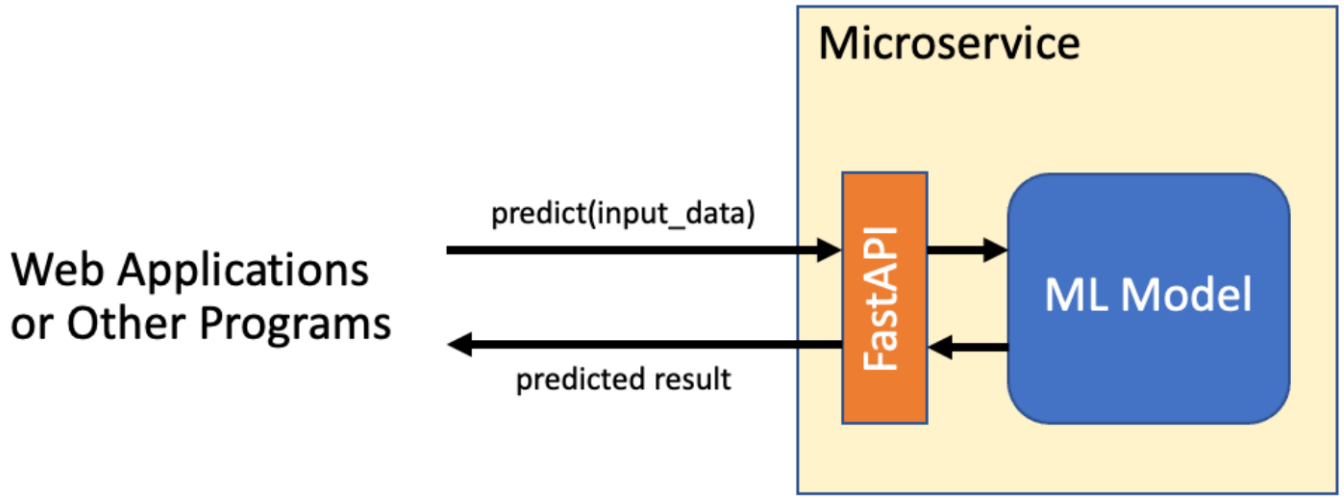
FastAPI

Based on Prof.Natawut's slide

Provisioning ML Model : Synchronous

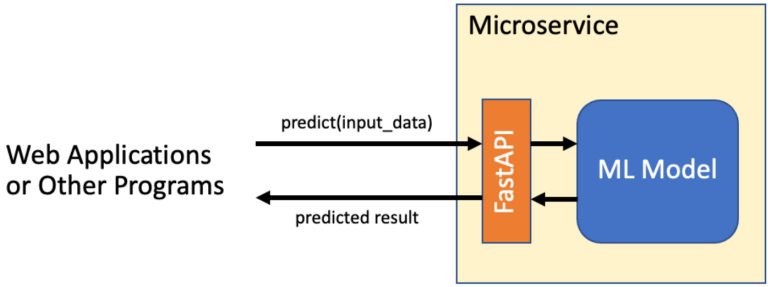
(interactive; expected to get results back)

- Encapsulating your model as a microservice is a popular approach to deploy machine learning model
- The model becomes a black box and can be invoked using REST protocol
- Using a microframework such as FastAPI can simplify microservice development



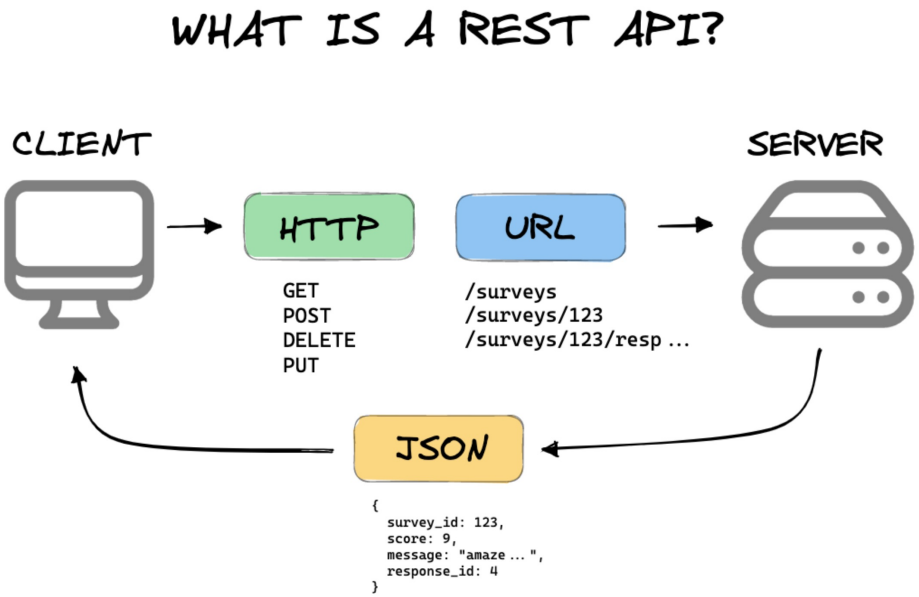
Microframework

- Minimalistic web application frameworks designed for Microservices and API development
- Facilitate receiving an HTTP request, routing the HTTP request to the appropriate controller, dispatching the controller, and returning an HTTP response
- Designed for building the APIs for another service or application; therefore, lacking most of the functionality expected in full-stack framework



REST - Heart and Soul of Microservices

- REpresentational State Transfer
- Lightweight and simple
  - Only simple XML or JSON on HTTP
  - Utilize HTTP methods instead of using “envelope” style
  - URI as method identification
  - Emulate CRUD operations
    - Create, Read, Update, Delete
    - **Read → Get**
    - **POST → Create**
    - **PUT → Update**
    - **DETE → Delete**



REST over HTTP – GET method (Postman, Python)

FastAPI

- Web framework for developing RESTful APIs in Python based on Pydantic and starlette
- Provide several facilities for REST development
  - Data validation / serialization / deserialization
  - Auto-generate OpenAPI documents
  - Asynchronous programming
  - Dependency Injection
  - Support GraphQL for complex data model
  - Run with Uvicorn and Unicorn (simulated web server)

Installation

- FastAPI & uvicorn
- pip install fastapi uvicorn

- Postman

- Ngrok (web tunnel) → for Colab
- https://ngrok.com/

Lab

- 1. Get
- 2. Get with path param
- 3. Post
- 4. Put