To deploy a project to Kubernetes on Azure Cloud, you need to create a Kubernetes Services. First, open Azure, type in the search bar and select Kubernetes services.

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Select Kubernetes cluster

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Select Resource group

Cluster preset configuration: Dev/Test

Set a name for the Kubernetes cluster name

Select Region

Choose the appropriate AKS pricing tier

Finally click Next

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Select Node size for Kubernetes , click on the current node to change

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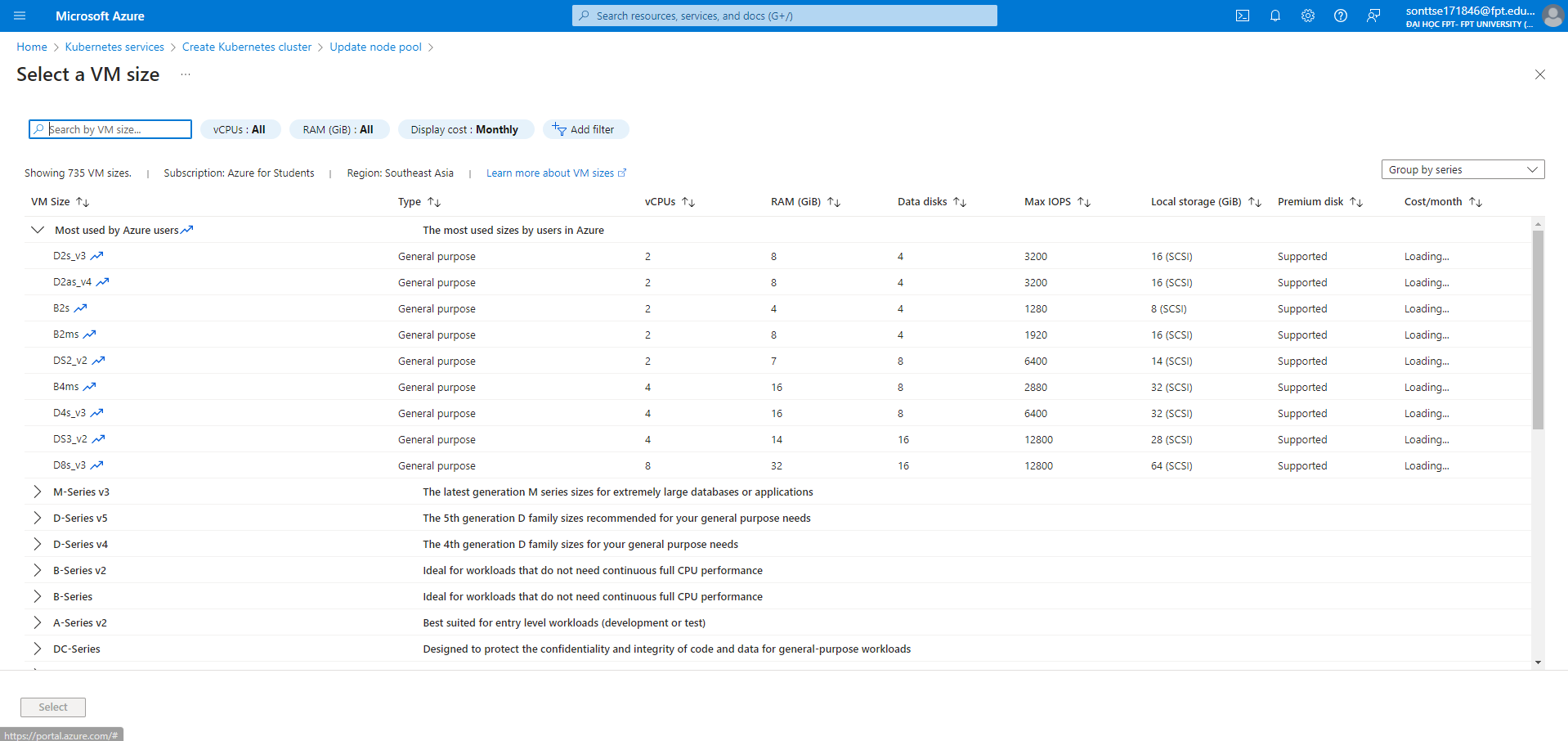
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In the Node size section, select Choose a size

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Choose the appropriate VM



After selecting the VM, click Update

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Click Next

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next

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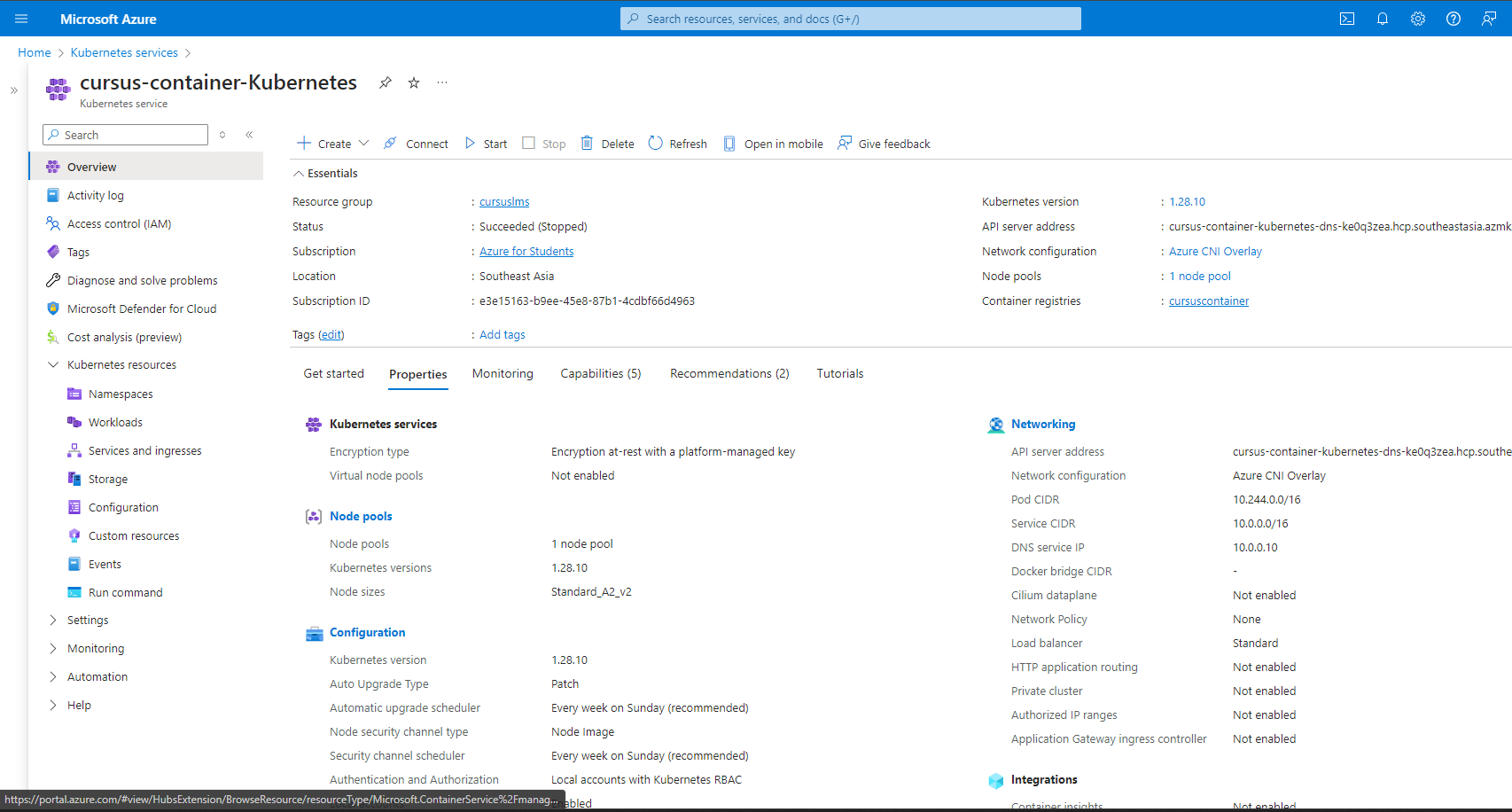
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In the Container registry section, select the container, and finally select Review + create

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This is kubernetes after successful creation



Next we will create a Dockerfile file to build and push the image from Docker to the Container Registry

Right click on the project API, select Add, Select Docker Support…, the Dockerfile will be created

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Dockerfile after being created

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In the root directory of the project, create a deployment.yaml file, this is the file used to configure service deployment

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This is the sample file

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Please correct the Image name and path in the Repository of the Container Registry on Azure

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Next open terminal in Visual Studio and type the following commands:

az login

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* az acr login --name <name container>



* az aks get-credentials --resource-group <Resource Group Name> --name <Kubernetes Name> --overwrite-existing

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* docker build -t <image on Container Registry>

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Image is created in images of Docker

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* docker push <image on Container Registry>

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kubectl apply -f deployment.yaml



If you want to delete Kubernetes Services

kubectl delete -f deployment.yaml



kubectl get pods

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kubectl get services

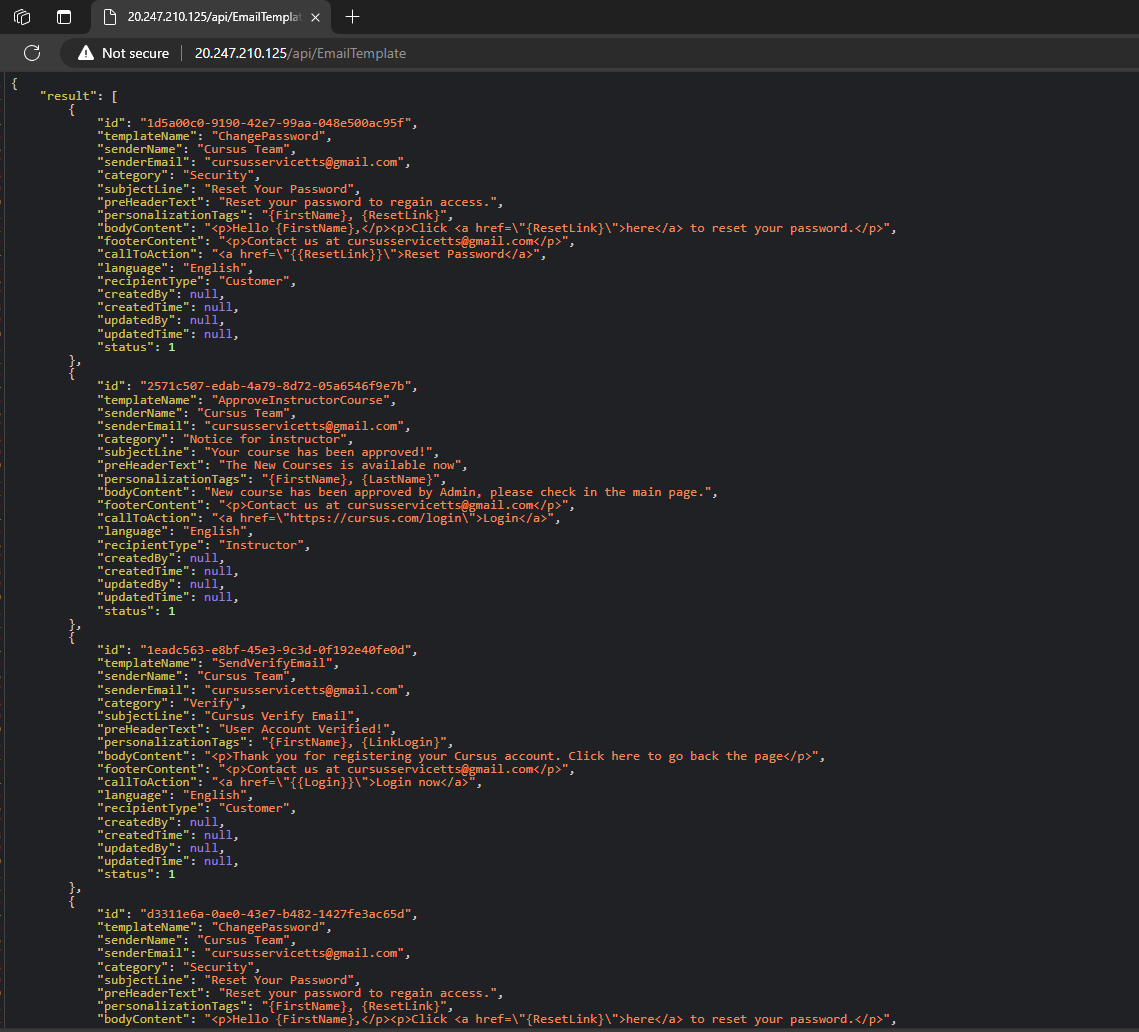
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Open a browser and enter External-IP and test the API



Retrieved data from API

Same with Frontend using React-Vite

Create a Dockerfile in the project root directory

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# First, use a node image to build the application.

FROM node:18 AS build

# Set working directory

WORKDIR /app

COPY package\*.json ./

# Install dependencies

RUN npm install

# Copy entire source code

COPY . .

# Building applications

RUN npm run build

# Now, use an nginx image to serve the application.

FROM nginx:alpine

# Copy build files from previous stage to nginx

COPY --from=build /app/dist /usr/share/nginx/html

# Expose port 80

EXPOSE 80

# Run nginx when container starts

CMD ["nginx", "-g", "daemon off;"]

Open terminal and run the following commands:

az login

az acr login --name <name container>

az aks get-credentials --resource-group <Resource Group Name> --name <Kubernetes Name> --overwrite-existing

docker build -t <image on Container Registry>

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docker push <image on Container Registry>

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kubectl apply -f deployment.yaml 

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kubectl get pods

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kubectl get services

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Enter External-IP to test Frontend on Kubernetes

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Frontend project has been successfully deployed to Kubernetes

Deployment of both Backend and Frontend projects to Kubernetes was successful