Home

80 hours

Last updated on Thursday, December 15, 2022

My Content is a startup that wants to encourage reading by recommending content that is relevant to its users.

You are the CTO and co-founder of the startup, with **Samia** who is CEO. You are in the process of developing an initial **MVP** that will take the form of **an application**.
First, your startup would like to test a solution for recommending articles and books to individuals.
Since you do not have user data yet, you will use data available online to develop your MVP (you can download this data directly here).
This data represents users' interactions with articles on a news portal. It contains information about the articles (e.g., number of words in the article) as well as information about users' sessions (e.g., start and end times) and users' interactions with the articles (which articles the user clicked on during the session).
For the purposes of an MVP, you and Samia have identified the most critical feature to launch your application:

> *"As a user of the application, I will receive a selection of five articles"*

You have also determined that the ability to add new users and articles to the target architecture of your product is critical.
Having no expertise in application development, you called on **Julien**, a freelance web developer, to create an initial simplified version of the application.
Julien sent you the following email when he delivered the app:

From : Julien
Sent : Yesterday 5:14pm
To : You
Subject : App Launch with Git

Hey,
I cab suggest that you rely on two types of architectures that are easy to implement. I advise you to use in both cases a **serverless architecture**. Azure Functions is a service that allows you to quickly set up this type of serverless architecture in the cloud:

- In the first architecture, you create an API to develop and expose your recommendation system. To make the link between the application and the recommendation system, you can create an Azure Function
- In the second architecture, you can work without the API, by using the "Azure Blob storage input binding" feature to retrieve files and models directly, and by integrating your predictions directly into your Azure Functions

I'll leave the final choice of architecture up to you!
For the application, you can create a simple local interface that lists the user ids and displays the results of the 5 suggestions after calling the Azure Functions.
A little tip: if you want to put the "embeddings" file into production and it is too big for your limitations in using the free A services, you can reduce the size of this file using a PCA.

Julien

In summary, your assignment is as follows:

- develop an initial version of your application with the recommendation system with Azure Functions;
- create a simple application to manage the recommendation system (display a list of user ids, call of Azure functions for the chosen id, and display the 5 recommended items);
- store the developed scripts in a GitHub repository;
- summarize your initial thoughts on:
    - the technical architecture and functional description of your application to date and the recommendation system,
    - the target architecture for allowing the addition of new users or new articles that you will present to Samia.

Deliverables

- **A simple application (Flask, Streamlit), completed with the serverless recommendation system** that will receive as input a user ID and return the associated item recommendations (e.g. the top 5).
    - This deliverable will demonstrate the application's features to Samia and future users.
- **The developed scripts stored in a version control system** allowing the deployment of the end-to-end application.
    - This deliverable will serve to demonstrate that your work is production-ready.
- A slide **presentation** containing a brief functional description of the application, a diagram of the architecture you used, a presentation of the recommendation system used and a diagram of the target architecture for including the creation of new users and new articles:
    - This deliverable will allow you to summarize your work to Samia.

For your deliverables to be processed by the jury, upload all project deliverables onto the platform in a folder named "*P9_first_name*". Each deliverable must be named with the project number and in the order in which it appears, e.g. "*P9_01_application*", "*P9_02_scripts*" etc.

Project Presentation

During the defense, the evaluator will play the role of Samia, the co-founder of My Content. You will present your work to her.

- Presentation (20 minutes)
    - the different modeling approaches tested (10 minutes),
    - the functionalities of the recommendation system in the application (6 minutes),
    - the target technical architecture (2 minutes),
    - a demonstration of the application (2 minutes).
- Discussion (5 minutes)
    - The evaluator will challenge you on your choices.
- Debriefing (5 minutes)
    - At the end of the presentation, you can debrief together.

Azure Credits

Please note: Be sure to shut down Azure services when you are done using them, or you will be charged. OpenClassrooms cannot be held responsible for the use of students' personal Azure accounts.

How can I make sure I only use free Azure services for this project?

- It is recommended to create your Azure Function directly on the Azure portal, and to choose the "plan type" equal to "Consumption(serverless)", in order to use the free Service Plan option,
- You can check daily the (non) consumption of your Azure services on the "Cost Management" accessible via the search bar of the Azure portal.

Evaluation Criteria

🎯 Competencies	🔍 Evaluation criteria
Select the software architecture to meet the business need	The selection of the software architecture to meet the business need is **complete** if: ❒ the different architecture components necessary to create a solution that meets the business need have been identified ❒ the functional description of each architecture component has been provided The selection of the software architecture to meet the business need is **relevant** if: ❒ the update requirements of the user and article database have been taken into account in the functional description The selection of the software architecture to meet the business need is **presentable** if: ❒ an explanation has been made in the form of a diagram of the different components of the software architecture
Develop scripts to run an end-to-end AI pipeline	The design of scripts to execute an end-to-end AI pipeline. is **complete** if: ❒ scripts to train and test the recommendation model have been developed and tested ❒ at least one of the algorithms from each of the two approaches (CF and content-based) of the recommendation system has been tested ❒ the serverless function that returns the integrated model's prediction to the mobile application has been tested The design of scripts to execute an end-to-end AI pipeline is **relevant** if: ❒ the scripts are divided into functions and/or classes allowing for better readability and maintainability of the code The design of scripts to execute an end-to-end AI pipeline is **presentable** if: ❒ the scripts are stored in a GitHub repository

Skills

- Select the software architecture to meet the business need
- Develop scripts to run an end-to-end AI pipeline

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