

# visualizations.js

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document.addEventListener('DOMContentLoaded', function () {
    // === Pie Chart: Severity Distribution ===
    // Shows the distribution of CVEs by severity
    // (Critical, High, Medium, Low)
    if (typeof metrics !== "undefined" &&
document.getElementById('severityPie')) {
        new Chart(document.getElementById('severityPie').getContext('2d'), {
            type: 'pie',
            data: {
                labels: ['Critical', 'High', 'Medium', 'Low'],
                datasets: [{
                    data: [
                        metrics.critical || 0,
                        metrics.high || 0,
                        metrics.medium || 0,
                        metrics.low || 0
                    ], // grab counts (fallback to 0 if missing)
                    backgroundColor: [
                        '#e74c3c', // Critical (red)
                        '#f1c40f', // High (yellow/gold)
                        '#9b59b6', // Medium (purple)
                        '#2ecc71' // Low (green)
                    ]
                }]
            },
            options: {
                plugins: {
                    legend: { position: 'bottom' } // show legend under the
pie
                }
            }
        });
    }

    // === Line Chart: CVE Trend Over Time ===
    // Line chart for published CVEs over time (monthly granularity)
    if (typeof timeline_data !== "undefined" &&
document.getElementById('timelineChart')) {
        const labels = Object.keys(timeline_data); // x-axis: months
        const values = Object.values(timeline_data); // y-axis: counts
        new Chart(document.getElementById('timelineChart').getContext('2d'), {
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        type: 'line',
        data: {
            labels: labels,
            datasets: [{
                label: 'CVEs Published', // Chart legend label (hidden per
options)

                data: values,
                fill: false, // line only (no fill underneath)
                borderColor: '#0897e3', // blue line
                backgroundColor: '#0897e3', // slight curve to lines
                tension: 0.15
            }]
        },
        options: {
            plugins: {
                legend: { display: false } // no legend needed (single
dataset)

            },
            scales: {
                x: { title: { display: true, text: 'Month' } },
                y: { title: { display: true, text: 'Number of CVEs' },
beginAtZero: true } // y-label, always starts at zero
            }
        }
    });
}

// === Horizontal Bar: Top CWE Types ===
// Horizontal bar chart for showing most common CWE types in the period
if (typeof cwe_stats !== "undefined" && document.getElementById('cweBar'))
{
    const barLabels = Object.keys(cwe_stats); // y-axis: CWE code/title
    const barValues = Object.values(cwe_stats); // x-axis: count for each
type

    new Chart(document.getElementById('cweBar').getContext('2d'), {
        type: 'bar',
        data: {
            labels: barLabels,
            datasets: [{
                label: 'Count', // not shown (hidden legend)
                data: barValues,
                backgroundColor: '#985ff6' // purple bars for all
            }]
        },
        options: {
            indexAxis: 'y', // horizontal bars

```

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        plugins: {
            legend: { display: false } // keep legend off for clarity
        },
        scales: {
            x: { title: { display: true, text: 'Number of CVEs' } },
// x-label
            y: { title: { display: true, text: 'CWE' } } // y-label
        }
    });
}
});
```