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Exercise 4
MSIT 5330
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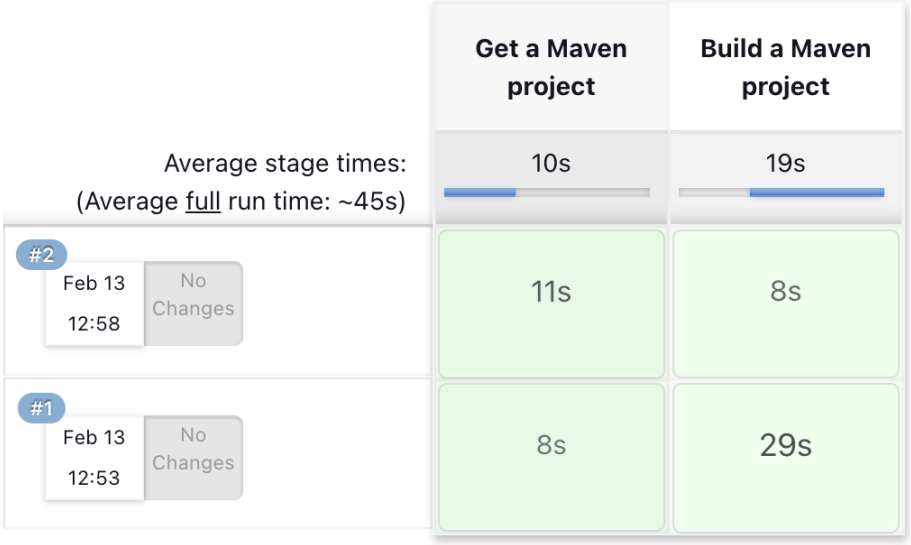
1. Agents in Jenkins are the pod that executes the steps laid out in the job. The job defines the environment and the list of steps whereas the agent is the node that is actually performing those tasks in that environment.

   The liveliness and readiness probes are what allows Kubernetes to see into the pod and determine whether it is up or even make it launch. So if those are removed, it looks as though it applied, however, when you search for pods, nothing is available.

   Storage class is the type of storage that Kubernetes is utilizing, storage class is defined by the administrator, in this case to be 3G and hostname refers to the local device that Kubernetes is installed on. So the storage will be 3G allocated on the local storage of the host device.

2. For this example, I ran into a few issues. Firstly, I could not get the lab 2 to work correctly, it kept stating that "Jenkins did not recognize 'kubeagent.'" I knew I had the cloud set up correctly from lab 1 and the project stated that kubeagent matched one cloud, but it would still fail after a while. Finally, I figured out that I hadn't removed the '9999' from the container template, after I did this, it worked correctly.

   Then the solution was fairly simple and I was able to continue to the exercise without issue. The first run downloaded many dependencies, and then the second run it did not have to so it was significantly shorter. Here are my runs from the exercise:



	Get a Maven project	Build a Maven project
Average stage times: (Average full run time: ~45s)	10s	19s
#2 Feb 13 12:58 No Changes	11s	8s
#1 Feb 13 12:53 No Changes	8s	29s

Here are the termination logs:

2023-02-13 20:53:25.976+0000 [id=1350] INFO hudson.slaves.NodeProvisioner#update: ex4-1-v1v1m-ngsm9-sdlpt provisioning successfully completed. We have now 2 computer(s)
2023-02-13 20:53:26.076+0000 [id=1349] INFO o.c.j.p.k.pod.retention.Reaper#watchCloud: set up watcher on kubernetes
2023-02-13 20:53:26.254+0000 [id=1349] INFO o.c.j.p.k.KubernetesLauncher#launch: Created Pod: kubernetes devops-tools/ex4-1-v1v1m-ngsm9-sdlpt
2023-02-13 20:53:30.517+0000 [id=1349] INFO o.c.j.p.k.KubernetesLauncher#launch: Pod is running: kubernetes devops-tools/ex4-1-v1v1m-ngsm9-sdlpt
2023-02-13 20:53:31.459+0000 [id=1373] INFO h.TcpSlaveAgentListener$ConnectionHandler#run: Connection #9 from /10.1.1.113:48404 failed: null
2023-02-13 20:53:31.606+0000 [id=1374] INFO h.TcpSlaveAgentListener$ConnectionHandler#run: Accepted JNLP4-connect connection #10 from /10.1.1.113:48408
2023-02-13 20:53:45.548+0000 [id=1375] INFO o.c.j.p.k.p.ContainerExecDecorator$1#doLaunch: Created process inside pod: [ex4-1-v1v1m-ngsm9-sdlpt], container: [maven][286 ms]
2023-02-13 20:54:14.873+0000 [id=1378] INFO o.c.j.p.k.KubernetesSlave#_terminate: Terminating Kubernetes instance for agent ex4-1-v1v1m-ngsm9-sdlpt
2023-02-13 20:54:15.037+0000 [id=1378] INFO o.c.j.p.k.KubernetesSlave#deleteSlavePod: Terminated Kubernetes instance for agent devops-tools/ex4-1-v1v1m-ngsm9-sdlpt
2023-02-13 20:54:15.045+0000 [id=1378] INFO o.c.j.p.k.KubernetesSlave#_terminate: Disconnected computer ex4-1-v1v1m-ngsm9-sdlpt
2023-02-13 20:54:15.047+0000 [id=1378] INFO j.s.DefaultJnlpSlaveReceiver#channelClosed: Computer.threadPoolForRemoting [#85] for ex4-1-v1v1m-ngsm9-sdlpt terminated: java.nio.channels.ClosedChannelException

It looks as though it is creating the agent pod to perform more actions that are needed for the pipeline and script. Since the agent is created and then kicks off the maven process (highlighted above) then it is dismantled, it seems as though the agent was solely created to create other jobs.

It looks as though one container is built for each agent. The agent is created, container is utilized, then the agent is torn down. A command to find the containers in the pod is:

```
kubectl get pods –n devops–tools –o
jsonpath="{.items[*].spec.containers[*].image}"
```