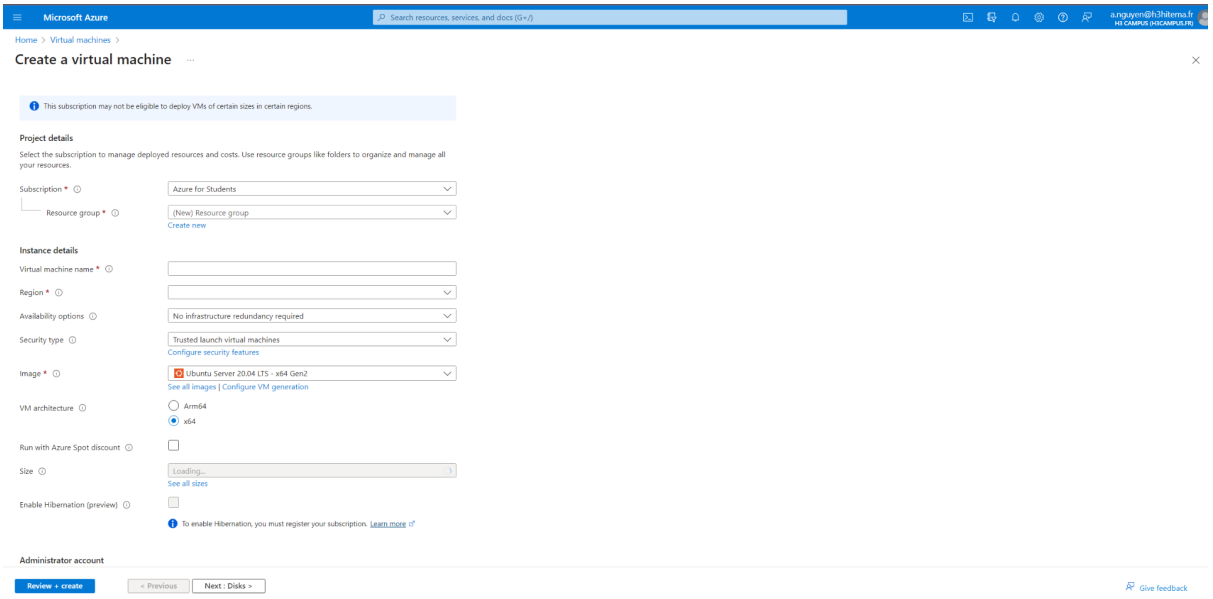
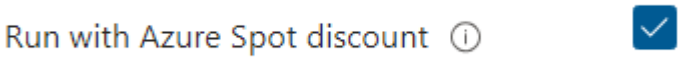
Create a Virtual Machine (VM) :

Imagine you need to host a website or run a specific application that requires a Windows/Linux environment. Creating a VM in Azure can provide you with the required environment without needing physical hardware.

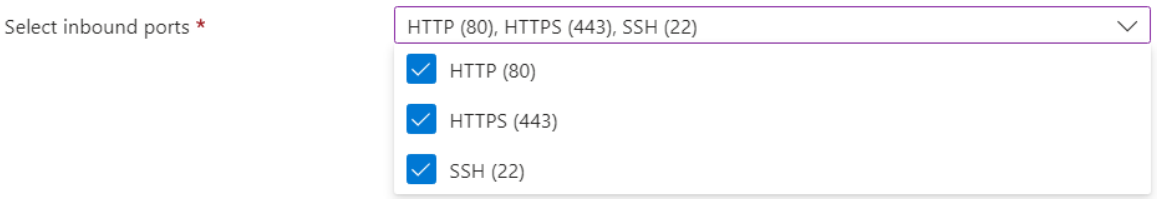
You can start to create and configure your vm on the link below:
https://portal.azure.com/#create/Microsoft.VirtualMachine-ARM



By default it will be payment by month , but to save budget you can just choose to pay by hours by checking this checkbox in Basic tab



I choose to develop my app on HTTP and HTTPS so i have to check these checkboxes below also

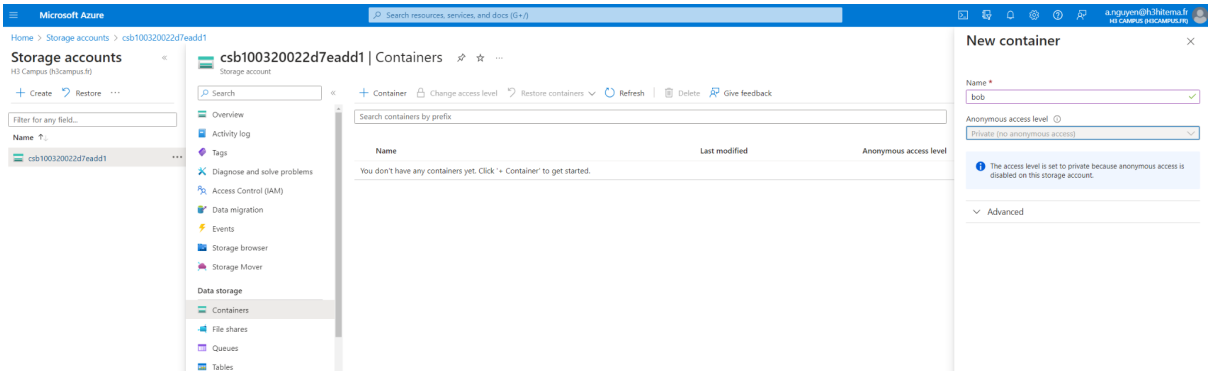


Now the rest is up to you to configure your machine and budget , to note , it’s very important to also make an alert price.

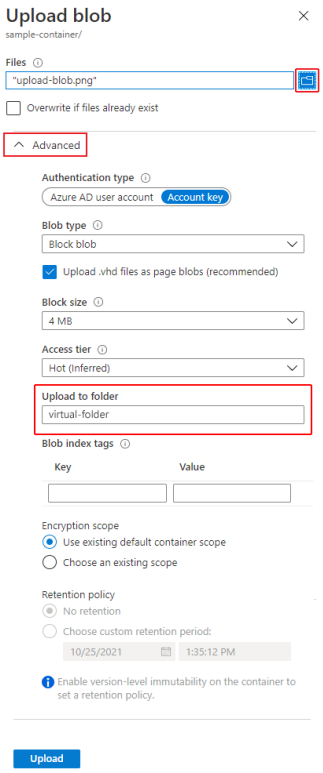
Set Up Blob Storage :

Consider a scenario where your application generates a large number of log files or images that need to be stored and accessed securely. Azure Blob Storage can be used to store such unstructured data.
To do it , go to the link below
https://portal.azure.com/#view/HubsExtension/BrowseResource/resourceType/Microsoft.Storage%2FStorageAccounts

Create your container

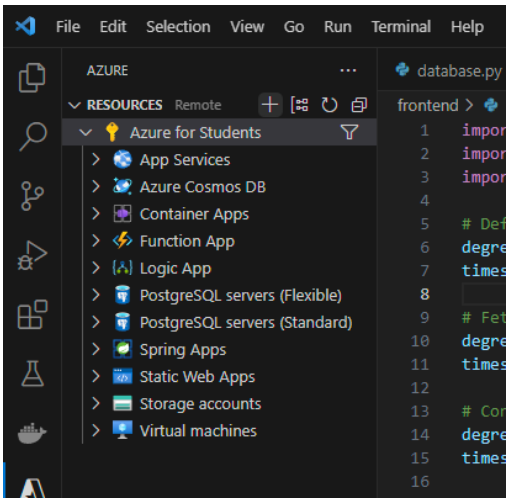


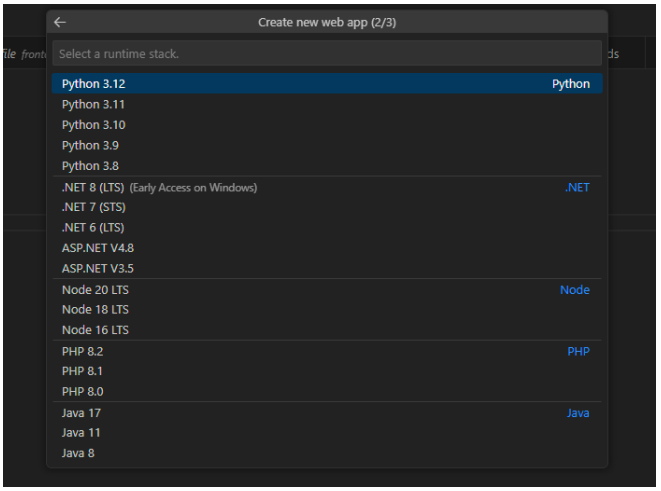
Up to you to do your configuration



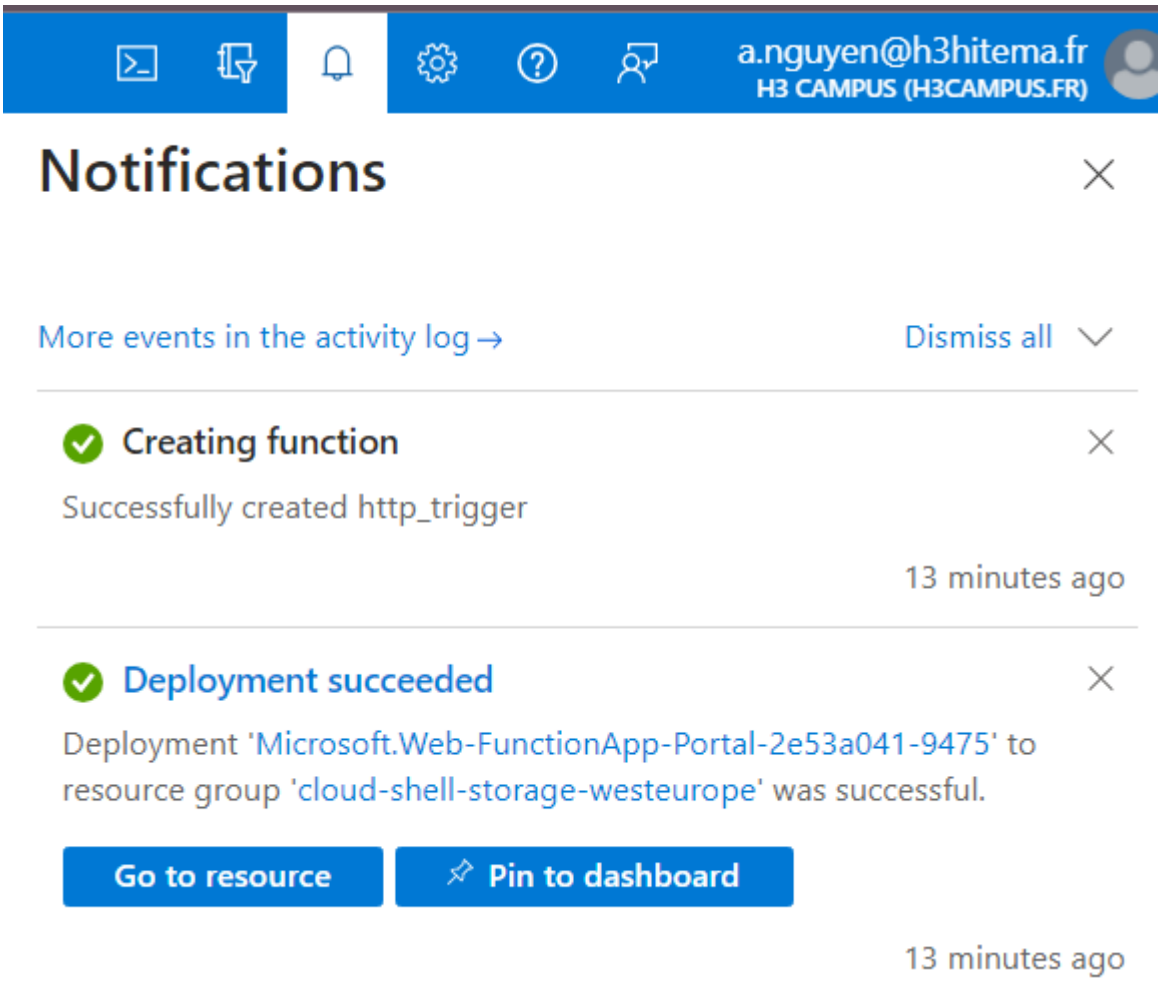
Deploy a Web App :

Suppose you have developed a web application and you need a platform to host it. Azure App Services can provide a managed platform to deploy web apps without managing the underlying infrastructure.
We can simply do it by using azure tool extension on vs code and click on the button + and then choose your configuration

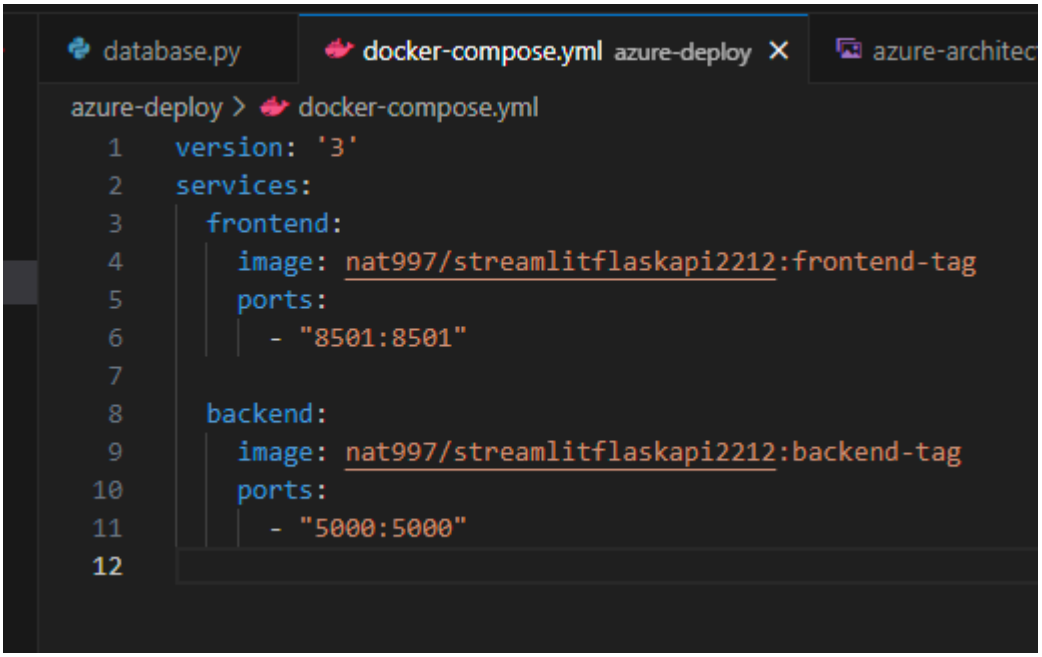




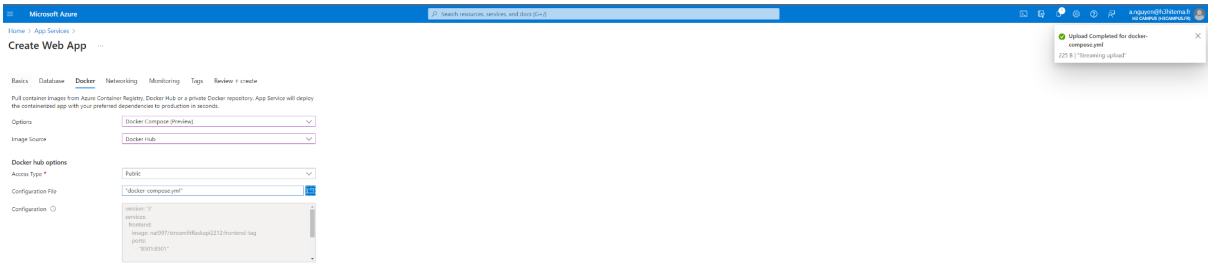
At the end when everything is good u will get a message



In my case specific , i have two docker images so i created a docker-compose file , what i did is i do a docker-compose file specific to your docker hub url

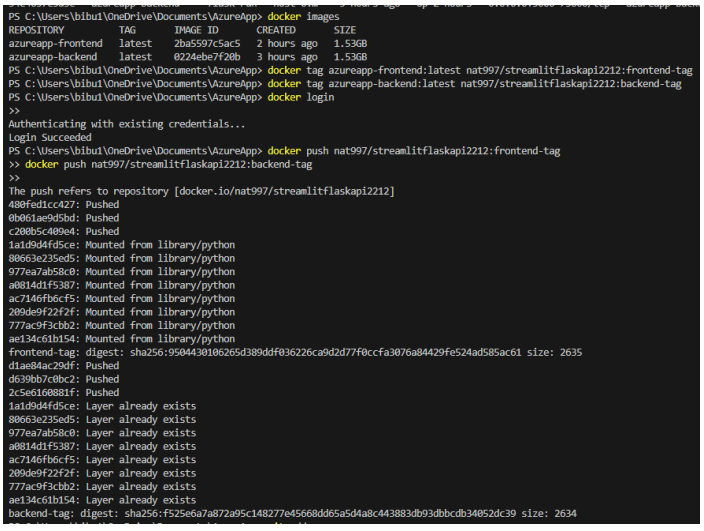


Then you have to upload your docker-compose file on the azure portal



Here is how i push my 2 images on docker-hub:

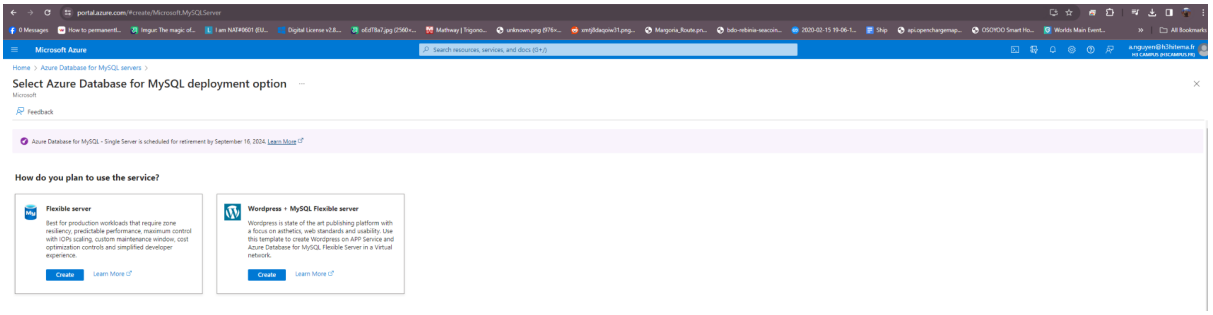
- Create a repository on DockerHub
- Check your image tag , login , then push the images



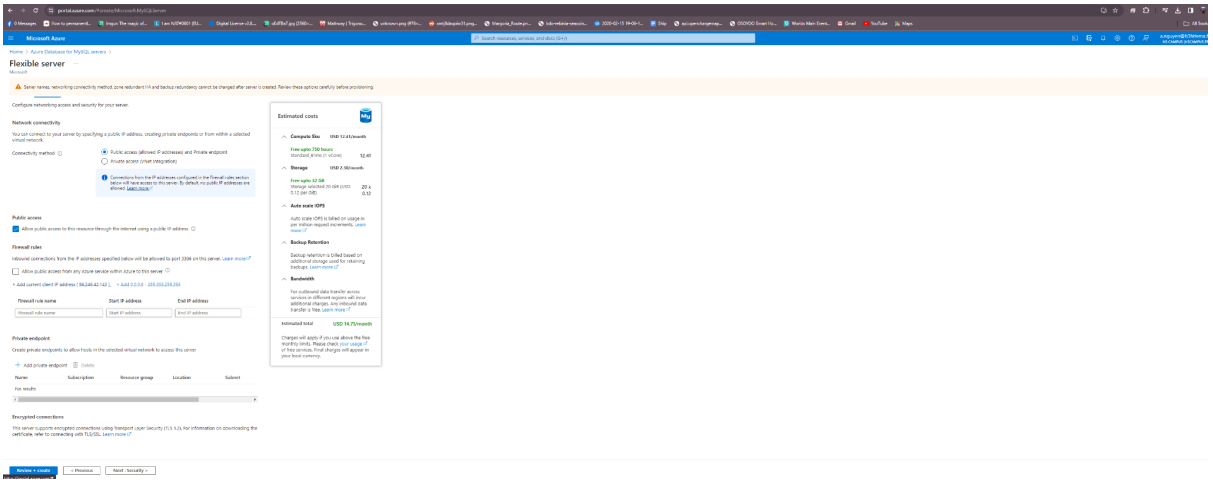
Create a SQL Database :

Imagine developing an application that requires a relational database backend. Creating an Azure SQL Database allows you to have a scalable and managed database service.

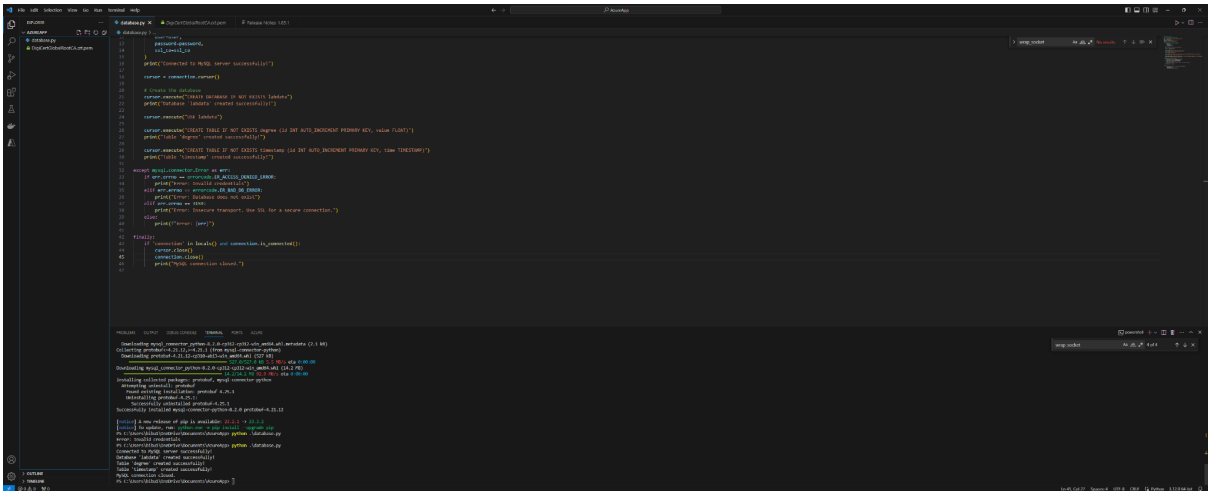
To create any MySQL server on azure you can simply going to
https://portal.azure.com/#create/Microsoft.MySQLServer
And then select the configuration that u would liked , in this case i use flexible server



One important thing to note
You have to add your ip address into the networking otherwise you wouldn't be able to connect your azure database mysql on your local machine



So to test out the database and connections between i did some python scripts and a simple api with streamlit app to check:
Create database and tables



Showing databases and tables

```
PS C:\Users\bibu1\OneDrive\Documents\AzureApp> mysql -h myappstreamlit2112.mysql.database.azure.com -u nguyenanhtien -p
Enter password: *********
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 53
Server version: 8.0.34 Source distribution

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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> show databases;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| labdata            |
| mysql              |
| performance_schema |
| sys                |
+--------------------+
5 rows in set (0.02 sec)

mysql> use labdata
Database changed
mysql> show tables;
+------------------+
| Tables_in_labdata |
+------------------+
| degree           |
| timestamp        |
+------------------+
2 rows in set (0.02 sec)

mysql>
```
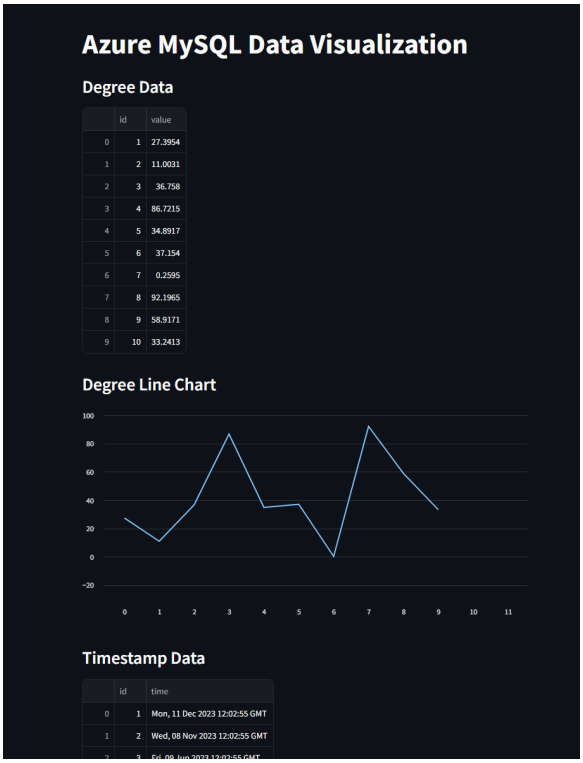
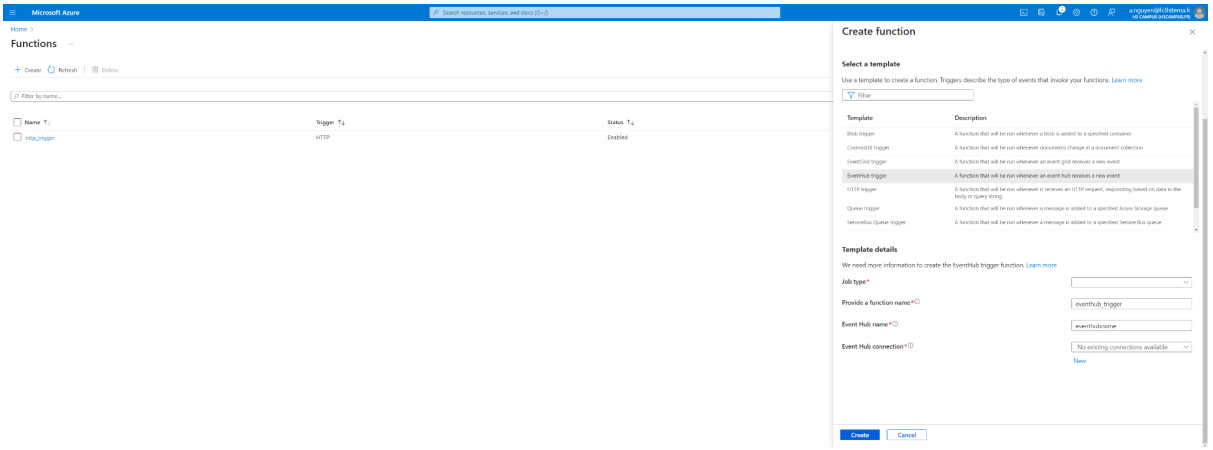

My application streamlit and it’s ap (you can check my code at my github :



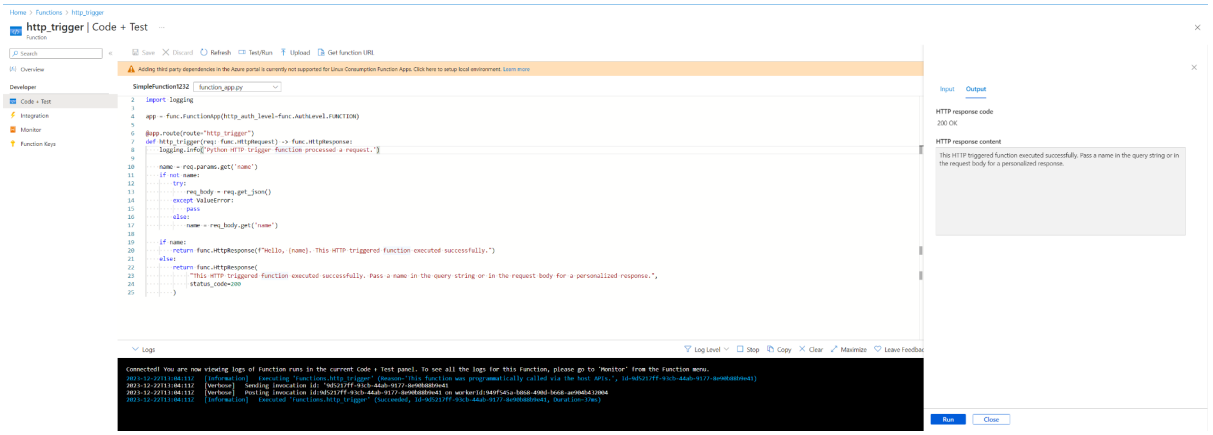
Implement a simple Azure Functions :

Consider a scenario where you need to process data or respond to events without a dedicated server. Azure Functions allow you to write event-driven functions that can be triggered on-demand.

To create a simple function you can just go on search bar and type azure function , it will direct you to this page



After that , you can choose a language that u wanna developpe with , create your code directly on portal azure website and execute it : here is an example

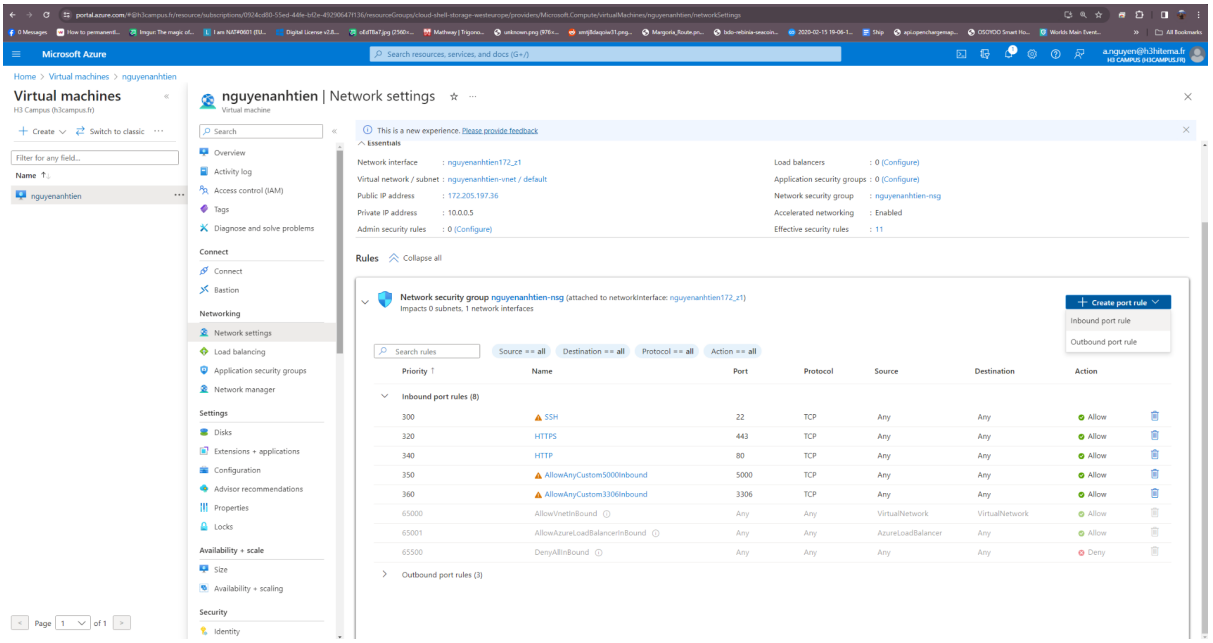


As you see we got HTTP response code 200 OK

Set Up a Networking ressource :

Suppose you have multiple VMs or services that need to communicate securely. Creating a Virtual Network in Azure allows you to isolate and manage network traffic between resources.

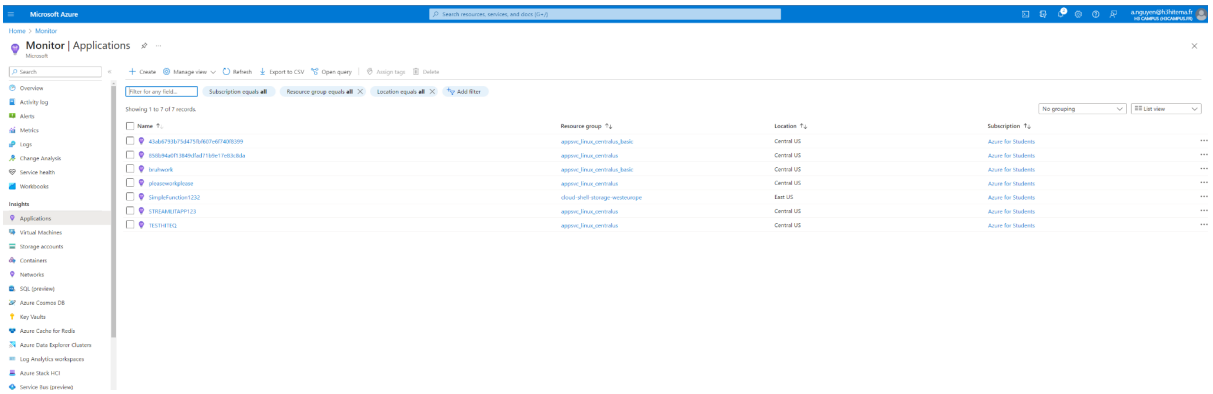
You can go to this tab and choose to open port of your application , choose https http



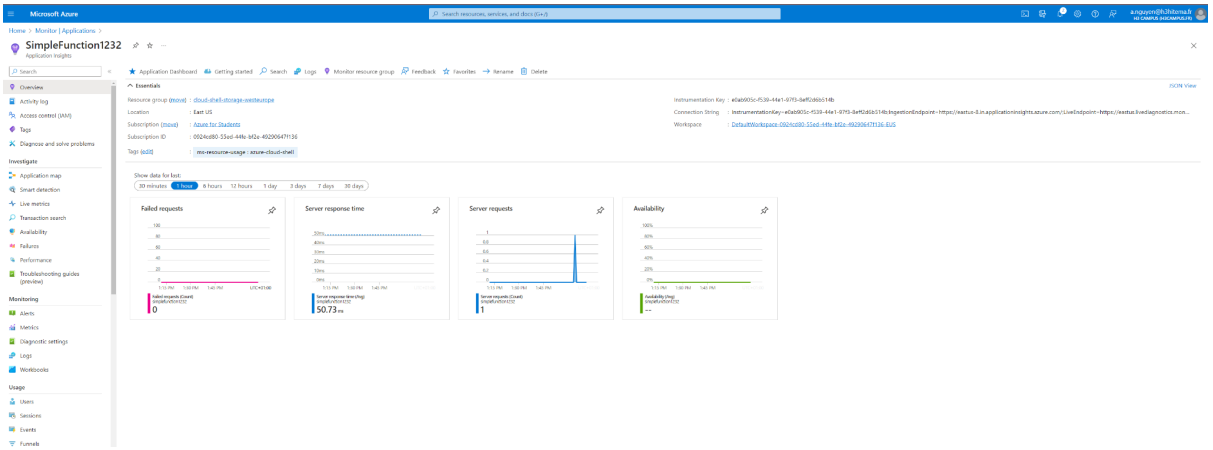
Configure Monitoring and Logging :

Imagine needing insights into the performance and health of your resources. Azure Monitor provides detailed telemetry and logs to help you diagnose issues and optimize performance.

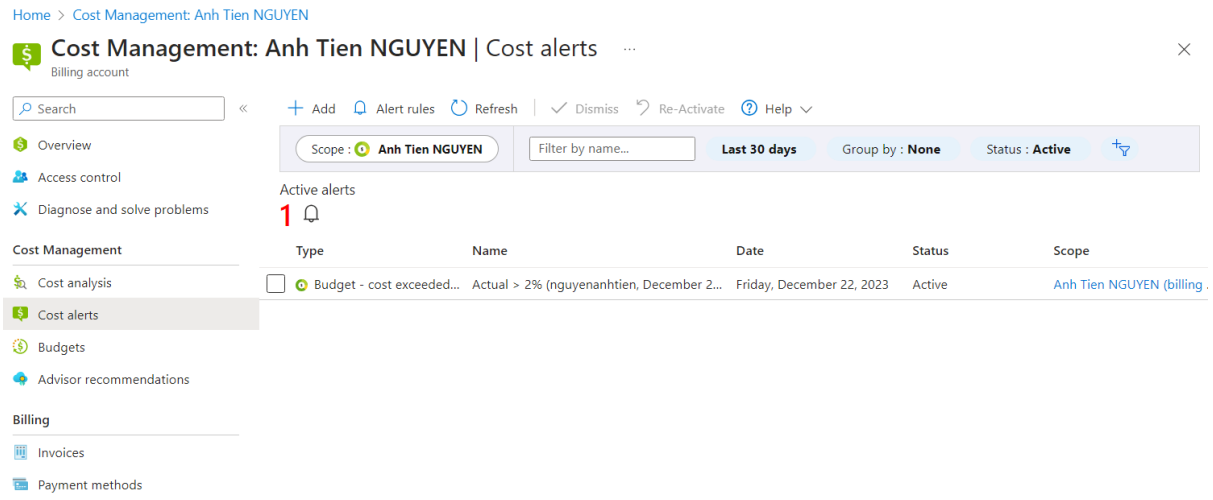
To check the state of your application to help you diagnose problems , you can simply use monitor function of azure portal for live web application and choose your application



It will tell your time to respond from the server , health of the application … . Here is an example of my azure function i created



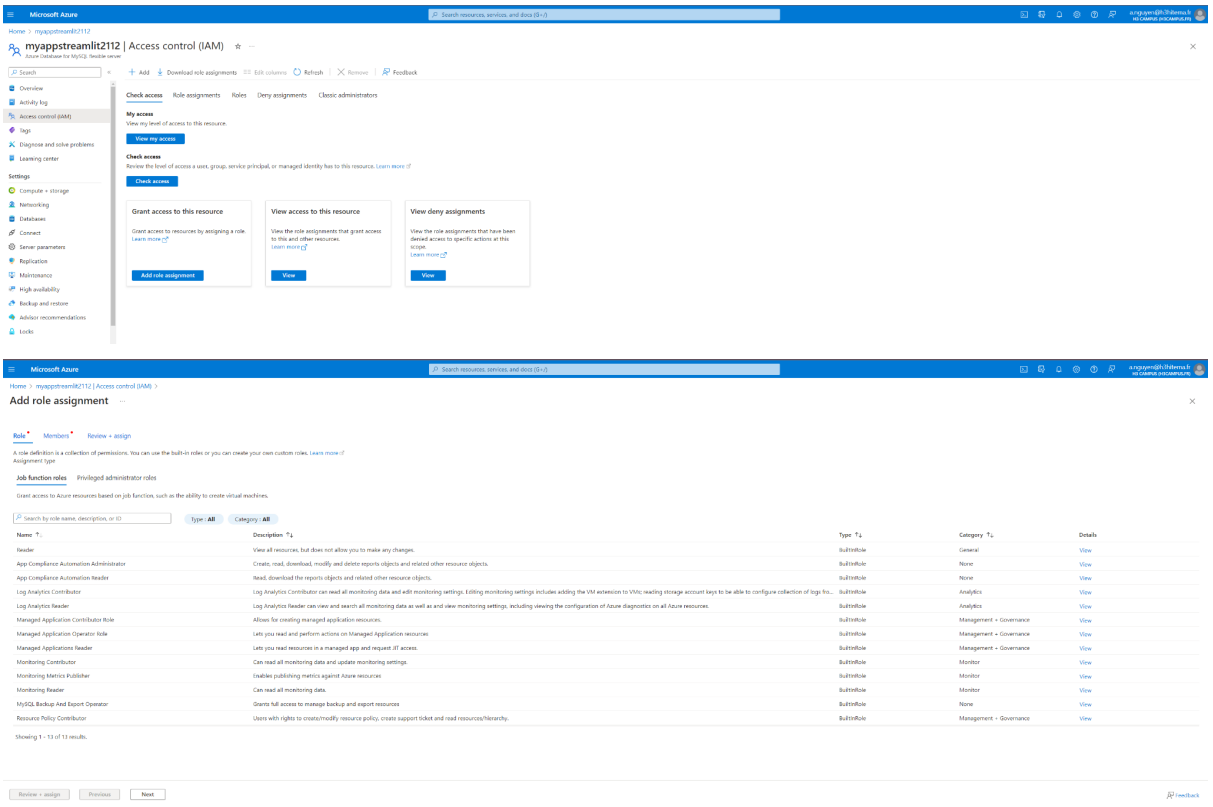
I also created a cost alert



Implement Azure Identity by creating a simple dev role :

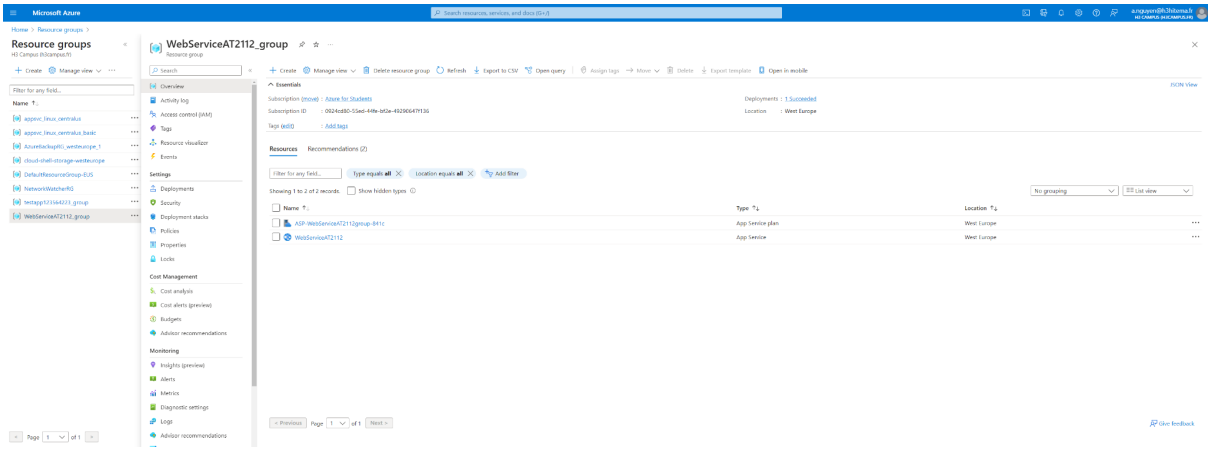
Consider a scenario where you need to manage user access to resources. Azure Active Directory allows you to manage identities and control access to resources.

You can also add an access role for anyone . By simply going to IAM and add role assignment and choose the right and the people you wanted

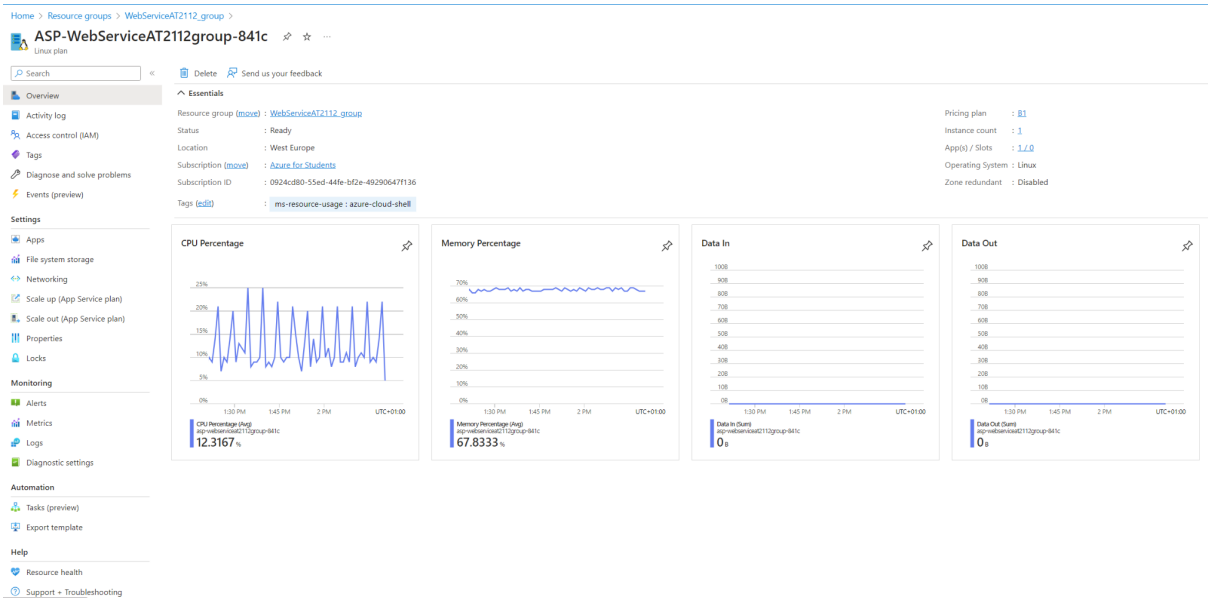


Create a personalized Resource Group :

Imagine needing to organize and manage related Azure resources. Resource Groups in Azure provide a way to group resources based on lifecycle, permissions, or other criteria.



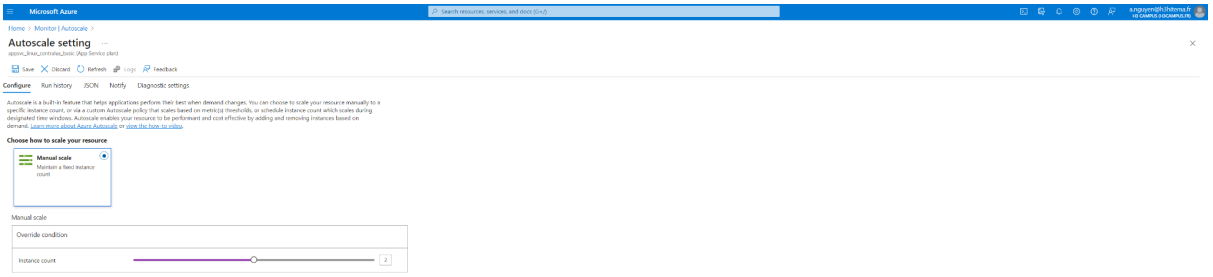
It will help you to manage the resource , as u see below an example of my application , it shows cpu usages etc …



Set Up Auto-Scaling :

Suppose you have a variable workload and need to adjust resources based on demand. Auto-scaling in Azure allows you to dynamically adjust resources to maintain performance and manage costs.

You can set up your auto scaling via Azure Monitor , and choose the option you would like , here to save budget 100$ student i didn't set any cause i don't have many clients or users that access my application .



HERE IS WHAT MY APPLICATION LOOK LIKE