The following test was created to evaluate DevSecOps skills

General questions - Docker, CVEs, CI/CD, monitoring

1. Create an image with python2, python3, R, install a set of requirements and upload it to docker hub.
2. For the previously created image
    a. Share build times
    b. How would you improve build times?
3. Scan the recently created container and evaluate the CVEs that it might contain.
    a. Create a report of your findings and follow best practices to remediate the CVE
    b. What would you do to avoid deploying malicious packages?
4. Use the created image to create a kubernetes deployment with a command that will keep the pod running
5. Expose the deployed resource
6. Every step mentioned above have to be in a code repository with automated CI/CD
7. How would you monitor the above deployment? Explain or implement the tools that you would use

Project

Using kubernetes you need to provide all your employees with a way of launching multiple development environments (different base images, requirements, credentials, others). The following are the basic needs for it:

1. UI, CI/CD, workflow or other tool that will allow people to select options for:
    a. Base image
    b. Packages
    c. Mem/CPU/GPU requests
2. Monitor each environment and make sure that:
    a. Resources request is accurate (requested vs used)

    b. Notify when resources are idle or underutilized
    c. Downscale when needed (you can assume any rule defined by you to allow this to happen)
    d. Save data to track people requests/usage and evaluate performance
3. The cluster needs to automatically handle up/down scaling and have multiple instance groups/taints/tags/others to be chosen from in order to segregate resources usage between teams/resources/projects/others
4. SFTP, SSH or similar access to the deployed environment is needed so DNS handling automation is required
5. Some processes that are going to run inside these environments require between 100-250GB of data in memory
    a. Could you talk about a time when you needed to bring the data to the code, and how you architected this system?
    b. If you don't have an example, could you talk through how you would go about architecting this?
    c. How would you monitor memory usage/errors?

Troubleshooting

Try to solve the problems that might arise through the test by yourself (we are always available, but we are looking forward to seeing your problem solving skills and ability to self serve).