Summary

- Revision of Docker env variable
- Creating a pod with an environmental variable
    - YAML file

```
apiVersion: v1
kind: Pod
metadata:
  name: "mypod3"

spec:
  containers:
  - name: "myc2"
    image: "vimal13/apache-webserver-php"
    env:
    - name: x
      value: "5"
```

    - Creating pod

```
C:\Users\Vimal Daga\Documents\Container2021-ws>kubectl apply  -f first_pod.yml
pod/mypod3 created

C:\Users\Vimal Daga\Documents\Container2021-ws>kubectl get  pods
NAME      READY    STATUS             RESTARTS   AGE
mypod3    0/1      ContainerCreating  0          4s

C:\Users\Vimal Daga\Documents\Container2021-ws>kubectl get  pods
NAME     READY   STATUS    RESTARTS   AGE
mypod3   1/1     Running   0          8s

C:\Users\Vimal Daga\Documents\Container2021-ws>kubectl exec -it   mypod3 --  bash
[root@mypod3 /]# echo $x
5
[root@mypod3 /]#
```

    - Checking the environmental variable of the pod
        - Command:- Kubectl describe (pod name)

```
       Container ID:    docker://3e5d67f6a55e9ed6e2260b7b0316a1aa5d33719015021ac9602c296dd45351
       Image:           vimal13/apache-webserver-php
       Image ID:        docker-pullable://vimal13/apache-webserver-php@sha256:faed0a5afaf9f04b6
b9274ca44118d38f4601c0080a91
       Port:            <none>
       Host Port:       <none>
       State:           Running
         Started:       Thu, 16 Dec 2021 21:35:05 +0530
       Ready:           True
       Restart Count:   0
       Environment:
         x:  5
       Mounts:
         /var/run/secrets/kubernetes.io/serviceaccount from kube-api-access-n6nfm (ro)
Conditions:
       Type             Status
       Initialized      True
       Ready            True
```

- How to see the env variable of all the pods
    - **Command**:- kubectl set env pods --all --list

```
C:\Users\Vimal Daga\Documents\Container2021-ws>kubectl set env pods --all --list
# Pod mypod3, container myc2
x=5

C:\Users\Vimal Daga\Documents\Container2021-ws>
```

- How to see the real-time status of the pod
    - Command:- kubectl get pods -w

```
C:\Users\Vimal Daga\Documents\Container2021-ws>kubectl  get pods -w
NAME      READY   STATUS            RESTARTS       AGE
dbpod     0/1     ContainerCreating 0              26s
mypod3    1/1     Running           0              8m29s
dbpod     1/1     Running           0              54s
dbpod     0/1     Error             0              55s
dbpod     1/1     Running           1 (5s ago)     59s
dbpod     0/1     Error             1 (6s ago)     60s
dbpod     0/1     CrashLoopBackOff  1 (2s ago)     61s
dbpod     0/1     Error             2 (20s ago)    79s
dbpod     0/1     CrashLoopBackOff  2 (14s ago)    92s
dbpod     0/1     Error             3 (33s ago)    111s
dbpod     0/1     CrashLoopBackOff  3 (1s ago)     112s
dbpod     0/1     Error             4 (50s ago)    2m41s
dbpod     0/1     CrashLoopBackOff  4 (15s ago)    2m56s
```

- How to see the logs of pods
    - **Command:-** kubectl logs pod/(pod name)

```
C:\Users\Vimal Daga\Documents\Container2021-ws>kubectl  logs  pod/dbpod
2021-12-16 16:17:08+00:00 [Note] [Entrypoint]: Entrypoint script for MySQL Server 8.0.27-1debian10 started.
2021-12-16 16:17:08+00:00 [Note] [Entrypoint]: Switching to dedicated user 'mysql'
2021-12-16 16:17:08+00:00 [Note] [Entrypoint]: Entrypoint script for MySQL Server 8.0.27-1debian10 started.
2021-12-16 16:17:08+00:00 [ERROR] [Entrypoint]: Database is uninitialized and password option is not specifi

    You need to specify one of the following:
    - MYSQL_ROOT_PASSWORD
    - MYSQL_ALLOW_EMPTY_PASSWORD
    - MYSQL_RANDOM_ROOT_PASSWORD

C:\Users\Vimal Daga\Documents\Container2021-ws>
```

- Practical:- MY-SQL database pod
    - Manifest file for My-SQL database pod

```
apiVersion: v1
kind: Pod
metadata:
  name: "dbpod"

spec:
  containers:
  - name: "mycdb"
    image: "mysql"
    env:
    - name: MYSQL_ROOT_PASSWORD
      value: "redhat"
```

o Creating the pod

```
C:\Users\Vimal Daga\Documents\Container2021-ws>kubectl apply -f db_pod.yml
pod/dbpod created

C:\Users\Vimal Daga\Documents\Container2021-ws>kubectl get  pods
NAME     READY   STATUS              RESTARTS   AGE
dbpod    0/1     ContainerCreating   0          4s

C:\Users\Vimal Daga\Documents\Container2021-ws>
```

o How to see the events
  ▪ **Command:- kubectl get events**

```
57m       Normal   Pulling                pod/myrc1-xr9ds                    Pulling image "vimal13/apache-w
bserver-php"
56m       Normal   Pulled                 pod/myrc1-xr9ds                    Successfully pulled image "vima
13/apache-webserver-php" in 9.710478369s
56m       Normal   Created                pod/myrc1-xr9ds                    Created container myc1
56m       Normal   Started                pod/myrc1-xr9ds                    Started container myc1
31m       Normal   Killing                pod/myrc1-xr9ds                    Stopping container myc1
6d23h     Normal   SuccessfulCreate       replicationcontroller/myrc1        Created pod: myrc1-85whm
6d23h     Normal   SuccessfulCreate       replicationcontroller/myrc1        Created pod: myrc1-xr9ds
6d23h     Normal   SuccessfulCreate       replicationcontroller/myrc1        Created pod: myrc1-db9hm
6d23h     Normal   SuccessfulCreate       replicationcontroller/myrc1        Created pod: myrc1-lkjwv
6d23h     Normal   Killing                pod/myweb                          Stopping container myweb
6d23h     Warning  FailedKillPod          pod/myweb                          error killing pod: failed to "
llContainer" for "myweb" with KillContainerError: "rpc error: code = Unknown desc = Error response from daemo
: No such container: 61884b70d66f943becbc278a5a165a8ce6b6348c251cc5488abde6e121028b96"
31m       Warning  FailedToUpdateEndpoint endpoints/mywebsvcpriv             Failed to update endpoint defa
t/mywebsvcpriv: Operation cannot be fulfilled on endpoints "mywebsvcpriv": the object has been modified; plea
```

o Going inside the MY-SQL pod

```
C:\Users\Vimal Daga\Documents\Container2021-ws>kubectl exec -it    pods/dbpod  -- bash
root@dbpod:/#
root@dbpod:/#
root@dbpod:/# ps -aux
bash: ps: command not found
root@dbpod:/# mysql -u root -predhat12
mysql: [Warning] Using a password on the command line interface can be insecure.
ERROR 1045 (28000): Access denied for user 'root'@'localhost' (using password: YES)
root@dbpod:/#
root@dbpod:/# mysql -u root -predhat
mysql: [Warning] Using a password on the command line interface can be insecure.
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 9
Server version: 8.0.27 MySQL Community Server - GPL

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```

- Different ways of creating a replica of the pod
  o Replication controller:- They support equality-based operator
  o Replica set:- They support both equality-based and set-based operator
- Creating a replica set
  o Manifest file for a replica set

```
apiVersion: apps/v1
kind: ReplicaSet
metadata:
  name: myrc1
spec:
  replicas: 2
  selector:
   matchLabels:
      app: web
   matchExpressions:
   - { key: dc,  operator: İn,  values: [ south ] }
   - { key: region, operator: In, values: [ IN ] }

  template:
   metadata:
     name: "mypod"
     labels:
       dc: south
       region: IN
```

o Creating replica set and scaling

```
C:\Users\Vimal Daga\Documents\Container2021-ws>kubectl get rs
NAME     DESIRED   CURRENT   READY   AGE
myrc1    2         2         2       32s

C:\Users\Vimal Daga\Documents\Container2021-ws>kubectl scale rs myrc1 --replicas=3
replicaset.apps/myrc1 scaled

C:\Users\Vimal Daga\Documents\Container2021-ws>kubectl get rs
NAME     DESIRED   CURRENT   READY   AGE
myrc1    3         3         2       50s

C:\Users\Vimal Daga\Documents\Container2021-ws>kubectl get pods
NAME          READY   STATUS    RESTARTS   AGE
myrc1-2lxbs   1/1     Running   0          10s
myrc1-dbg84   1/1     Running   0          57s
myrc1-p25nc   1/1     Running   0          57s

C:\Users\Vimal Daga\Documents\Container2021-ws>
```