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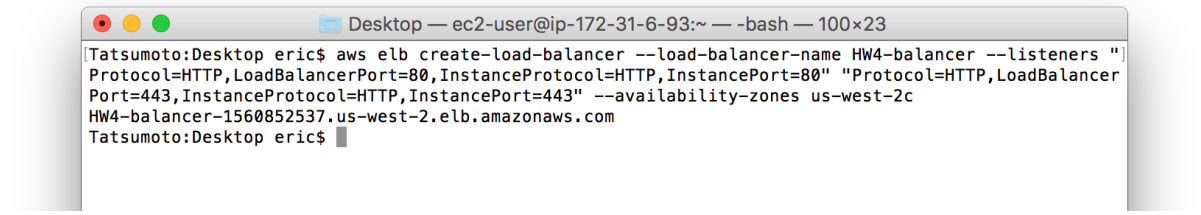
Mini Homework 4

1. Create a ELB and configure Auto-Scale with the policy rules and configuration details in the slides. You need not choose exact names, parameters etc. You need to show that you have a ELB that is attached to a group and inside the group you have scaling policy. When CPU Util > 60%, it adds a new VM.

Create load-balancer: HW4-balancer

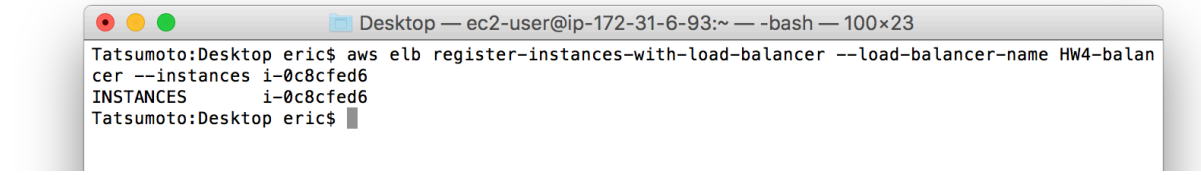
```
aws elb create-load-balancer --load-balancer-name HW4-balancer --listeners
"Protocol=HTTP,LoadBalancerPort=80,InstanceProtocol=HTTP,InstancePort=80"
"Protocol=HTTP,LoadBalancerPort=443,InstanceProtocol=HTTP,InstancePort=443" -
-availability-zones us-west-2c
```



load-balancer ID: `HW4-balancer-1560852537.us-west-2.elb.amazonaws.com`

Register my instance with load-balancer

```
aws elb register-instances-with-load-balancer --load-balancer-name HW4-
balancer --instances i-0c8cfed6
```



Download AWS AutoScaling CLI Tools and Unzip

```
** I discovered you don't actually need to download an run from local, these
commands are available in aws cli under (aws autoscaling help)
```

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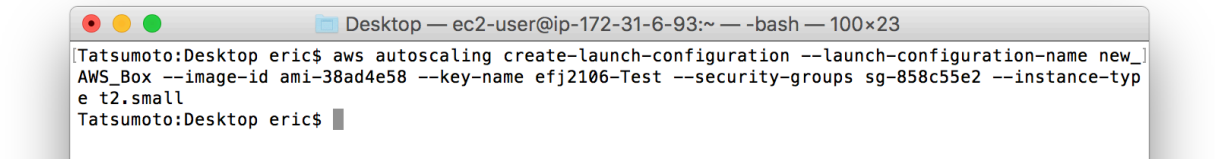
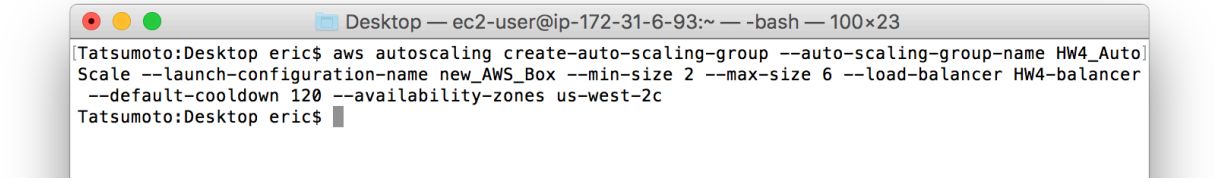
Create Autoscale Configuration

```
aws autoscaling create-launch-configuration --launch-configuration-
name new_AWS_Box --image-id ami-38ad4e58 --key-name efj2106-Test --
security-groups sg-858c55e2 --instance-type t2.small
```



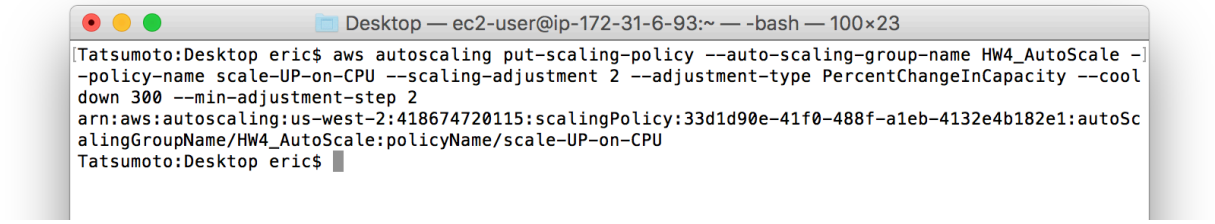
Create Autoscale Group

```
aws autoscaling create-auto-scaling-group --auto-scaling-group-name
HW4_AutoScale --launch-configuration-name new_AWS_Box --min-size 2 --
max-size 6 --load-balancer HW4-balancer --default-cooldown 120 --
availability-zones us-west-2c
```



Create AutoScaling Policy (UP) - POLICY

```
aws autoscaling put-scaling-policy --auto-scaling-group-name
HW4_AutoScale --policy-name scale-UP-on-CPU --scaling-adjustment 2 --
adjustment-type PercentChangeInCapacity --cooldown 300 --min-
adjustment-step 2
```



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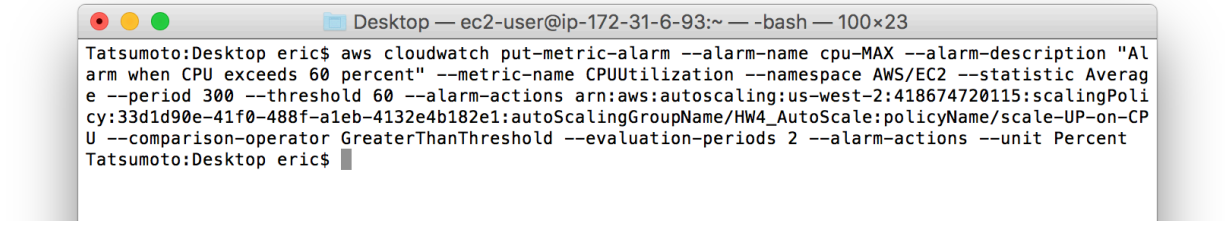
```
arn:aws:autoscaling:us-west-2:418674720115:scalingPolicy:33d1d90e-
41f0-488f-a1eb-
4132e4b182e1:autoScalingGroupName/HW4_AutoScale:policyName/scale-UP-
on-CPU
```

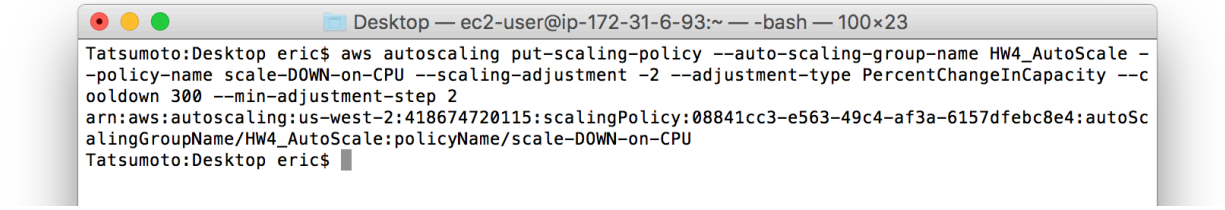
Create Cloudwatch Alaram (UP) - POLICY ALARAMS

```
aws cloudwatch put-metric-alarm --alarm-name cpu-MAX --alarm-
description "Alarm when CPU exceeds 60 percent" --metric-name
CPUUtilization --namespace AWS/EC2 --statistic Average --period 300 --
threshold 60 --alarm-actions arn:aws:autoscaling:us-west-
2:418674720115:scalingPolicy:33d1d90e-41f0-488f-a1eb-
4132e4b182e1:autoScalingGroupName/HW4_AutoScale:policyName/scale-UP-
on-CPU --comparison-operator GreaterThanThreshold --evaluation-periods
2 --alarm-actions --unit Percent
```



Create AutoScaling Policy (DOWN) - POLICY

```
aws autoscaling put-scaling-policy --auto-scaling-group-name
HW4_AutoScale --policy-name scale-DOWN-on-CPU --scaling-adjustment -2
--adjustment-type PercentChangeInCapacity --cooldown 300 --min-
adjustment-step 2
```




```
arn:aws:autoscaling:us-west-2:418674720115:scalingPolicy:08841cc3-
e563-49c4-af3a-
6157dfebc8e4:autoScalingGroupName/HW4_AutoScale:policyName/scale-DOWN-
on-CPU
```

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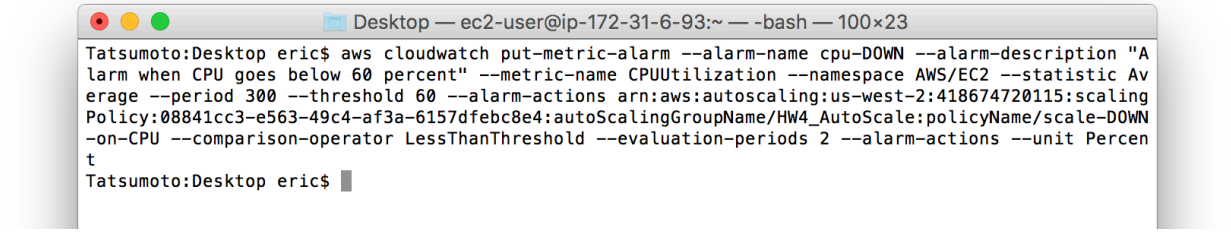
Create Cloudwatch Alaram (DOWN) - POLICY ALARAMS

```
aws cloudwatch put-metric-alarm --alarm-name cpu-DOWN --alarm-
description "Alarm when CPU goes below 60 percent" --metric-name
CPUUtilization --namespace AWS/EC2 --statistic Average --period 300 --
threshold 60 --alarm-actions arn:aws:autoscaling:us-west-
2:418674720115:scalingPolicy:08841cc3-e563-49c4-af3a-
6157dfebc8e4:autoScalingGroupName/HW4_AutoScale:policyName/scale-DOWN-
on-CPU --comparison-operator LessThanThreshold --evaluation-periods 2
--alarm-actions --unit Percent
```



2. Run a script inside the VM1 to generate load so that auto-scale adds another VM when CPU Util > 60%.

Originally I was going to install R and then run a program to hit the CPU threshold but the installation of R alone actually hit the 60% utilization. You can see the utilization on the right using HTOP and the extra instances that were spawned beneath it in the EC2 Console.