Azure Functions

Azure Functions is a serverless solution that allows you to write less code, maintain less infrastructure, and save on costs. Instead of worrying about deploying and maintaining servers, the cloud infrastructure provides all the up-to-date resources needed to keep your applications running.

Azure Functions provides **compute on-demand** in two significant ways.

First, Azure Functions allows you to implement your system's logic into readily available blocks of code. These code blocks are called "**functions**". Different functions can run anytime you need to respond to critical events.

Second, as requests increase, Azure Functions meets the demand with as many resources and function instances as necessary - **but only while needed**. As requests fall, any extra resources and application instances drop off automatically.

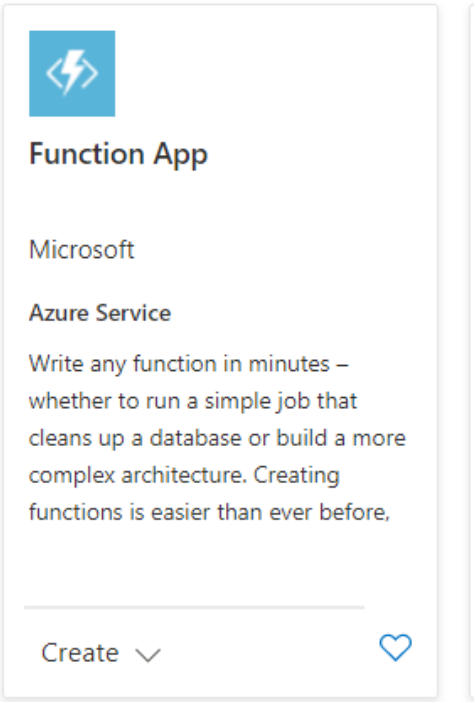
What is Serverless Computing?

Serverless computing enables developers to build applications faster by eliminating the need for them to manage infrastructure. With serverless applications, the cloud service provider automatically provisions, scales, and manages the infrastructure required to run the code.

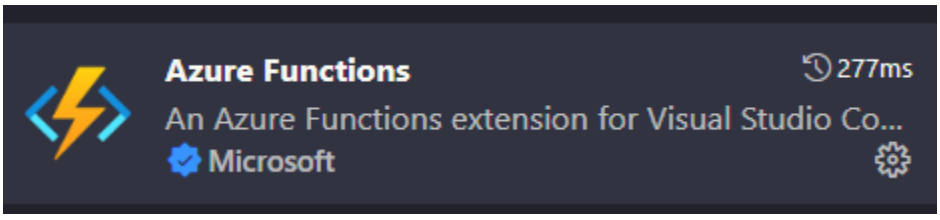
In understanding the definition of serverless computing, it’s important to note that servers are still running the code. The serverless name comes from the fact that the tasks associated with infrastructure provisioning and management are invisible to the developer. This approach enables developers to increase their focus on business logic and deliver more value to the core of the business. Serverless computing helps teams increase their productivity and bring products to market faster, and it allows organizations to better optimize resources and stay focused on innovation.

Deploying a ML Model on Azure Functions

1. Create a **Function App** Resource from the Azure Portal.



2. Install the Azure Functions Extension in VS Code.



3. Create a function with the help of extension.

a. Click on the Lightning icon to create a function.
b. Select HTTP Trigger Template.
c. Give a name to your HTTP trigger.
d. Choose Function in Autorization Level
e. Your Function will be created.

4. Open the init.py file and change the main function according to your need.

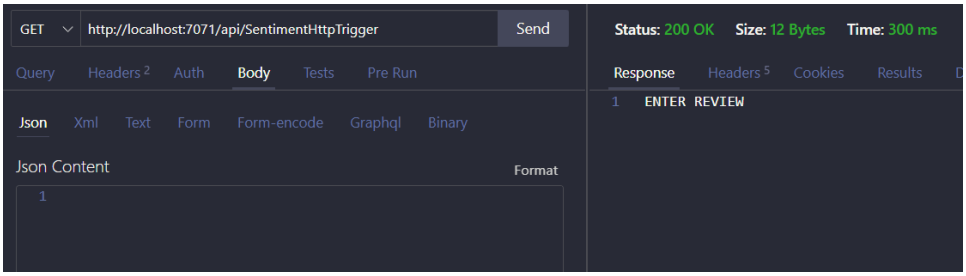
In our case, we want to deploy a model and get predictions so we will add code accordingly.

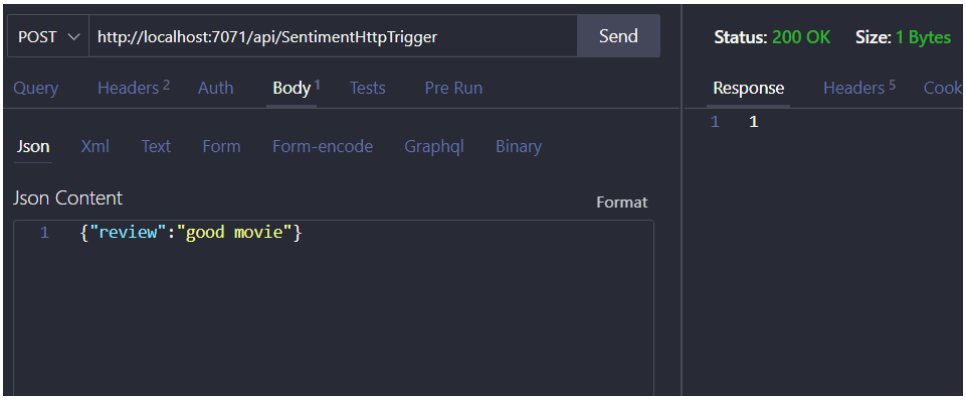
```python
import azure.functions as func
import joblib


def main(req: func.HttpRequest) -> func.HttpResponse:
    model = joblib.load("sentiment_analysis_model.pkl")
    review = req.params.get('review')
    if not review:
        try:
            req_body = req.get_json()
        except ValueError:
            pass
        else:
            review = req_body.get('review')
    if review:
        return func.HttpResponse(str(model.predict([review])[0]))
    else:
        return func.HttpResponse("ENTER REVIEW")
```

5. You can test the server by pressing F5 which will turn it on, and you can test it by going on the link generated.

```
SentimentHttpTrigger: [GET,POST] http://localhost:7071/api/SentimentHttpTrigger
```

6. We will test our endpoint by making a post request with input {review: “good movie”} and we expect an output of 1. Also, if we make a get request, we should expect an output saying **ENTER REVIEW.**





7. Add all the packages that need to be installed to the requirements.txt for the function app to work. In our case we will add joblib and scikit-learn.

8. Click the Deploy Button -> Deploy to Function App. Select the Function App we created before in the portal. Your function will be deployed to the Function App. You can get the URL for the function from the Azure Portal.

Test Endpoints:

https://sentiment-deploy-function.azurewebsites.net/api/SentimentHttpTrigger?code=OhJ78p1QtI44m8JqLQ6iJsCONFSMMHO83K7soW6fs1ztAzFuI_ySaw==&clientId=default

https://sentiment-deploy-function.azurewebsites.net/api/SentimentHttpTrigger?code=OhJ78p1QtI44m8JqLQ6iJsCONFSMMHO83K7soW6fs1ztAzFuI_ySaw==&clientId=default&review=movie%20is%20good

https://sentiment-deploy-function.azurewebsites.net/api/SentimentHttpTrigger?code=OhJ78p1QtI44m8JqLQ6iJsCONFSMMHO83K7soW6fs1ztAzFuI_ySaw==&clientId=default&review=movie%20is%20bad

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