CS 203: Software Tools and Techniques for AI
Assignment 1

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GitHub repository: Assignment_1

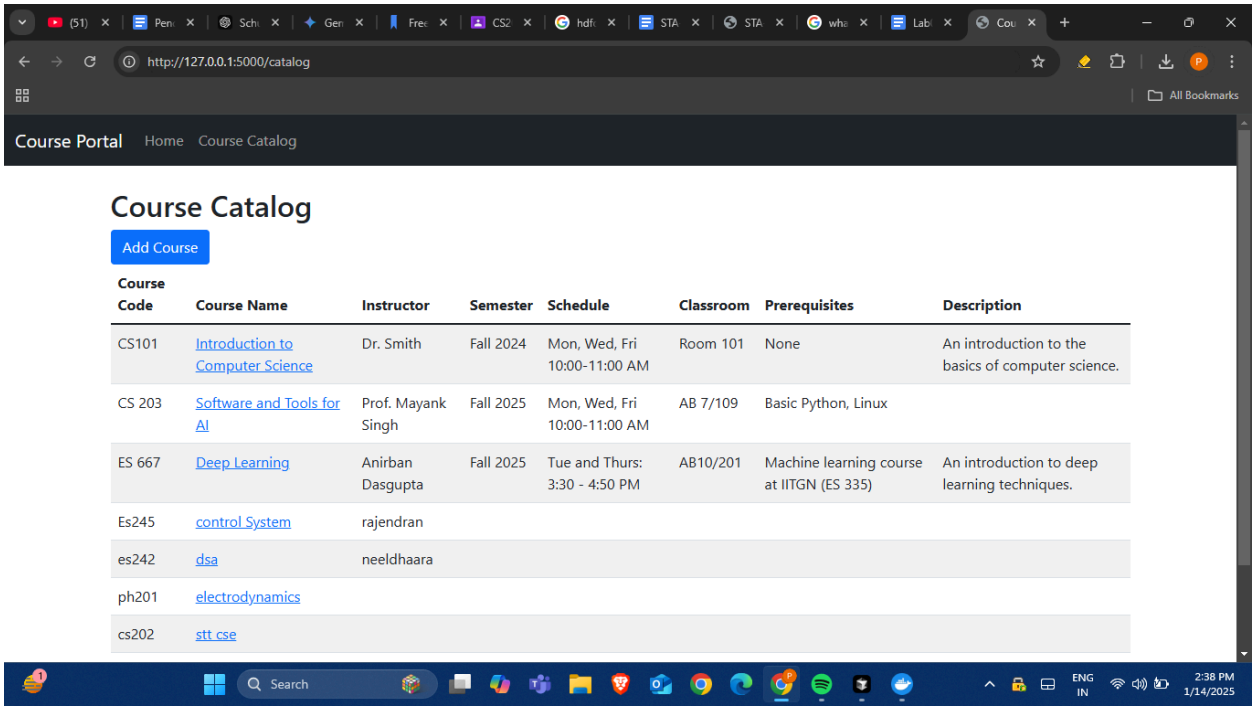
Introduction:
In this assignment; we were given a ready-made codebase which we had to edit and make it functional as instructed. We used softwares of VSCode to edit the files and used a Jaeger exporter through the open telemetry library in Python. We had to use Docker to connect our python code to the Jaeger webpage on localhost:16686. In the assignment, we were asked to do these things.

1. Add Courses to the Catalog
2. OpenTelemetry Tracing
3. Exporting Telemetry Data to Jaeger

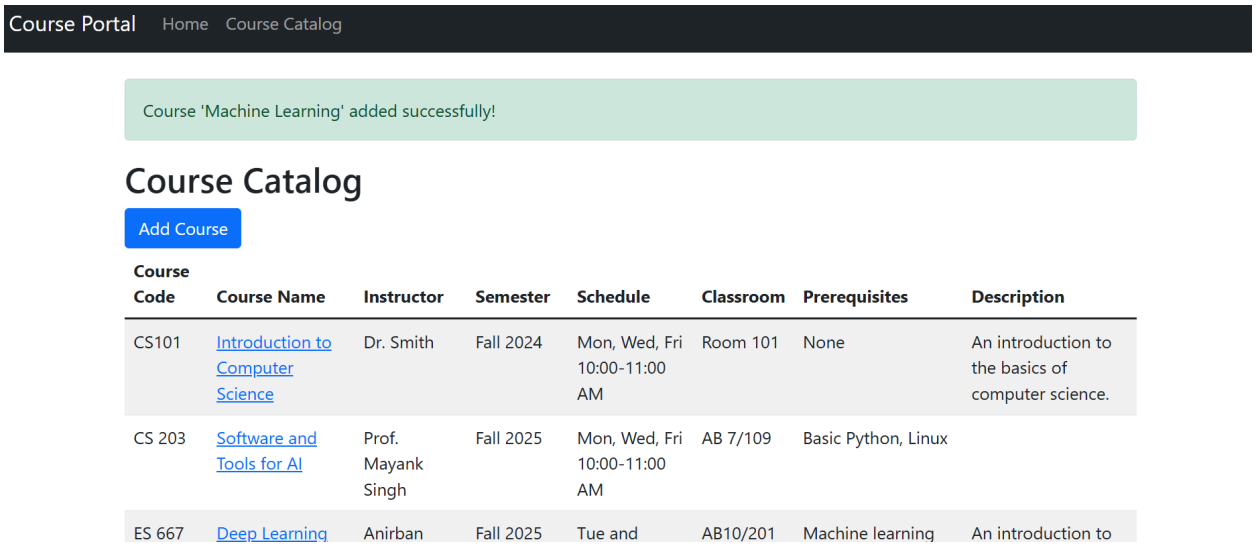
We have done all the required and the screenshots are being attached in the next section.

1 Adding courses to the catalog

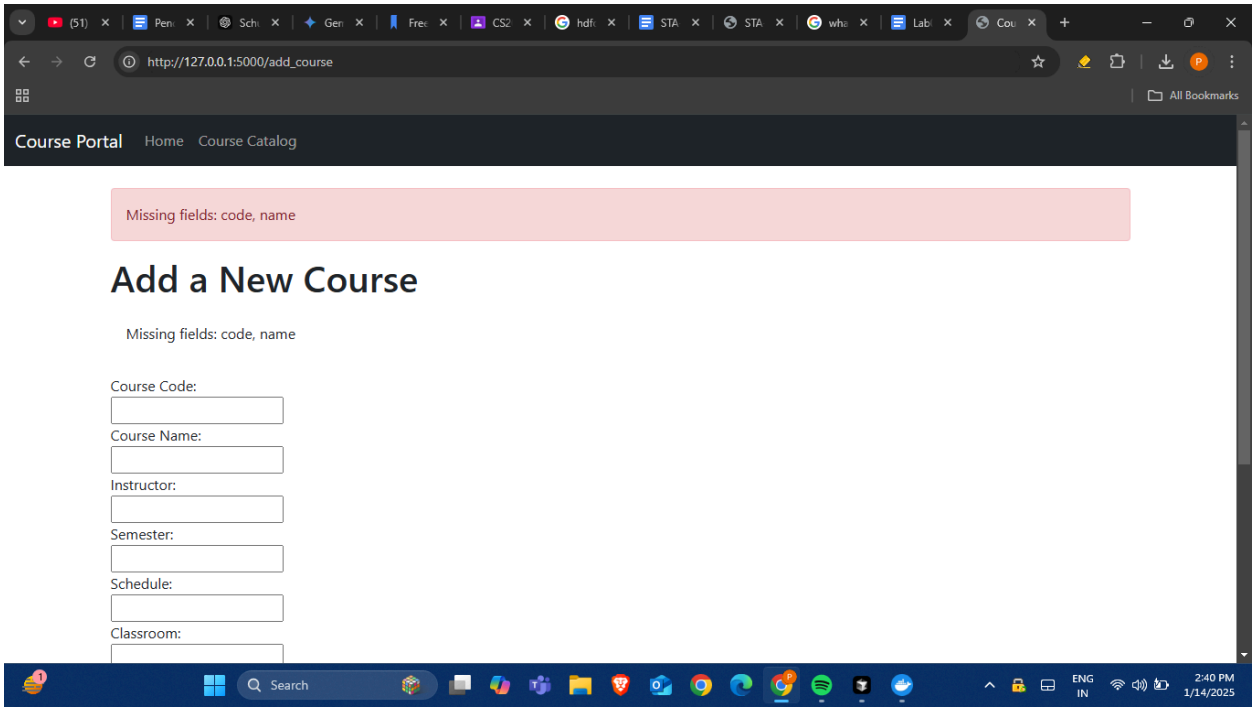
In the attached screenshot, we have implemented the “Add Course” button ; which redirects to the Add Course Page. We have also tabulated the course data which is being derived from couse_catalog.json.



Upon successful submission of the form; the course is being added to the course_catalog.json and thus it is also visible in the course catalog. The user gets a message regarding the same as a green signal as shown in the next screenshot.



However, if the user does not fulfills the required fields ; he is being given a red signal as shown below; and the requirements are being told to the user. The data regarding incorrect form submission is being recorded to app.json and thus on the jaeger exporter.



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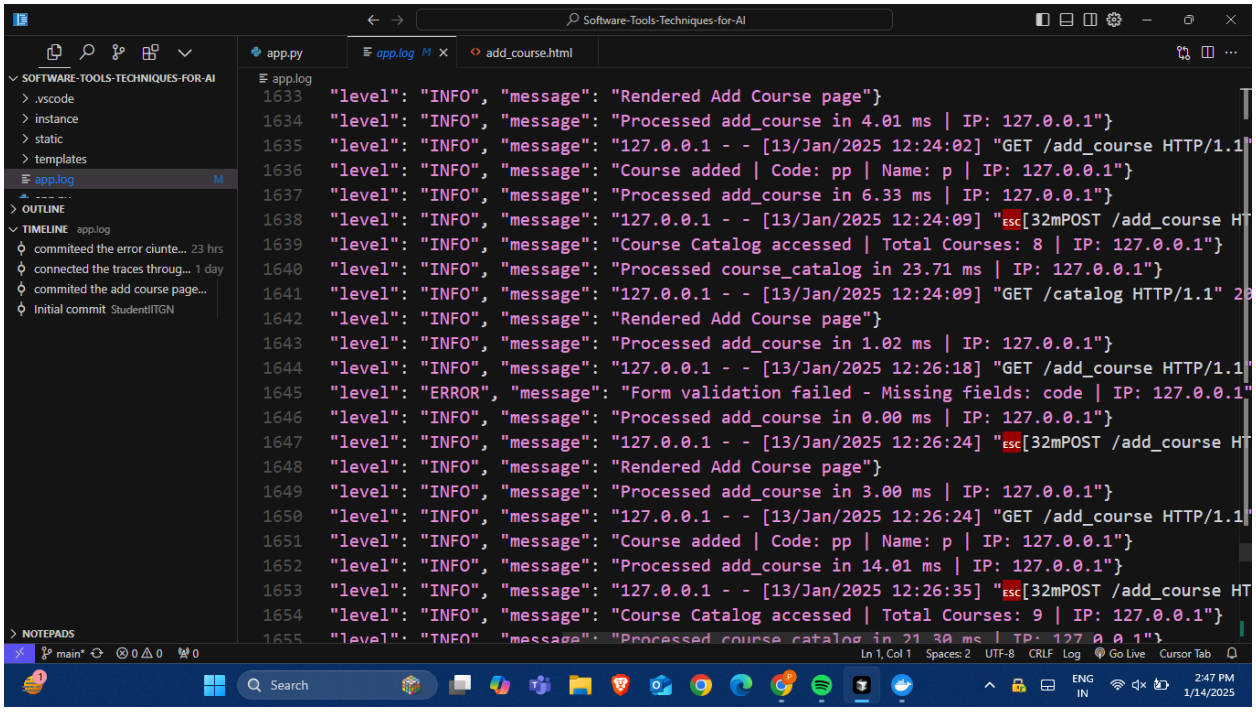
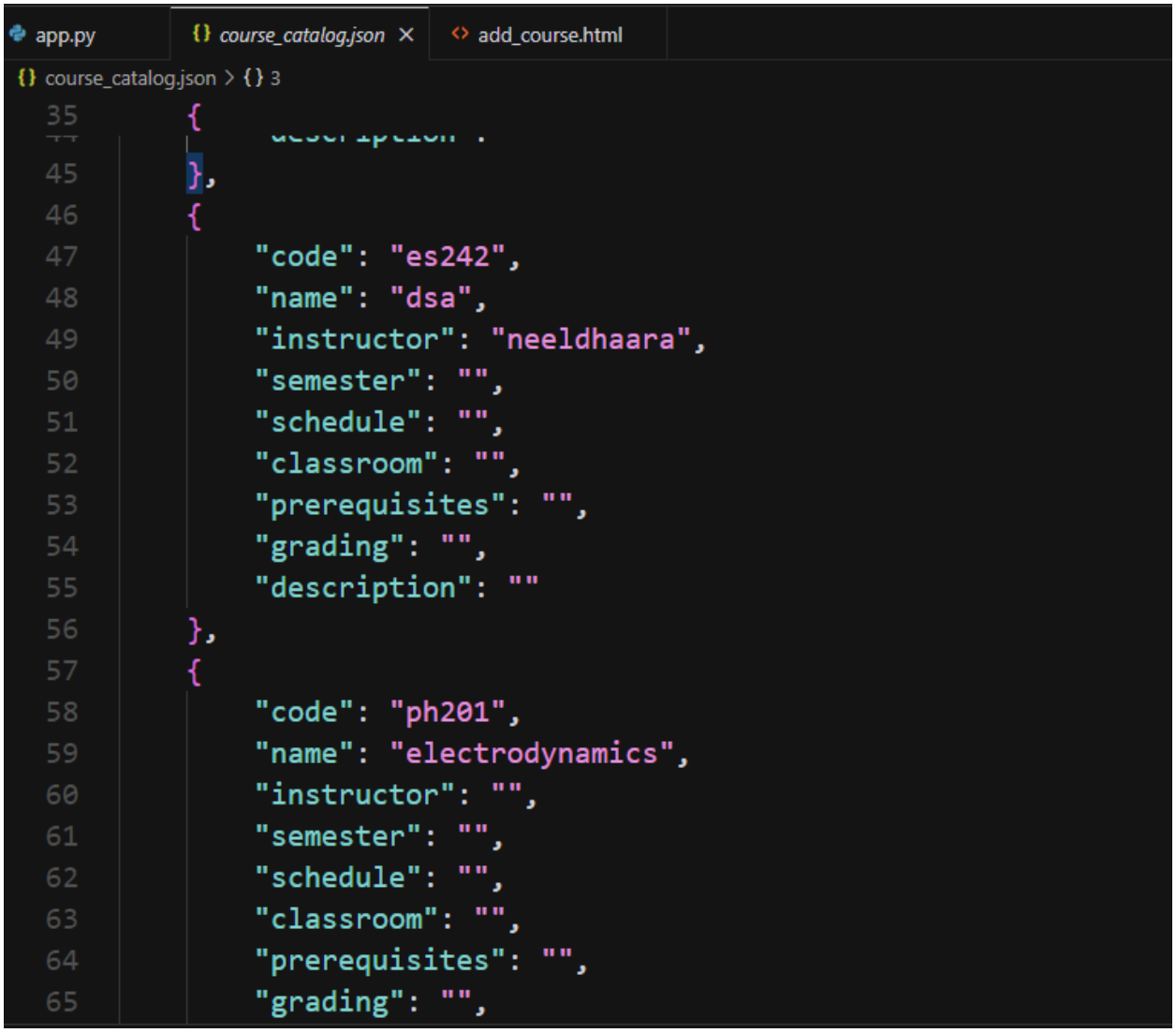
2. Open Telemetry Tracing

In this assignment we have used Open-Telemetry and logging module such that we can trace what actions are being taken by the user while using the website; We can get the information about the user like the host, the page visited, the request methods etc. on the app.log file which

is being created and updated as soon as someone uses the website. The app.json looks like this.



All the browsing is being monitored here. If more courses are added they are being reflected to course_catlog.json as shown below.



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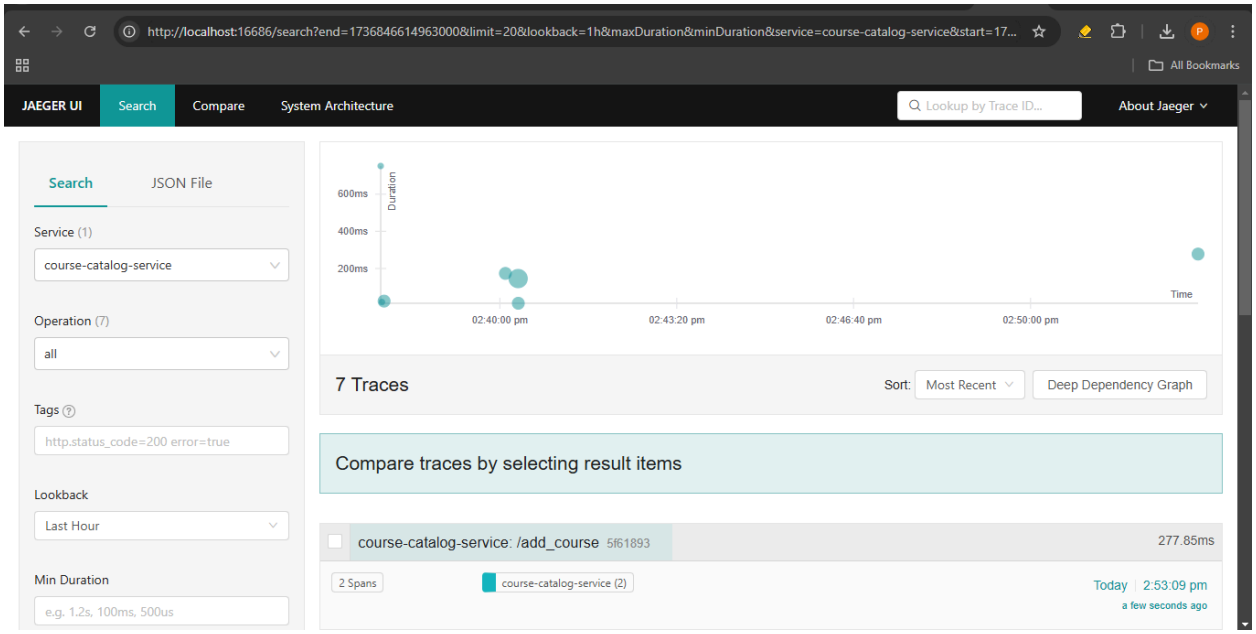
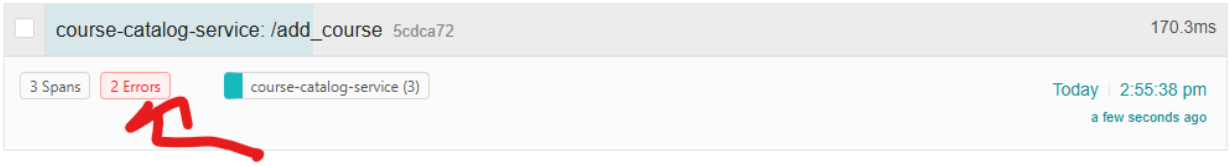
3. Exporting Telemetry data to Jaeger.

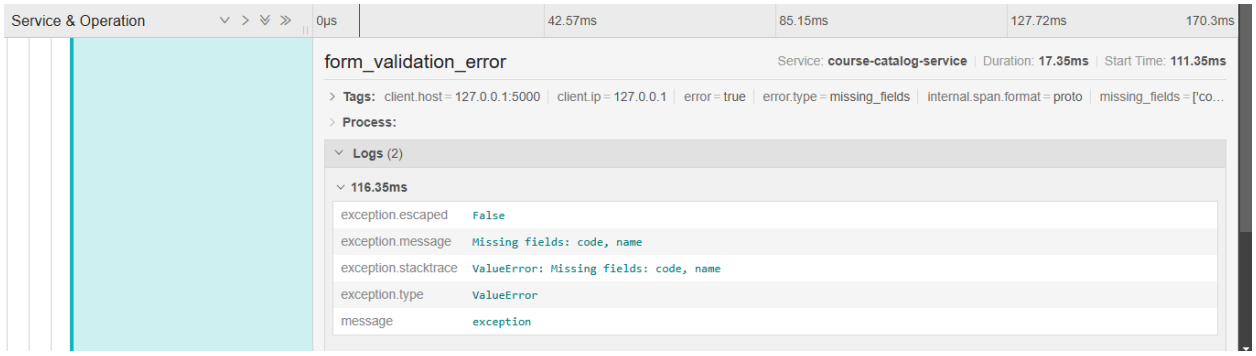
Here, we use the JaegerExporter exporter from telemetry to connect our webpage's logging to Jaeger software. We can access that through localhost:16686. To get all kinds of traces, we set the Operations to all, and we can get the data like this.

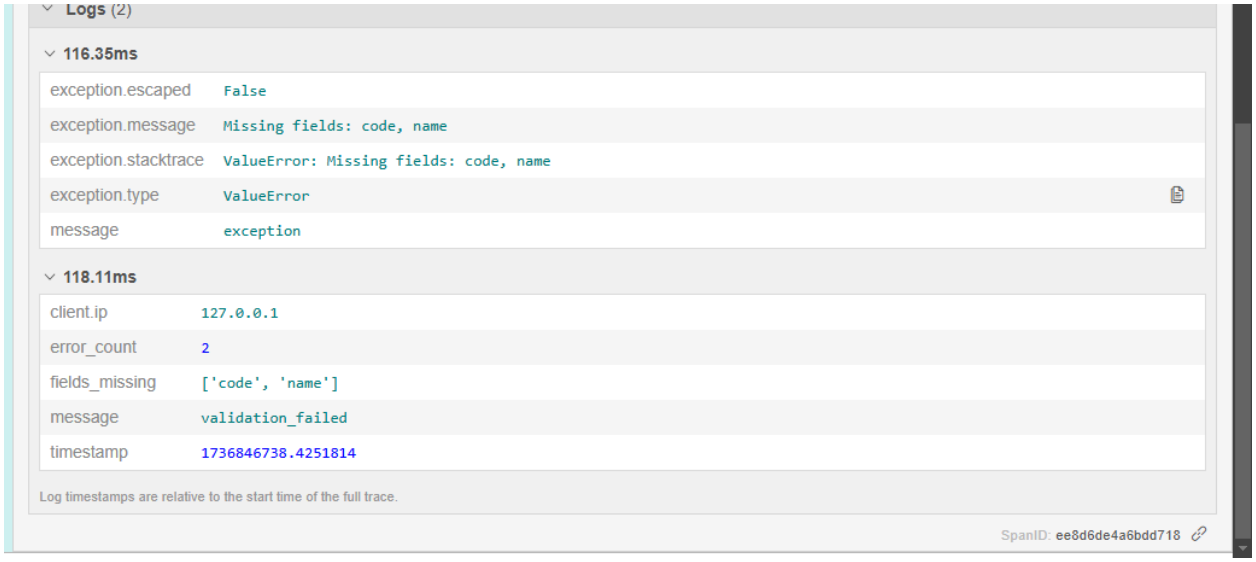


Now suppose we want the data of the user adding a wrong course; we get a form_validation_error operation and the error is also visible.

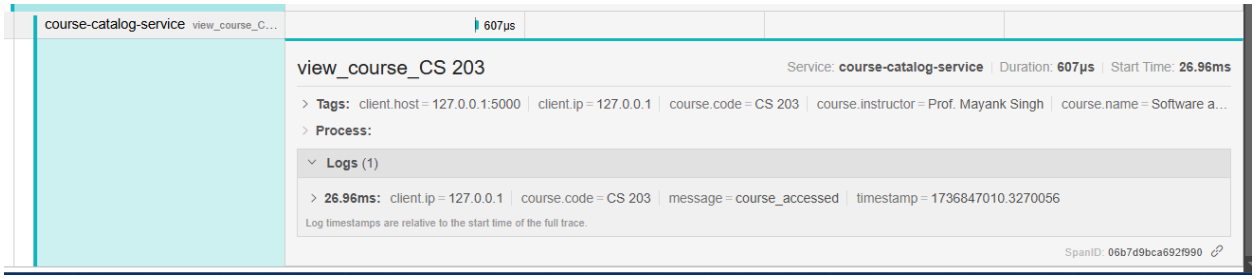


If we expand this error we can get the complete data about the user; the number of error counts made; host etc.





Also, if a new course is added; a new operation is being generated for the meta-data site; we can get the number of traces from there too.



This is similar for all the web pages which is made across the assignment and we get the each and every logging data required.

Conclusions:

1) Add course button created to add courses in catalog.
2) OpenTelemetry tracing used to get the logging data.
3) Logging data exported on the Jaeger software.