Understand Jobs and CronJobs

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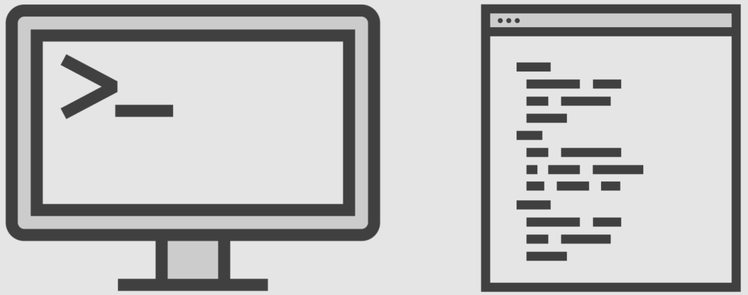
Agenda

- Understanding Jobs and CronJobs
- Working with Jobs
- Working with CronJobs
- Exam Scenarios
- Recap and Test Yourself

Understanding Jobs and CronJobs

Kubernetes

kubectl and YAML



Bookmarks

https://kubernetes.io/docs/concepts/workloads/controllers/job/

https://kubernetes.io/docs/reference/kubernetes-api/workload-resources/job-v1/

https://kubernetes.io/docs/concepts/workloads/controllers/cron-jobs/

https://kubernetes.io/docs/reference/kubernetes-api/workload-resources/cron-job-v1/

Have these pre-created on the machine, or browser profile, you'll use for the exam

Be sure to complete this task in XYZ environment.
The command to connect is ABC...

Task

Create a new Job in the **pluralsight** Namespace that runs a single instance of the following container.

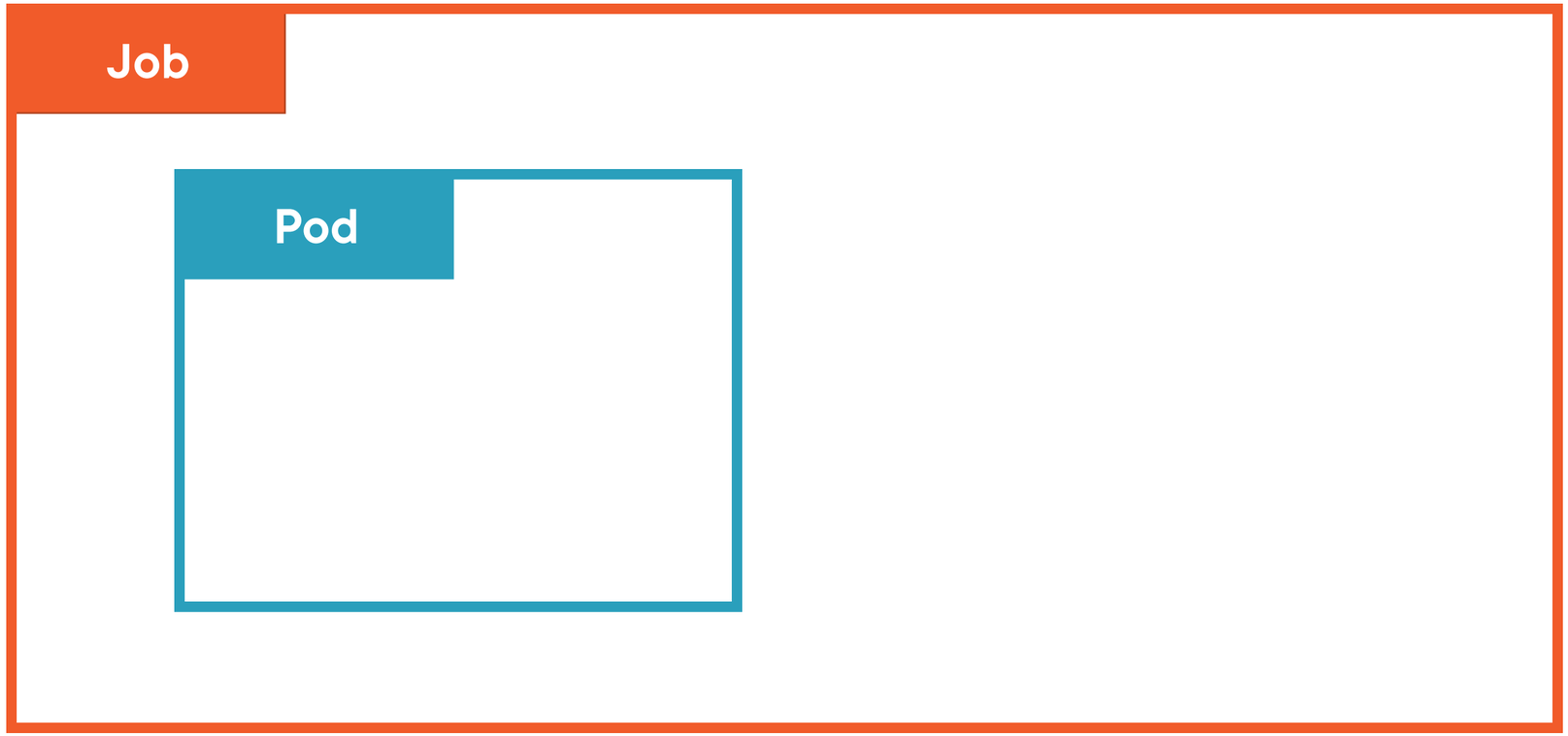
```
- name: pi
       image: perl
       command: ["perl",  "-Mbignum=bpi", "-wle", "print bpi(2000)"]
```

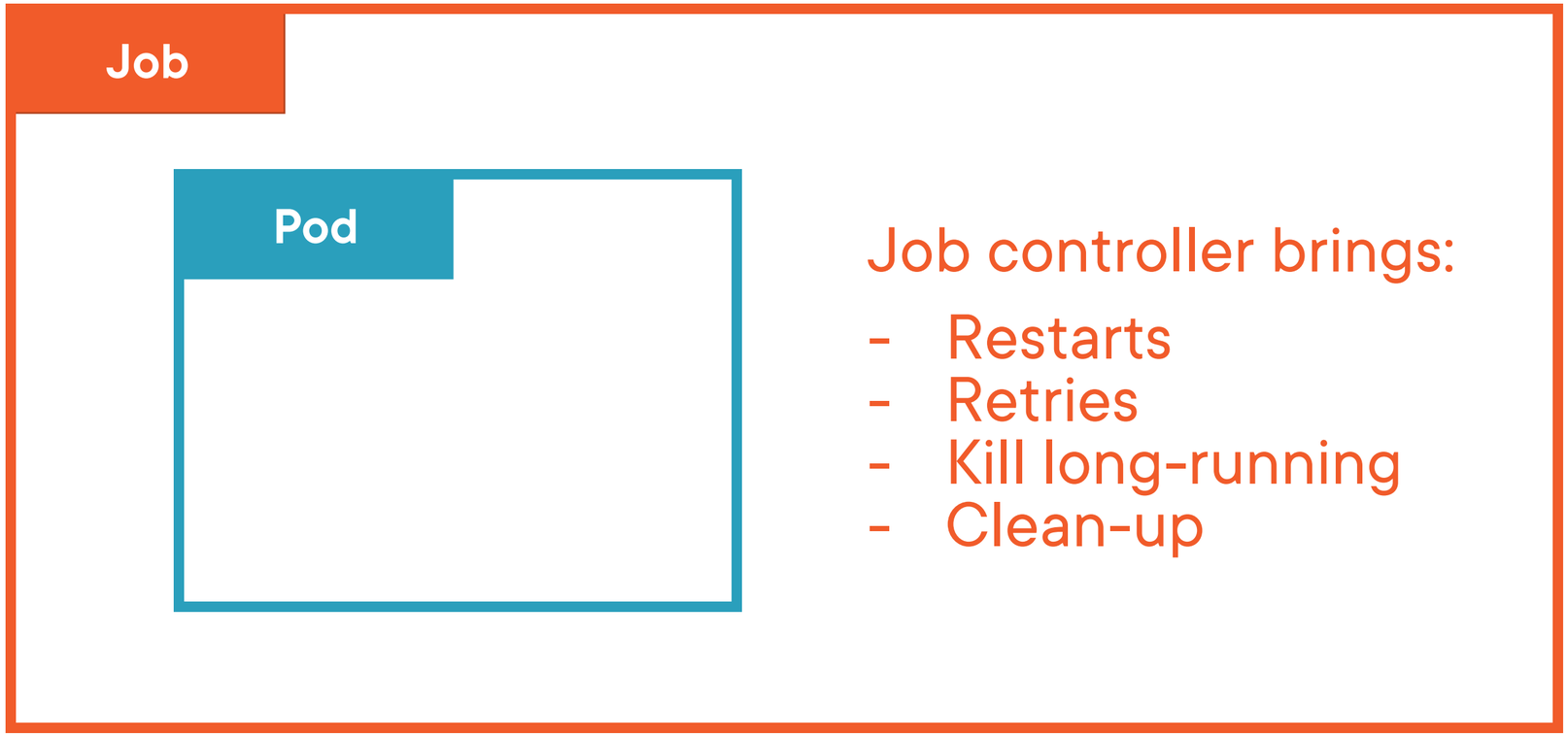
Jobs

Run set number of Pods to completion

Managed by a controller

Can run Pods in parallel


Job
Pod

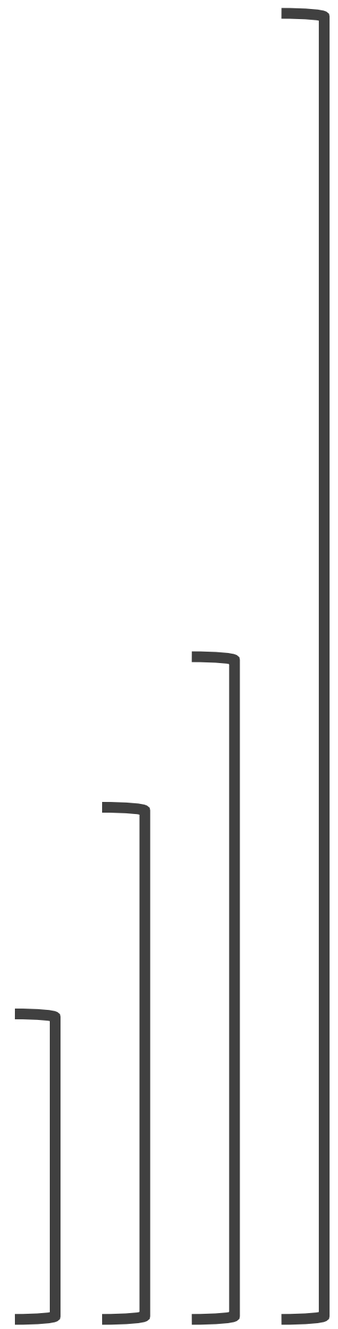

Job
Pod
Job controller brings:
- Restarts
- Retries
- Kill long-running
- Clean-up

```yaml
apiVersion: batch/v1
kind: Job
metadata:
  name: job1
spec:
  backoffLimit: 10
  activeDeadlineSeconds: 90
  completions: 12
  template:
    spec:
      restartPolicy: Never
      containers:
        name: ctr
        image: ckad
        command: "bash"  ...
```

Job template
and
Job controller stuff

Pod template

```yaml
apiVersion: batch/v1
kind: CronJob
metadata:
  name: ckad
spec:
  schedule: “0 * * * *”
  concurrencyPolicy: Forbid
  startingDeadlineSeconds: 90
  jobTemplate:
    spec:
      template:
        spec:
          restartPolicy: Never
          containers:
            name: ctr
            image: ckad
            command: "bash"  ...
```



```yaml
apiVersion: batch/v1
kind: CronJob
metadata:
  name: ckad
spec:
  schedule: “0 * * * *”
  concurrencyPolicy: Forbid
  startingDeadlineSeconds: 90
  jobTemplate:
    spec:
      template:
        spec:
          restartPolicy: Never
          containers:
            name: ctr
            image: ckad
            command: "bash"  ...
```

CronJob

Job Template

Pod Template

Container (app)

```yaml
apiVersion: batch/v1
kind: CronJob
metadata:
  name: ckad
spec:
  schedule: “0 * * * *”
  concurrencyPolicy: Forbid
  startingDeadlineSeconds: 90
  jobTemplate:
    spec:
      template:
        spec:
          restartPolicy: Never
          containers:
            name: ctr
            image: ckad
            command: "bash"  ...
```

CronJob

Job Template

Pod Template

Container (app)

Up Next:
Working with Jobs

Working with Jobs

Jobs

Job controller manages Pods

Offer intelligence

Can run set number of Pods, and in parallel

Up Next:
Working with CronJobs

Working with CronJobs

Minute Hour Day of month Month Day of week

* * * * *

`0 4 * * 6`

04:00 every Saturday

`0 0 1 * *`

Midnight on the first day of every month

Minute Hour Day of month Month Day of week

* * * * *

`5 0 * * 2`

00:05 every Tuesday

Up Next:
Exam Scenarios

Exam Scenarios

Task weight: 8%

Be sure to complete this task in XYZ environment.
The command to connect is ABC...

Task

You have a job called **ckad-job5** defined in a file called **ckad-job5.yml**.

This was previously being called by code, but you've been asked to change it so that Kubernetes is in charge of the schedule and runs it once every two minutes.

Update the YAML file and implement the change.

Task weight: 6%

Be sure to complete this task in XYZ environment.
The command to connect is ABC...

Task

You have a CronJob called **xyz** defined in a YAML file called **cj-exam2.yml**.

The Job defined in the file runs most of the time but occasionally fails to start. There are no error messages and no concurrency issues, it just seems like the CronJob controller occasionally misses the job.

Fix the issue

Task weight: 6%

Be sure to complete this task in XYZ environment.
The command to connect is ABC...

Task

There's a problematic Job in the **pluralsight** Namespace.

The Job is defined in the **failing-job.yml** file.

Reconfigure and redeploy it so that when troubleshooting you will always have access to the logs of failed Pods.

Up Next:
Recap and Test Yourself

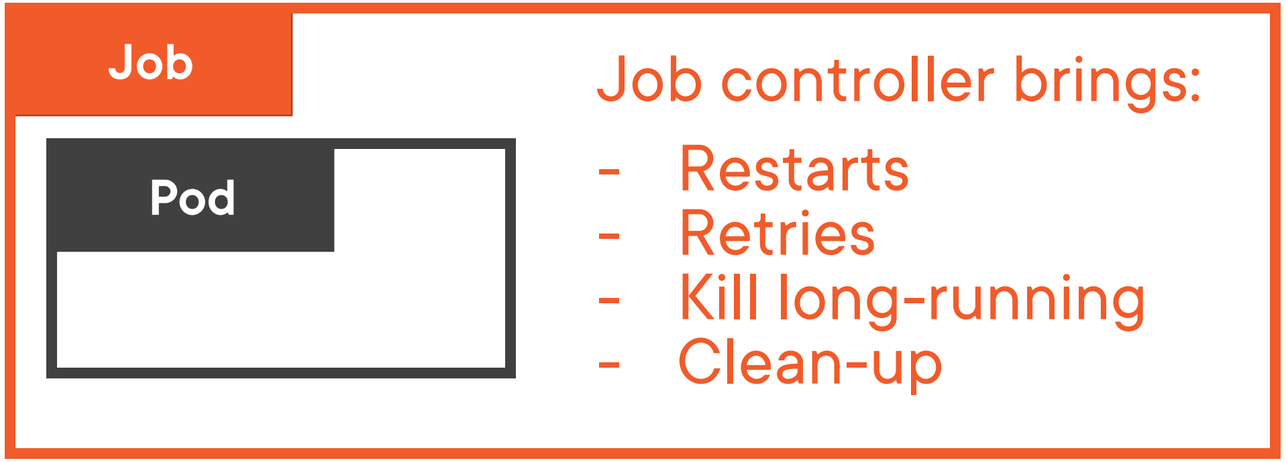
Recap and Test Yourself

Jobs: Ensure one or more Pods completes successfully.

Parallel execution

Restarts

Clean-up...


Job
Pod
Job controller brings:
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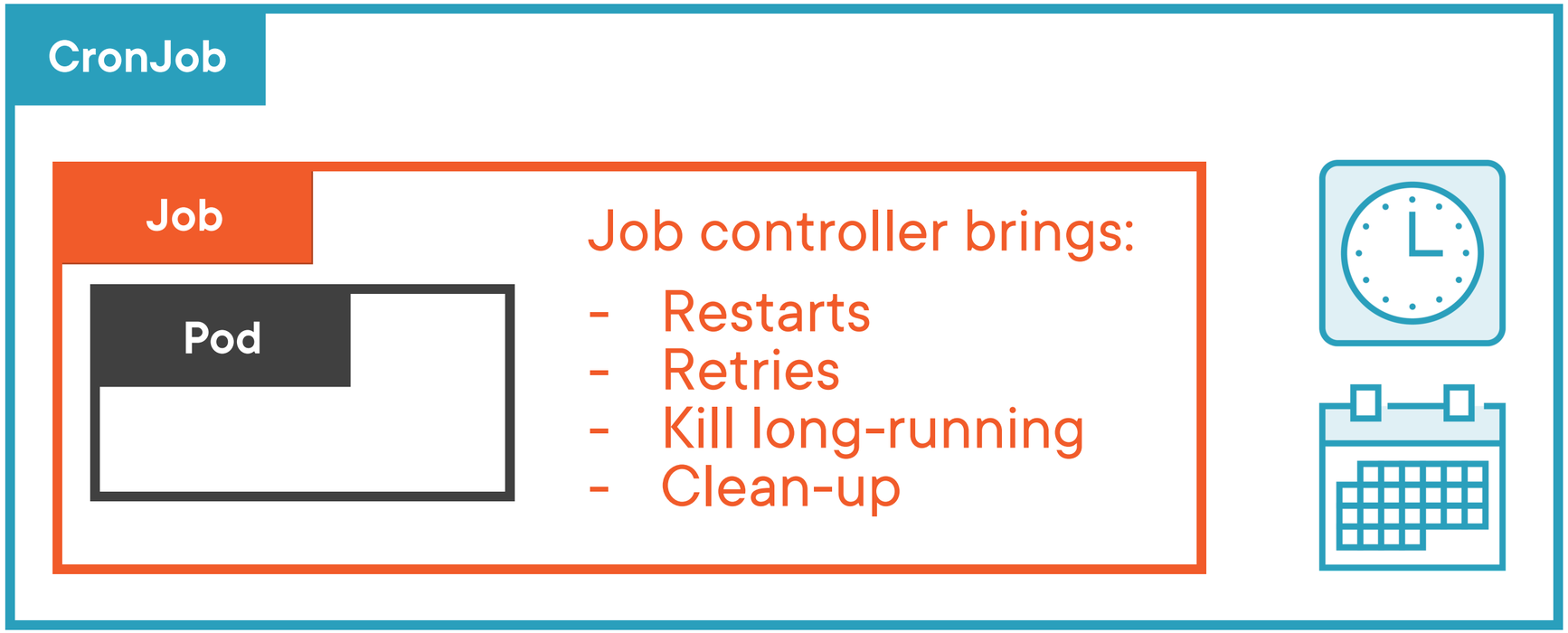
CronJob
Job
Pod
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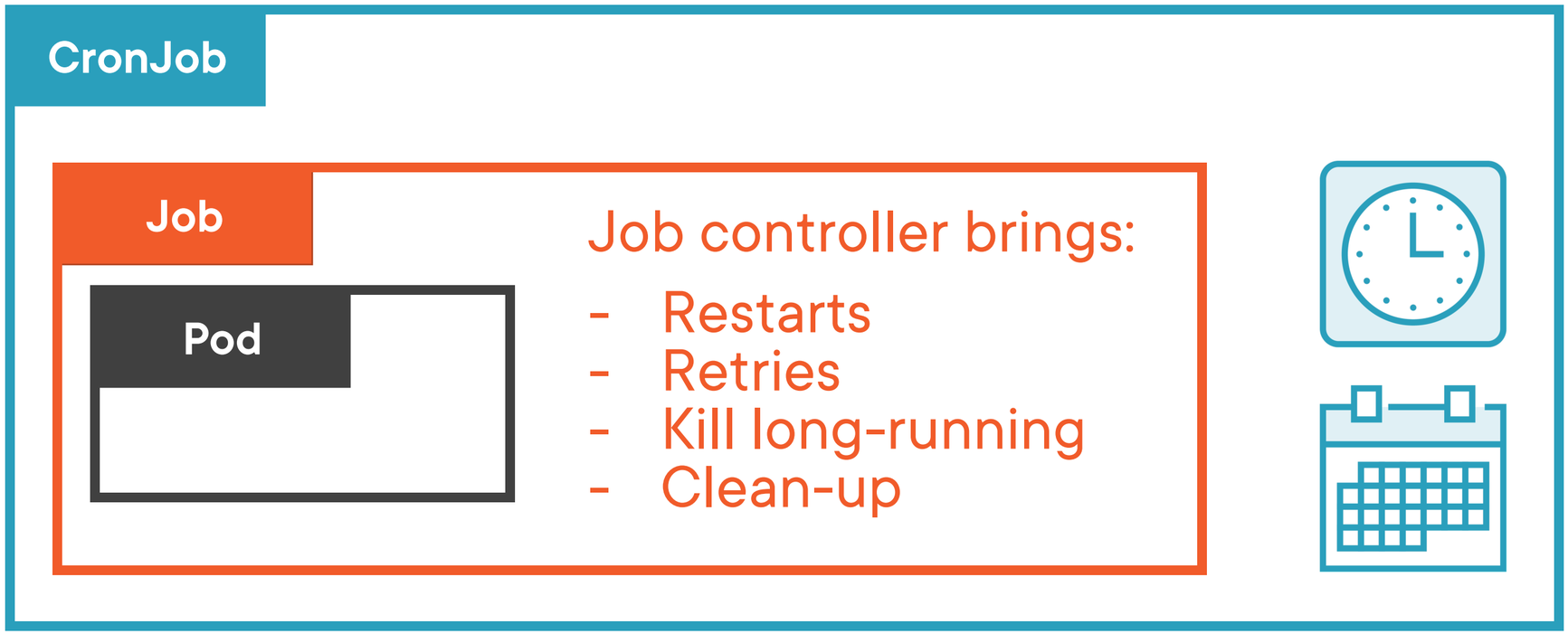
CronJob
Job
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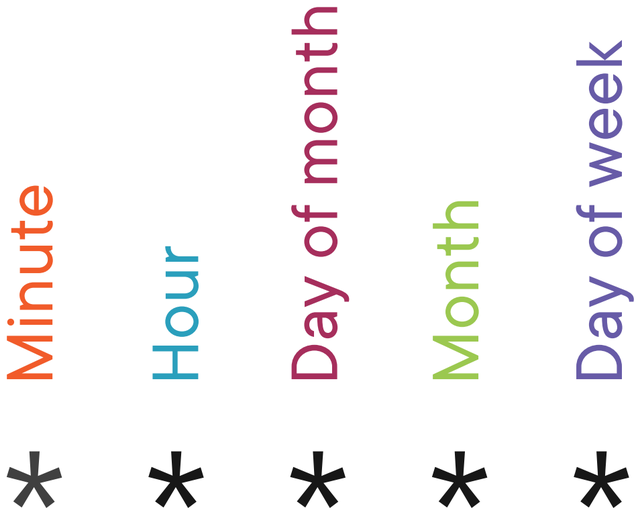
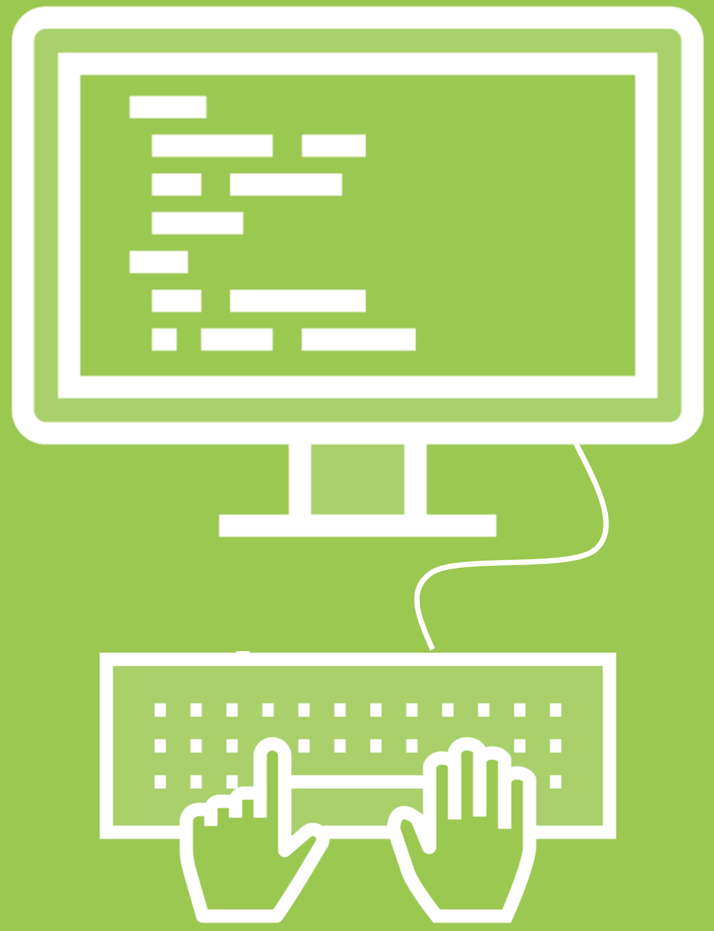

Minute
Hour
Day of month
Month
Day of week
* * * * *



GitHub Repo

https://github.com/nigelpoulton/ckad

Navigate to:

- 1 Application Design and Build
- 3 Understand Jobs and CronJobs
- Test Yourself

Up Next:
Understand Multi-container Pod Design Patterns