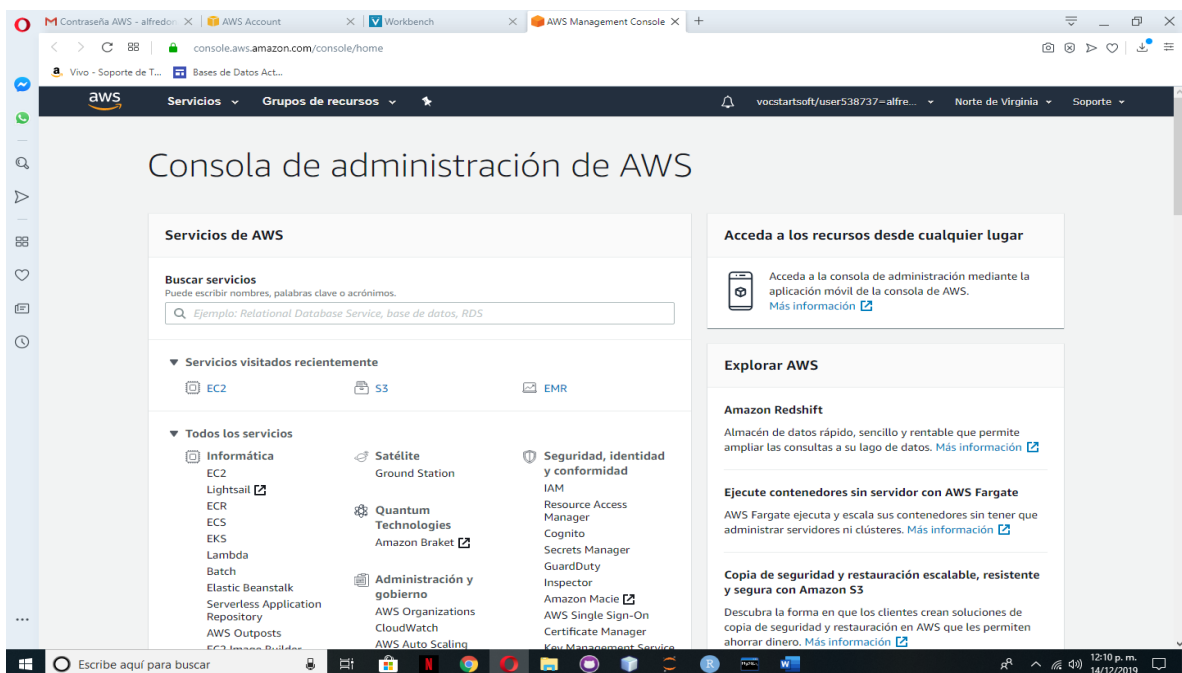
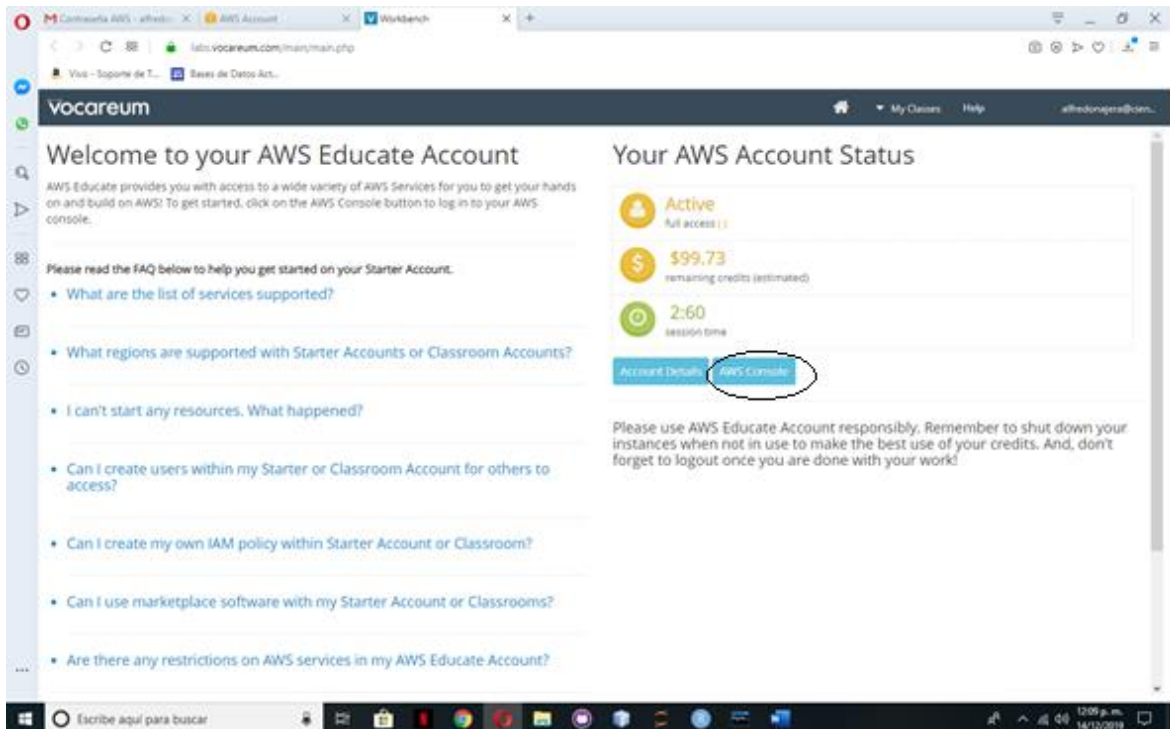


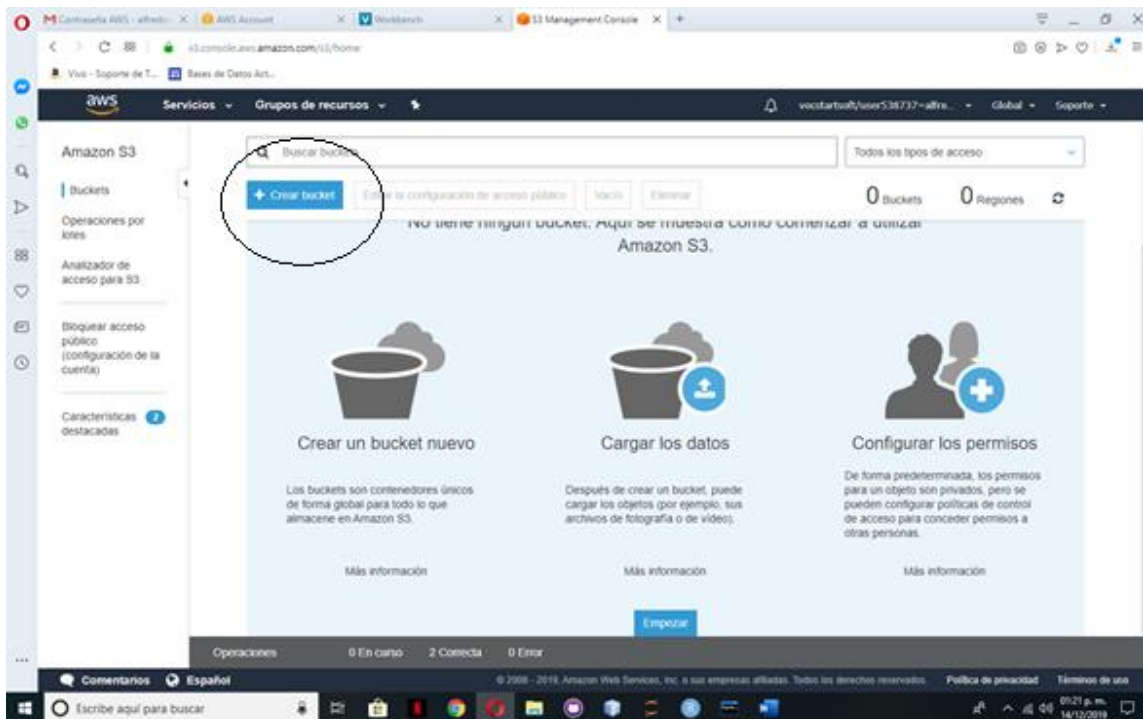
Tarea AWS

Pregunta 1

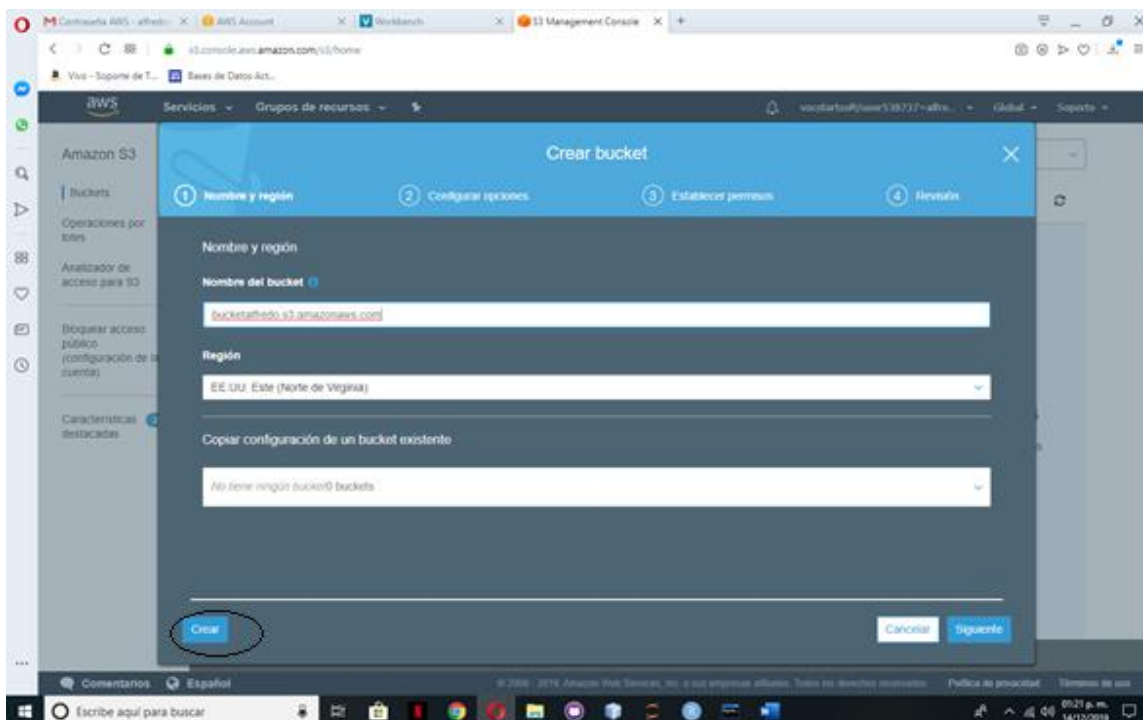
1.- Abrimos la consola de AWS después de ingresar a nuestra cuenta para poder buscar lo que es S3 (el bucket), EC2(Instancia) y EMR (Para usar spark).



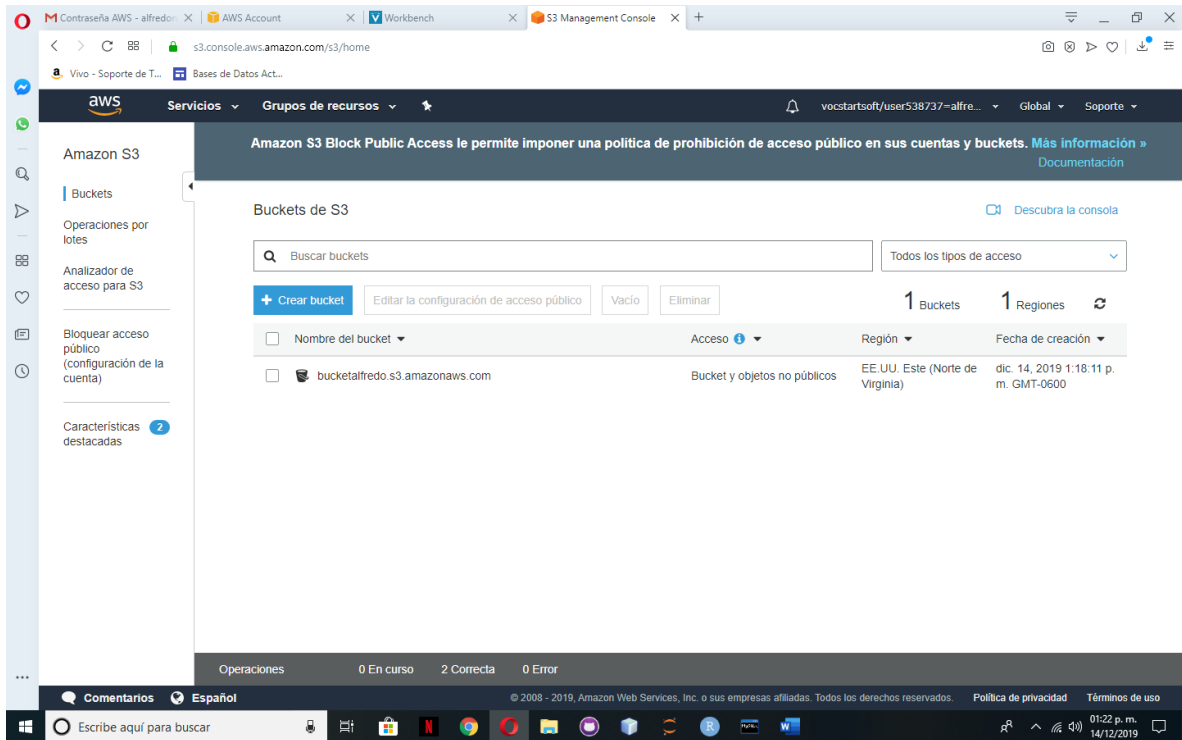
2.- Creamos un bucket buscandolo en la consola.



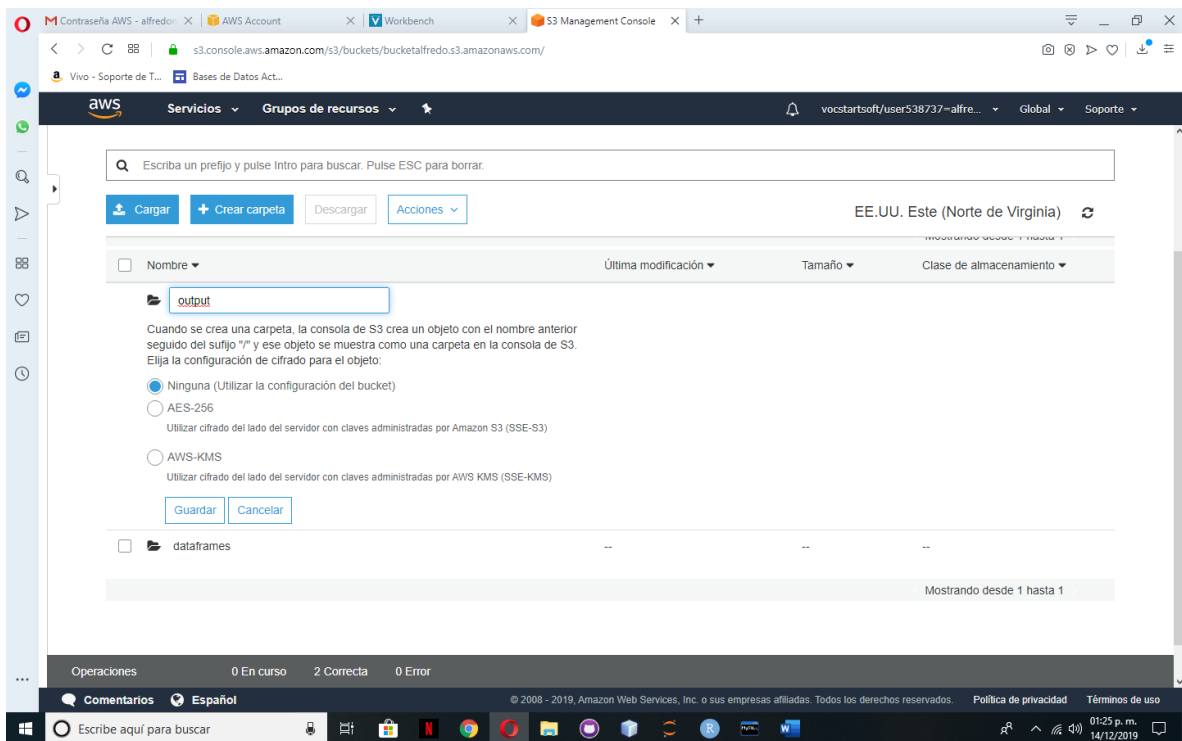
Usamos la convención para crear el bucket.



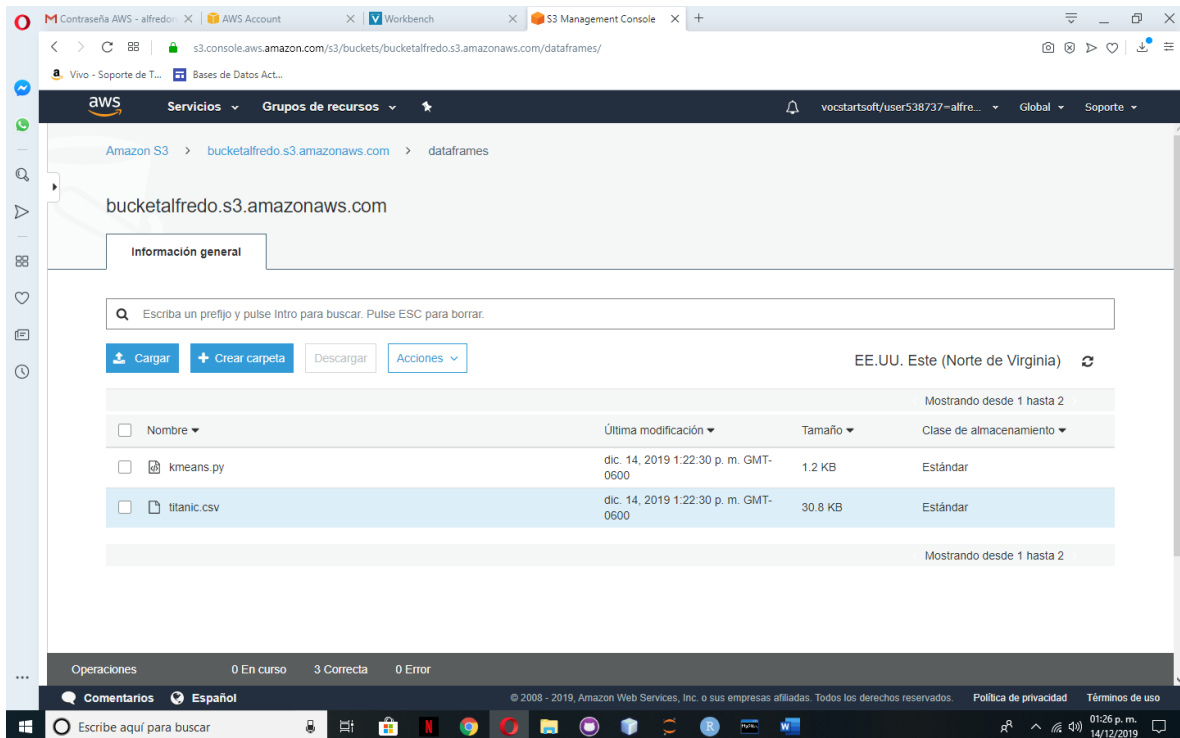
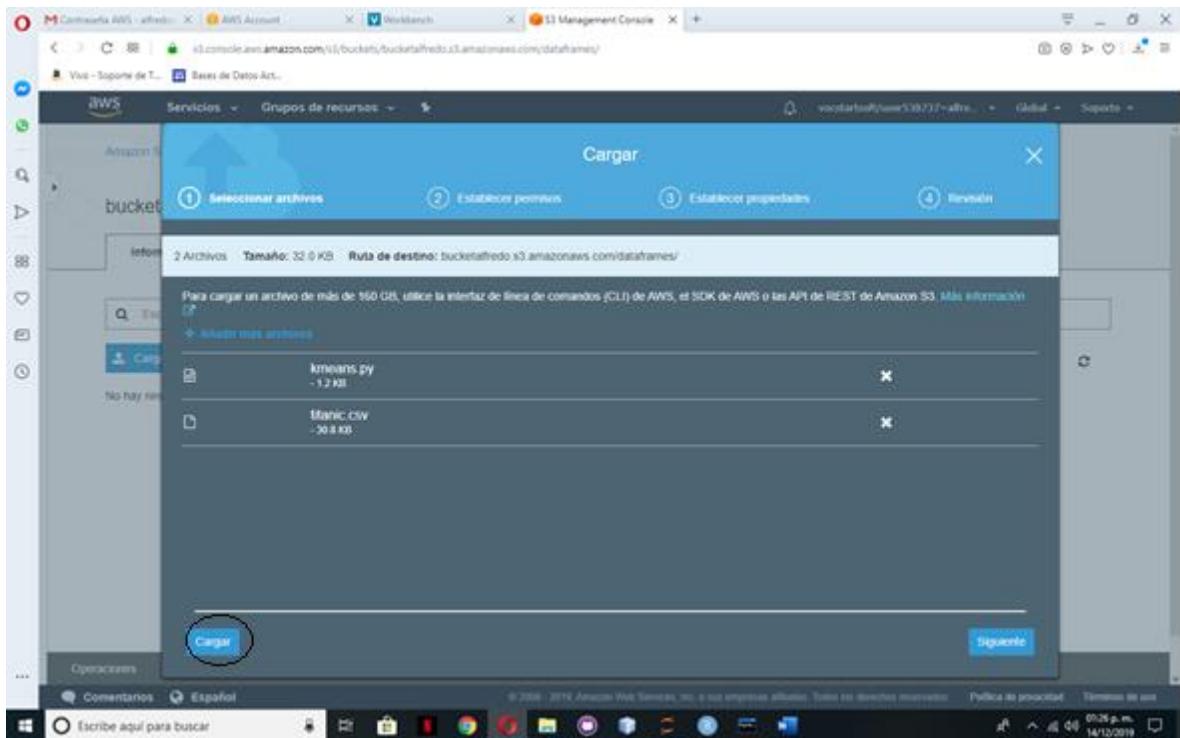
Se creó el bucket.



4.- Creamos las 2 carpetas que nos piden dataframes donde guardaremos los datos y output.



5.- Cargamos en la carpeta dataframes los archivos titanic.csv y kmeans.py.



Pregunta 2

1.- Vamos a crear el par de claves EC2.

The screenshot shows the AWS Management Console for the EC2 service. The left sidebar contains navigation links for various EC2 features. The main content area displays a welcome message for the new EC2 console, followed by a 'Resources' section showing the current usage of Amazon EC2 resources in the 'us-east-1a' Availability Zone. Below this, there are sections for 'Launch instance', 'Service health', and 'Availability Zone status'. The 'Launch instance' section includes a 'Launch instance' button. The 'Service health' section shows the status of the service as 'operating normally'. The 'Availability Zone status' section shows the status of the 'us-east-1a' Availability Zone as 'operating normally'. The 'Key Pairs' section is highlighted in the sidebar, and the 'Create key pair' button is circled in red.

Resources

You are using the following Amazon EC2 resources in the EE.UU. Este (Norte de Virginia) Region:

Resource	Count
Running Instances	0
Elastic IPs	0
Dedicated Hosts	0
Snapshots	0
Volumes	0
Lead balancers	0
Key pairs	1
Security groups	3
Placement groups	0

Launch instance

To get started, launch an Amazon EC2 instance, which is a virtual server in the cloud.

[Launch instance](#)

Note: Your instances will launch in the EE.UU. Este (Norte de Virginia) Region.

Service health

Region: EE.UU. Este (Norte de Virginia)

Status: ✔ This service is operating normally

Availability Zone status

Zone	Status
us-east-1a (use1-az1)	✔ Availability Zone is operating normally

Key Pairs

[Create key pair](#)

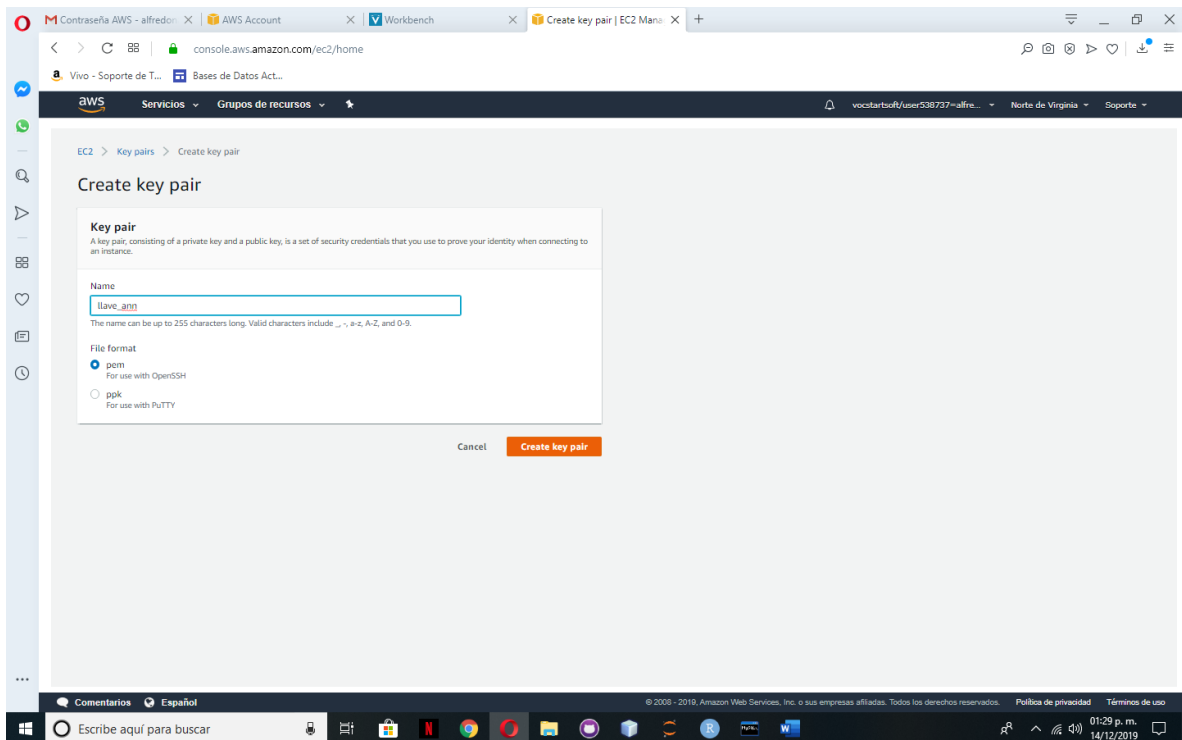
The screenshot shows the AWS Management Console for the Key Pairs service. The left sidebar contains navigation links for various Key Pairs features. The main content area displays the 'Key pairs' section, which includes a search bar and a table of key pairs. The 'Create key pair' button is circled in red.

Key pairs

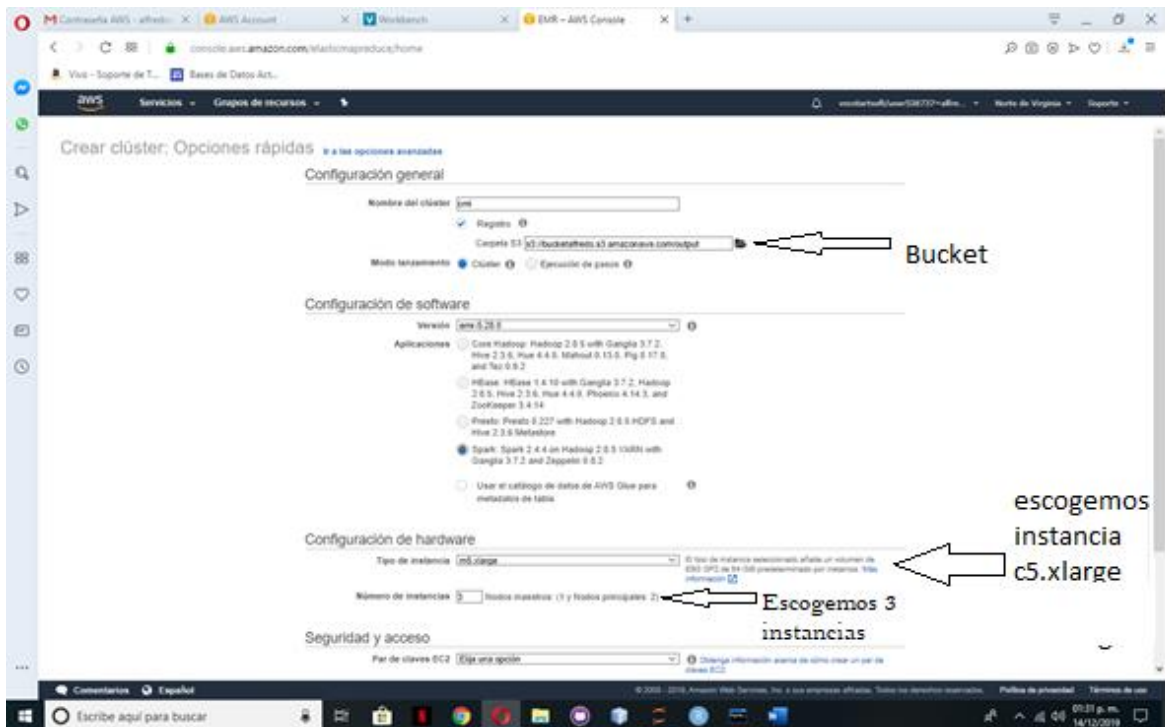
Name	Fingerprint
CHL	d1:99:6d:0b:p4:0d:a1:45:04:5d:d7:a4:e5:d6:b1:1c:6d:40:e0:26

[Create key pair](#)

Elegimos formato .pem.



2.- Creamos el cúster en la consola de aws buscamos EMR.



Configuración de software

Versiones: **emr-5.28.0**

Aplicaciones:

- ☐ Core Hadoop: Hadoop 2.6.5 with Ganglia 3.7.2, Hive 2.3.6, Hue 4.4.6, Mahout 0.12.2, Pig 0.17.0, and Tez 0.8.2
- ☐ HBase: HBase 1.4.10 with Ganglia 3.7.2, Hadoop 2.6.5, Hive 2.3.6, Hue 4.4.6, Phoenix 4.14.3, and ZooKeeper 3.4.14
- ☐ Presto: Presto 0.217 with Hadoop 2.6.5 HDFS and Hive 2.3.6 Shellstore
- ☒ Spark: Spark 2.4.4 on Hadoop 2.6.5 with Ganglia 3.7.2 and Zeppelin 0.8.2
- ☐ Usar el catálogo de datos de AWS Glue para metadatos de tabla

Configuración de hardware

Tipo de instancia: **c5.xlarge**

Número de instancias: **3** (Nodos maestros: 1 y Nodos principales: 2)

Seguridad y acceso

Par de claves EC2: **live_aws**

Permisos: **Predefinidos**

Rol de EMR: **EMR_DefaultRole**

Perfil de instancia de EC2: **AMI_EC2_DefaultRole**

Crear clúster

ponemos la llave que escogimos

Clúster: **cml** **Comenzando**

Resumen | Historial de aplicaciones | Monitorización | Hardware | Configuraciones | Eventos | Pasos | Acciones de arranque

Conexiones: --

DNS público principal: --

Servicio de historial: --

Etiquetas: -- Ver todo / Editar

Resumen	Detalles de las configuraciones	Redes y hardware
<p>ID: j-264SVQ1TP0TAV</p> <p>Fecha de creación: 2019-12-14 13:29 (UTC-6)</p> <p>Tiempo transcurrido: 4 minutos</p> <p>Terminar Cluster waits automáticamente: Cambiar</p> <p>Protección contra la Desactivación de terminación: Cambiar</p>	<p>Etiqueta de la emr-5.28.0 versión:</p> <p>Distribución Amazon Hadoop:</p> <p>Aplicaciones: Ganglia 3.7.2, Spark 2.4.4, Zeppelin 0.8.2</p> <p>URI de registro: s3://bucketalfredo.s3.amazonaws.com/output</p> <p>Vista coherente de Deshabilitados EMRFS:</p> <p>ID de AMI: -- personalizada:</p>	<p>Zona de -- disponibilidad:</p> <p>ID de subred: subnet-241b02b6</p> <p>Maestro: Aprovisionamiento 1 c5.xlarge</p> <p>Principal: Aprovisionamiento 2 c5.xlarge</p> <p>Tarea: --</p>

Seguridad y acceso

Nombre de la clave: **live_aws**

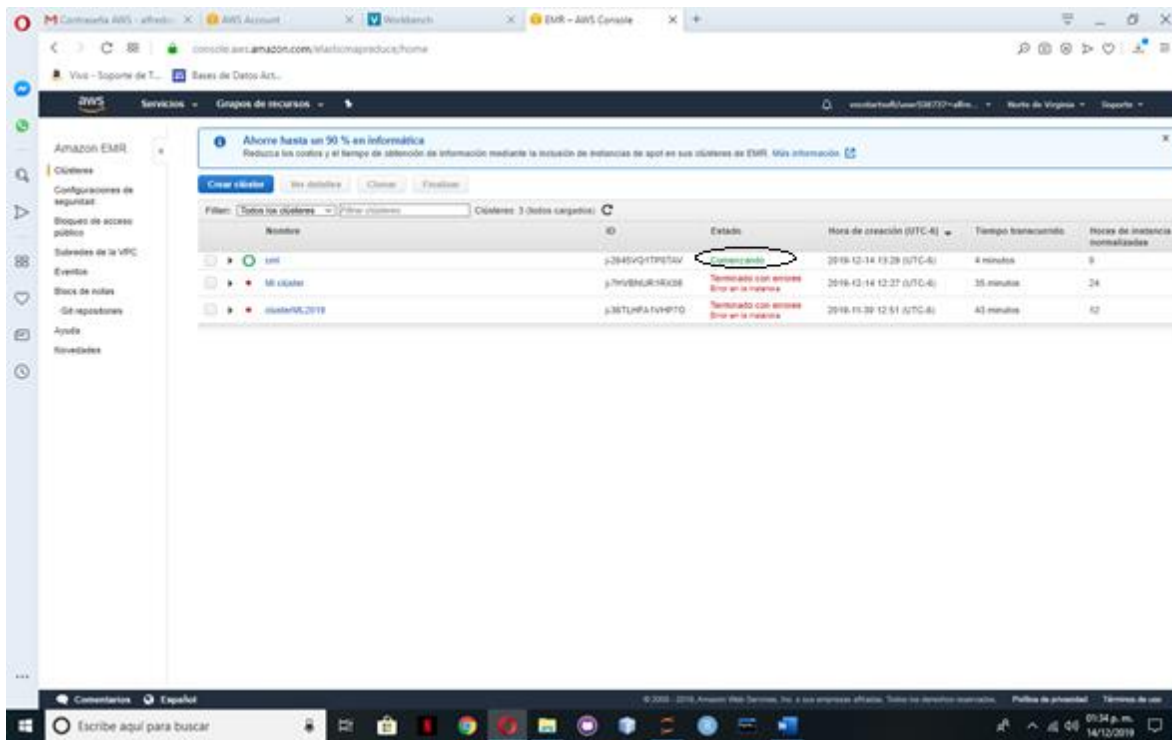
Perfil de instancia: **EMR_EC2_DefaultRole**

Función de EMR: **EMR_DefaultRole**

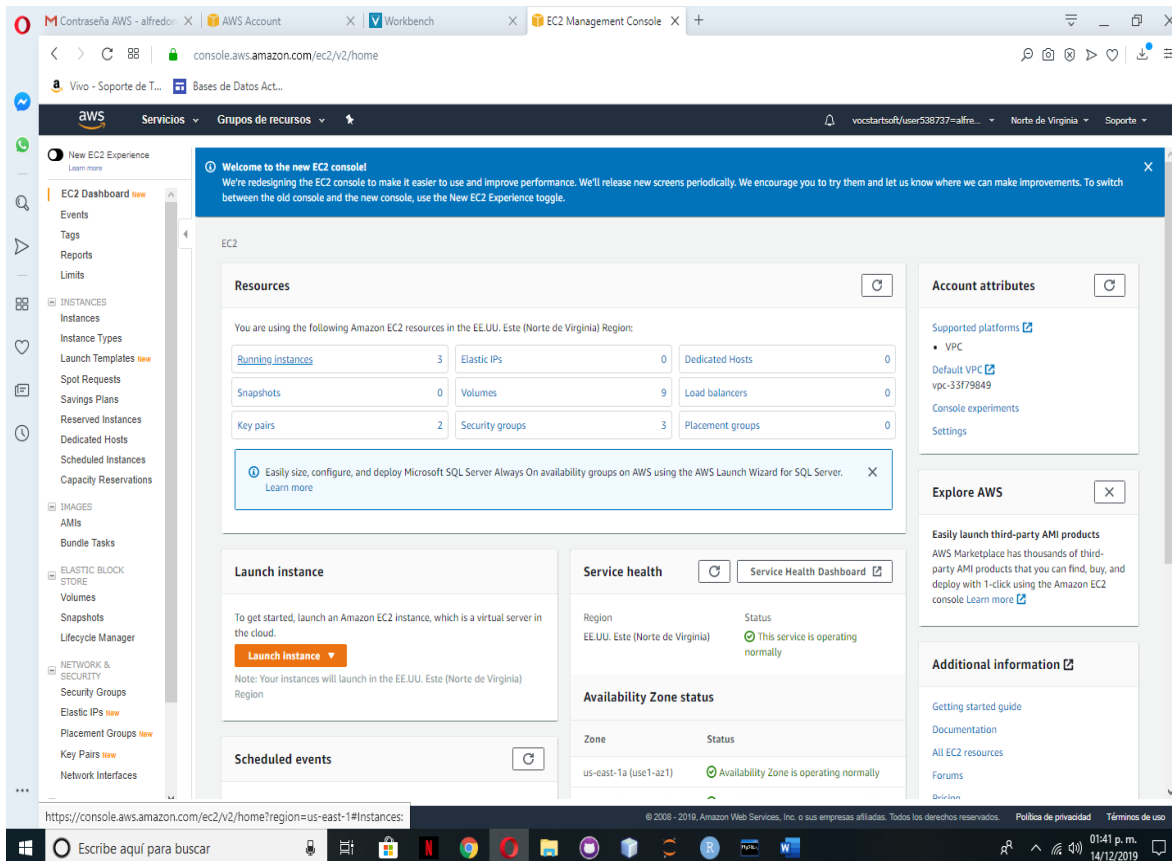
Visible para todos: **Todo** [Cambiar](#)

Los usuarios:

- Grupos de seguridad para principal:
- Grupos de seguridad para principal y tarea:

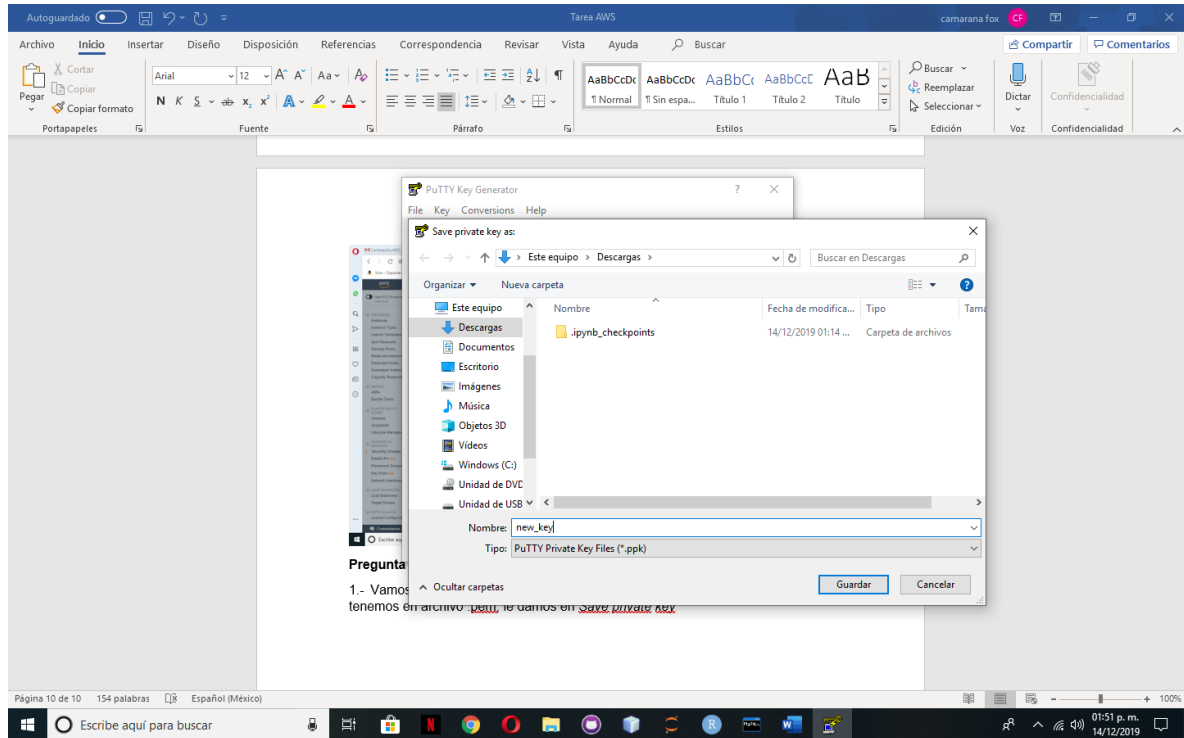


Veamos que nuestras instancias están corriendo.

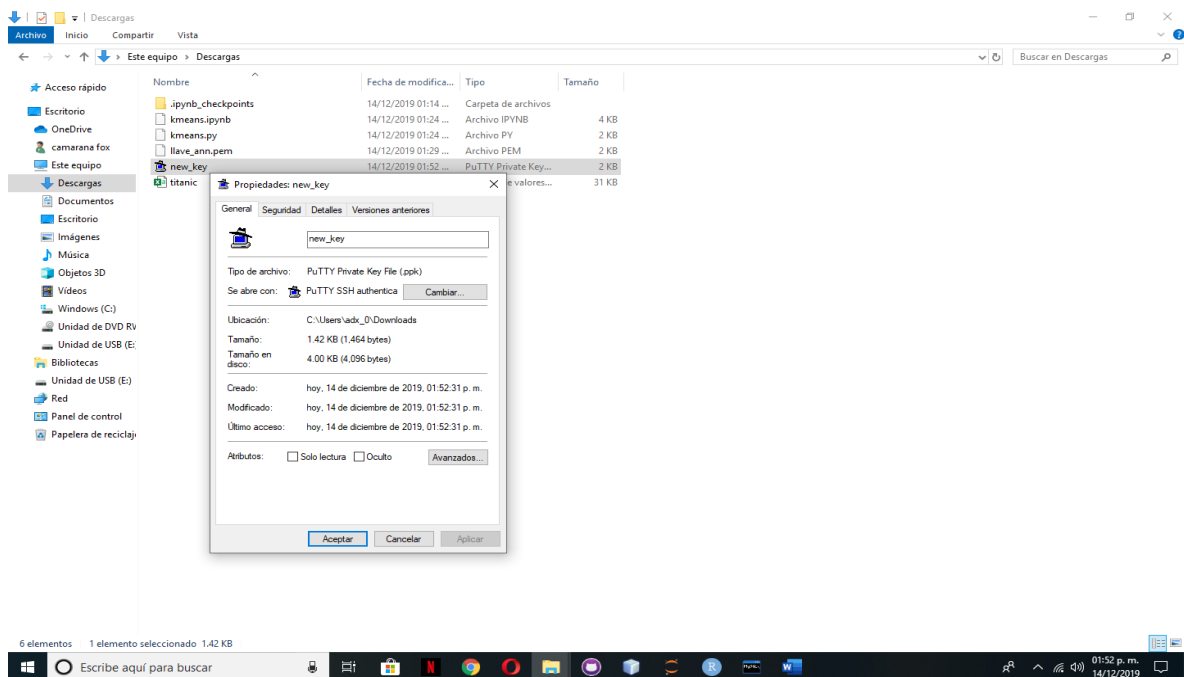


Pregunta 3

1.- Vamos a transformar la llave con *PUTTYgen* y transformamos la llave que tenemos en archivo .pem, le damos en *Save private key* y salvamos la llave bajo el nombre *new_key* con el formato *ppk*.



Veamos que esto fue así.



Pregunta 4

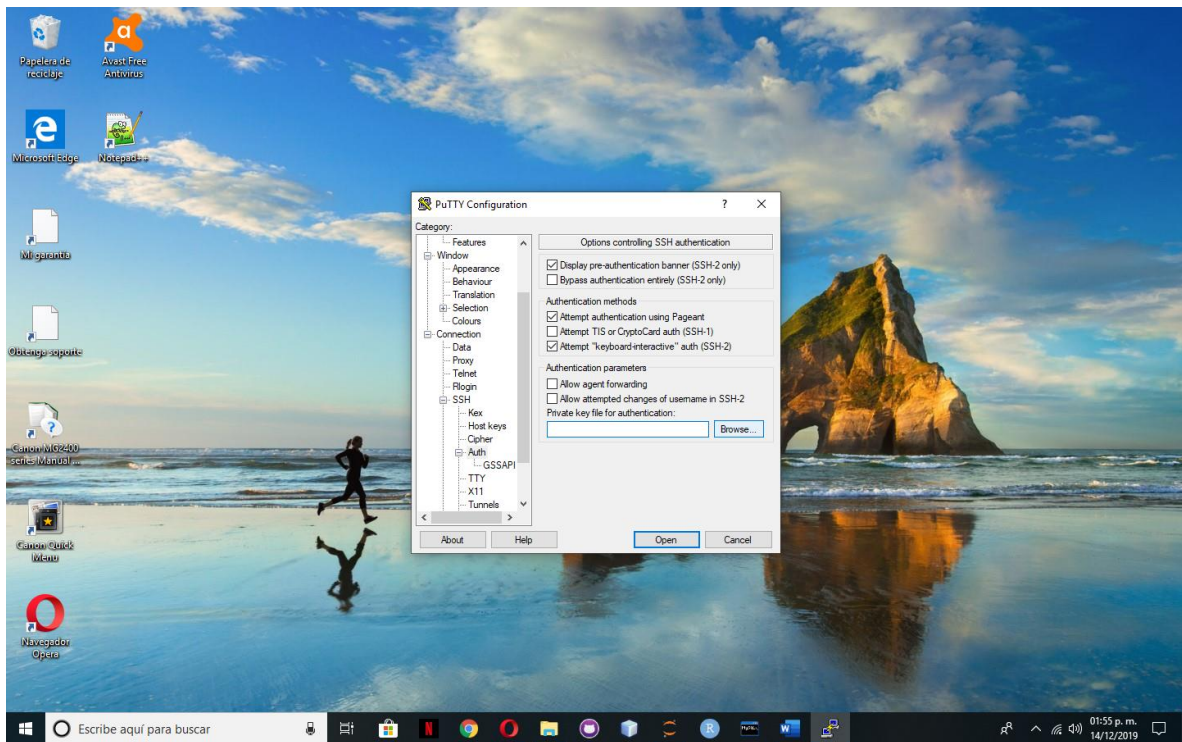
1.- Para conectarnos en el nodo maestro, copiamos su IP.

The screenshot shows the AWS Management Console interface. At the top, there's a navigation bar with 'aws' logo and various service links. Below it, the 'Instances | EC2 Management' page is active. A table lists EC2 instances. The instance 'i-2045VQ1TP0TAV' is selected, showing its details: Availability Zone (us-east-1f), Instance State (running), Status Checks (2/2 checks passed), Alarm Status (None), Public DNS (IPv4) (ec2-3-233-245-46.compute-1.amazonaws.com), IPv4 Public IP (3.233.245.46), Key Name (iave_arn), Monitoring (disabled), Launch Time (December 14, 2019 at 1:30:00), Security Groups (ElasticMapReduce-...), and Owner (69682536765). Below the table, the 'Tags' tab is selected, showing two tags: 'aws:elasticmapreduce:instance-group-role' with value 'MASTER' and 'aws:elasticmapreduce:job-flow-id' with value 'j-2045VQ1TP0TAV'.

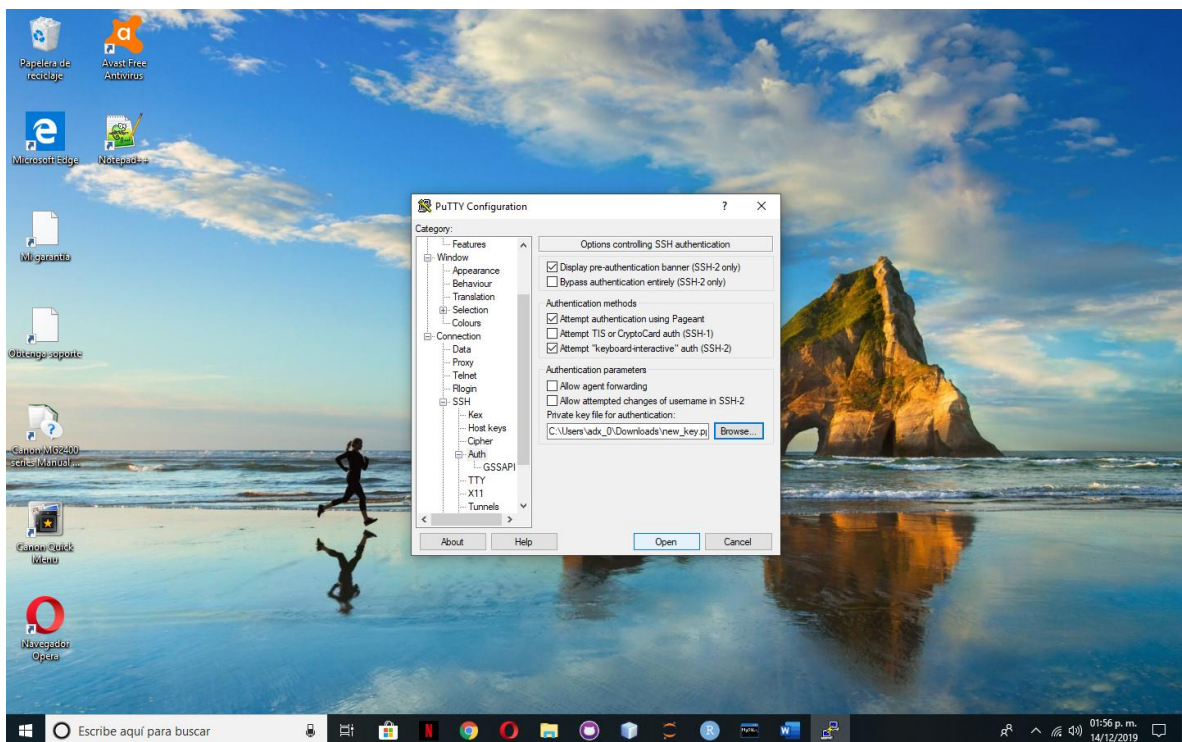
2.- Abrimos Putty y en la siguiente ventana configuramos.

The screenshot shows the same AWS Management Console interface as before, but with the 'PuTTY Configuration' dialog box open. The 'Basic options for your PuTTY session' tab is selected. The 'Host Name (or IP address)' field is filled with 'hadoop@3.233.245.46' and the 'Port' field is filled with '22'. The 'Connection type' is set to 'SSH'. The 'Close window on exit' option is set to 'Only on clean exit'. The 'Open' button is highlighted.

3.- Vamos a cargar nuestra llave.



Damos click en open.



Podemos ver que todo es correcto porque nuestra instancia ya esta corriendo al aparecer el dibujo de EMR.

```
hadoop@ip-172-31-76-225-
Using username "hadoop".
Authenticating with public key "imported-openssh-key"
Last login: Sat Dec 14 19:46:28 2019

      _ _      _ _      _ _      _ _      _ _      _ _
     _/ _/    _/ _/    _/ _/    _/ _/    _/ _/    _/ _/
    _/ _/    _/ _/    _/ _/    _/ _/    _/ _/    _/ _/
   _/ _/    _/ _/    _/ _/    _/ _/    _/ _/    _/ _/
  _/ _/    _/ _/    _/ _/    _/ _/    _/ _/    _/ _/
 _/ _/    _/ _/    _/ _/    _/ _/    _/ _/    _/ _/
_/_/_/    _/_/_/    _/_/_/    _/_/_/    _/_/_/    _/_/_/

Amazon Linux AMI

https://aws.amazon.com/amazon-linux-ami/2018.03-release-notes/
19 package(s) needed for security, out of 30 available
Run "sudo yum update" to apply all updates.

#####M#####RR#####
E::::::::::::E M::::M M::::M R::::R R::::R R::::R
E::::::::::::E M::::M M::::M R::::R R::::R R::::R
E:::E ##### M::::M M::::M R::::R R::::R R::::R
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E:::E##### M::::M M::::M M::::M R::::R R::::R R::::R
E::::::::::::E M::::M M::::M M::::M R::::R R::::R R::::R
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E:::E ##### M::::M M::::M R::::R R::::R R::::R
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E::::::::::::E M::::M M::::M R::::R R::::R R::::R
#####M#####RR#####

[hadoop@ip-172-31-76-225 ~]$
```

Pregunta 5

1.- Vamos a implementar los comandos dados en las instrucciones (copiamos el archivo del bucket) y aplicamos ls.

```
in | sync
mb | zb

presign
[hadoop@ip-172-31-76-225 ~]$ aws s3 cp s3://bucketalfredo.s3.amazonaws.com/dataframes/kmeans.py .
download: s3://bucketalfredo.s3.amazonaws.com/dataframes/kmeans.py to ./kmeans.py
[hadoop@ip-172-31-76-225 ~]$ ls
kmeans.py
[hadoop@ip-172-31-76-225 ~]$
```

2.- Aplicamos el paso más importante que es spark.submi y vemos que todo esta bien porque nos sale el silohuette.


```
hadoop@ip-172-31-76-225-
19/12/14 20:40:11 INFO YarnScheduler: Adding task set 32.0 with 1 tasks
19/12/14 20:40:11 INFO TaskSetManager: Starting task 0.0 in stage 32.0 (TID 231, ip-172-31-65-181.ec2.internal, executor 1, partition 0, RACK_LOCAL, 8274 bytes)
19/12/14 20:40:11 INFO BlockManagerInfo: Added broadcast_53_piece0 in memory on ip-172-31-65-181.ec2.internal:46737 (size: 18.2 KB, free: 2.6 GB)
19/12/14 20:40:11 INFO BlockManagerInfo: Added broadcast_52_piece0 in memory on ip-172-31-65-181.ec2.internal:46737 (size: 26.9 KB, free: 2.6 GB)
19/12/14 20:40:11 INFO BlockManagerInfo: Added broadcast_51_piece0 in memory on ip-172-31-65-181.ec2.internal:46737 (size: 682.0 B, free: 2.6 GB)
19/12/14 20:40:11 INFO TaskSetManager: Finished task 0.0 in stage 32.0 (TID 231) in 148 ms on ip-172-31-65-181.ec2.internal (executor 1) (1/1)
19/12/14 20:40:11 INFO YarnScheduler: Removed TaskSet 32.0, whose tasks have all completed, from pool
19/12/14 20:40:11 INFO DAGScheduler: ShuffleMapStage 32 (collect at ClusteringEvaluator.scala:177) finished in 0.154 s
19/12/14 20:40:11 INFO DAGScheduler: looking for newly runnable stages
19/12/14 20:40:11 INFO DAGScheduler: running: Set()
19/12/14 20:40:11 INFO DAGScheduler: waiting: Set(ResultStage 33)
19/12/14 20:40:11 INFO DAGScheduler: failed: Set()
19/12/14 20:40:11 INFO DAGScheduler: Submitting ResultStage 33 (MapPartitionsRDD[102] at collect at ClusteringEvaluator.scala:177), which has no missing parents
19/12/14 20:40:11 INFO MemoryStore: Block broadcast_54 stored as values in memory (estimated size 9.6 KB, free 1026.8 MB)
19/12/14 20:40:11 INFO MemoryStore: Block broadcast_54_piece0 stored as bytes in memory (estimated size 4.4 KB, free 1026.8 MB)
19/12/14 20:40:11 INFO BlockManagerInfo: Added broadcast_54_piece0 in memory on ip-172-31-76-225.ec2.internal:40137 (size: 4.4 KB, free: 1028.7 MB)
19/12/14 20:40:11 INFO SparkContext: Created broadcast 54 from broadcast at DAGScheduler.scala:1201
19/12/14 20:40:11 INFO DAGScheduler: Submitting 1 missing tasks from ResultStage 33 (MapPartitionsRDD[102] at collect at ClusteringEvaluator.scala:177) (first 15 tasks are for p
artitions Vector(0))
19/12/14 20:40:11 INFO YarnScheduler: Adding task set 33.0 with 1 tasks
19/12/14 20:40:11 INFO TaskSetManager: Starting task 0.0 in stage 33.0 (TID 232, ip-172-31-65-181.ec2.internal, executor 1, partition 0, NODE_LOCAL, 7778 bytes)
19/12/14 20:40:11 INFO BlockManagerInfo: Added broadcast_54_piece0 in memory on ip-172-31-65-181.ec2.internal:46737 (size: 4.4 KB, free: 2.6 GB)
19/12/14 20:40:11 INFO MapOutputTrackerMasterEndpoint: Asked to send map output locations for shuffle 11 to 172.31.65.181:48356
19/12/14 20:40:11 INFO TaskSetManager: Finished task 0.0 in stage 33.0 (TID 232) in 27 ms on ip-172-31-65-181.ec2.internal (executor 1) (1/1)
19/12/14 20:40:11 INFO YarnScheduler: Removed TaskSet 33.0, whose tasks have all completed, from pool
19/12/14 20:40:11 INFO DAGScheduler: ResultStage 33 (collect at ClusteringEvaluator.scala:177) finished in 0.031 s
19/12/14 20:40:11 INFO DAGScheduler: Job 21 finished: collect at ClusteringEvaluator.scala:177, took 0.188711 s
19/12/14 20:40:11 INFO TorrentBroadcast: Destroying Broadcast(51) (from destroy at ClusteringEvaluator.scala:478)
19/12/14 20:40:11 INFO BlockManagerInfo: Removed broadcast_51_piece0 on ip-172-31-76-225.ec2.internal:40137 in memory (size: 682.0 B, free: 1028.7 MB)
19/12/14 20:40:11 INFO BlockManagerInfo: Removed broadcast_51_piece0 on ip-172-31-65-181.ec2.internal:46737 in memory (size: 682.0 B, free: 2.6 GB)
19/12/14 20:40:11 INFO SparkContext: Invoking stop() from shutdown hook
19/12/14 20:40:11 INFO SparkUI: Stopped Spark web UI at http://ip-172-31-76-225.ec2.internal:4040
19/12/14 20:40:11 INFO YarnClientSchedulerBackend: Interrupting monitor thread
19/12/14 20:40:11 INFO YarnClientSchedulerBackend: Shutting down all executors
19/12/14 20:40:11 INFO YarnSchedulerBackend$YarnDriverEndpoint: Asking each executor to shut down
19/12/14 20:40:11 INFO SchedulerExtensionServices: Stopping SchedulerExtensionServices
(serviceOption=None,
services=List(),
started=false)
19/12/14 20:40:11 INFO YarnClientSchedulerBackend: Stopped
19/12/14 20:40:11 INFO MapOutputTrackerMasterEndpoint: MapOutputTrackerMasterEndpoint stopped!
19/12/14 20:40:11 INFO MemoryStore: MemoryStore cleared
19/12/14 20:40:11 INFO BlockManager: BlockManager stopped
19/12/14 20:40:11 INFO BlockManagerMaster: BlockManagerMaster stopped
19/12/14 20:40:11 INFO OutputCommitCoordinator$OutputCommitCoordinatorEndpoint: OutputCommitCoordinator stopped!
19/12/14 20:40:11 INFO SparkContext: Successfully stopped SparkContext
19/12/14 20:40:11 INFO ShutdownHookManager: Shutdown hook called
19/12/14 20:40:11 INFO ShutdownHookManager: Deleting directory /mnt/tmp/spark-2f280e30-5e15-43bb-b7f8-ef848d6d5339
19/12/14 20:40:11 INFO ShutdownHookManager: Deleting directory /mnt/tmp/spark-10193857-0312-4cb6-9b29-87540e8ab2ef
19/12/14 20:40:11 INFO ShutdownHookManager: Deleting directory /mnt/tmp/spark-2f280e30-5e15-43bb-b7f8-ef848d6d5339/pyspark-756a54b5-c063-4a23-938f-0c236435ce9e
[hadoop@ip-172-31-76-225 ~]$
```

```
19/12/14 20:40:11 INFO SparkContext: Invoking stop() from shutdown hook
19/12/14 20:40:11 INFO SparkUI: Stopped Spark web UI at http://ip-172-31-76-225.ec2.internal:4040
19/12/14 20:40:11 INFO YarnClientSchedulerBackend: Interrupting monitor thread
19/12/14 20:40:11 INFO YarnClientSchedulerBackend: Shutting down all executors
19/12/14 20:40:11 INFO YarnSchedulerBackend$YarnDriverEndpoint: Asking each executor to shut down
19/12/14 20:40:11 INFO SchedulerExtensionServices: Stopping SchedulerExtensionServices
(serviceOption=None,
services=List(),
started=false)
```

3.- Descargamos los logs que se van a adjuntar.

Contraseña AWS - alfredo

AWS Account

Workbench

EMR - AWS Console

console.aws.amazon.com/elasticmapreduce/home

Vivo - Soporte de T...

Bases de Datos Act...

aws

Servicios

Grupos de recursos

vocartatorf/user538737-alfre... Norte de Virginia Soporte

Amazon EMR

Clústeres

Configuraciones de seguridad

Bloqueo de acceso público

Subredes de la VPC

Eventos

Bloques de notas

Git repositorios

Ayuda

Novedades

Clonar

Finalizar

Exportación de la CLI de AWS

Cluster: cml Esperando Cluster ready after last step completed.

Resumen

Historial de aplicaciones

Monitorización

Hardware

Configuraciones

Eventos

Pasos

Acciones de arranque

Conexiones:

DNS público principal:

Servicio de historial:

Etiquetas:

Resumen

Detalles de las configuraciones

Redes y hardware

Seguridad y acceso

Nombre de la clave:

Perfil de instancia:

Función de EMR:

Visible para todos:

los usuarios:

Grupos de seguridad:

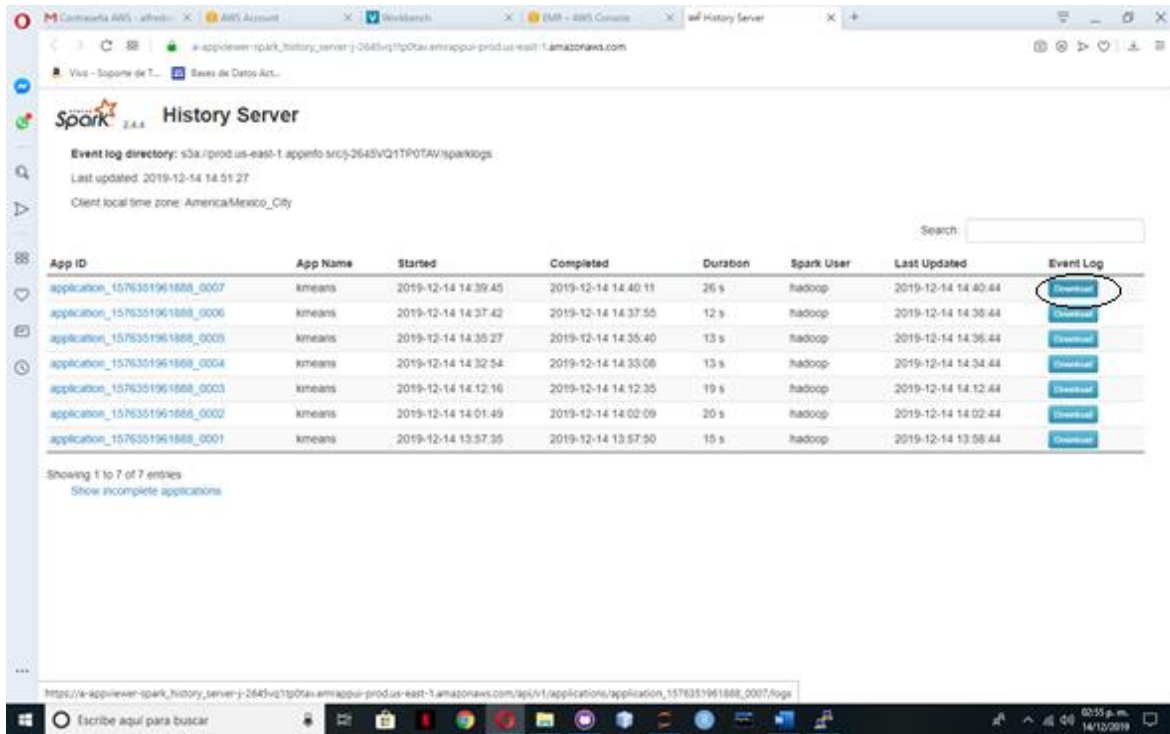
Grupos de seguridad:

principal y tareas:

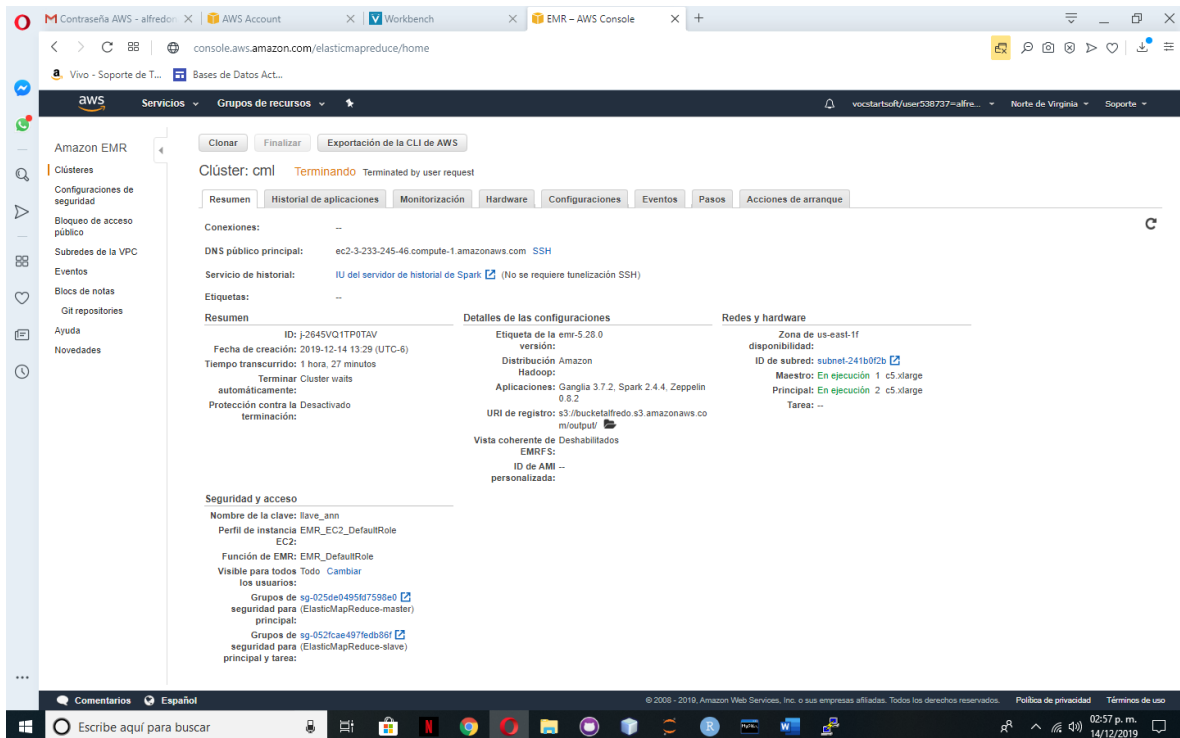
Comentarios

Español

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4.- Finalizamos el clúster para no gastar nuestros créditos.



Veamos que en Putty nos aparece en la consola un mensaje que es porque finalizamos el clúster.


```
19/12/14 20:40:11 INFO DAGScheduler: Submitting ResultStage 33 (MapPartitionsRDD[102] at collect at ClusteringEvaluator.scala:177), which has no missing parents
19/12/14 20:40:11 INFO MemoryStore: Block broadcast_54 stored as values in memory (estimated size 8.6 KB, free 1026.8 MB)
19/12/14 20:40:11 INFO MemoryStore: Block broadcast_54 stored as bytes in memory (estimated size 4.4 KB, free 1026.8 MB)
19/12/14 20:40:11 INFO BlockManagerInfo: Added broadcast_54 piece0 in memory on ip-172-31-76-225.ec2.internal:40137 (size: 4.4 KB, free: 1028.7 MB)
19/12/14 20:40:11 INFO SparkContext: Created broadcast 54 from broadcast at DAGScheduler.scala:1201
19/12/14 20:40:11 INFO DAGScheduler: Submitting 1 missing tasks from ResultStage 33 (MapPartitionsRDD[102] at collect at ClusteringEvaluator.scala:177) (first 15 tasks are for p
artitions Vector(0))
19/12/14 20:40:11 INFO YarnScheduler: Adding task set 33.0 with 1 tasks
19/12/14 20:40:11 INFO TaskSetManager: Starting task 0.0 in stage 33.0 (TID 232, ip-172-31-65-181.ec2.internal, executor 1, partition 0, NOHE_LOCAL, 7778 bytes)
19/12/14 20:40:11 INFO BlockManagerInfo: Added broadcast_54 piece0 in memory on ip-172-31-65-181.ec2.internal:46737 (size: 4.4 KB, free: 2.6 GB)
19/12/14 20:40:11 INFO MapOutputTrackerMasterEndpoint: Asked to send map output locations for shuffle 11 to 172.31.65.181:48356
19/12/14 20:40:11 INFO TaskSetManager: Finished task 0.0 in stage 33.0 (TID 232) in 27 ms on ip-172-31-65-181.ec2.internal (executor 1) (1/1)
19/12/14 20:40:11 INFO YarnScheduler: Removed TaskSet 33.0, whose tasks have all completed, from pool
19/12/14 20:40:11 INFO DAGScheduler: ResultStage 33 (collect at ClusteringEvaluator.scala:177) finished in 0.031 s
19/12/14 20:40:11 INFO DAGScheduler: Job 21 finished: collect at ClusteringEvaluator.scala:177, took 0.188711 s
19/12/14 20:40:11 INFO TorrentBroadcast: Destroying Broadcast(51) (from destroy at ClusteringEvaluator.scala:478)
19/12/14 20:40:11 INFO BlockManagerInfo: Removed broadcast_51 piece0 on ip-172-31-76-225.ec2.internal:40137 in memory (size: 682.0 B, free: 1028.7 MB)
19/12/14 20:40:11 INFO BlockManagerInfo: Removed broadcast_51 piece0 on ip-172-31-65-181.ec2.internal:46737 in memory (size: 682.0 B, free: 2.6 GB)
('S1house', 0.8632578330719813)
19/12/14 20:40:11 INFO SparkContext: Invoking stop() from shutdown hook
19/12/14 20:40:11 INFO SparkUI: Stopped Spark web UI at http://ip-172-31-76-225.ec2.internal:4040
19/12/14 20:40:11 INFO YarnClientSchedulerBackend: Interrupting monitor thread
19/12/14 20:40:11 INFO YarnClientSchedulerBackend: Shutting down all
19/12/14 20:40:11 INFO YarnSchedulerBackendYarnDriverEndpoint: Ask
19/12/14 20:40:11 INFO SchedulerExtensionsServices: Stopping Scheduler
(ServiceOptions$None,
  services=List(),
  started=false)
19/12/14 20:40:11 INFO YarnClientSchedulerBackend: Stopped
19/12/14 20:40:11 INFO MapOutputTrackerMasterEndpoint: MapOutputTrac
19/12/14 20:40:11 INFO BlockManager: BlockManager stopped
19/12/14 20:40:11 INFO BlockManagerMaster: BlockManagerMaster stopped
19/12/14 20:40:11 INFO OutputCommitCoordinator$OutputCommitCoordinatorEndpoint: OutputCommitCoordinator stopped!
19/12/14 20:40:11 INFO SparkContext: Successfully stopped SparkContext
19/12/14 20:40:11 INFO ShutdownHookManager: Shutdown hook called
19/12/14 20:40:11 INFO ShutdownHookManager: Deleting directory /mnt/tmp/spark-2f280e30-5e15-43bb-b7f8-ef848d6d5339
19/12/14 20:40:11 INFO ShutdownHookManager: Deleting directory /mnt/tmp/spark-10193857-0312-4cb6-9b29-87540e8ab36f
19/12/14 20:40:11 INFO ShutdownHookManager: Deleting directory /mnt/tmp/spark-2f280e30-5e15-43bb-b7f8-ef848d6d5339/pyspark-756a54b5-c063-4a23-938f-0c236435ce9e
[hadoop@ip-172-31-76-225 ~]$ ls
kmeans.py
[hadoop@ip-172-31-76-225 ~]$
Broadcast message from root@ip-172-31-76-225
(unknown) at 20:54 ...

The system is going down for halt NOW!

Broadcast message from root@ip-172-31-76-225
(unknown) at 20:54 ...

The system is going down for halt NOW!
```

Nombre	ID	Estado	Hora de creación (UTC-4)	Tiempo transcurrido	Procesos de instancia normalizados
emr	j-2645VGTTP9T5AV	Terminado	2019-12-14 13:28 (UTC-4)	1 hora, 25 minutos	48
MI cluster	j-7mvg8nuz83038	Terminado con errores Error en la instancia	2019-12-14 12:27 (UTC-4)	35 minutos	24
cluster08_2019	j-3NTLHFAVHPTD	Terminado con errores Error en la instancia	2019-12-08 12:51 (UTC-4)	43 minutos	62

6.- Se termina la práctica.