**RESEARCH PAPER IMPLEMENTATION**

**Table 1: Comparative Analysis of Frameworks**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Framework** | **Detection Accuracy (%)** | **Scalability** | **Latency (ms)** | **Adversarial Robustness (%)** | **Zero-Day Detection (%)** |
| Traditional Security | 70.0 | Low | 45 | 40 | 35 |
| AI-Based IDS | 88.0 | Medium | 30 | 65 | 70 |
| Blockchain-Based | 75.0 | Medium | 60 | 50 | 45 |
| **Hybrid AI + Blockchain** | **95.2** | **High** | **15** | **85** | **88** |

To complete Table 1, Table 2 has to be computed

Table 2: Framework Performance and Detection Metrics

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Framework** | **Detection Accuracy (%)** | **True Positives** | **FTR (FNR) (%) \*** | **FP (Count)**  **≈** | **TN (Count)**  **≈** | **FPR (Qualitative)** | **Scalability** | **Latency (ms)** | **Adversarial Robustness (%)** | **Zero-Day Detection (%)** |
| **Traditional Security** | 70.0 | ≈ 2, 700 | 65.0 | ≈ 2, 700 | ≈ 6,300 | Low/Medium | Low | 45 | 40 | 35 |
| **AI-Based IDS** | 88.0 |  | 30.0 | ≈1,000 | ≈ 8,000 | Medium/High | Medium | 30 | 65 | 70 |
| **Blockchain-Based** | 75.0 |  | 55.0 | ≈ 1,500 | ≈ 7,500 | Low | Medium | 60 | 50 | 45 |
| **Hybrid AI + Blockchain** | **95.2** |  | 12.0 | ≈ 450 | ≈ 8,550 | Low | High | 15 | 85 | **88** |

**\* True Positives (TP), False Negative Rate (FTR), False Positives (FP), Ture Negative (TN), False Positives Rates (FPR)**

* **To calculate Table 2, table 3 has to be computed**

How to calculate them:

|  |  |  |
| --- | --- | --- |
| **Metric** | **Provided Value** | **Derived Value (Calculated)** |
| **Total Malicious Samples (*TP*+*FN*)** | (Assumed 10%) | 1,000 |
| **Total Benign Samples (*TN*+*FP*)** | (Assumed 90%) | 9,000 |
| **Detection Accuracy** | 95.2% | 0.952×10,000=9,520 (Total Correct Predictions) |
| **Zero-Day Detection (TPR/Recall)** | 88% | 0.88×1,000=**880** (True Positives, TP) |

Table 3:

**Assumption on Dataset:**

* **Total Test Samples:** N = 10,000 *(A common, round number for intrusion detection*

*system evaluations).*