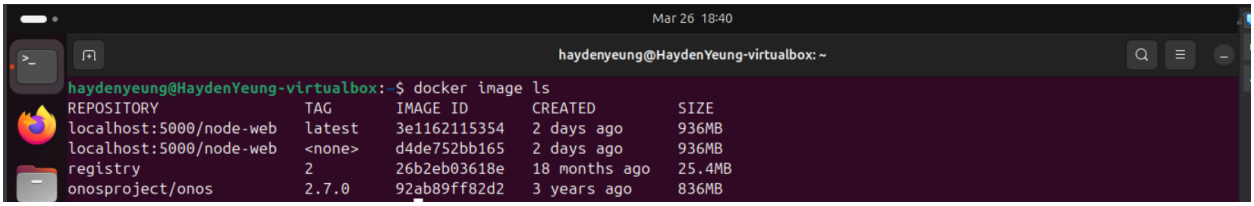
1.

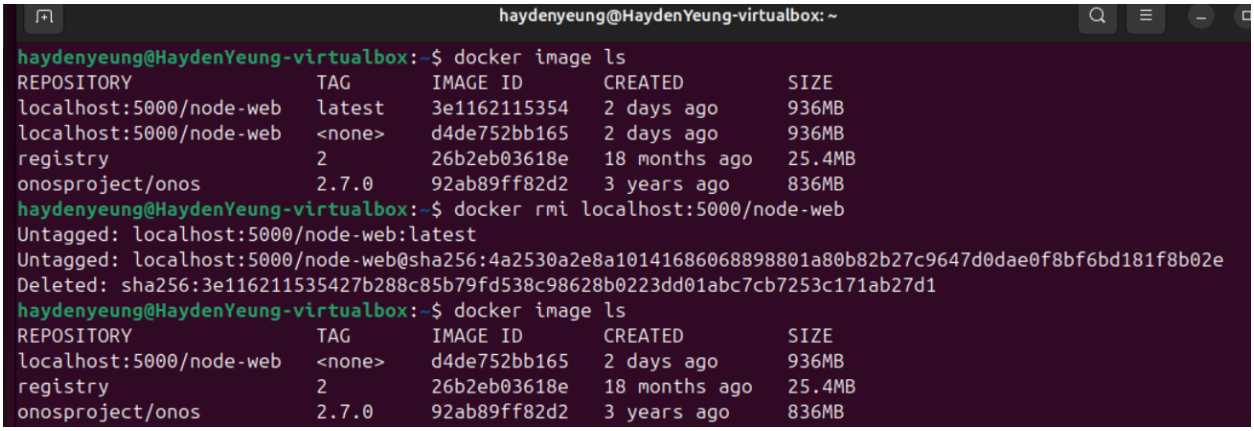
For this week, I learned the general concepts like the architecture of Kurbenets and how it work upon an application – why people using it through lecture notes. In addition, I learned additional linux command related to K8s like to deploy a project / application based on Docker Image stored at Local Docker Registry and how to manipulate it like scale it up (sadly, not yet know how to scale it down). Eventhough, Kurbenets is briefly introduced in this week material but it still took me quite a while to grasp it through research additional sources. Last but not least, I learned how to write basic YAML file and is demonstrated to sub-task 3.

2.

Task 1 – Remembering Docker



I used command “docker image ls” to check the list of existing images



The first image (tagged with “latest”) is easily removed with “docker rmi localhost:5000/node-web”

```
haydenyeung@HaydenYeung-virtualbox:~$ docker rmi -f localhost:5000/node-web
Error response from daemon: No such image: localhost:5000/node-web:latest
haydenyeung@HaydenYeung-virtualbox:~$ docker image prune -a
WARNING! This will remove all images without at least one container associated to them.
Are you sure you want to continue? [y/N] y
Deleted Images:
untagged: localhost:5000/node-web@sha256:287d296465fea0c85c3194dd35bc2c9a933160e0bc7605e360b533ae370920e9
deleted: sha256:d4de752bb165cb2a041370da27d5e38ecb386f4fe70449a86f596b9928ce3be8

Total reclaimed space: 0B
haydenyeung@HaydenYeung-virtualbox:~$ docker image ls
REPOSITORY         TAG       IMAGE ID       CREATED         SIZE
registry           2         26b2eb03618e   18 months ago   25.4MB
onosproject/onos   2.7.0     92ab89ff82d2   3 years ago     836MB
```

However, I have to used command “docker image prune -a” to remove it – perhaps due to being untagged or remove it through its <IMAGE ID>.

Task 2 – Have a play!

Kubectl get all

```
haydenyeung@HaydenYeung-virtualbox:~$ kubectl get all
NAME                                READY   STATUS    RESTARTS   AGE
pod/my-website-5c4d4449b-5grsc      1/1     Running   0          52m
pod/my-website-5c4d4449b-7vw8h      1/1     Running   0          52m
pod/my-website-5c4d4449b-bxp9l      1/1     Running   0          52m
pod/my-website-5c4d4449b-hk2mx      1/1     Running   0          52m
pod/my-website-5c4d4449b-mjxlq      1/1     Running   0          52m
pod/my-website-5c4d4449b-nxl97      1/1     Running   0          52m
pod/my-website-5c4d4449b-qddz6      1/1     Running   0          109m
pod/my-website-5c4d4449b-sx6h2      1/1     Running   0          52m
pod/my-website-5c4d4449b-xl6vs      1/1     Running   0          52m
pod/my-website-5c4d4449b-xwptb      1/1     Running   0          52m

NAME                 TYPE        CLUSTER-IP       EXTERNAL-IP   PORT(S)        AGE
service/kubernetes   ClusterIP   10.152.183.1     <none>        443/TCP        26d
service/my-website   NodePort    10.152.183.218   <none>        80:32671/TCP   84m

NAME                         READY   UP-TO-DATE   AVAILABLE   AGE
deployment.apps/my-website   10/10   10           10          109m

NAME                                    DESIRED   CURRENT   READY   AGE
replicaset.apps/my-website-5c4d4449b    10        10        10      109m
```

Kubectl get all --all-namespaces

```
haydenyeung@HaydenYeung-virtualbox:~$ kubectl get all --all-namespaces
NAMESPACE           NAME                                        READY   STATUS    RESTARTS   AGE
container-registry  pod/registry-579865c76c-q4bxp               1/1     Running   16         26d
default             pod/my-website-5c4d4449b-5grsc              1/1     Running   0          53m
default             pod/my-website-5c4d4449b-7vw8h              1/1     Running   0          53m
default             pod/my-website-5c4d4449b-bxp9l              1/1     Running   0          53m
default             pod/my-website-5c4d4449b-hk2mx              1/1     Running   0          53m
default             pod/my-website-5c4d4449b-mjxlq              1/1     Running   0          53m
default             pod/my-website-5c4d4449b-nxl97              1/1     Running   0          53m
default             pod/my-website-5c4d4449b-qddz6              1/1     Running   0          110m
default             pod/my-website-5c4d4449b-sx6h2              1/1     Running   0          53m
default             pod/my-website-5c4d4449b-xl6vs              1/1     Running   0          53m
default             pod/my-website-5c4d4449b-xwptb              1/1     Running   0          53m
kube-system         pod/calico-kube-controllers-5947598c79-gbn5l   1/1     Running   16         26d
kube-system         pod/calico-node-tv9mz                       1/1     Running   16         26d
kube-system         pod/coredns-79b94494c7-fwpqf                1/1     Running   16         26d
kube-system         pod/dashboard-metrics-scraper-5bd45c9dd6-7h5cp   1/1     Running   16         26d
kube-system         pod/hostpath-provisioner-c778b7559-npm9z    1/1     Running   19         26d
kube-system         pod/kubernetes-dashboard-57bc5f89fb-9t7vf   1/1     Running   16         26d
kube-system         pod/metrics-server-7dbd8b5cc9-kpct2         1/1     Running   16         26d

NAMESPACE           NAME                              TYPE        CLUSTER-IP       EXTERNAL-IP   PORT(S)
  AGE
container-registry  service/registry                  NodePort    10.152.183.58    <none>        5000:32000/TCP
  26d
default             service/kubernetes                ClusterIP   10.152.183.1     <none>        443/TCP
  26d
default             service/my-website                NodePort    10.152.183.218   <none>        80:32671/TCP
```

Kubectl get deployment my-website -o yaml

```
haydenyeung@HaydenYeung-virtualbox:~$ kubectl get deployment my-website -o yaml
apiVersion: apps/v1
kind: Deployment
metadata:
  annotations:
    deployment.kubernetes.io/revision: "1"
  creationTimestamp: "2025-03-26T08:02:18Z"
  generation: 2
  labels:
    app: my-website
  name: my-website
  namespace: default
  resourceVersion: "168408"
  uid: d3bc140c-601c-43ec-a871-0a411093ad03
spec:
  progressDeadlineSeconds: 600
  replicas: 10
  revisionHistoryLimit: 10
  selector:
    matchLabels:
      app: my-website
  strategy:
    rollingUpdate:
      maxSurge: 25%
      maxUnavailable: 25%
    type: RollingUpdate
  template:
    metadata:
      creationTimestamp: null
      labels:
        app: my-website
```

```
    spec:
      containers:
      - image: localhost:5000/node-web
        imagePullPolicy: Always
        name: node-web
        resources: {}
        terminationMessagePath: /dev/termination-log
        terminationMessagePolicy: File
      dnsPolicy: ClusterFirst
      restartPolicy: Always
      schedulerName: default-scheduler
      securityContext: {}
      terminationGracePeriodSeconds: 30
status:
  availableReplicas: 10
  conditions:
  - lastTransitionTime: "2025-03-26T08:02:18Z"
    lastUpdateTime: "2025-03-26T08:02:48Z"
    message: ReplicaSet "my-website-5c4d4449b" has successfully progressed.
    reason: NewReplicaSetAvailable
    status: "True"
    type: Progressing
  - lastTransitionTime: "2025-03-26T08:59:16Z"
    lastUpdateTime: "2025-03-26T08:59:16Z"
    message: Deployment has minimum availability.
    reason: MinimumReplicasAvailable
    status: "True"
    type: Available
  observedGeneration: 2
  readyReplicas: 10
  replicas: 10
```

Kubectl explain deployment

```
haydenyeung@HaydenYeung-virtualbox:~$ kubectl explain deployment
GROUP:      apps
KIND:       Deployment
VERSION:    v1

DESCRIPTION:
    Deployment enables declarative updates for Pods and ReplicaSets.

FIELDS:
  apiVersion    <string>
    APIVersion defines the versioned schema of this representation of an object.
    Servers should convert recognized schemas to the latest internal value, and
    may reject unrecognized values. More info:
    https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#resources

  kind  <string>
    Kind is a string value representing the REST resource this object
    represents. Servers may infer this from the endpoint the client submits
    requests to. Cannot be updated. In CamelCase. More info:
    https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#types-kinds

  metadata      <ObjectMeta>
    Standard object's metadata. More info:
    https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#metadata

  spec  <DeploymentSpec>
    Specification of the desired behavior of the Deployment.

  status        <DeploymentStatus>
    Most recently observed status of the Deployment.
```

Kubectl explain deployment.status

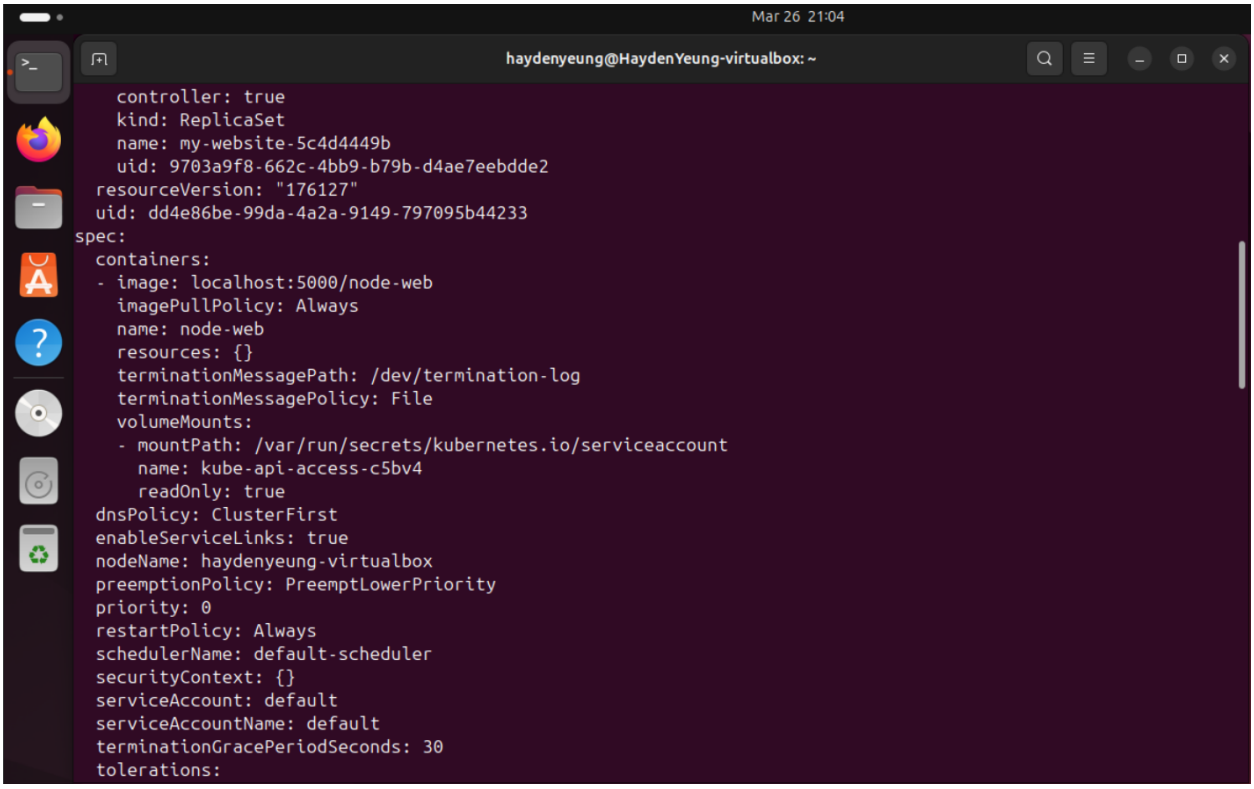
```
haydenyeung@HaydenYeung-virtualbox:~$ kubectl explain deployment.status
GROUP:      apps
KIND:       Deployment
VERSION:    v1

FIELD: status <DeploymentStatus>


DESCRIPTION:
    Most recently observed status of the Deployment.
    DeploymentStatus is the most recently observed status of the Deployment.

FIELDS:
  availableReplicas     <integer>
    Total number of available pods (ready for at least minReadySeconds) targeted
    by this deployment.

  collisionCount        <integer>
    Count of hash collisions for the Deployment. The Deployment controller uses
    this field as a collision avoidance mechanism when it needs to create the
    name for the newest ReplicaSet.

  conditions    <[]DeploymentCondition>
    Represents the latest available observations of a deployment's current
    state.

  observedGeneration    <integer>
    The generation observed by the deployment controller.

  readyReplicas <integer>
```

```
  readyReplicas <integer>
    readyReplicas is the number of pods targeted by this Deployment with a Ready
    Condition.

  replicas      <integer>
    Total number of non-terminated pods targeted by this deployment (their
    labels match the selector).

  unavailableReplicas   <integer>
    Total number of unavailable pods targeted by this deployment. This is the
    total number of pods that are still required for the deployment to have 100%
    available capacity. They may either be pods that are running but not yet
    available or pods that still have not been created.

  updatedReplicas       <integer>
    Total number of non-terminated pods targeted by this deployment that have
    the desired template spec.
```

It is found that explain deployment.status given information in the “Fields:” section

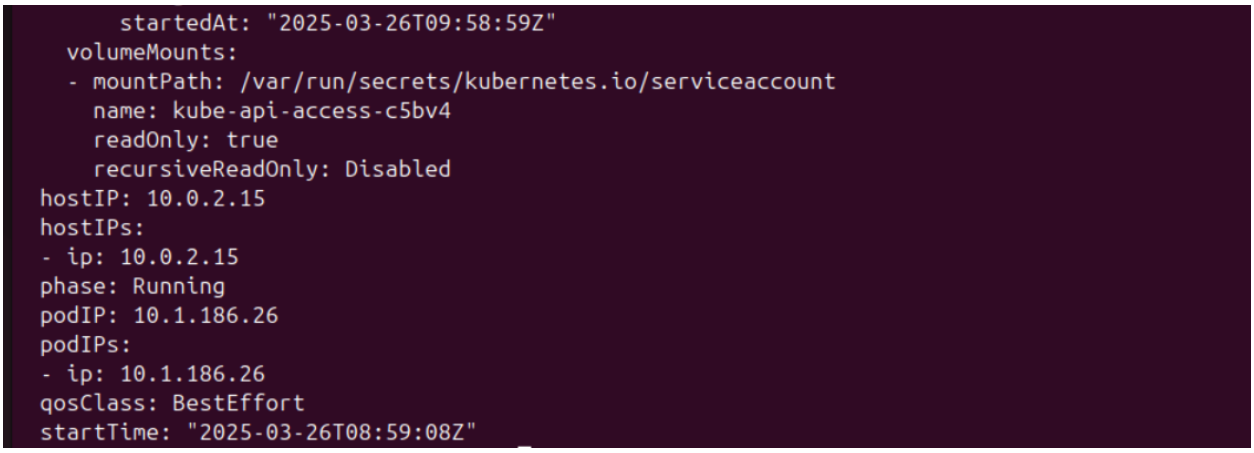
Kubectl get pod <pod name> -o yaml

```
haydenyeung@HaydenYeung-virtualbox:~$ kubectl get pods
NAME                          READY   STATUS    RESTARTS   AGE
my-website-5c4d4449b-5grsc    1/1     Running   1          63m
my-website-5c4d4449b-7vw8h    1/1     Running   1          63m
my-website-5c4d4449b-bxp9l    1/1     Running   1          63m
my-website-5c4d4449b-hk2mx    1/1     Running   1          63m
my-website-5c4d4449b-mjxlq    1/1     Running   1          63m
my-website-5c4d4449b-nxl97    1/1     Running   1          63m
my-website-5c4d4449b-qddz6    1/1     Running   1          120m
my-website-5c4d4449b-sx6h2    1/1     Running   1          63m
my-website-5c4d4449b-xl6vs    1/1     Running   1          63m
my-website-5c4d4449b-xwptb    1/1     Running   1          63m
haydenyeung@HaydenYeung-virtualbox:~$ kubectl get pod my-website-5c4d4449b-5grsc -o yaml
apiVersion: v1
kind: Pod
metadata:
  annotations:
    cni.projectcalico.org/containerID: 66d1b8089b3b877404956f8b6b0b8f0d3a4cd7bad2cf5d0add9a6636a1c5d278
    cni.projectcalico.org/podIP: 10.1.186.26/32
    cni.projectcalico.org/podIPs: 10.1.186.26/32
  creationTimestamp: "2025-03-26T08:59:08Z"
  generateName: my-website-5c4d4449b-
  labels:
    app: my-website
    pod-template-hash: 5c4d4449b
  name: my-website-5c4d4449b-5grsc
  namespace: default
  ownerReferences:
  - apiVersion: apps/v1
    blockOwnerDeletion: true
```



```
  - effect: NoExecute
    key: node.kubernetes.io/not-ready
    operator: Exists
    tolerationSeconds: 300
  - effect: NoExecute
    key: node.kubernetes.io/unreachable
    operator: Exists
    tolerationSeconds: 300
  volumes:
  - name: kube-api-access-c5bv4
    projected:
      defaultMode: 420
      sources:
      - serviceAccountToken:
          expirationSeconds: 3607
          path: token
      - configMap:
          items:
          - key: ca.crt
            path: ca.crt
          name: kube-root-ca.crt
      - downwardAPI:
          items:
          - fieldRef:
              apiVersion: v1
              fieldPath: metadata.namespace
            path: namespace
status:
  conditions:
  - lastProbeTime: null
```

```
    lastTransitionTime: "2025-03-26T09:58:59Z"
    status: "True"
    type: PodReadyToStartContainers
  - lastProbeTime: null
    lastTransitionTime: "2025-03-26T08:59:08Z"
    status: "True"
    type: Initialized
  - lastProbeTime: null
    lastTransitionTime: "2025-03-26T09:58:59Z"
    status: "True"
    type: Ready
  - lastProbeTime: null
    lastTransitionTime: "2025-03-26T09:58:59Z"
    status: "True"
    type: ContainersReady
  - lastProbeTime: null
    lastTransitionTime: "2025-03-26T08:59:08Z"
    status: "True"
    type: PodScheduled
  containerStatuses:
  - containerID: containerd://94a7735dce60ac3d985981d7d21fd6a59ef6838eb956998537d3d72738425c70
    image: localhost:5000/node-web:latest
    imageID: localhost:5000/node-web@sha256:4a2530a2e8a10141686068898801a80b82b27c9647d0dae0f8bf6bd181f8b02e
    lastState: {}
    name: node-web
    ready: true
    restartCount: 1
    started: true
    state:
      running:
```



Kubectl explain pod

```
haydenyeung@HaydenYeung-virtualbox:~$ kubectl explain pod
KIND:       Pod
VERSION:    v1

DESCRIPTION:
    Pod is a collection of containers that can run on a host. This resource is
    created by clients and scheduled onto hosts.

FIELDS:
  apiVersion    <string>
    APIVersion defines the versioned schema of this representation of an object.
    Servers should convert recognized schemas to the latest internal value, and
    may reject unrecognized values. More info:
    https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#resources

  kind  <string>
    Kind is a string value representing the REST resource this object
    represents. Servers may infer this from the endpoint the client submits
    requests to. Cannot be updated. In CamelCase. More info:
    https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#types-kinds

  metadata      <ObjectMeta>
    Standard object's metadata. More info:
    https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#metadata

  spec  <PodSpec>
    Specification of the desired behavior of the pod. More info:
    https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#spec-and-status

  status        <PodStatus>
```

```
    Most recently observed status of the pod. This data may not be up to date.
    Populated by the system. Read-only. More info:
    https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#spec-and-status
```

Kubectl explain pod.spec

```
haydenyeung@HaydenYeung-virtualbox:~$ kubectl explain pod.spec
KIND:       Pod
VERSION:    v1

FIELD: spec <PodSpec>


DESCRIPTION:
    Specification of the desired behavior of the pod. More info:
    https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#spec-and-status
    PodSpec is a description of a pod.

FIELDS:
  activeDeadlineSeconds <integer>
    Optional duration in seconds the pod may be active on the node relative to
    StartTime before the system will actively try to mark it failed and kill
    associated containers. Value must be a positive integer.

  affinity      <Affinity>
    If specified, the pod's scheduling constraints

  automountServiceAccountToken  <boolean>
    AutomountServiceAccountToken indicates whether a service account token
    should be automatically mounted.

  containers    <[]Container> -required-
    List of containers belonging to the pod. Containers cannot currently be
    added or removed. There must be at least one container in a Pod. Cannot be
```

```
    updated.

  dnsConfig     <PodDNSConfig>
    Specifies the DNS parameters of a pod. Parameters specified here will be
    merged to the generated DNS configuration based on DNSPolicy.

  dnsPolicy     <string>
  enum: ClusterFirst, ClusterFirstWithHostNet, Default, None
    Set DNS policy for the pod. Defaults to "ClusterFirst". Valid values are
    'ClusterFirstWithHostNet', 'ClusterFirst', 'Default' or 'None'. DNS
    parameters given in DNSConfig will be merged with the policy selected with
    DNSPolicy. To have DNS options set along with hostNetwork, you have to
    specify DNS policy explicitly to 'ClusterFirstWithHostNet'.

    Possible enum values:
     - `"ClusterFirst"` indicates that the pod should use cluster DNS first
    unless hostNetwork is true, if it is available, then fall back on the
    default (as determined by kubelet) DNS settings.
     - `"ClusterFirstWithHostNet"` indicates that the pod should use cluster DNS
    first, if it is available, then fall back on the default (as determined by
    kubelet) DNS settings.
     - `"Default"` indicates that the pod should use the default (as determined
    by kubelet) DNS settings.
     - `"None"` indicates that the pod should use empty DNS settings. DNS
    parameters such as nameservers and search paths should be defined via
    DNSConfig.

  enableServiceLinks    <boolean>
    EnableServiceLinks indicates whether information about services should be
    injected into pod's environment variables, matching the syntax of Docker
```

```
   links. Optional: Defaults to true.

ephemeralContainers   <[]EphemeralContainer>
   List of ephemeral containers run in this pod. Ephemeral containers may be
   run in an existing pod to perform user-initiated actions such as debugging.
   This list cannot be specified when creating a pod, and it cannot be modified
   by updating the pod spec. In order to add an ephemeral container to an
   existing pod, use the pod's ephemeralcontainers subresource.

hostAliases   <[]HostAlias>
   HostAliases is an optional list of hosts and IPs that will be injected into
   the pod's hosts file if specified.

hostIPC       <boolean>
   Use the host's ipc namespace. Optional: Default to false.

hostNetwork   <boolean>
   Host networking requested for this pod. Use the host's network namespace. If
   this option is set, the ports that will be used must be specified. Default
   to false.

hostPID       <boolean>
   Use the host's pid namespace. Optional: Default to false.

hostUsers     <boolean>
   Use the host's user namespace. Optional: Default to true. If set to true or
   not present, the pod will be run in the host user namespace, useful for when
   the pod needs a feature only available to the host user namespace, such as
   loading a kernel module with CAP_SYS_MODULE. When set to false, a new userns
   is created for the pod. Setting false is useful for mitigating container
```

```
   breakout vulnerabilities even allowing users to run their containers as root
   without actually having root privileges on the host. This field is
   alpha-level and is only honored by servers that enable the
   UserNamespacesSupport feature.

hostname      <string>
   Specifies the hostname of the Pod If not specified, the pod's hostname will
   be set to a system-defined value.

imagePullSecrets      <[]LocalObjectReference>
   ImagePullSecrets is an optional list of references to secrets in the same
   namespace to use for pulling any of the images used by this PodSpec. If
   specified, these secrets will be passed to individual puller implementations
   for them to use. More info:
   https://kubernetes.io/docs/concepts/containers/images#specifying-imagepullsecrets-on-a-pod

initContainers        <[]Container>
   List of initialization containers belonging to the pod. Init containers are
   executed in order prior to containers being started. If any init container
   fails, the pod is considered to have failed and is handled according to its
   restartPolicy. The name for an init container or normal container must be
   unique among all containers. Init containers may not have Lifecycle actions,
   Readiness probes, Liveness probes, or Startup probes. The
   resourceRequirements of an init container are taken into account during
   scheduling by finding the highest request/limit for each resource type, and
   then using the max of of that value or the sum of the normal containers.
   Limits are applied to init containers in a similar fashion. Init containers
   cannot currently be added or removed. Cannot be updated. More info:
   https://kubernetes.io/docs/concepts/workloads/pods/init-containers/
```

```
nodeName      <string>
  NodeName indicates in which node this pod is scheduled. If empty, this pod
  is a candidate for scheduling by the scheduler defined in schedulerName.
  Once this field is set, the kubelet for this node becomes responsible for
  the lifecycle of this pod. This field should not be used to express a desire
  for the pod to be scheduled on a specific node.
  https://kubernetes.io/docs/concepts/scheduling-eviction/assign-pod-node/#nodename

nodeSelector  <map[string]string>
  NodeSelector is a selector which must be true for the pod to fit on a node.
  Selector which must match a node's labels for the pod to be scheduled on
  that node. More info:
  https://kubernetes.io/docs/concepts/configuration/assign-pod-node/

os    <PodOS>
  Specifies the OS of the containers in the pod. Some pod and container fields
  are restricted if this is set.

  If the OS field is set to linux, the following fields must be unset:
  -securityContext.windowsOptions

  If the OS field is set to windows, following fields must be unset: -
  spec.hostPID - spec.hostIPC - spec.hostUsers -
  spec.securityContext.appArmorProfile - spec.securityContext.seLinuxOptions -
  spec.securityContext.seccompProfile - spec.securityContext.fsGroup -
  spec.securityContext.fsGroupChangePolicy - spec.securityContext.sysctls -
  spec.shareProcessNamespace - spec.securityContext.runAsUser -
  spec.securityContext.runAsGroup - spec.securityContext.supplementalGroups -
  spec.securityContext.supplementalGroupsPolicy -
  spec.containers[*].securityContext.appArmorProfile -
```

```
   spec.containers[*].securityContext.seLinuxOptions -
   spec.containers[*].securityContext.seccompProfile -
   spec.containers[*].securityContext.capabilities -
   spec.containers[*].securityContext.readOnlyRootFilesystem -
   spec.containers[*].securityContext.privileged -
   spec.containers[*].securityContext.allowPrivilegeEscalation -
   spec.containers[*].securityContext.procMount -
   spec.containers[*].securityContext.runAsUser -
   spec.containers[*].securityContext.runAsGroup

overhead      <map[string]Quantity>
   Overhead represents the resource overhead associated with running a pod for
   a given RuntimeClass. This field will be autopopulated at admission time by
   the RuntimeClass admission controller. If the RuntimeClass admission
   controller is enabled, overhead must not be set in Pod create requests. The
   RuntimeClass admission controller will reject Pod create requests which have
   the overhead already set. If RuntimeClass is configured and selected in the
   PodSpec, Overhead will be set to the value defined in the corresponding
   RuntimeClass, otherwise it will remain unset and treated as zero. More info:
   https://git.k8s.io/enhancements/keps/sig-node/688-pod-overhead/README.md

preemptionPolicy      <string>
enum: Never, PreemptLowerPriority
   PreemptionPolicy is the Policy for preempting pods with lower priority. One
   of Never, PreemptLowerPriority. Defaults to PreemptLowerPriority if unset.

   Possible enum values:
    - `"Never"` means that pod never preempts other pods with lower priority.
    - `"PreemptLowerPriority"` means that pod can preempt other pods with lower
   priority.
```

```
priority      <integer>
  The priority value. Various system components use this field to find the
  priority of the pod. When Priority Admission Controller is enabled, it
  prevents users from setting this field. The admission controller populates
  this field from PriorityClassName. The higher the value, the higher the
  priority.

priorityClassName     <string>
  If specified, indicates the pod's priority. "system-node-critical" and
  "system-cluster-critical" are two special keywords which indicate the
  highest priorities with the former being the highest priority. Any other
  name must be defined by creating a PriorityClass object with that name. If
  not specified, the pod priority will be default or zero if there is no
  default.

readinessGates        <[]PodReadinessGate>
  If specified, all readiness gates will be evaluated for pod readiness. A pod
  is ready when all its containers are ready AND all conditions specified in
  the readiness gates have status equal to "True" More info:
  https://git.k8s.io/enhancements/keps/sig-network/580-pod-readiness-gates

resourceClaims        <[]PodResourceClaim>
  ResourceClaims defines which ResourceClaims must be allocated and reserved
  before the Pod is allowed to start. The resources will be made available to
  those containers which consume them by name.

  This is an alpha field and requires enabling the DynamicResourceAllocation
  feature gate.
```

```
  This field is immutable.

resources     <ResourceRequirements>
  Resources is the total amount of CPU and Memory resources required by all
  containers in the pod. It supports specifying Requests and Limits for "cpu"
  and "memory" resource names only. ResourceClaims are not supported.

  This field enables fine-grained control over resource allocation for the
  entire pod, allowing resource sharing among containers in a pod.

  This is an alpha field and requires enabling the PodLevelResources feature
  gate.

restartPolicy <string>
enum: Always, Never, OnFailure
  Restart policy for all containers within the pod. One of Always, OnFailure,
  Never. In some contexts, only a subset of those values may be permitted.
  Default to Always. More info:
  https://kubernetes.io/docs/concepts/workloads/pods/pod-lifecycle/#restart-policy

  Possible enum values:
   - `"Always"`
   - `"Never"`
   - `"OnFailure"`

runtimeClassName      <string>
  RuntimeClassName refers to a RuntimeClass object in the node.k8s.io group,
  which should be used to run this pod.  If no RuntimeClass resource matches
  the named class, the pod will not be run. If unset or empty, the "legacy"
  RuntimeClass will be used, which is an implicit class with an empty
```

```
  definition that uses the default runtime handler. More info:
  https://git.k8s.io/enhancements/keps/sig-node/585-runtime-class

schedulerName <string>
  If specified, the pod will be dispatched by specified scheduler. If not
  specified, the pod will be dispatched by default scheduler.

schedulingGates       <[]PodSchedulingGate>
  SchedulingGates is an opaque list of values that if specified will block
  scheduling the pod. If schedulingGates is not empty, the pod will stay in
  the SchedulingGated state and the scheduler will not attempt to schedule the
  pod.

  SchedulingGates can only be set at pod creation time, and be removed only
  afterwards.

securityContext       <PodSecurityContext>
  SecurityContext holds pod-level security attributes and common container
  settings. Optional: Defaults to empty.  See type description for default
  values of each field.

serviceAccount        <string>
  DeprecatedServiceAccount is a deprecated alias for ServiceAccountName.
  Deprecated: Use serviceAccountName instead.

serviceAccountName    <string>
  ServiceAccountName is the name of the ServiceAccount to use to run this pod.
  More info:
  https://kubernetes.io/docs/tasks/configure-pod-container/configure-service-account/
```

```
 setHostnameAsFQDN     <boolean>
   If true the pod's hostname will be configured as the pod's FQDN, rather than
   the leaf name (the default). In Linux containers, this means setting the
   FQDN in the hostname field of the kernel (the nodename field of struct
   utsname). In Windows containers, this means setting the registry value of
   hostname for the registry key
   HKEY_LOCAL_MACHINE\\SYSTEM\\CurrentControlSet\\Services\\Tcpip\\Parameters
   to FQDN. If a pod does not have FQDN, this has no effect. Default to false.

 shareProcessNamespace <boolean>
   Share a single process namespace between all of the containers in a pod.
   When this is set containers will be able to view and signal processes from
   other containers in the same pod, and the first process in each container
   will not be assigned PID 1. HostPID and ShareProcessNamespace cannot both be
   set. Optional: Default to false.

 subdomain     <string>
   If specified, the fully qualified Pod hostname will be
   "<hostname>.<subdomain>.<pod namespace>.svc.<cluster domain>". If not
   specified, the pod will not have a domainname at all.

 terminationGracePeriodSeconds <integer>
   Optional duration in seconds the pod needs to terminate gracefully. May be
   decreased in delete request. Value must be non-negative integer. The value
   zero indicates stop immediately via the kill signal (no opportunity to shut
   down). If this value is nil, the default grace period will be used instead.
   The grace period is the duration in seconds after the processes running in
   the pod are sent a termination signal and the time when the processes are
   forcibly halted with a kill signal. Set this value longer than the expected
   cleanup time for your process. Defaults to 30 seconds.
```

```
   cleanup time for your process. Defaults to 30 seconds.

 tolerations   <[]Toleration>
   If specified, the pod's tolerations.

 topologySpreadConstraints     <[]TopologySpreadConstraint>
   TopologySpreadConstraints describes how a group of pods ought to spread
   across topology domains. Scheduler will schedule pods in a way which abides
   by the constraints. All topologySpreadConstraints are ANDed.

 volumes       <[]Volume>
   List of volumes that can be mounted by containers belonging to the pod. More
   info: https://kubernetes.io/docs/concepts/storage/volumes
```

Kubectl delete pod <pod name>

```
haydenyeung@HaydenYeung-virtualbox:~$ kubectl get pods
NAME                          READY   STATUS    RESTARTS   AGE
my-website-5c4d4449b-5grsc    1/1     Running   1          72m
my-website-5c4d4449b-7vw8h    1/1     Running   1          72m
my-website-5c4d4449b-bxp9l    1/1     Running   1          72m
my-website-5c4d4449b-hk2mx    1/1     Running   1          72m
my-website-5c4d4449b-mjxlq    1/1     Running   1          72m
my-website-5c4d4449b-nxl97    1/1     Running   1          72m
my-website-5c4d4449b-qddz6    1/1     Running   1          129m
my-website-5c4d4449b-sx6h2    1/1     Running   1          72m
my-website-5c4d4449b-xl6vs    1/1     Running   1          72m
my-website-5c4d4449b-xwptb    1/1     Running   1          72m
haydenyeung@HaydenYeung-virtualbox:~$ kubectl delete pod my-website-5c4d4449b-5grsc
pod "my-website-5c4d4449b-5grsc" deleted
haydenyeung@HaydenYeung-virtualbox:~$ kubectl get pods
NAME                          READY   STATUS    RESTARTS   AGE
my-website-5c4d4449b-7vw8h    1/1     Running   1          73m
my-website-5c4d4449b-bxp9l    1/1     Running   1          73m
my-website-5c4d4449b-hk2mx    1/1     Running   1          73m
my-website-5c4d4449b-jdfbg    1/1     Running   0          38s
my-website-5c4d4449b-mjxlq    1/1     Running   1          73m
my-website-5c4d4449b-nxl97    1/1     Running   1          73m
my-website-5c4d4449b-qddz6    1/1     Running   1          130m
my-website-5c4d4449b-sx6h2    1/1     Running   1          73m
my-website-5c4d4449b-xl6vs    1/1     Running   1          73m
my-website-5c4d4449b-xwptb    1/1     Running   1          73m
```

I found that after deleting one of the running pod, a new pod is created (-jdfbd in case) which is understandable due to the nature of maintaining the number of replicas at all time.

3.

---

student:

  name:

    family_name: “Duong”

    given_name: “Tam Lac”

    preferred name: “Hayden”

enrolled_units:

  - unit_code: “SIT226”

    unit_name: "Cloud Automation Technologies”

mode: “Online”’

- unit_code: “SIT305”

unit_name: "Mobile Application Development”

mode: “Online”

- unit_code: “SIT323”

unit_name: "Cloud Native Application Development”

mode: “Online”

- unit_code: “SIT374”

unit_name: "Team Project (A) – Project Management And Practices”

mode: “Online”

timetable:

monday:

- activity: "Lecture"

time: "10:00 - 12:00"

location: "Online"

channel: “Microsoft Team SIT226-SIT727 Cloud Automation Technologies”

- activity: "Lecture"

time: "10:00 - 12:00"

location: "Online"

channel: "Microsoft Team SIT374-SIT764 Team Project (A) – Project Management And Practices"

tuesday:

- activity: "Lecture"

time: "10:00 - 12:00"

location: "Online"

channel: “Microsoft Team SIT323-SIT737 Cloud Native Application Development”

- activity: "Workshop"

time: "17:00 - 19:00"

location: "Burwood"

room: “Building HE, Room 1.010”

wednessday:

- activity: "Lecture"

time: "12:00 - 14:00"

location: "Online"

channel: “Microsoft Team SIT305-SIT708 Mobile Application Development”

thursday:

- activity: "Workshop"

time: "11:00 - 13:00"

location: "Burwood"

room: “Building LC, Room 4.100”

- activity: "Workshop"

time: "16:00 - 18:00"

location: "Burwood"

room: “Building LC, Room 6.105”