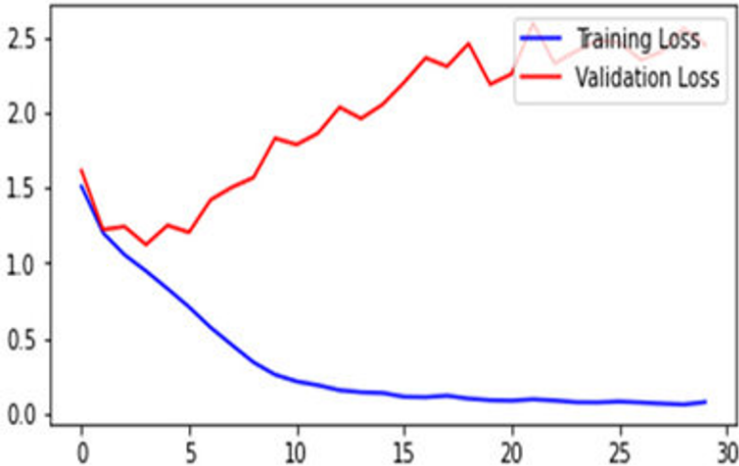
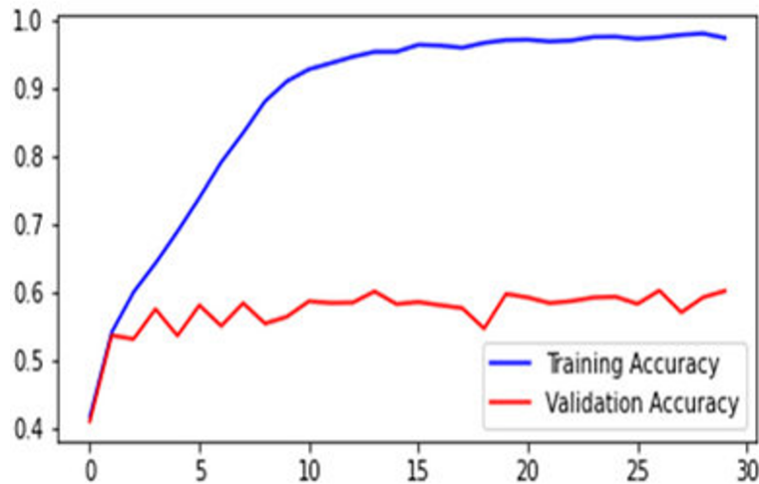
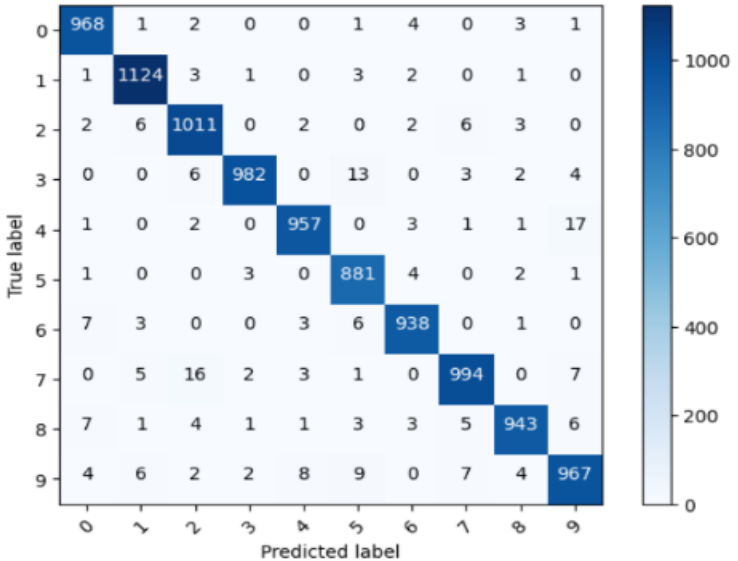


## Project Development Phase Model Performance Test

|               |  |
|---------------|--|
| Date          | 10 November 2022   |
| Team ID       | PNT2022TMID03914   |
| Project Name  | Project - A Novel Method For Handwritten Digit Recognition System. |
| Maximum Marks | 10 Marks   |

### Model Performance Testing:

| S.No. | Parameter     | Values   | Screenshot  |       |               |                 |   |     |     |   |     |     |    |     |     |    |     |     |    |     |     |    |     |     |    |     |     |
|-------|---------------|--|---|-------|---------------|-----------------|---|-----|-----|---|-----|-----|----|-----|-----|----|-----|-----|----|-----|-----|----|-----|-----|----|-----|-----|
| 1.    | Model Summary | -  | <div><pre>Model: "sequential"  Layer (type)                 Output Shape              Param # ----- conv2d (Conv2D)              (None, 26, 26, 64)        640 conv2d_1 (Conv2D)            (None, 24, 24, 32)        18464 flatten (Flatten)            (None, 18432)              0 dense (Dense)                (None, 10)                184330 ----- Total params: 203,434 Trainable params: 203,434 Non-trainable params: 0</pre></div>   |       |               |                 |   |     |     |   |     |     |    |     |     |    |     |     |    |     |     |    |     |     |    |     |     |
| 2.    | Accuracy      | Training Accuracy - 99%<br><br>Validation Accuracy - 97% |  <table border="1"><caption>Approximate Loss Values from Graph</caption><thead><tr><th>Epoch</th><th>Training Loss</th><th>Validation Loss</th></tr></thead><tbody><tr><td>0</td><td>1.5</td><td>1.6</td></tr><tr><td>5</td><td>0.8</td><td>1.3</td></tr><tr><td>10</td><td>0.3</td><td>1.8</td></tr><tr><td>15</td><td>0.2</td><td>2.2</td></tr><tr><td>20</td><td>0.1</td><td>2.3</td></tr><tr><td>25</td><td>0.1</td><td>2.1</td></tr><tr><td>30</td><td>0.1</td><td>2.4</td></tr></tbody></table> | Epoch | Training Loss | Validation Loss | 0 | 1.5 | 1.6 | 5 | 0.8 | 1.3 | 10 | 0.3 | 1.8 | 15 | 0.2 | 2.2 | 20 | 0.1 | 2.3 | 25 | 0.1 | 2.1 | 30 | 0.1 | 2.4 |
| Epoch | Training Loss | Validation Loss  |   |       |               |                 |   |     |     |   |     |     |    |     |     |    |     |     |    |     |     |    |     |     |    |     |     |
| 0     | 1.5           | 1.6  |   |       |               |                 |   |     |     |   |     |     |    |     |     |    |     |     |    |     |     |    |     |     |    |     |     |
| 5     | 0.8           | 1.3  |   |       |               |                 |   |     |     |   |     |     |    |     |     |    |     |     |    |     |     |    |     |     |    |     |     |
| 10    | 0.3           | 1.8  |   |       |               |                 |   |     |     |   |     |     |    |     |     |    |     |     |    |     |     |    |     |     |    |     |     |
| 15    | 0.2           | 2.2  |   |       |               |                 |   |     |     |   |     |     |    |     |     |    |     |     |    |     |     |    |     |     |    |     |     |
| 20    | 0.1           | 2.3  |   |       |               |                 |   |     |     |   |     |     |    |     |     |    |     |     |    |     |     |    |     |     |    |     |     |
| 25    | 0.1           | 2.1  |   |       |               |                 |   |     |     |   |     |     |    |     |     |    |     |     |    |     |     |    |     |     |    |     |     |
| 30    | 0.1           | 2.4  |   |       |               |                 |   |     |     |   |     |     |    |     |     |    |     |     |    |     |     |    |     |     |    |     |     |

|              |                       |        |   |         |           |        |          |         |     |      |      |      |     |   |      |      |      |      |   |      |      |      |      |   |      |      |      |      |   |      |      |      |     |   |      |      |      |     |   |      |      |      |     |   |      |      |      |      |   |      |      |      |     |    |      |      |      |      |          |   |   |      |       |           |      |      |      |       |              |      |      |      |       |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |    |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |
|--------------|-----------------------|--------|---|---------|-----------|--------|----------|---------|-----|------|------|------|-----|---|------|------|------|------|---|------|------|------|------|---|------|------|------|------|---|------|------|------|-----|---|------|------|------|-----|---|------|------|------|-----|---|------|------|------|------|---|------|------|------|-----|----|------|------|------|------|----------|---|---|------|-------|-----------|------|------|------|-------|--------------|------|------|------|-------|---|---|-----|---|---|---|---|---|---|---|---|---|---|---|-----|---|---|---|---|---|---|----|---|---|---|---|-----|---|---|---|---|---|---|---|---|---|---|---|-----|---|---|---|---|---|---|---|---|---|---|---|-----|
| 3.           | Confusion Matrix      |        | <p>Confusion matrix</p>  <table><thead><tr><th></th><th>0</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th><th>9</th></tr></thead><tbody><tr><th>0</th><td>968</td><td>1</td><td>2</td><td>0</td><td>0</td><td>1</td><td>4</td><td>0</td><td>3</td><td>1</td></tr><tr><th>1</th><td>1</td><td>1124</td><td>3</td><td>1</td><td>0</td><td>3</td><td>2</td><td>0</td><td>1</td><td>0</td></tr><tr><th>2</th><td>2</td><td>6</td><td>1011</td><td>0</td><td>2</td><td>0</td><td>2</td><td>6</td><td>3</td><td>0</td></tr><tr><th>3</th><td>0</td><td>0</td><td>6</td><td>982</td><td>0</td><td>13</td><td>0</td><td>3</td><td>2</td><td>4</td></tr><tr><th>4</th><td>1</td><td>0</td><td>2</td><td>0</td><td>957</td><td>0</td><td>3</td><td>1</td><td>1</td><td>17</td></tr><tr><th>5</th><td>1</td><td>0</td><td>0</td><td>3</td><td>0</td><td>881</td><td>4</td><td>0</td><td>2</td><td>1</td></tr><tr><th>6</th><td>7</td><td>3</td><td>0</td><td>0</td><td>3</td><td>6</td><td>938</td><td>0</td><td>1</td><td>0</td></tr><tr><th>7</th><td>0</td><td>5</td><td>16</td><td>2</td><td>3</td><td>1</td><td>0</td><td>994</td><td>0</td><td>7</td></tr><tr><th>8</th><td>7</td><td>1</td><td>4</td><td>1</td><td>1</td><td>3</td><td>3</td><td>5</td><td>943</td><td>6</td></tr><tr><th>9</th><td>4</td><td>6</td><td>2</td><td>2</td><td>8</td><td>9</td><td>0</td><td>7</td><td>4</td><td>967</td></tr></tbody></table> <p>True label</p> <p>Predicted label</p> |         | 0         | 1      | 2        | 3       | 4   | 5    | 6    | 7    | 8   | 9 | 0    | 968  | 1    | 2    | 0 | 0    | 1    | 4    | 0    | 3 | 1    | 1    | 1    | 1124 | 3 | 1    | 0    | 3    | 2   | 0 | 1    | 0    | 2    | 2   | 6 | 1011 | 0    | 2    | 0   | 2 | 6    | 3    | 0    | 3    | 0 | 0    | 6    | 982  | 0   | 13 | 0    | 3    | 2    | 4    | 4        | 1 | 0 | 2    | 0     | 957       | 0    | 3    | 1    | 1     | 17           | 5    | 1    | 0    | 0     | 3 | 0 | 881 | 4 | 0 | 2 | 1 | 6 | 7 | 3 | 0 | 0 | 3 | 6 | 938 | 0 | 1 | 0 | 7 | 0 | 5 | 16 | 2 | 3 | 1 | 0 | 994 | 0 | 7 | 8 | 7 | 1 | 4 | 1 | 1 | 3 | 3 | 5 | 943 | 6 | 9 | 4 | 6 | 2 | 2 | 8 | 9 | 0 | 7 | 4 | 967 |
|              | 0                     | 1      | 2   | 3       | 4         | 5      | 6        | 7       | 8   | 9    |      |      |     |   |      |      |      |      |   |      |      |      |      |   |      |      |      |      |   |      |      |      |     |   |      |      |      |     |   |      |      |      |     |   |      |      |      |      |   |      |      |      |     |    |      |      |      |      |          |   |   |      |       |           |      |      |      |       |              |      |      |      |       |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |    |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |
| 0            | 968                   | 1      | 2   | 0       | 0         | 1      | 4        | 0       | 3   | 1    |      |      |     |   |      |      |      |      |   |      |      |      |      |   |      |      |      |      |   |      |      |      |     |   |      |      |      |     |   |      |      |      |     |   |      |      |      |      |   |      |      |      |     |    |      |      |      |      |          |   |   |      |       |           |      |      |      |       |              |      |      |      |       |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |    |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |
| 1            | 1                     | 1124   | 3   | 1       | 0         | 3      | 2        | 0       | 1   | 0    |      |      |     |   |      |      |      |      |   |      |      |      |      |   |      |      |      |      |   |      |      |      |     |   |      |      |      |     |   |      |      |      |     |   |      |      |      |      |   |      |      |      |     |    |      |      |      |      |          |   |   |      |       |           |      |      |      |       |              |      |      |      |       |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |    |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |
| 2            | 2                     | 6      | 1011  | 0       | 2         | 0      | 2        | 6       | 3   | 0    |      |      |     |   |      |      |      |      |   |      |      |      |      |   |      |      |      |      |   |      |      |      |     |   |      |      |      |     |   |      |      |      |     |   |      |      |      |      |   |      |      |      |     |    |      |      |      |      |          |   |   |      |       |           |      |      |      |       |              |      |      |      |       |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |    |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |
| 3            | 0                     | 0      | 6   | 982     | 0         | 13     | 0        | 3       | 2   | 4    |      |      |     |   |      |      |      |      |   |      |      |      |      |   |      |      |      |      |   |      |      |      |     |   |      |      |      |     |   |      |      |      |     |   |      |      |      |      |   |      |      |      |     |    |      |      |      |      |          |   |   |      |       |           |      |      |      |       |              |      |      |      |       |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |    |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |
| 4            | 1                     | 0      | 2   | 0       | 957       | 0      | 3        | 1       | 1   | 17   |      |      |     |   |      |      |      |      |   |      |      |      |      |   |      |      |      |      |   |      |      |      |     |   |      |      |      |     |   |      |      |      |     |   |      |      |      |      |   |      |      |      |     |    |      |      |      |      |          |   |   |      |       |           |      |      |      |       |              |      |      |      |       |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |    |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |
| 5            | 1                     | 0      | 0   | 3       | 0         | 881    | 4        | 0       | 2   | 1    |      |      |     |   |      |      |      |      |   |      |      |      |      |   |      |      |      |      |   |      |      |      |     |   |      |      |      |     |   |      |      |      |     |   |      |      |      |      |   |      |      |      |     |    |      |      |      |      |          |   |   |      |       |           |      |      |      |       |              |      |      |      |       |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |    |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |
| 6            | 7                     | 3      | 0   | 0       | 3         | 6      | 938      | 0       | 1   | 0    |      |      |     |   |      |      |      |      |   |      |      |      |      |   |      |      |      |      |   |      |      |      |     |   |      |      |      |     |   |      |      |      |     |   |      |      |      |      |   |      |      |      |     |    |      |      |      |      |          |   |   |      |       |           |      |      |      |       |              |      |      |      |       |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |    |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |
| 7            | 0                     | 5      | 16  | 2       | 3         | 1      | 0        | 994     | 0   | 7    |      |      |     |   |      |      |      |      |   |      |      |      |      |   |      |      |      |      |   |      |      |      |     |   |      |      |      |     |   |      |      |      |     |   |      |      |      |      |   |      |      |      |     |    |      |      |      |      |          |   |   |      |       |           |      |      |      |       |              |      |      |      |       |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |    |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |
| 8            | 7                     | 1      | 4   | 1       | 1         | 3      | 3        | 5       | 943 | 6    |      |      |     |   |      |      |      |      |   |      |      |      |      |   |      |      |      |      |   |      |      |      |     |   |      |      |      |     |   |      |      |      |     |   |      |      |      |      |   |      |      |      |     |    |      |      |      |      |          |   |   |      |       |           |      |      |      |       |              |      |      |      |       |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |    |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |
| 9            | 4                     | 6      | 2   | 2       | 8         | 9      | 0        | 7       | 4   | 967  |      |      |     |   |      |      |      |      |   |      |      |      |      |   |      |      |      |      |   |      |      |      |     |   |      |      |      |     |   |      |      |      |     |   |      |      |      |      |   |      |      |      |     |    |      |      |      |      |          |   |   |      |       |           |      |      |      |       |              |      |      |      |       |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |    |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |
| 4.           | Classification Report |        | <table><thead><tr><th></th><th>precision</th><th>recall</th><th>f1-score</th><th>support</th></tr></thead><tbody><tr><td>0</td><td>1.00</td><td>0.97</td><td>0.98</td><td>980</td></tr><tr><td>1</td><td>0.99</td><td>0.99</td><td>0.99</td><td>1135</td></tr><tr><td>2</td><td>0.96</td><td>0.99</td><td>0.97</td><td>1032</td></tr><tr><td>3</td><td>0.97</td><td>1.00</td><td>0.98</td><td>1010</td></tr><tr><td>4</td><td>1.00</td><td>0.95</td><td>0.98</td><td>982</td></tr><tr><td>5</td><td>0.96</td><td>1.00</td><td>0.98</td><td>892</td></tr><tr><td>6</td><td>0.99</td><td>0.96</td><td>0.97</td><td>958</td></tr><tr><td>7</td><td>0.99</td><td>0.98</td><td>0.99</td><td>1028</td></tr><tr><td>8</td><td>0.99</td><td>0.99</td><td>0.99</td><td>974</td></tr><tr><td>9</td><td>0.97</td><td>0.99</td><td>0.98</td><td>1009</td></tr><tr><td>accuracy</td><td></td><td></td><td>0.98</td><td>10000</td></tr><tr><td>macro avg</td><td>0.98</td><td>0.98</td><td>0.98</td><td>10000</td></tr><tr><td>weighted avg</td><td>0.98</td><td>0.98</td><td>0.98</td><td>10000</td></tr></tbody></table>  |         | precision | recall | f1-score | support | 0   | 1.00 | 0.97 | 0.98 | 980 | 1 | 0.99 | 0.99 | 0.99 | 1135 | 2 | 0.96 | 0.99 | 0.97 | 1032 | 3 | 0.97 | 1.00 | 0.98 | 1010 | 4 | 1.00 | 0.95 | 0.98 | 982 | 5 | 0.96 | 1.00 | 0.98 | 892 | 6 | 0.99 | 0.96 | 0.97 | 958 | 7 | 0.99 | 0.98 | 0.99 | 1028 | 8 | 0.99 | 0.99 | 0.99 | 974 | 9  | 0.97 | 0.99 | 0.98 | 1009 | accuracy |   |   | 0.98 | 10000 | macro avg | 0.98 | 0.98 | 0.98 | 10000 | weighted avg | 0.98 | 0.98 | 0.98 | 10000 |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |    |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |
|              | precision             | recall | f1-score  | support |           |        |          |         |     |      |      |      |     |   |      |      |      |      |   |      |      |      |      |   |      |      |      |      |   |      |      |      |     |   |      |      |      |     |   |      |      |      |     |   |      |      |      |      |   |      |      |      |     |    |      |      |      |      |          |   |   |      |       |           |      |      |      |       |              |      |      |      |       |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |    |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |
| 0            | 1.00                  | 0.97   | 0.98  | 980     |           |        |          |         |     |      |      |      |     |   |      |      |      |      |   |      |      |      |      |   |      |      |      |      |   |      |      |      |     |   |      |      |      |     |   |      |      |      |     |   |      |      |      |      |   |      |      |      |     |    |      |      |      |      |          |   |   |      |       |           |      |      |      |       |              |      |      |      |       |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |    |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |
| 1            | 0.99                  | 0.99   | 0.99  | 1135    |           |        |          |         |     |      |      |      |     |   |      |      |      |      |   |      |      |      |      |   |      |      |      |      |   |      |      |      |     |   |      |      |      |     |   |      |      |      |     |   |      |      |      |      |   |      |      |      |     |    |      |      |      |      |          |   |   |      |       |           |      |      |      |       |              |      |      |      |       |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |    |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |
| 2            | 0.96                  | 0.99   | 0.97  | 1032    |           |        |          |         |     |      |      |      |     |   |      |      |      |      |   |      |      |      |      |   |      |      |      |      |   |      |      |      |     |   |      |      |      |     |   |      |      |      |     |   |      |      |      |      |   |      |      |      |     |    |      |      |      |      |          |   |   |      |       |           |      |      |      |       |              |      |      |      |       |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |    |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |
| 3            | 0.97                  | 1.00   | 0.98  | 1010    |           |        |          |         |     |      |      |      |     |   |      |      |      |      |   |      |      |      |      |   |      |      |      |      |   |      |      |      |     |   |      |      |      |     |   |      |      |      |     |   |      |      |      |      |   |      |      |      |     |    |      |      |      |      |          |   |   |      |       |           |      |      |      |       |              |      |      |      |       |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |    |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |
| 4            | 1.00                  | 0.95   | 0.98  | 982     |           |        |          |         |     |      |      |      |     |   |      |      |      |      |   |      |      |      |      |   |      |      |      |      |   |      |      |      |     |   |      |      |      |     |   |      |      |      |     |   |      |      |      |      |   |      |      |      |     |    |      |      |      |      |          |   |   |      |       |           |      |      |      |       |              |      |      |      |       |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |    |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |
| 5            | 0.96                  | 1.00   | 0.98  | 892     |           |        |          |         |     |      |      |      |     |   |      |      |      |      |   |      |      |      |      |   |      |      |      |      |   |      |      |      |     |   |      |      |      |     |   |      |      |      |     |   |      |      |      |      |   |      |      |      |     |    |      |      |      |      |          |   |   |      |       |           |      |      |      |       |              |      |      |      |       |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |    |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |
| 6            | 0.99                  | 0.96   | 0.97  | 958     |           |        |          |         |     |      |      |      |     |   |      |      |      |      |   |      |      |      |      |   |      |      |      |      |   |      |      |      |     |   |      |      |      |     |   |      |      |      |     |   |      |      |      |      |   |      |      |      |     |    |      |      |      |      |          |   |   |      |       |           |      |      |      |       |              |      |      |      |       |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |    |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |
| 7            | 0.99                  | 0.98   | 0.99  | 1028    |           |        |          |         |     |      |      |      |     |   |      |      |      |      |   |      |      |      |      |   |      |      |      |      |   |      |      |      |     |   |      |      |      |     |   |      |      |      |     |   |      |      |      |      |   |      |      |      |     |    |      |      |      |      |          |   |   |      |       |           |      |      |      |       |              |      |      |      |       |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |    |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |
| 8            | 0.99                  | 0.99   | 0.99  | 974     |           |        |          |         |     |      |      |      |     |   |      |      |      |      |   |      |      |      |      |   |      |      |      |      |   |      |      |      |     |   |      |      |      |     |   |      |      |      |     |   |      |      |      |      |   |      |      |      |     |    |      |      |      |      |          |   |   |      |       |           |      |      |      |       |              |      |      |      |       |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |    |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |
| 9            | 0.97                  | 0.99   | 0.98  | 1009    |           |        |          |         |     |      |      |      |     |   |      |      |      |      |   |      |      |      |      |   |      |      |      |      |   |      |      |      |     |   |      |      |      |     |   |      |      |      |     |   |      |      |      |      |   |      |      |      |     |    |      |      |      |      |          |   |   |      |       |           |      |      |      |       |              |      |      |      |       |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |    |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |
| accuracy     |                       |        | 0.98  | 10000   |           |        |          |         |     |      |      |      |     |   |      |      |      |      |   |      |      |      |      |   |      |      |      |      |   |      |      |      |     |   |      |      |      |     |   |      |      |      |     |   |      |      |      |      |   |      |      |      |     |    |      |      |      |      |          |   |   |      |       |           |      |      |      |       |              |      |      |      |       |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |    |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |
| macro avg    | 0.98                  | 0.98   | 0.98  | 10000   |           |        |          |         |     |      |      |      |     |   |      |      |      |      |   |      |      |      |      |   |      |      |      |      |   |      |      |      |     |   |      |      |      |     |   |      |      |      |     |   |      |      |      |      |   |      |      |      |     |    |      |      |      |      |          |   |   |      |       |           |      |      |      |       |              |      |      |      |       |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |    |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |
| weighted avg | 0.98                  | 0.98   | 0.98  | 10000   |           |        |          |         |     |      |      |      |     |   |      |      |      |      |   |      |      |      |      |   |      |      |      |      |   |      |      |      |     |   |      |      |      |     |   |      |      |      |     |   |      |      |      |      |   |      |      |      |     |    |      |      |      |      |          |   |   |      |       |           |      |      |      |       |              |      |      |      |       |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |    |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |     |