

The system that was instrumented uses the flask API, and makes API calls every time it is executed to create a new instance on localhost. Each time the system is executed, an instance on localhost is created on which the python program is run. The program itself simulates a dice roll as it takes a random value between 1 and 6, and prints it on the webpage at <http://127.0.0.1:5000/rolldice> every time.

OpenTelemetry was used to first automatically instrument the program (metrics are printed out to the console. When the system executes and a request is made to the server, OpenTelemetry captures a single span and prints it to the console in the form of a JSON (see: `single_span_of_trace.txt`).

OpenTelemetry is also used to add both manual and automatic instrumentation (see:

`"manual_instrumentation_to_automatic_instrumentation.txt"`), as automatic instrumentation alone can only capture telemetry at the edges of the system (e.g: inbound and outbound http requests), however it cannot capture telemetry from within the application itself. Ideally, both automatic and manual instrumentation can be used to capture telemetry from all over the system. After every few requests, or after the application has been terminated, resource metrics are then also outputted in a JSON format (`resource_metrics.txt`).