Assignment Case	
COMP7142001 Popular Network Technology	BINUS UNIVERSITY Software Laboratory Center
Computer Science	**O263-COMP7142-IL01-01**
Valid on Odd Semester Year 2025/2026	**Revision 00**

1. Mahasiswa tidak diperkenankan untuk:

   Students are prohibited from:

   - Berdiskusi dan/atau bekerja sama dengan mahasiswa lainnya,

     Discussing and/or cooperating with other students,
   - Melihat sebagian atau seluruh jawaban mahasiswa lainnya,

     Seeing a part or the whole answer from other students,
   - Membuka dan/atau menyalin jawaban dari buku, catatan, video, dan jenis referensi lainnya,

     Open and/or copy answer from books, notes, videos, and other references,
   - Membuka dan/atau menyalin jawaban dari internet,

     Open and/or copy answer from the internet,
   - Mengumpulkan jawaban yang tidak sesuai dengan tema soal,

     Submitting an answer with a different theme from the given case,
   - Melakukan tindakan yang menyebabkan jawaban dicontek oleh orang lain atau kelompok lain, baik disengaja maupun tidak disengaja,

     Doing action that could result the answer being copied by someone or other groups, intentionally or unintentionally,
   - Melakukan tindakan kecurangan lainnya.

     Committing other dishonest actions.

2. Jika mahasiswa dan/atau terbukti melakukan tindakan seperti yang dicantumkan pada butir ke-1, maka nilai mahasiswa dan/atau kelompok yang melakukan kecurangan, baik menyontek atau dicontek, akan dinolkan sesuai dengan peraturan yang berlaku.

   If it has been proven that a student and/or group has committed dishonest actions outlined in point 1 above, the students and/or groups related to the incident, regardless of which one copies or has their answer copied, will be issued a score of zero according to the regulation.

3. Jawaban yang dapat diterima dan dinilai adalah jawaban yang dikumpulkan sebelum batas waktu yang telah ditentukan.

   The answer must be submitted before the designated deadline to be accepted and graded,

4. Jawaban akan dinilai berdasarkan teknik yang diajarkan dalam praktikum dengan menggunakan software yang telah ditentukan.

   The scoring will be based on the materials taught during the practicum classes using the designated software. Using different software than requested may result in your answer not being graded.

5. Jika Anda tidak membaca peraturan ini, maka Anda dianggap sudah membaca dan menyetujuinya.

   By taking this exam, you agree to these regulations, regardless of whether you have read it or not.

6. Persentase penilaian untuk matakuliah ini adalah sebagai berikut:

   The score will be distributed as follows:

Tugas Mandiri *Assignment*	**Proyek** *Project*	**UAP** *Final Exam*
100%	-	-

7. Perangkat lunak yang digunakan pada matakuliah ini adalah sebagai berikut:

   This course uses the following software:

Software *Software*
Ansible Microsoft Azure Terraform Visual Studio Code

8. Ekstensi file yang harus dikumpulkan untuk matakuliah ini adalah sebagai berikut:

   Your answers must be in the following file extensions:

Tugas Mandiri *Assignment*	**Proyek** *Project*	**UAP** *Final Exam*
DOCX, YAML, HCL, TF	-	-

Soal
Case

Streamlining Productivity: Automating Seamless Deployment of versatIL on Azure Kubernetes Service

versatIL is a modern productivity application built to revolutionize the way individuals and teams manage their daily tasks, projects, and deadlines. With a sleek interface, intuitive collaboration tools, and intelligent task automation, **versatIL** empowers users to stay organized, focused, and ahead of schedule, whether at work, school, or home. Designed to adapt to different workflows, it provides flexible task boards, smart reminders, and insightful analytics to optimize time management and boost productivity.

To support growing demand and enhance user experience across diverse environments, **versatIL** is now being deployed in a resilient, scalable cloud infrastructure powered by Azure Kubernetes Service (AKS). This deployment ensures high availability, secure service delivery, and effortless scalability, making **versatIL** accessible to teams and individuals around the globe. Supporting this architecture, the Azure Container Registry (ACR) will host and manage **versatIL's** container images, allowing for efficient distribution and version control.

As part of this initiative, your mission is to automate the provisioning and configuration of this infrastructure. Leveraging infrastructure as code and best practices in container orchestration, you'll ensure **versatIL** is deployed seamlessly, ready to deliver reliable performance and empower users to take control of their time like never before.

- **Provision Infrastructure with Terraform:**
  - Use Terraform to define and provision the necessary cloud resources in Azure for the deployment.
  - Create a Virtual Network, Subnets and other required Networking Component. o Deploy an AKS Cluster that will host the containerized application
  - Ensure high availability by provisioning the AKS Cluster across multiple availability zones in Singapore.

- **Containerize the Application:**
  - Create Dockerfile to containerize applications from the supplied application.
  - Ensure the application is properly configured and tested for configuration.

- **Create an Azure Container Registry (ACR):**
  - Set up an Azure Container Registry (ACR) to securely store the container images for the application.
  - Make sure the Azure Container Registry (ACR) is using naming format [NIM]VERSATILACR
  - Push the containerized application images to ACR.

- **Deploy the Application on AKS:**
  - Use Kubernetes manifest (YAML files) to define and deploy the containerized application on the AKS Cluster
  - Ensure that the application is running correctly and create services to expose the application to the public or internal network.

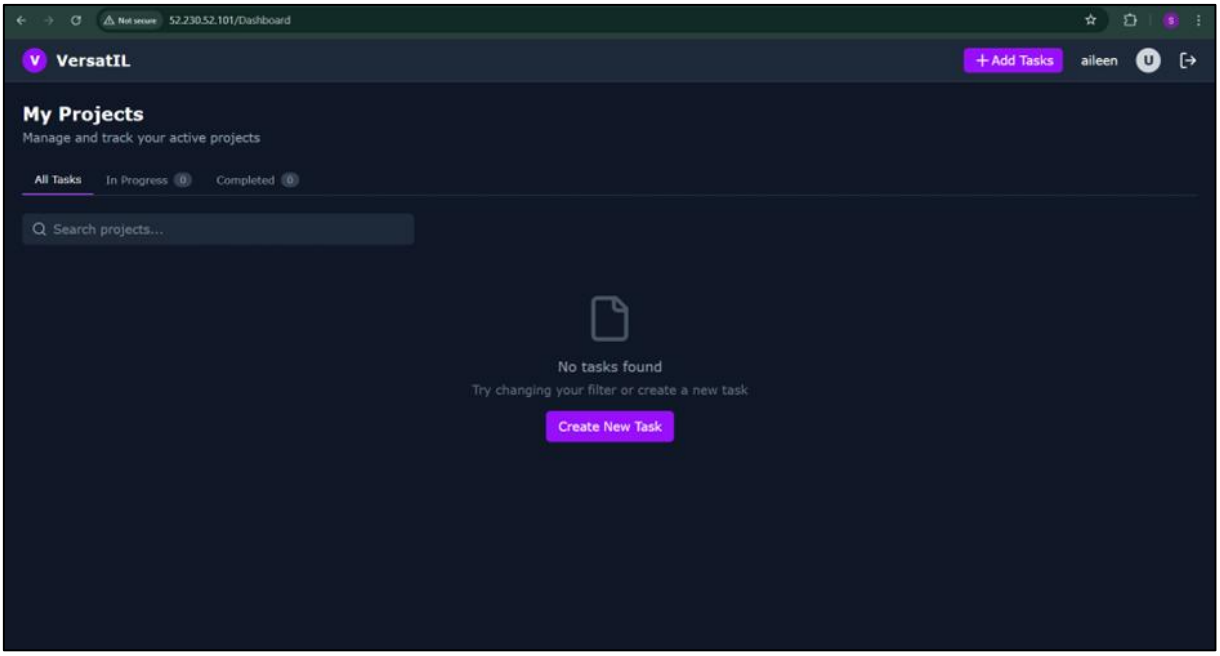

Figure 1.1 Expose Application Using External