**Thresholding Table:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Threshold** | **Accuracy** | **Precision** | **Recall** | **F1** | **ROC-AUC** |
| **0.100** | **0.977** | **0.934** | **1.000** | **0.966** | **0.997** |
| **0.200** | **0.977** | **0.949** | **0.982** | **0.966** | **0.997** |
| **0.300** | **0.971** | **0.948** | **0.965** | **0.957** | **0.997** |
| **0.400** | **0.960** | **0.946** | **0.930** | **0.938** | **0.997** |
| **0.500** | **0.966** | **0.964** | **0.930** | **0.946** | **0.997** |
| **0.600** | **0.966** | **0.964** | **0.930** | **0.946** | **0.997** |
| **0.700** | **0.960** | **0.981** | **0.895** | **0.936** | **0.997** |
| **0.800** | **0.949** | **0.980** | **0.860** | **0.916** | **0.997** |
| **0.900** | **0.931** | **0.979** | **0.807** | **0.885** | **0.997** |

**Optimum Threshold (max F1): 0.1 with F1: 0.966**

**Accuracy: 0.977**

**F1 Score: 0.966**

**ROC-AUC: 0.997**

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

|  |  |  |
| --- | --- | --- |
|  | **Predicted 0** | **Predicted 1** |
| **Actual 0** | **114** | **4** |
| **Actual 1** | **0** | **57** |

**Combined Coefficients, P-Values, and Permutation Importance:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Feature** | **Coefficient** | **P-Value** | **Importance Mean** | **Importance Std** |
| **1** | **1.420** | **0.001** | **0.057** | **0.020** |
| **2** | **-0.155** | **0.827** | **0.000** | **0.000** |
| **3** | **1.381** | **0.083** | **0.019** | **0.016** |
| **4** | **0.581** | **0.110** | **0.006** | **0.004** |
| **5** | **0.355** | **0.327** | **0.006** | **0.005** |
| **6** | **1.515** | **0.000** | **0.067** | **0.026** |
| **7** | **0.961** | **0.030** | **0.018** | **0.009** |
| **8** | **0.026** | **0.943** | **0.000** | **0.000** |
| **9** | **0.690** | **0.200** | **0.010** | **0.003** |