**Thresholding Table:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Threshold** | **Accuracy** | **Precision** | **Recall** | **F1** | **ROC-AUC** |
| **0.100** | **0.966** | **0.918** | **0.982** | **0.949** | **0.985** |
| **0.200** | **0.966** | **0.918** | **0.982** | **0.949** | **0.985** |
| **0.300** | **0.966** | **0.918** | **0.982** | **0.949** | **0.985** |
| **0.400** | **0.966** | **0.918** | **0.982** | **0.949** | **0.985** |
| **0.500** | **0.966** | **0.918** | **0.982** | **0.949** | **0.985** |
| **0.600** | **0.966** | **0.918** | **0.982** | **0.949** | **0.985** |
| **0.700** | **0.943** | **0.961** | **0.860** | **0.907** | **0.985** |
| **0.800** | **0.931** | **0.959** | **0.825** | **0.887** | **0.985** |
| **0.900** | **0.931** | **0.959** | **0.825** | **0.887** | **0.985** |

**Optimum Threshold (max F1): 0.1 with F1: 0.949**

**Accuracy: 0.966**

**F1 Score: 0.949**

**ROC-AUC: 0.985**

**Confusion Matrix (Custom Threshold 0.1):**

|  |  |  |
| --- | --- | --- |
|  | **Predicted 0** | **Predicted 1** |
| **Actual 0** | **113** | **5** |
| **Actual 1** | **1** | **56** |

**Gini & Permutation Feature Importance (F1):**

|  |  |  |  |
| --- | --- | --- | --- |
| **Feature** | **Gini Importance** | **Importance Mean** | **Importance Std** |
| **1** | **0.045** | **0.031** | **0.015** |
| **2** | **0.065** | **0.024** | **0.006** |
| **3** | **0.700** | **0.146** | **0.024** |
| **4** | **0.000** | **0.000** | **0.000** |
| **5** | **0.010** | **0.000** | **0.000** |
| **6** | **0.153** | **0.040** | **0.014** |
| **7** | **0.015** | **0.000** | **0.000** |
| **8** | **0.012** | **0.020** | **0.010** |
| **9** | **0.000** | **0.000** | **0.000** |