Kubernetes lets you assign key-value pairs to objects so that you can use them later within a search query. Those key-value pairs are called labels. To draw an analogy, you can think of labels as tags for a blog post. A label describes a Kubernetes object in distinct terms (e.g., a category like "frontend" or "backend") but is not meant for elaborate, multi-word descriptions of its functionality. As part of the specification, Kubernetes limits the length of a label to a maximum of 63 characters and a range of allowed alphanumeric and separator characters.

Adding Labels
This lab has already created the Pod named bar in the default namespace. List the existing Pods in the default namespace with the following command:

kubectl get pods

You can use the label command for adding a label to an existing object. For example, to add the color=red label to a Pod named bar, you can run:

kubectl label pods bar color=red

By default, the label command will not let you overwrite an existing label. To do this, you need to add the --overwrite flag.

The labels assigned to a Pod can be rendered using the --show-labels command-line option. This option will add the column "LABELS" to the output. The following command will render the key-value pair color=red for the Pod named bar:

kubectl get pod bar --show-labels

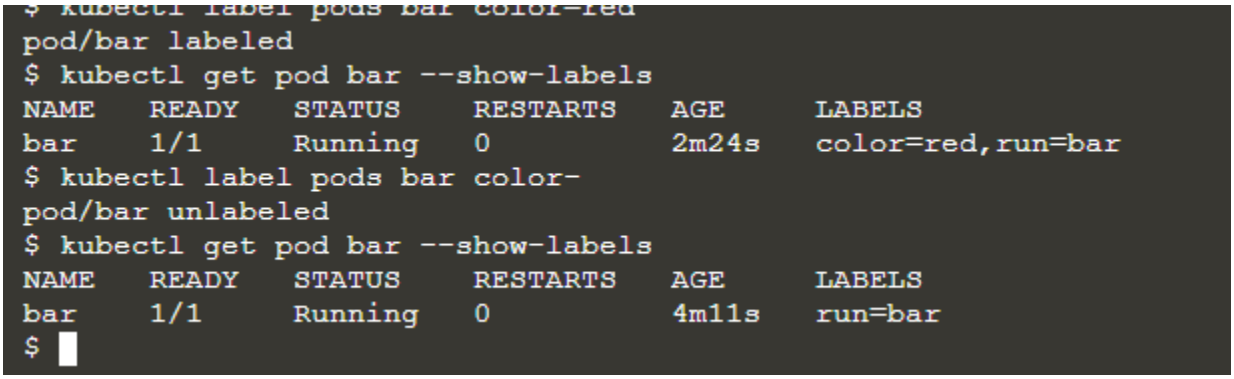
```
$
$ kubectl run bar --image=nginx:1.23.0 --restart=Never
pod/bar created
$
$ kubectl get pods
NAME   READY   STATUS    RESTARTS   AGE
bar    1/1     Running   0          85s
$ kubectl label pods bad color=red
Error from server (NotFound): pods "bad" not found
$ kubectl label pods bar color=red
pod/bar labeled
$ kubectl get pod bar --show-labels
NAME   READY   STATUS    RESTARTS   AGE     LABELS
bar    1/1     Running   0          2m24s   color=red,run=bar
$
```

Removing Labels
If you want to remove a label, you can use the <label-name>- syntax:

kubectl label pods bar color-

This will remove the color label from the Pod named bar. The output of the following command shows that the label key-value pair color=red has been removed:

kubectl get pod bar --show-labels



Labels are essential for selecting objects. For example, a service will determine which Pods to route traffic to by label selection. kubectl is a powerful tool for managing labels for existing objects. You can add labels to objects, or remove them using the labels command.