicose veins      1.00      1.00      1.00        22
                    hepatitis A      1.00      1.00      1.00        34

 accuracy              1.00      1.00      1.00      984
 macro avg              1.00      1.00      1.00      984
 weighted avg           1.00      1.00      1.00      984
```

```
[ ] test_accuracy(knn,X)

accuracy score = 1.0
```

```
Accuracy: 1.0
Confusion Matrix:
[[18  0  0 ...  0  0  0]
 [ 0 30  0 ...  0  0  0]
 [ 0  0 24 ...  0  0  0]
 ...
 [ 0  0  0 ... 26  0  0]
 [ 0  0  0 ...  0 22  0]
 [ 0  0  0 ...  0  0 34]]
```

```
Classification Report:
              precision    recall  f1-score   support

 (vertigo) Parosymal   Positional Vertigo      1.00      1.00      1.00        18
                    Allergy      1.00      1.00      1.00        30
                    Acne      1.00      1.00      1.00        24
                    Alcoholic hepatitis      1.00      1.00      1.00        25
                    Allergy      1.00      1.00      1.00        24
                    Arthritis      1.00      1.00      1.00        23
                    Bronchial Asthma      1.00      1.00      1.00        33
                    Cervical spondylosis      1.00      1.00      1.00        23
                    Chicken pox      1.00      1.00      1.00        21
                    Chronic cholelithiasis      1.00      1.00      1.00        15
                    Common Cold      1.00      1.00      1.00        23
                    Dengue      1.00      1.00      1.00        26
                    Diabetes      1.00      1.00      1.00        21
                    Dimorphic hemorhoids(piles)      1.00      1.00      1.00        29
                    Drug Reaction      1.00      1.00      1.00        24
                    Fungal infection      1.00      1.00      1.00        19
                    GERD      1.00      1.00      1.00        28
                    Gastroenteritis      1.00      1.00      1.00        25
                    Heart attack      1.00      1.00      1.00        23
                    Hepatitis B      1.00      1.00      1.00        27
                    Hepatitis C      1.00      1.00      1.00        26
                    Hepatitis D      1.00      1.00      1.00        23
                    Hepatitis E      1.00      1.00      1.00        29
                    Hypertension      1.00      1.00      1.00        25
                    Hyperthyroidism      1.00      1.00      1.00        24
                    Hypoglycemia      1.00      1.00      1.00        26
                    Hypothyroidism      1.00      1.00      1.00        21
                    Jaundice      1.00      1.00      1.00        19
                    Malaria      1.00      1.00      1.00        22
                    Migraine      1.00      1.00      1.00        25
                    Osteoarthritis      1.00      1.00      1.00        22
                    Paralysis (brain hemorrhage)      1.00      1.00      1.00        24
                    Peptic ulcer disease      1.00      1.00      1.00        17
                    Pneumonia      1.00      1.00      1.00        26
                    Psoriasis      1.00      1.00      1.00        22
                    Tuberculosis      1.00      1.00      1.00        25
                    Typhoid      1.00      1.00      1.00        19
                    Urinary tract infection      1.00      1.00      1.00        26
                    Varicose veins      1.00      1.00      1.00        22
                    hepatitis A      1.00      1.00      1.00        34

 accuracy              1.00      1.00      1.00      984
 macro avg              1.00      1.00      1.00      984
 weighted avg           1.00      1.00      1.00      984
```

```
test_accuracy(svm,X)

accuracy score = 1.0
```

2	Tune the Model	Hyperparameter Tuning - Validation Method -	<p>Random forest model:</p> <pre> accuracy score = 0.9761984761984762 precision recall f1-score support (vertigo) Parosymal Positional Vertigo 1.00 1.00 1.00 1 AIDS 1.00 1.00 1.00 1 Acne 1.00 1.00 1.00 1 Alcoholic hepatitis 1.00 1.00 1.00 1 Allergy 1.00 1.00 1.00 1 Arthritis 1.00 1.00 1.00 1 Bronchial Asthma 1.00 1.00 1.00 1 Cervical spondylolisis 1.00 1.00 1.00 1 Chicken pox 0.50 1.00 0.67 1 Chronic cholestasis 1.00 1.00 1.00 1 Common Cold 1.00 1.00 1.00 1 Dengue 1.00 1.00 1.00 1 Diabetes 1.00 1.00 1.00 1 Dimorphic hemorrhoids(piles) 1.00 1.00 1.00 1 Drug Reaction 1.00 1.00 1.00 1 Fungal infection 1.00 0.50 0.67 2 GERD 1.00 1.00 1.00 1 Gastroenteritis 1.00 1.00 1.00 1 Heart attack 1.00 1.00 1.00 1 Hepatitis B 1.00 1.00 1.00 1 Hepatitis C 1.00 1.00 1.00 1 Hepatitis D 1.00 1.00 1.00 1 Hepatitis E 1.00 1.00 1.00 1 Hypertension 1.00 1.00 1.00 1 Hyperthyroidism 1.00 1.00 1.00 1 Hypocycemia 1.00 1.00 1.00 1 Hypothyroidism 1.00 1.00 1.00 1 Jaecitip 1.00 1.00 1.00 1 Jaundice 1.00 1.00 1.00 1 Malaria 1.00 1.00 1.00 1 Migraine 1.00 1.00 1.00 1 Osteoarthritis 1.00 1.00 1.00 1 Paralysis (brain hemorrhage) 1.00 1.00 1.00 1 Peptic ulcer disease 1.00 1.00 1.00 1 Pneumonia 1.00 1.00 1.00 1 Psoriasis 1.00 1.00 1.00 1 Tuberculosis 1.00 1.00 1.00 1 Typhoid 1.00 1.00 1.00 1 Urinary tract infection 1.00 1.00 1.00 1 Varicose veins 1.00 1.00 1.00 1 hepatitis A 1.00 1.00 1.00 1 accuracy 0.98 42 macro avg 0.99 0.99 0.98 42 weighted avg 0.99 0.98 0.98 42 </pre>
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