

**Iterative Model Performance Across Different Years on 2024 Benchmark**

**Malicious URLs**

Metric	2019 (Initial)	2019-2020	2019-2021	2019-2022	2019-2023
Precision	0.96	0.98	0.94	0.98	0.94
Recall	0.63	0.78	0.93	0.86	0.94
F1-Score	0.76	0.87	0.93	0.92	0.94

**Safe URLs**

Metric	2019 (Initial)	2019-2020	2019-2021	2019-2022	2019-2023
Precision	0.73	0.82	0.93	0.88	0.94
Recall	0.97	0.99	0.94	0.99	0.94
F1-Score	0.83	0.89	0.94	0.93	0.94

**Overall Accuracy**

	2019 (Initial)	2019-2020	2019-2021	2019-2022	2019-2023
Accuracy	0.80	0.88	0.94	0.92	0.94

**Comparison of Model Performance on 2024 Benchmark**

**Malicious URLs**

Metric	Iterative Model	Combined Data	Single Random Data
Accuracy	0.94	0.93	0.93
F1-Score	0.94	0.93	0.93
<b>Malicious Class</b>			
- Precision	0.94	0.98	0.99
- Recall	0.94	0.88	0.86
<b>Safe Class</b>			
- Precision	0.94	0.89	0.88
- Recall	0.94	0.99	0.99