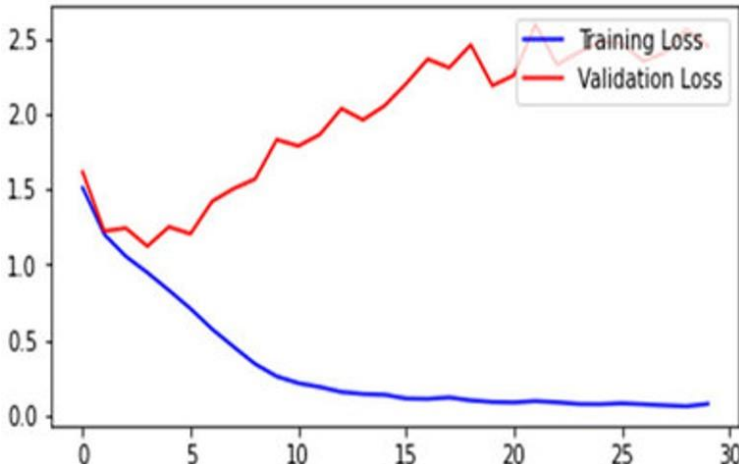
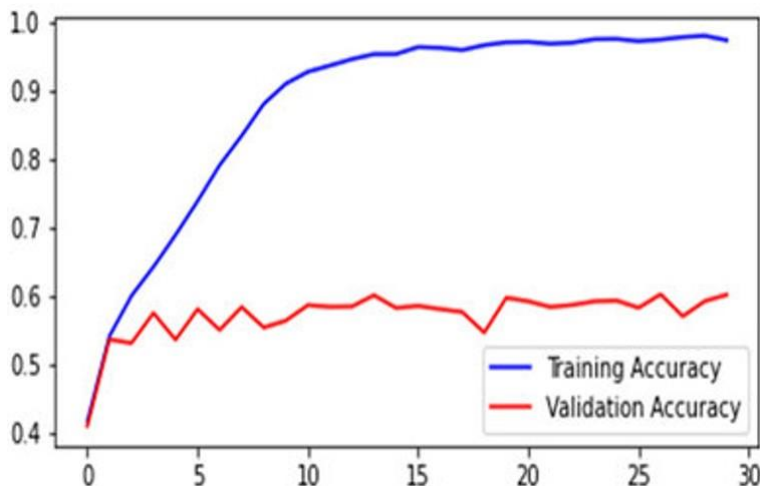
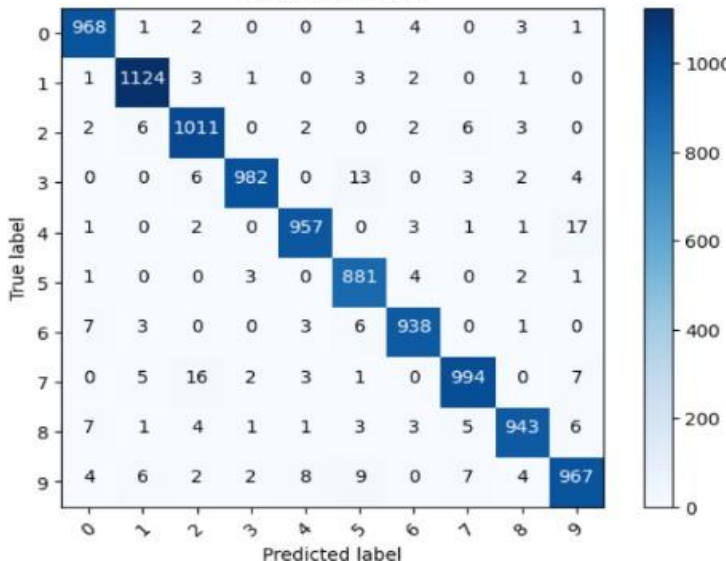


## Project Development Phase Model Performance Test

Date	10 November 2022
Team ID	PNT2022TMID24912
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%  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>0.15</td><td>2.3</td></tr><tr><td>25</td><td>0.1</td><td>2.4</td></tr><tr><td>30</td><td>0.1</td><td>2.2</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	0.15	2.3	25	0.1	2.4	30	0.1	2.2
Epoch	Training Loss	Validation Loss																									
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3.	Confusion Matrix		<p>Confusion matrix</p> 																																																																						
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
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