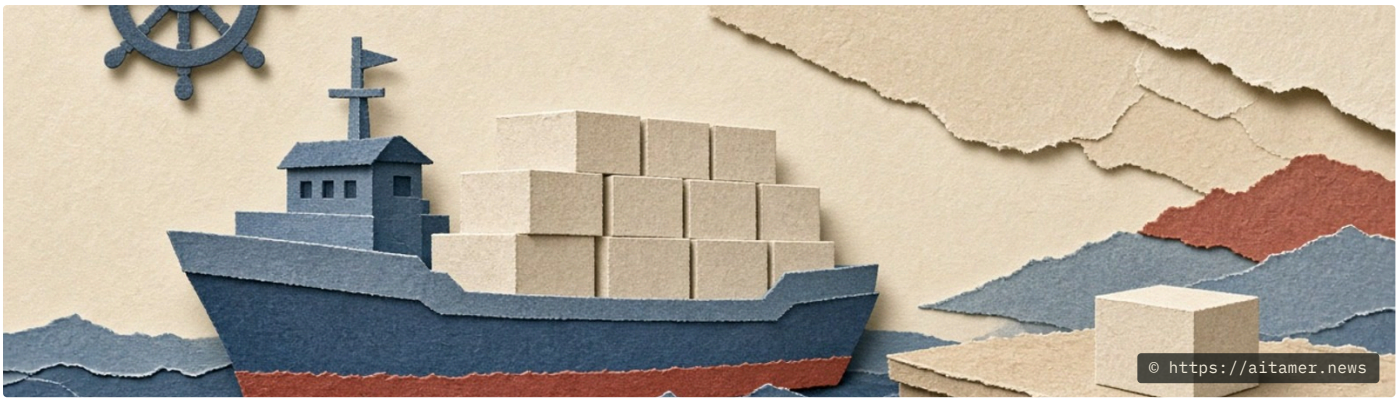

KUBERNETES FROM ZERO · FOUNDATIONS 11 OF 12 · LESSON 11 · LESSON KIT · ANSWER KEY

Kubernetes from Zero, part 11: requests, limits and QoS classes

The answers to the homework sheet, matched by exercise number. Every answer comes from the lesson. Names with random suffixes will differ on your cluster.

Ran every example on kind v0.33.0, node v1.37.0, kubectl v1.37.2, cgroup v2 node, 10 Nov 2026. Cluster: k8s-ep10.

Recall

1. What does the scheduler count, and what does the kernel enforce?

   Requests are what the scheduler reserves. Limits are what the kernel enforces through cgroups.

2. At the limit, what happens to CPU, and what happens to memory?

   CPU is throttled and the container keeps running. Memory gets the container OOM-killed with exit code 137.

3. Name the three QoS classes and the eviction order.

   BestEffort, Burstable and Guaranteed. BestEffort goes first, Guaranteed last. The class comes from requests and limits and also sets OOM scores.

4. Where do you see a quota error on a Deployment?

   On its ReplicaSet, not on the Deployment. Look for `exceeded quota`, or for an error about missing requests or limits if no LimitRange fills in defaults.

Predict the outcome

5. A Pod stays Pending with `Insufficient cpu` or `Insufficient memory`. What does the lesson tell you to read, and why will a usage graph not explain it?

   `Allocated resources` in `kubectl describe node`. The scheduler counts requests, not live usage. Lower the requests, free capacity, or add nodes.

6. RESTARTS climbs and lastState says OOMKilled with exit 137. What are the two responses in the lesson?

   Raise the limit, and probably the request, or fix the leak. The app needed more memory than its limit, or it leaks.

7. `kubectl top` prints `error: Metrics API not available`. What does the lesson say to read instead?

   The cgroup files, such as `/sys/fs/cgroup/cpu.stat`. `top` needs a metrics add-on that kind does not install. Part 25 installs metrics-server.

SCAN FOR THE LESSON

Lesson: **Kubernetes from Zero, part 11: requests, limits and QoS classes**

https://aitamer.news/posts/k8s-from-zero-11-requests-limits-and-qos/?utm_source=lessonkit&utm_medium=pdf&utm_campaign=k8s-11&utm_content=answer-key

NEXT IN THE SERIES **Next: Lesson 12, the first checkpoint lab.** The first checkpoint lab, where you build a two-tier app with everything from parts 1 to 11 and grade it with a script. Lesson page

Free to share with credit: © aitamer.news