**DevOps/AKS architect UseCase (for Design)**

1. **Design a DevOps solution on Azure platform using Azure Kubernetes Services following the below directions:**
   1. **Build the application locally and create a docker image.**
      1. **Write the Commands for publishing the image to ACR from local environment.**
      2. **Provide the direction to admin team for making the ACR highly available**
   2. **Design & Configure the AKS environment along with below criteria’s**
      1. **Configure the AKS vnet and describe the other networking criterias considered.**
      2. **Design for use of Roles and authorization for users.**
      3. **Design for use of Azure keyvaults (for securing the connection parameters and passwords.)**
   3. **Design the use of any Azure DB SaaS service e.g. PostGresDB service, Azure SQL DB service etc. for your application in AKS cluster**
      1. **Provide key architectural directions to Azure admin team for creation of DB services.**
      2. **Design the steps for use of Azure key-vaults for DB**
   4. **Design the key criteria for application build to be deployed in AKS cluster. Also include the below considerations.**
      1. **Describe the steps you will take to expose the web frontend as a load balanced service. Also, define the security around the exposed service.**
      2. **Describe if you will use an external ingress e.g. NGINX ingress controller or others. And why?**
      3. **Design the use of Azure DNS service map a meaningful URL for your web frontend.**
      4. **Describe the steps to configure SSL/TLS certificate for the service. [Will you use certmanager or any similar other 3rd party service & why?]**
      5. **Comment if you suggest implementing an image security scanning using any tool e.g. AQUAsec, Twistlock etc. And how will you enforce that only scanned images can be deployed in your AKS cluster.**
      6. **Use Azure AD for user role authentication and authorization.**
2. **Configure monitoring for you AKs cluster using Azure Monitor or similar tool.**
   1. **Design monitoring for AKS cluster, Node, health and containers.**
   2. **Design/Define Kubernetes RBAC (Role Binding, ClusterRolebinidng) to enable live logs to be visible on Azure Monitors**
3. **Design Autoscaling – horizontal pod autoscaling and provide criteria and metrics to be defined.**
4. **Design the steps to create Helm Chart for packaging the environment creation & code deployment for the above application.**
5. **Define Azure DevSecOps Pipeline to be used for the above AKS build & deployment process.**
   1. **Design Build / CI pipeline and describe the recommended tools for each step. In addition describe below,**
      1. **Define the configuration of agent/build servers, use of agent pools.**
      2. **Define the detailed integration steps for one tool e.g. SonarQube with Azure Pipeline & it’s output.**
      3. **Define the automated quality gates that can be built in Build/CI pipeline.**

**[Note: Try to use any or all security scanning tools you may be aware of.]**

* 1. **Design Release / CD pipeline and describe the recommended tools for each step. In addition describe below,**
     1. **How can you use the provisioning and deployment tools so that it is agnostic to the cloud platform?**
     2. **Define the detailed steps to build automated Quality Gates for promoting the code from one environment to other.**
     3. **Define the manual approval steps for promoting code from one environment to other.**

**Note: You can make assumptions where-ever required but state/write them at separate place.**