13. MongoDB operations in the current implementation are non-blocking to the FastAPI IOLoop. This is achieved through the use of Motor, an asynchronous MongoDB driver, with proper async/await syntax throughout the code. Examples include await statements with insert\_one(), find\_one(), and find().to\_list() operations. When a MongoDB operation is in progress, the IOLoop remains free to handle other incoming requests, demonstrating true non-blocking behavior thanks to the motor.motor\_asyncio.AsyncIOMotorClient().

14. In contrast, the classifier training and prediction operations are blocking to the FastAPI IOLoop. Both Turi Create and scikit-learn operations (like tc.classifier.create(), model.save(), and model.predict()) run synchronously in the main thread, preventing the server from handling other requests during their execution. These ML operations are not async-compatible in their current implementation. To make these operations non-blocking, the code would need to be modified to use either a background task system like Celery, separate processes for ML operations, or async wrappers using asyncio.to\_thread().