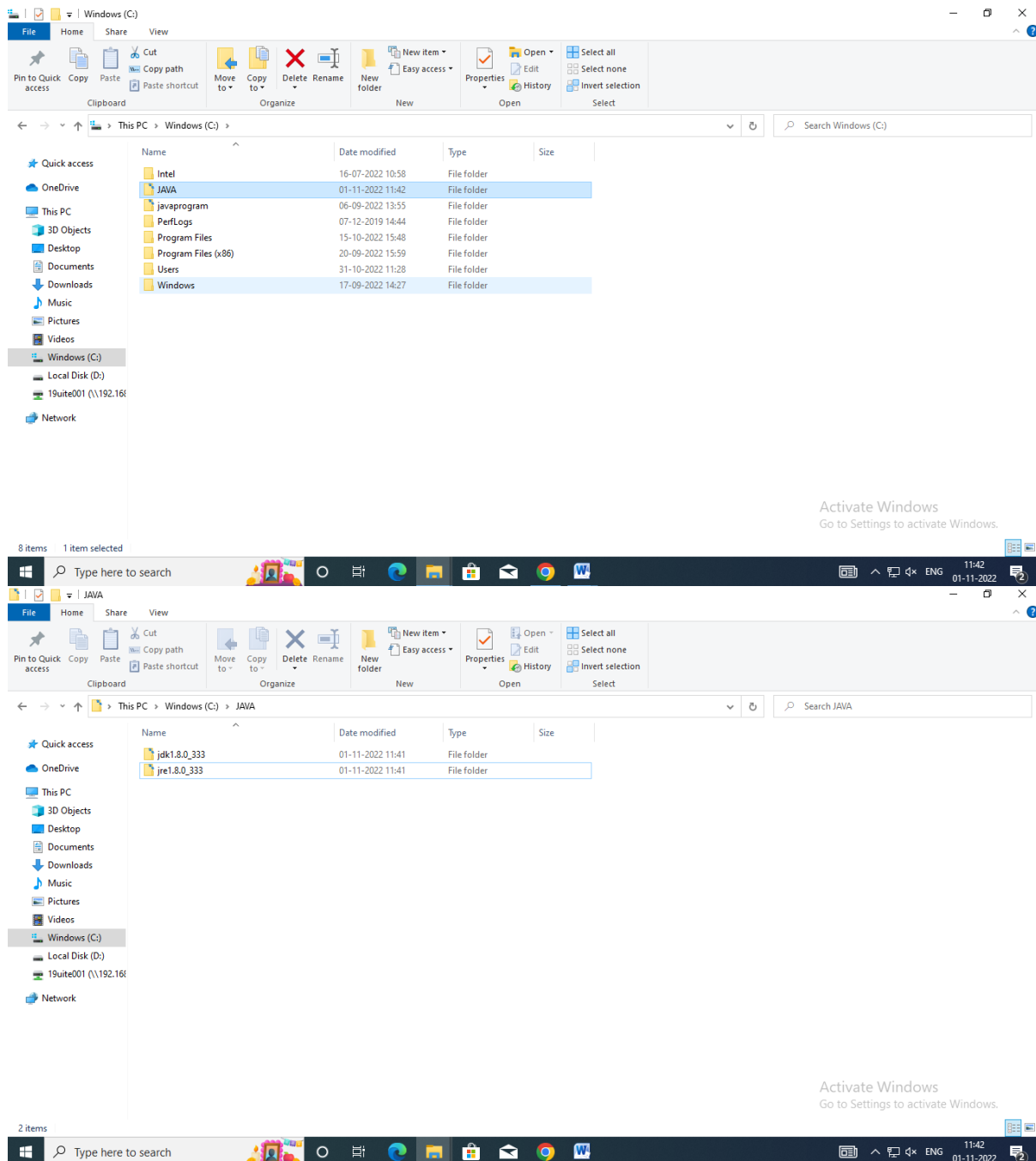


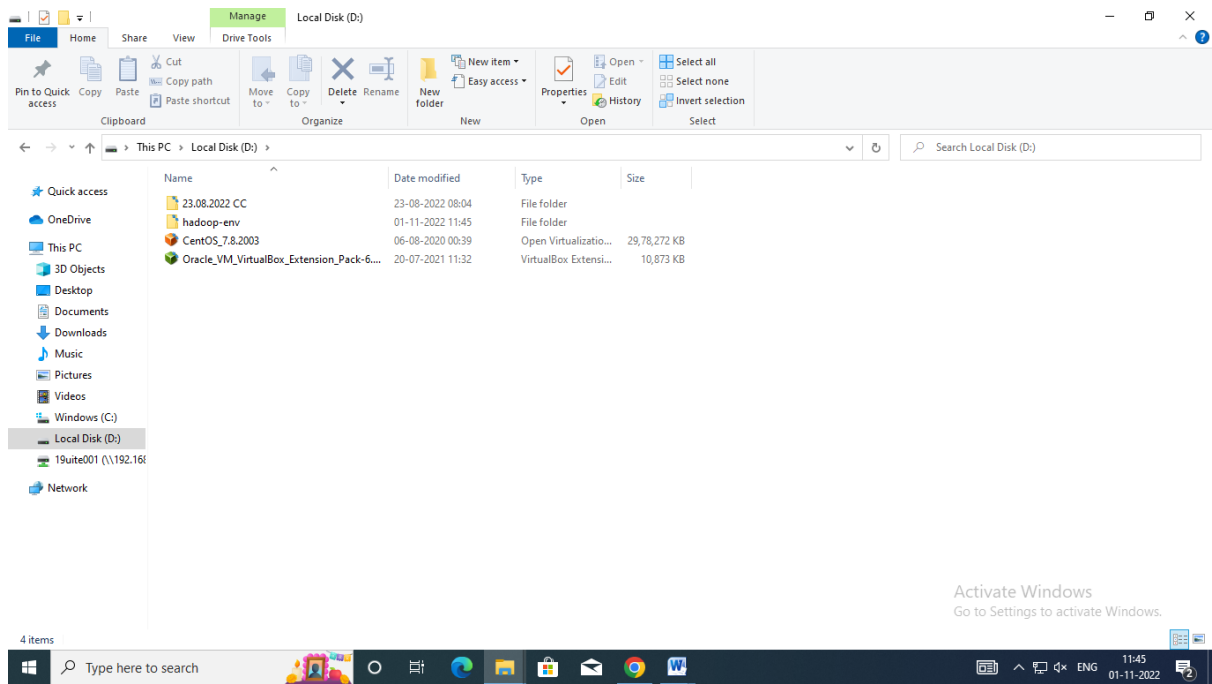
EXERCISE: 9**Installation of Single Node Hadoop Cluster****PROCEDURAL STEPS**

Step 1: Install / Extract the following Packages:

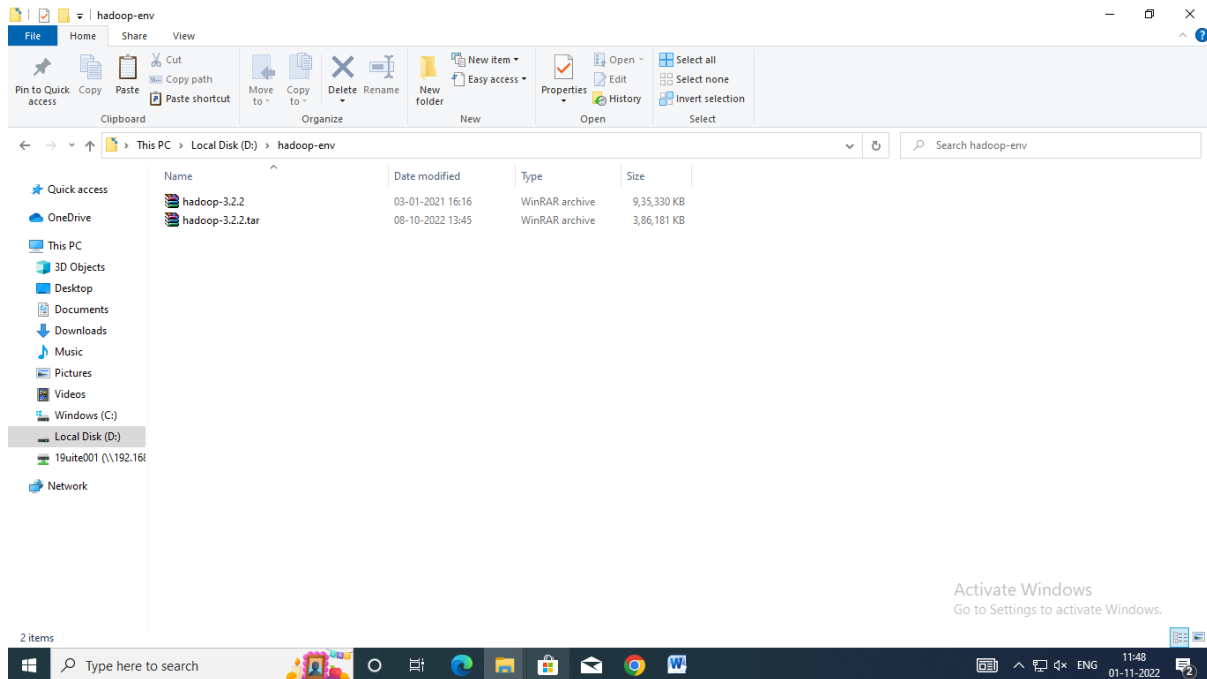
1. Install Java 8 in the location **c:\JAVA**. Also create two folders namely **“jdk1.8.0_333”** and **“jre1.8.0_333”**.



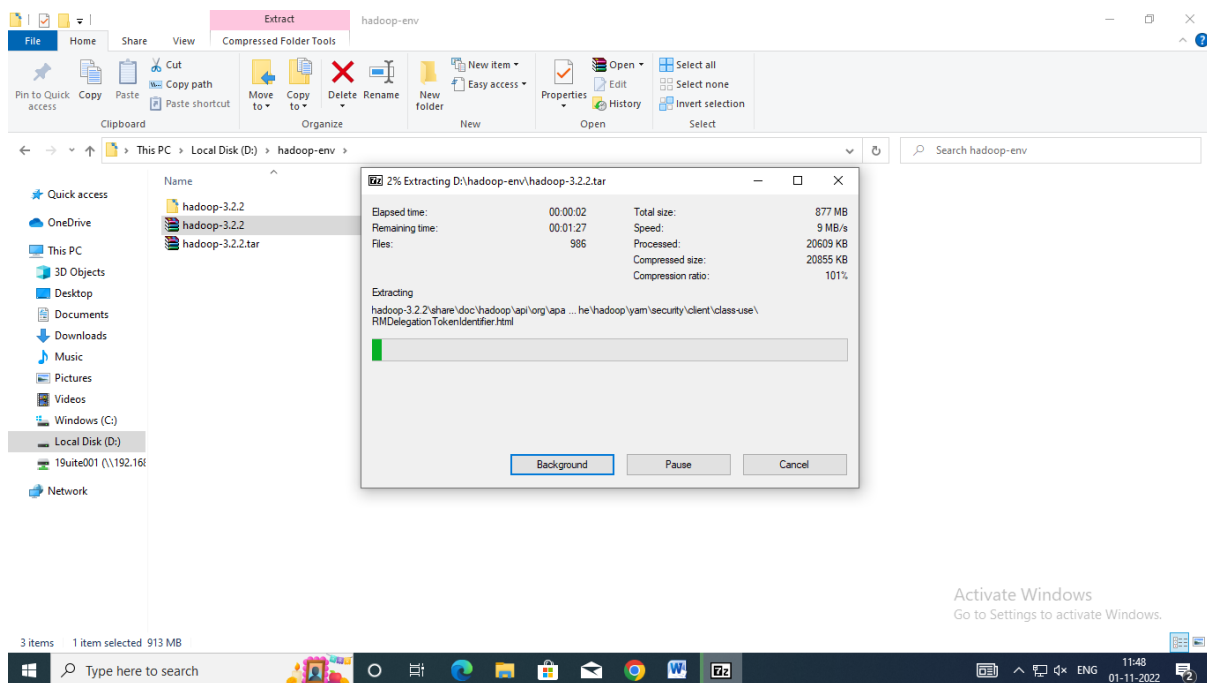
2. Create a folder “hadoop-env” in D:\



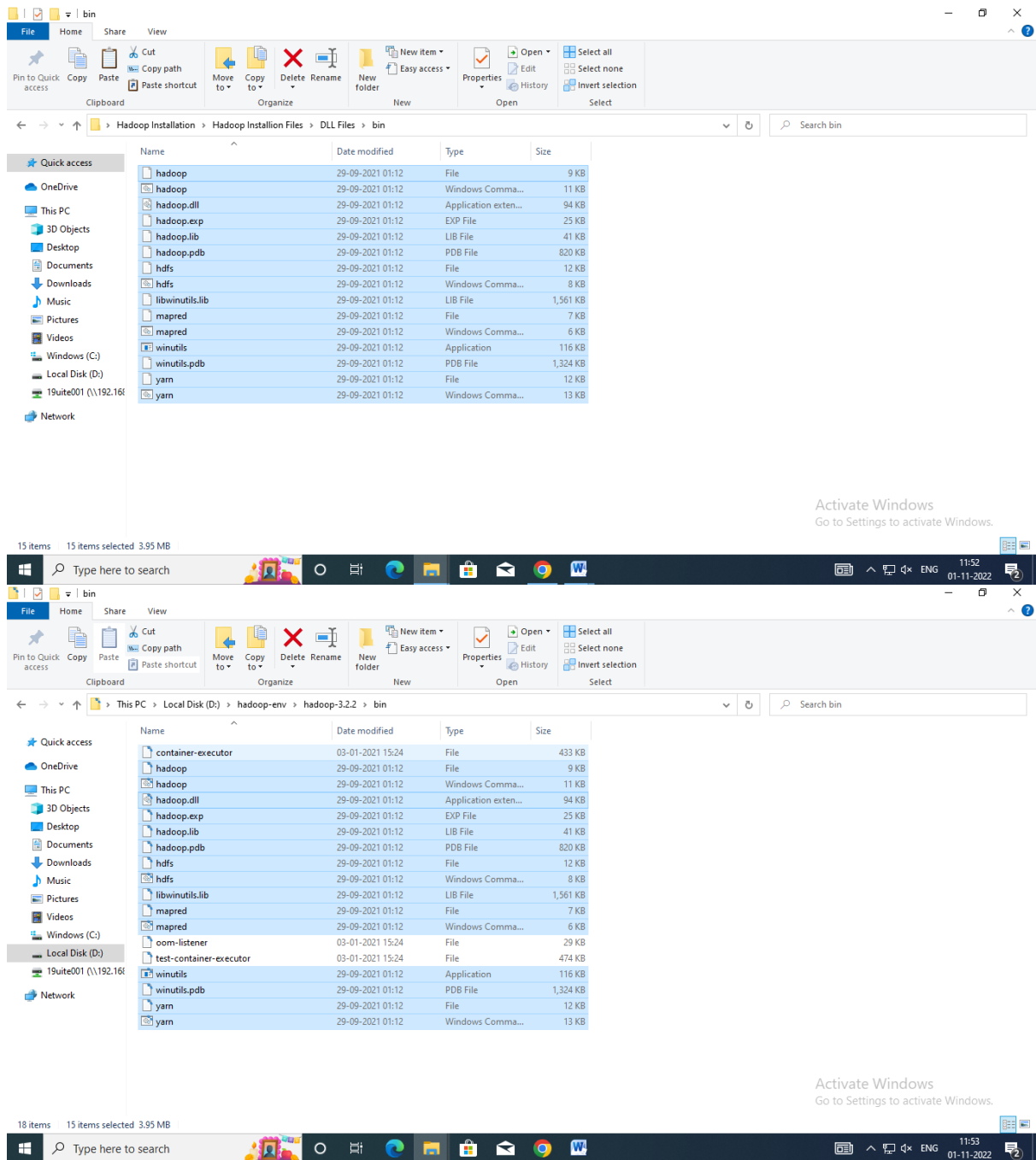
3. Paste the downloaded “hadoop-3.2.2.tar.gz” into “d:\hadoop-env”



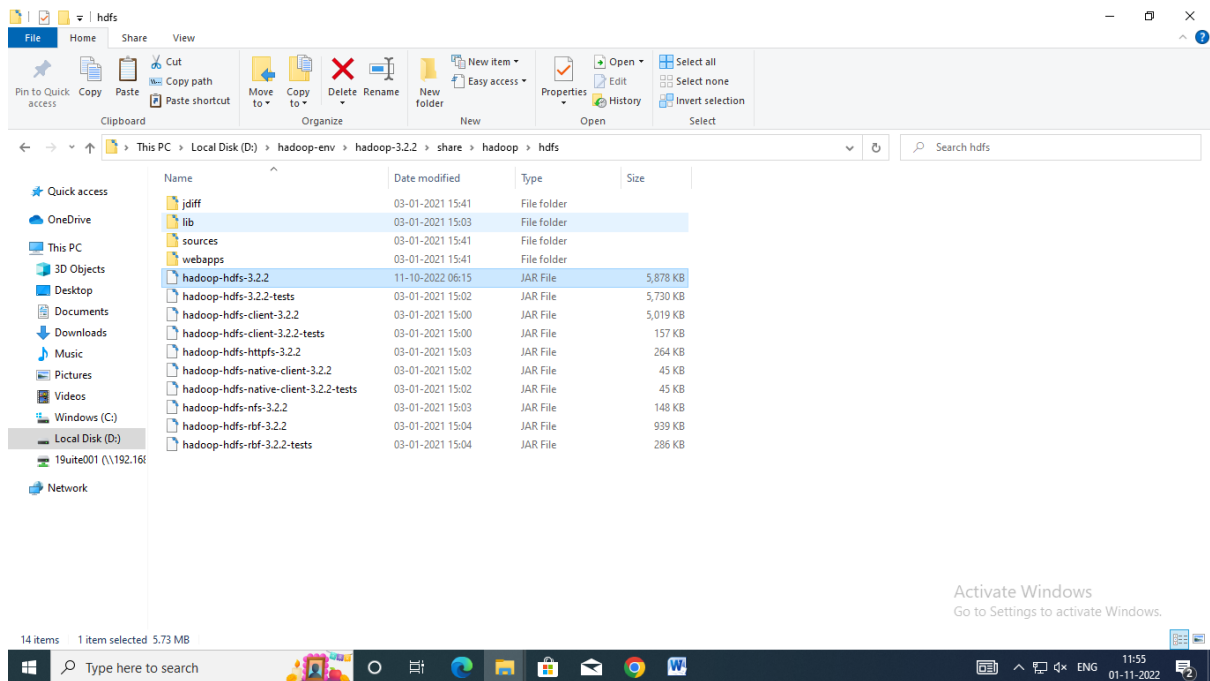
4. Unzip the “hadoop-3.2.2.tar.gz” using 7zip (do the unzip function two times)



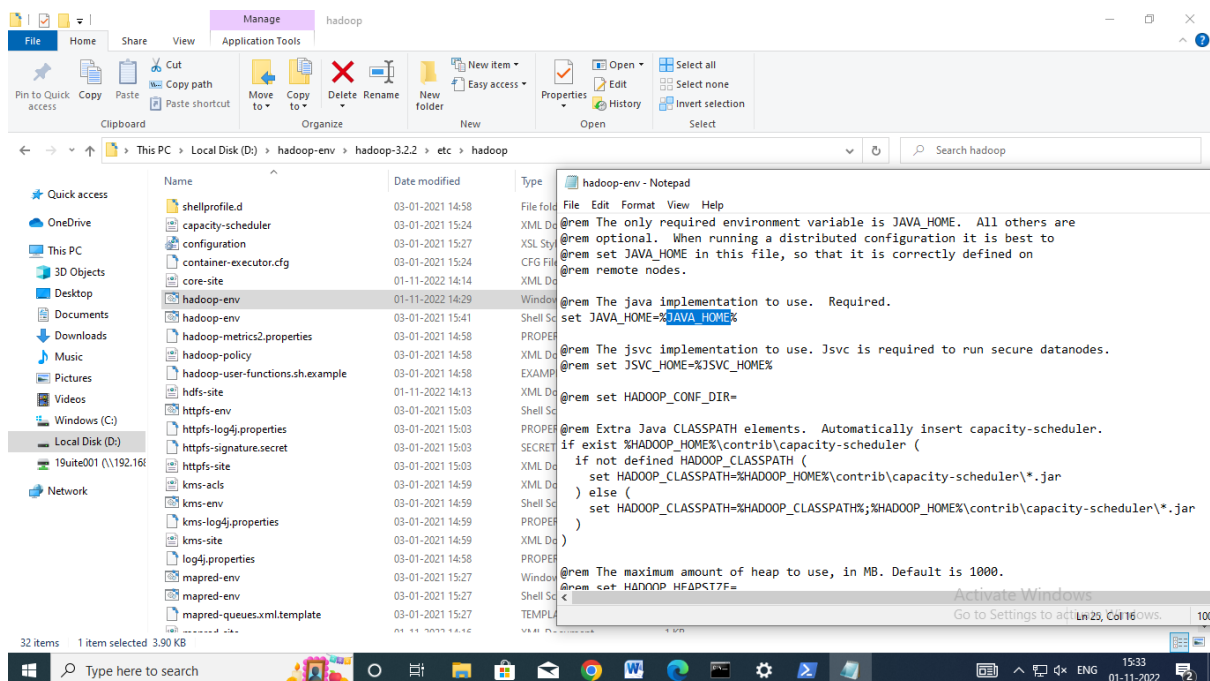
5. Copy the downloaded Hadoop dll files to the location “D:\hadoop-env\hadoop-3.2.2\bin”



6. Copy the downloaded `hadoop-hdfs-3.2.2.jar` to “D:\hadoop-env\hadoop-3.2.2\share\hadoop\hdfs”



7. Edit the `JAVA_HOME = C:\JAVA\jdk1.8.0_333` in the path “D:\hadoop-env\hadoop-3.2.2\etc\hadoop\hadoop-env.cmd



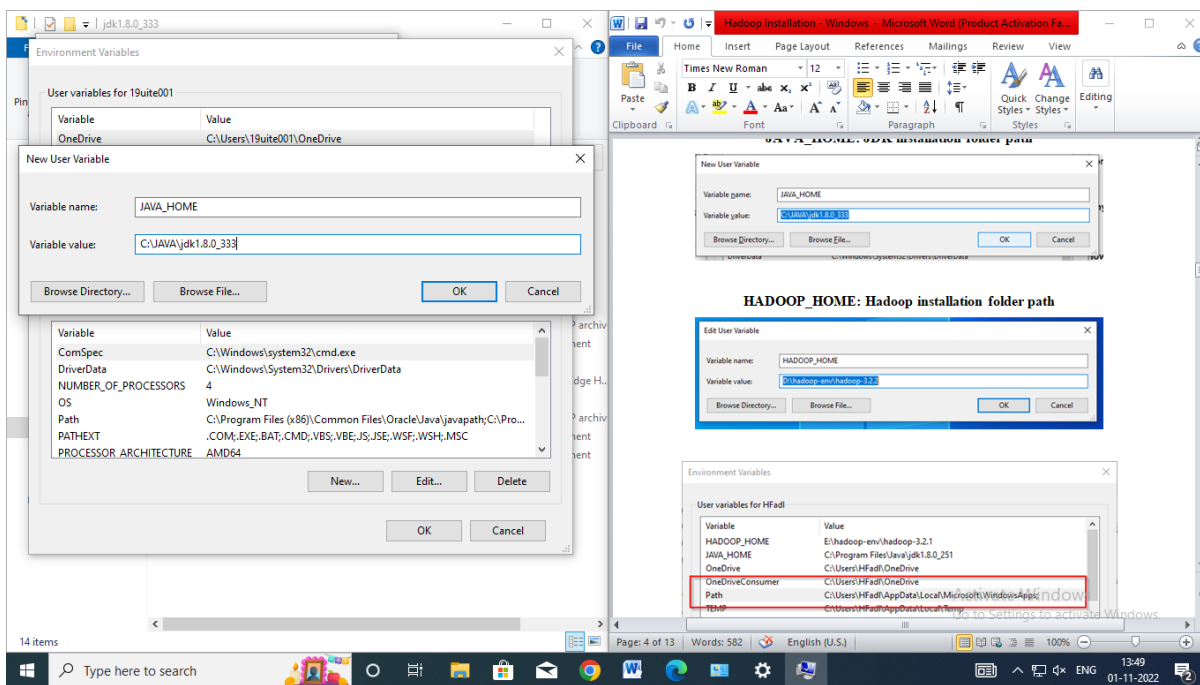
Step 2: Set the path for Java and Hadoop in system environment variables

To edit environment variables, go to Control Panel → System and Security → System (or) right-click “This PC” → Properties (My Computer icon) and click on the “Advanced system settings” link.

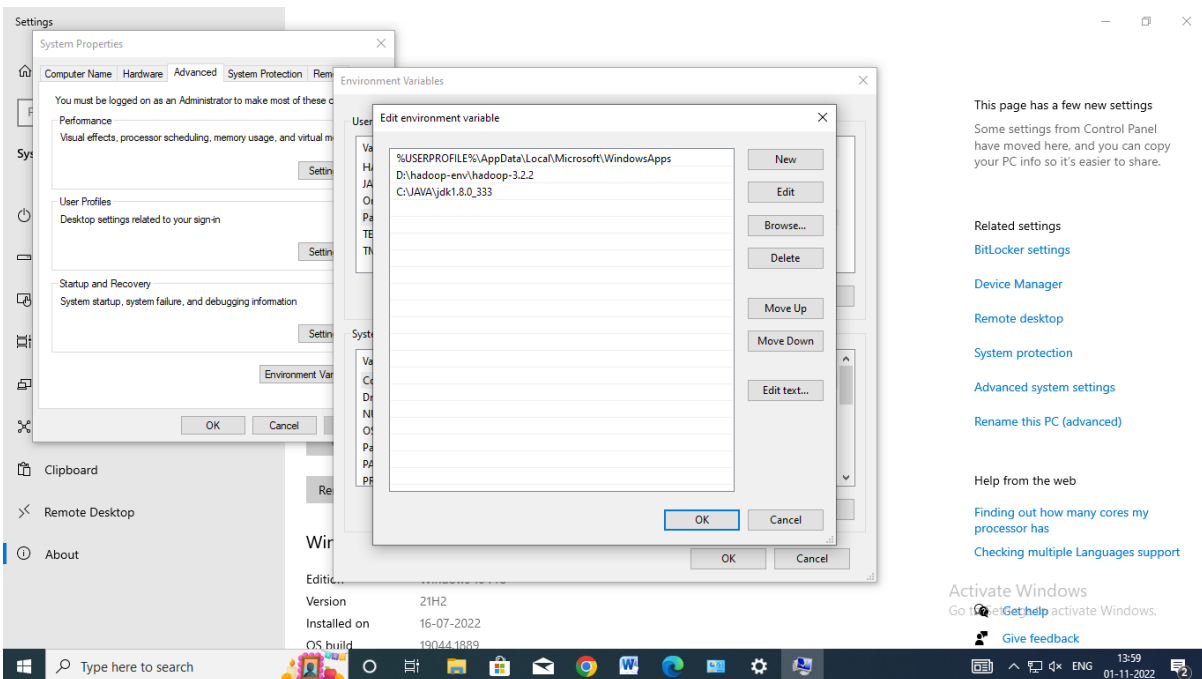
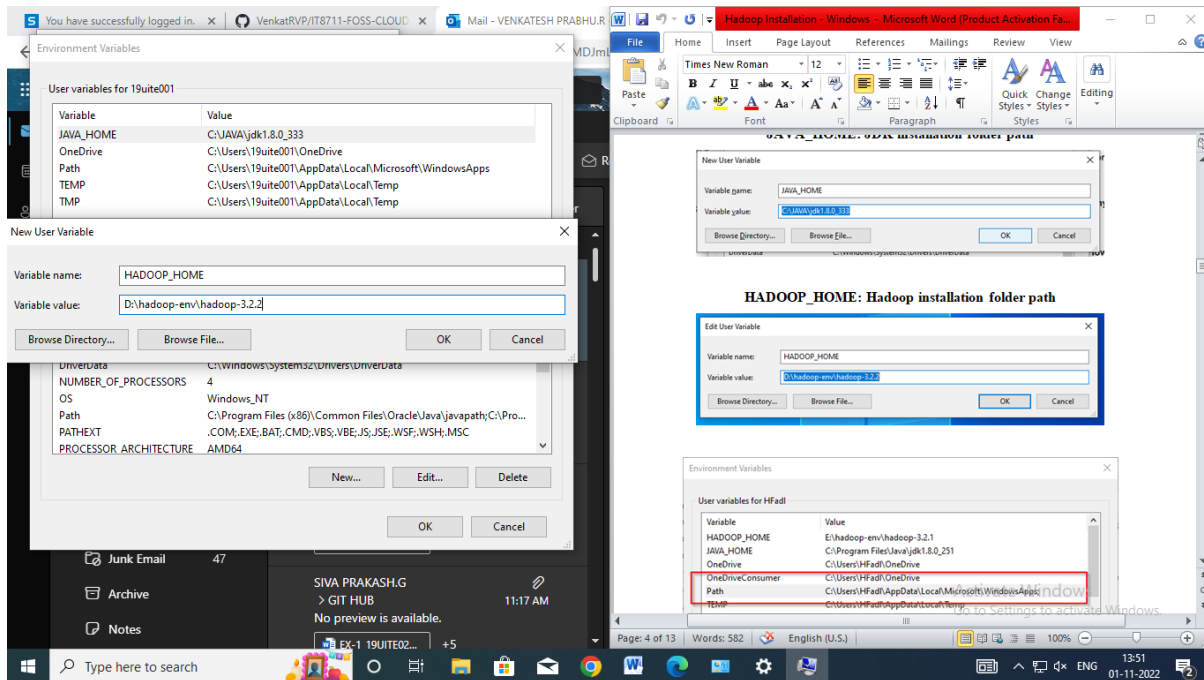
When the “Advanced system settings” dialog appears, go to the “Advanced” tab and click on the “Environment variables” button located on the bottom of the dialog.

In the “Environment Variables” dialog, press the “New” button to add a new variable.

Now, Edit the PATH variable to add the Java and Hadoop binaries paths as shown in the following screenshots.

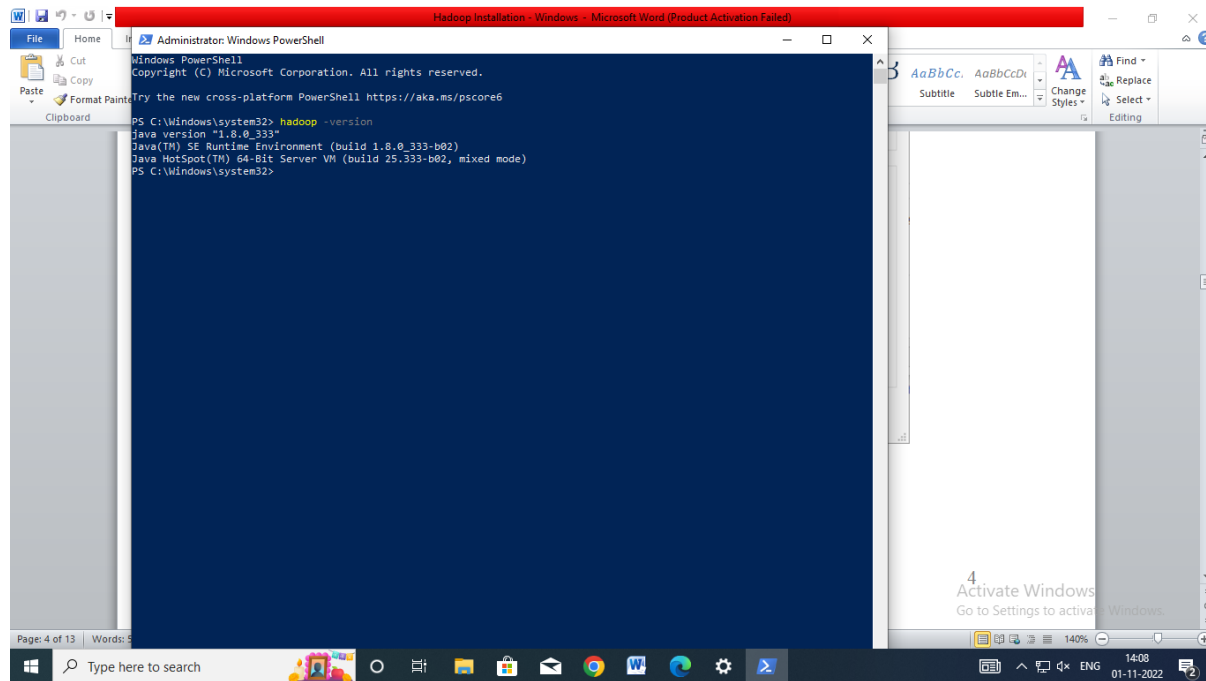
JAVA_HOME: JDK installation folder path

HADOOP_HOME: Hadoop installation folder path



Step 3: Open Command Prompt as Administrator and run the following command:

hadoop –version

A screenshot of a Windows desktop environment. In the foreground, a blue Windows PowerShell window titled "Administrator: Windows PowerShell" is open. The command prompt shows the execution of the command `hadoop -version`. The output displays the Hadoop version as "1.8.0_333", the Java version as "1.8.0_333", and the Java HotSpot(TM) 64-Bit Server VM version as "build 25.333-b02, mixed mode". The background shows a Microsoft Word document titled "Hadoop Installation - Windows - Microsoft Word (Product Activation Failed)". The taskbar at the bottom includes the Start button, search bar, and various application icons. The system tray shows the date and time as 14:08 on 01-11-2022.

```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

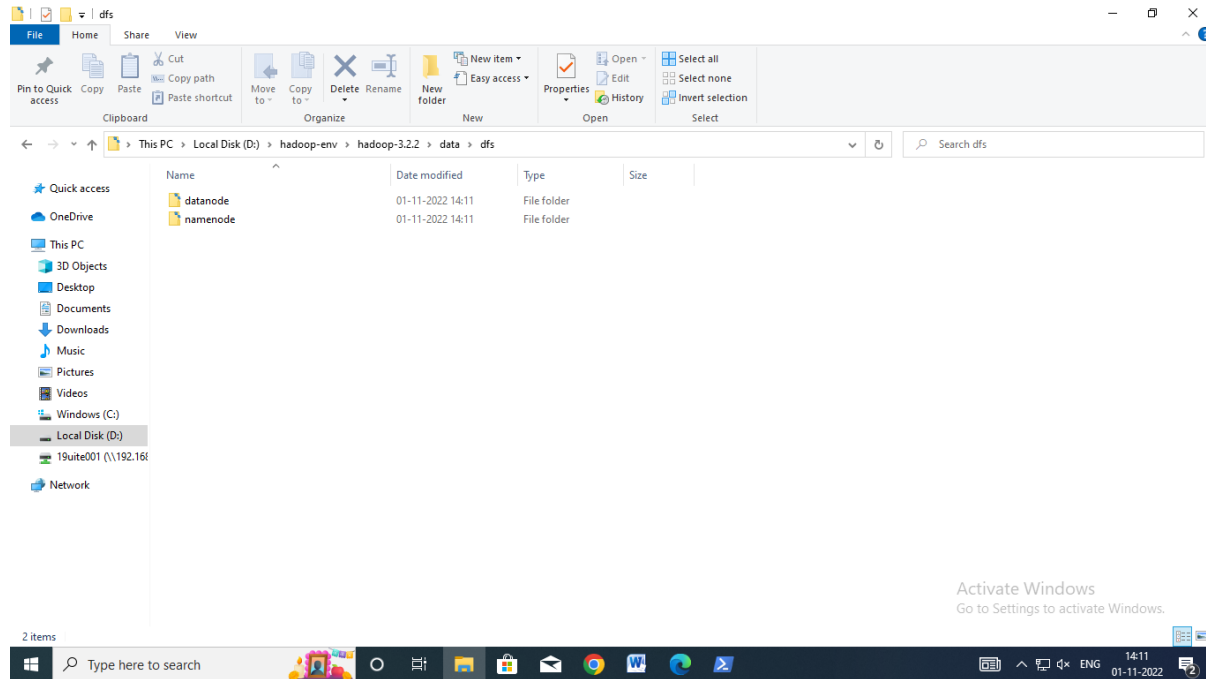
Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Windows\system32> hadoop -version
hadoop version "1.8.0_333"
java version "1.8.0_333"
Java(TM) SE Runtime Environment (build 1.8.0_333-b02)
Java HotSpot(TM) 64-Bit Server VM (build 25.333-b02, mixed mode)
PS C:\Windows\system32>
```


Step 4: Create the following folders

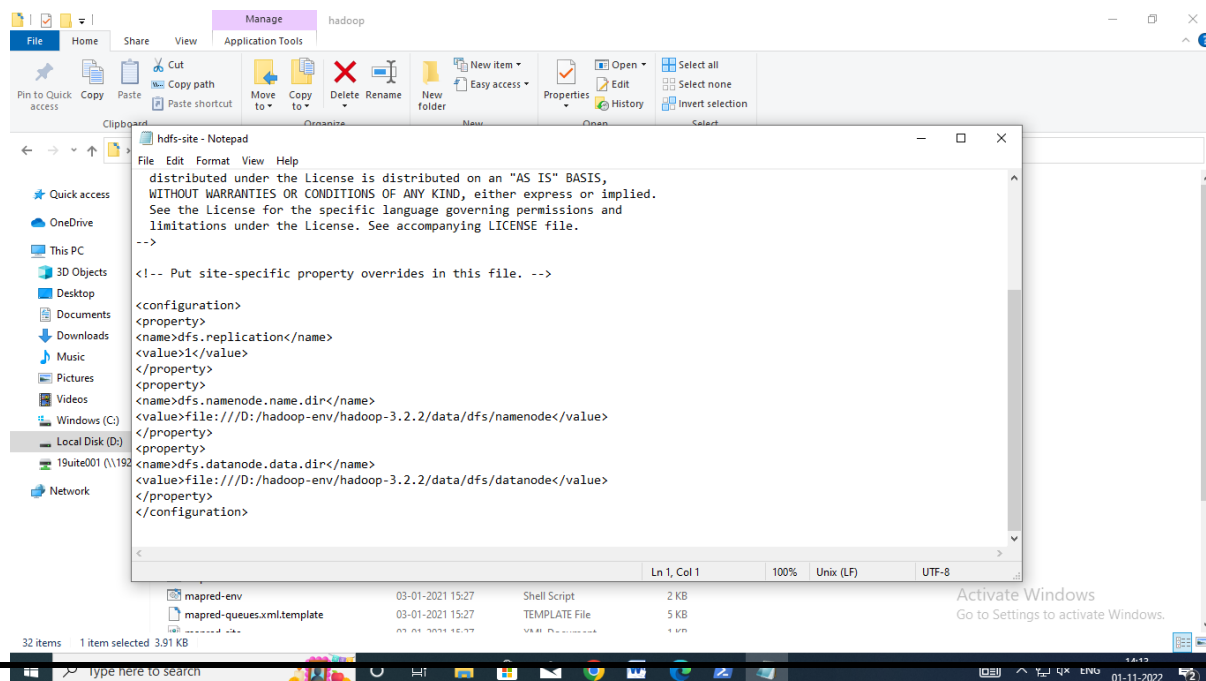
D:\hadoop-env\hadoop-3.2.2\data\dfs\namenode

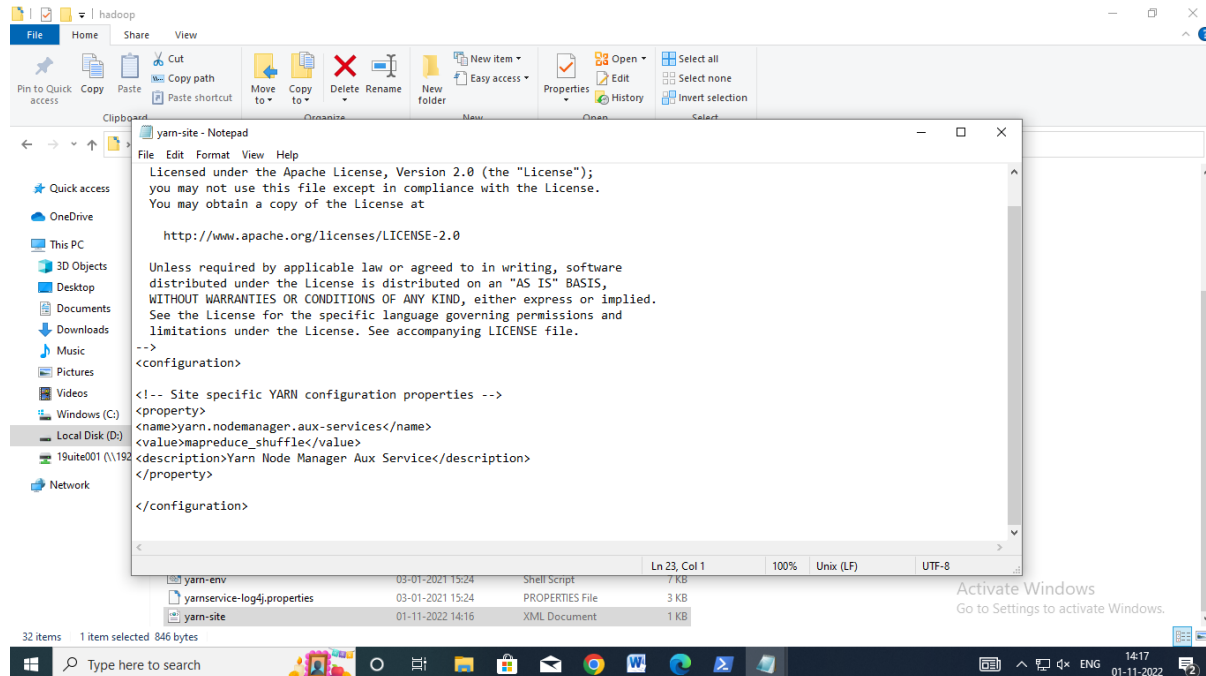
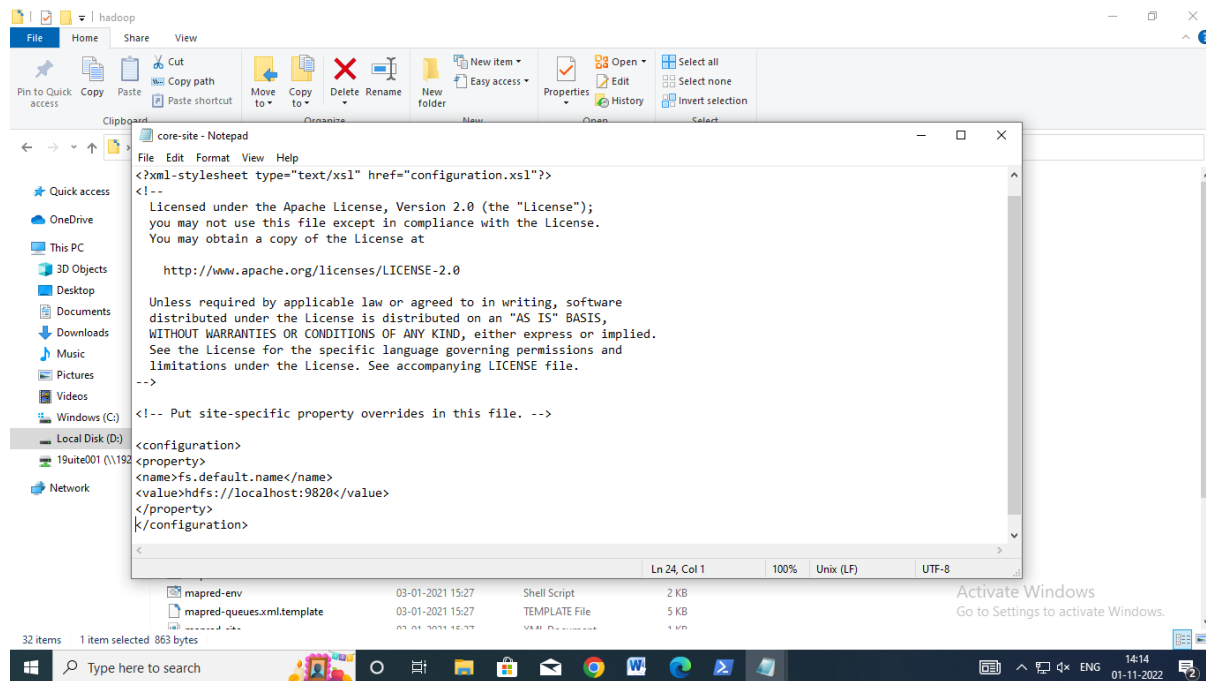
D:\hadoop-env\hadoop-3.2.2\data\dfs\datanode

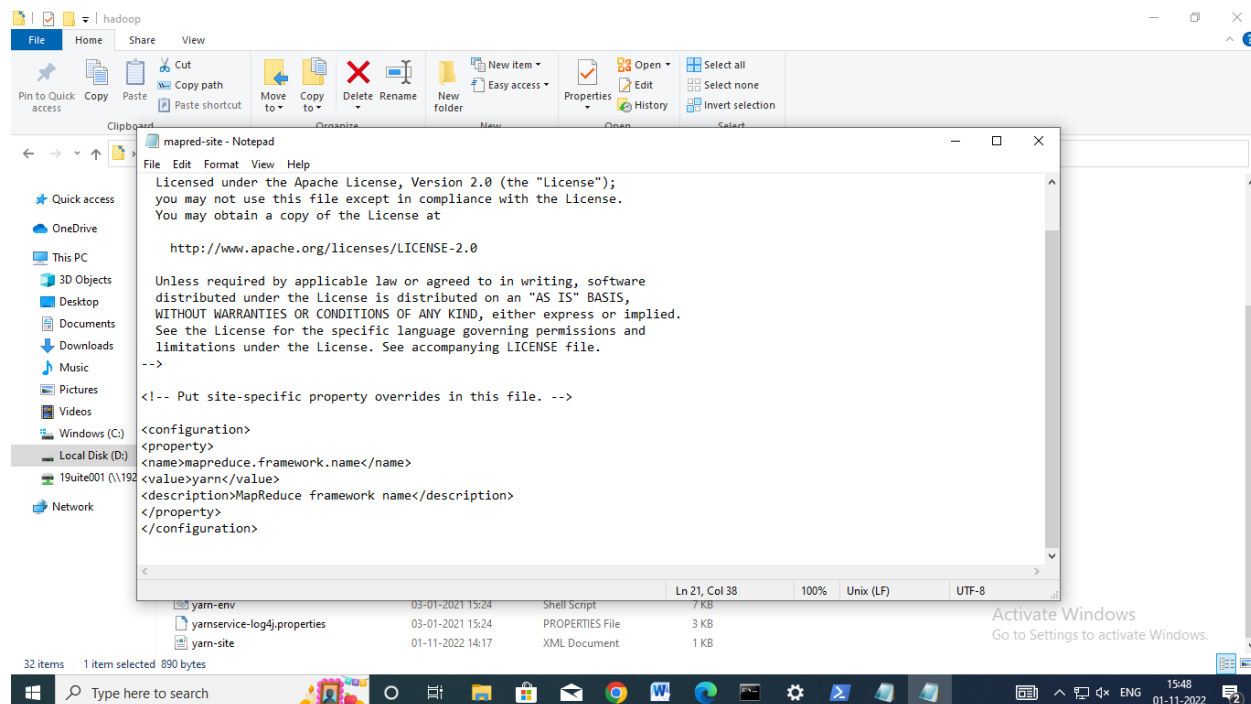
**Step 5: Configuring Hadoop cluster**

There are **four files** to configure Hadoop cluster:

Location of the File: “D:\hadoop-env\hadoop-3.2.2\etc\hadoop”







Step 6: Format the namenode

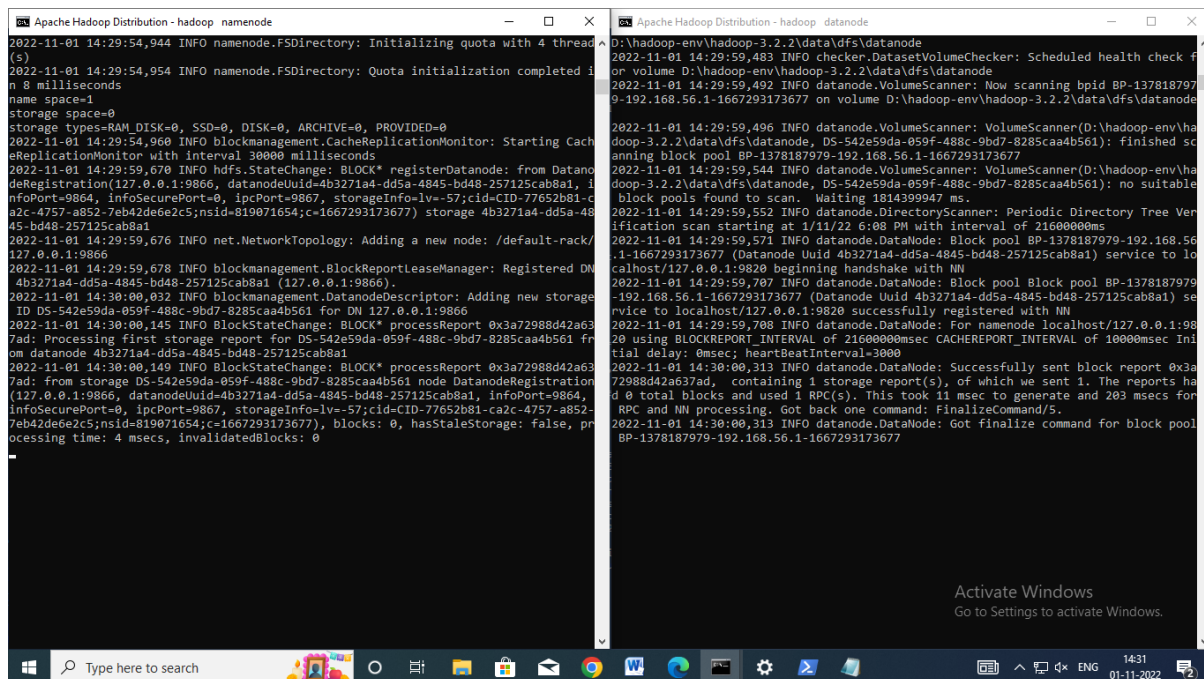
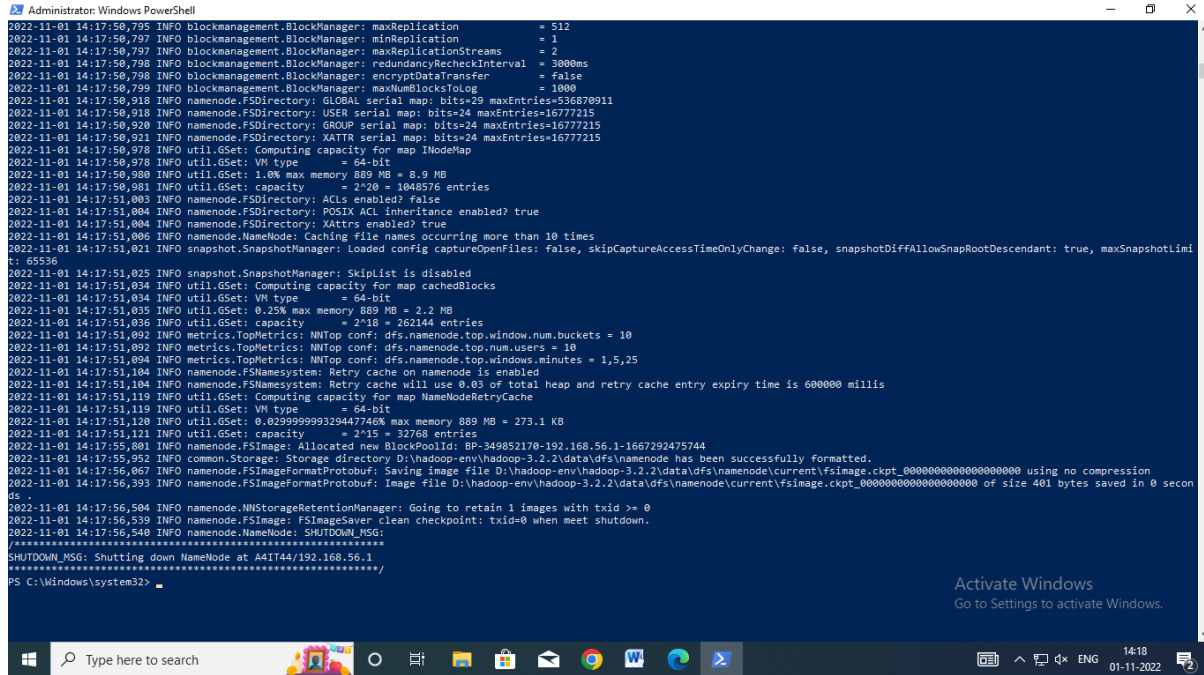
After finishing the configuration, format the name using the following command

hdfs namenode –format

```
Administrator: Windows PowerShell
2022-11-01 14:17:50,795 INFO blockmanagement.BlockManager: maxReplication = 512
2022-11-01 14:17:50,797 INFO blockmanagement.BlockManager: minReplication = 1
2022-11-01 14:17:50,797 INFO blockmanagement.BlockManager: maxReplicationStreams = 2
2022-11-01 14:17:50,798 INFO blockmanagement.BlockManager: redundancyCheckInterval = 3000ms
2022-11-01 14:17:50,798 INFO blockmanagement.BlockManager: encryptDataTransfer = false
2022-11-01 14:17:50,799 INFO blockmanagement.BlockManager: maxNumBlocksToLog = 1000
2022-11-01 14:17:50,918 INFO namenode.FSDirectory: GLOBAL serial map: bits=29 maxEntries=536870911
2022-11-01 14:17:50,918 INFO namenode.FSDirectory: USER serial map: bits=24 maxEntries=16777215
2022-11-01 14:17:50,920 INFO namenode.FSDirectory: GROUP serial map: bits=24 maxEntries=16777215
2022-11-01 14:17:50,921 INFO namenode.FSDirectory: XATTR serial map: bits=24 maxEntries=16777215
2022-11-01 14:17:50,978 INFO util.GSet: Computing capacity for map INodeMap
2022-11-01 14:17:50,978 INFO util.GSet: VM type = 64-bit
2022-11-01 14:17:50,980 INFO util.GSet: 1.0% max memory 889 MB = 8.9 MB
2022-11-01 14:17:50,981 INFO util.GSet: capacity = 2^20 = 1048576 entries
2022-11-01 14:17:51,003 INFO namenode.FSDirectory: ACLs enabled? false
2022-11-01 14:17:51,004 INFO namenode.FSDirectory: POSIX ACL inheritance enabled? true
2022-11-01 14:17:51,004 INFO namenode.FSDirectory: XATTRs enabled? true
2022-11-01 14:17:51,006 INFO namenode.NameNode: Caching file names occurring more than 10 times
2022-11-01 14:17:51,021 INFO snapshot.SnapshotManager: Loaded config captureOpenFiles: false, skipCaptureAccessTimeOnlyChange: false, snapshotDiffAllowSnapRootDescendant: true, maxSnapshotLimit: 65536
2022-11-01 14:17:51,025 INFO snapshot.SnapshotManager: SkipList is disabled
2022-11-01 14:17:51,034 INFO util.GSet: Computing capacity for map cachedBlocks
2022-11-01 14:17:51,034 INFO util.GSet: VM type = 64-bit
2022-11-01 14:17:51,035 INFO util.GSet: 0.25% max memory 889 MB = 2.2 MB
2022-11-01 14:17:51,036 INFO util.GSet: capacity = 2^18 = 262144 entries
2022-11-01 14:17:51,092 INFO metrics.TopMetrics: NNTop conf: dfs.namenode.top.window.num.buckets = 10
2022-11-01 14:17:51,092 INFO metrics.TopMetrics: NNTop conf: dfs.namenode.top.num.users = 10
2022-11-01 14:17:51,094 INFO metrics.TopMetrics: NNTop conf: dfs.namenode.top.windows.minutes = 1,5,25
2022-11-01 14:17:51,104 INFO namenode.FSNamesystem: Retry cache on namenode is enabled
2022-11-01 14:17:51,104 INFO namenode.FSNamesystem: Retry cache will use 0.03 of total heap and retry cache entry expiry time is 600000 millis
2022-11-01 14:17:51,119 INFO util.GSet: Computing capacity for map NameNodeRetryCache
2022-11-01 14:17:51,119 INFO util.GSet: VM type = 64-bit
2022-11-01 14:17:51,120 INFO util.GSet: 0.0299999999329447746% max memory 889 MB = 273.1 KB
2022-11-01 14:17:51,121 INFO util.GSet: capacity = 2^15 = 32768 entries
2022-11-01 14:17:55,801 INFO namenode.FSImage: Allocated new BlockPoolId: BP-349852170-192.168.56.1-1667292475744
2022-11-01 14:17:55,952 INFO common.Storage: Storage directory D:\hadoop-env\hadoop-3.2.2\data\dfs\namenode has been successfully formatted.
2022-11-01 14:17:56,067 INFO namenode.FSImageFormatProtobuf: Saving image file D:\hadoop-env\hadoop-3.2.2\data\dfs\namenode\current\fsimage.ckpt_00000000000000000000 using no compression
2022-11-01 14:17:56,393 INFO namenode.FSImageFormatProtobuf: Image file D:\hadoop-env\hadoop-3.2.2\data\dfs\namenode\current\fsimage.ckpt_00000000000000000000 of size 401 bytes saved in 0 seconds.
2022-11-01 14:17:56,504 INFO namenode.MNStorageRetentionManager: Going to retain 1 images with txid >= 0
2022-11-01 14:17:56,539 INFO namenode.FSImage: FSImageSaver clean checkpoint: txid=0 when meet shutdown.
2022-11-01 14:17:56,540 INFO namenode.NameNode: SHUTDOWN_MSG:
*****
SHUTDOWN_MSG: Shutting down NameNode at 141144/192.168.56.1
*****
PS C:\Windows\system32>
```

Activate Windows
Go to Settings to activate Windows.

Roll No : 19UITE001



Next, Start the Hadoop Yarn service using the following command:

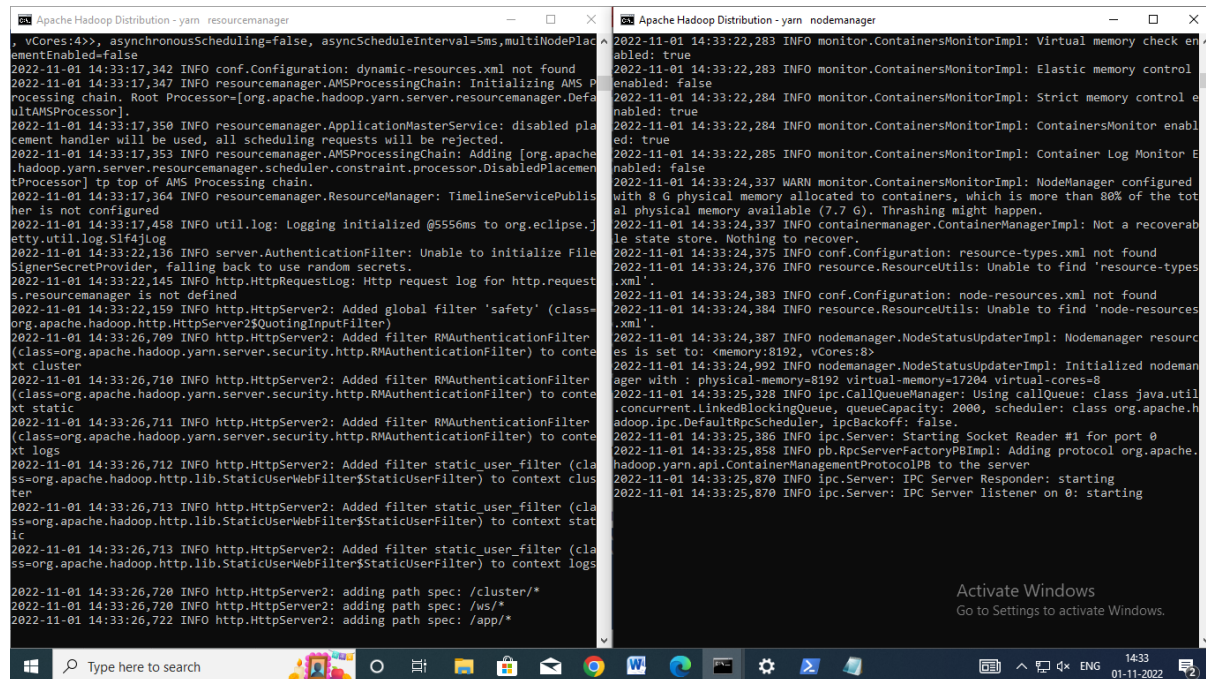
./start-yarn.cmd

```
Administrator: Windows PowerShell
2022-11-01 14:29:24,973 INFO blockmanagement.BlockManager: maxReplicationStreams = 2
2022-11-01 14:29:24,974 INFO blockmanagement.BlockManager: redundancyRecheckInterval = 3000ms
2022-11-01 14:29:24,974 INFO blockmanagement.BlockManager: encryptDataTransfer = false
2022-11-01 14:29:24,975 INFO blockmanagement.BlockManager: maxNumBlocksToLog = 1000
2022-11-01 14:29:25,028 INFO namenode.FSDirectory: GLOBAL serial map: bits=29 maxEntries=536870911
2022-11-01 14:29:25,028 INFO namenode.FSDirectory: USER serial map: bits=24 maxEntries=16777215
2022-11-01 14:29:25,023 INFO namenode.FSDirectory: GROUP serial map: bits=24 maxEntries=16777215
2022-11-01 14:29:25,025 INFO namenode.FSDirectory: XATTR serial map: bits=24 maxEntries=16777215
2022-11-01 14:29:25,053 INFO util.GSet: Computing capacity for map INodeMap
2022-11-01 14:29:25,053 INFO util.GSet: VM type = 64-bit
2022-11-01 14:29:25,056 INFO util.GSet: 1.0% max memory 889 MB = 8.9 MB
2022-11-01 14:29:25,058 INFO util.GSet: capacity = 2^20 = 1048576 entries
2022-11-01 14:29:25,088 INFO namenode.FSDirectory: ACLs enabled? false
2022-11-01 14:29:25,088 INFO namenode.FSDirectory: POSIX ACL inheritance enabled? true
2022-11-01 14:29:25,091 INFO namenode.FSDirectory: Xattrs enabled? true
2022-11-01 14:29:25,093 INFO namenode.NameNode: Caching file names occurring more than 10 times
2022-11-01 14:29:25,104 INFO snapshot.SnapshotManager: Loaded config captureOpenFiles: false, skipCaptureAccessTimeOnlyChange: false, snapshotDiffAllowSnapRootDescendant: true, maxSnapshotLimit: 65536
2022-11-01 14:29:25,109 INFO snapshot.SnapshotManager: SkipList is disabled
2022-11-01 14:29:25,116 INFO util.GSet: Computing capacity for map cachedBlocks
2022-11-01 14:29:25,116 INFO util.GSet: VM type = 64-bit
2022-11-01 14:29:25,118 INFO util.GSet: 0.25% max memory 889 MB = 2.2 MB
2022-11-01 14:29:25,119 INFO util.GSet: capacity = 2^18 = 262144 entries
2022-11-01 14:29:25,138 INFO metrics.TopMetrics: NNTop conf: dfs.namenode.top.window.num.buckets = 10
2022-11-01 14:29:25,138 INFO metrics.TopMetrics: NNTop conf: dfs.namenode.top.num.users = 10
2022-11-01 14:29:25,139 INFO metrics.TopMetrics: NNTop conf: dfs.namenode.top.windows.minutes = 1,5,25
2022-11-01 14:29:25,148 INFO namenode.FSNamesystem: Retry cache on namenode is enabled
2022-11-01 14:29:25,149 INFO namenode.FSNamesystem: Retry cache will use 0.03 of total heap and retry cache entry expiry time is 600000 millis
2022-11-01 14:29:25,155 INFO util.GSet: Computing capacity for map NameNodeRetryCache
2022-11-01 14:29:25,155 INFO util.GSet: VM type = 64-bit
2022-11-01 14:29:25,157 INFO util.GSet: 0.0299999999929447746% max memory 889 MB = 273.1 KB
2022-11-01 14:29:25,157 INFO util.GSet: capacity = 2^15 = 32768 entries
Re-format filesystem in Storage Directory root- D:\hadoop-env\hadoop-3.2.2\data\dfs\namenode; location= null ? (Y or N) Y
2022-11-01 14:29:33,702 INFO namenode.FSImage: Allocated new BlockPoolId: BP-1378187979-192.168.56.1-1667293173677
2022-11-01 14:29:33,703 INFO common.Storage: Will remove files: [D:\hadoop-env\hadoop-3.2.2\data\dfs\namenode\current\fsimage_00000000000000000000, D:\hadoop-env\hadoop-3.2.2\data\dfs\namenode\current\fsimage_00000000000000000000.mdx, D:\hadoop-env\hadoop-3.2.2\data\dfs\namenode\current\seen_txid, D:\hadoop-env\hadoop-3.2.2\data\dfs\namenode\current\VERSION]
2022-11-01 14:29:33,805 INFO common.Storage: Storage directory D:\hadoop-env\hadoop-3.2.2\data\dfs\namenode has been successfully formatted.
2022-11-01 14:29:33,870 INFO namenode.FSImageFormatProtobuf: Saving image file D:\hadoop-env\hadoop-3.2.2\data\dfs\namenode\current\fsimage.ckpt_00000000000000000000 using no compression
2022-11-01 14:29:34,029 INFO namenode.FSImageFormatProtobuf: Image file D:\hadoop-env\hadoop-3.2.2\data\dfs\namenode\current\fsimage.ckpt_00000000000000000000 of size 404 bytes saved in 0 second
2022-11-01 14:29:34,067 INFO namenode.NNStorageRetentionManager: Going to retain 1 images with txid >= 0
2022-11-01 14:29:34,077 INFO namenode.FSImage: FSImageSaver clean checkpoint: txid=0 when meet shutdown.
2022-11-01 14:29:34,077 INFO namenode.NameNode: SHUTDOWN_MSG:
/*****
SHUTDOWN_MSG: Shutting down NameNode at 2022/11/01 14:29:34.077
*****/
PS D:\hadoop-env\hadoop-3.2.2\sbin> ./start-dfs.cmd
PS D:\hadoop-env\hadoop-3.2.2\sbin> ./start-yarn.cmd
starting yarn daemons
PS D:\hadoop-env\hadoop-3.2.2\sbin>
```

Name : R. Venkatesh Prabhu

Roll No : 19UITE001

Two command prompt windows will open (one for the **resource manager** and one for the **node manager**) as follows:



The image shows two side-by-side Windows command prompt windows. The left window is titled 'Apache Hadoop Distribution - yarn resourcemanager' and the right window is titled 'Apache Hadoop Distribution - yarn nodemanager'. Both windows display log output from the Hadoop YARN daemons. The left window shows logs for the Resource Manager, including configuration details, logging initialization, and the addition of various filters to the HTTP server. The right window shows logs for the Node Manager, including container monitoring configuration, physical memory allocation, and the initialization of the Node Manager daemon. Both windows show a Windows taskbar at the bottom with the date and time as 01-11-2022 14:33.

```
Apache Hadoop Distribution - yarn resourcemanager
C:\> .\Vcores:4>>, asynchronousScheduling=false, asyncScheduleInterval=5ms,multiNodePlacementEnabled=false
2022-11-01 14:33:17,342 INFO conf.Configuration: dynamic-resources.xml not found
2022-11-01 14:33:17,347 INFO resourcemanager.AMSProcessingChain: Initializing AMS Processing chain. Root Processor=[org.apache.hadoop.yarn.server.resourcemanager.DefaultAMSPProcessor].
2022-11-01 14:33:17,350 INFO resourcemanager.ApplicationMasterService: disabled placement handler will be used, all scheduling requests will be rejected.
2022-11-01 14:33:17,353 INFO resourcemanager.AMSProcessingChain: Adding [org.apache.hadoop.yarn.server.resourcemanager.scheduler.constraint.processor.DisabledPlacementProcessor] to top of AMS Processing chain.
2022-11-01 14:33:17,364 INFO resourcemanager.ResourceManager: TimelineServicePublisher is not configured
2022-11-01 14:33:17,458 INFO util.log: Logging initialized @5556ms to org.eclipse.jetty.util.log.Slf4jLog
2022-11-01 14:33:22,136 INFO server.AuthenticationFilter: Unable to initialize FileSignerSecretProvider, falling back to use random secrets.
2022-11-01 14:33:22,145 INFO http.HttpRequestLog: Http request log for http.request.s.resourcemanager is not defined
2022-11-01 14:33:22,159 INFO http.HttpServer2: Added global filter 'safety' (class=org.apache.hadoop.http.HttpServer2$QuotingInputFilter)
2022-11-01 14:33:26,709 INFO http.HttpServer2: Added filter RMAuthenticationFilter (class=org.apache.hadoop.yarn.server.security.http.RMAuthenticationFilter) to context cluster
2022-11-01 14:33:26,710 INFO http.HttpServer2: Added filter RMAuthenticationFilter (class=org.apache.hadoop.yarn.server.security.http.RMAuthenticationFilter) to context static
2022-11-01 14:33:26,711 INFO http.HttpServer2: Added filter RMAuthenticationFilter (class=org.apache.hadoop.yarn.server.security.http.RMAuthenticationFilter) to context logs
2022-11-01 14:33:26,712 INFO http.HttpServer2: Added filter static_user_filter (class=org.apache.hadoop.http.lib.StaticUserWebFilter$StaticUserFilter) to context cluster
2022-11-01 14:33:26,713 INFO http.HttpServer2: Added filter static_user_filter (class=org.apache.hadoop.http.lib.StaticUserWebFilter$StaticUserFilter) to context static
2022-11-01 14:33:26,713 INFO http.HttpServer2: Added filter static_user_filter (class=org.apache.hadoop.http.lib.StaticUserWebFilter$StaticUserFilter) to context logs
2022-11-01 14:33:26,720 INFO http.HttpServer2: adding path spec: /cluster/*
2022-11-01 14:33:26,720 INFO http.HttpServer2: adding path spec: /ws/*
2022-11-01 14:33:26,722 INFO http.HttpServer2: adding path spec: /app/*

Apache Hadoop Distribution - yarn nodemanager
2022-11-01 14:33:22,283 INFO monitor.ContainersMonitorImpl: Virtual memory check enabled: true
2022-11-01 14:33:22,283 INFO monitor.ContainersMonitorImpl: Elastic memory control enabled: false
2022-11-01 14:33:22,284 INFO monitor.ContainersMonitorImpl: Strict memory control enabled: true
2022-11-01 14:33:22,284 INFO monitor.ContainersMonitorImpl: ContainersMonitor enabled: true
2022-11-01 14:33:22,285 INFO monitor.ContainersMonitorImpl: Container Log Monitor enabled: false
2022-11-01 14:33:24,337 WARN monitor.ContainersMonitorImpl: NodeManager configured with 8 G physical memory allocated to containers, which is more than 80% of the total physical memory available (7.7 G). Thrashing might happen.
2022-11-01 14:33:24,337 INFO containermanager.ContainerManagerImpl: Not a recoverable state store. Nothing to recover.
2022-11-01 14:33:24,375 INFO conf.Configuration: resource-types.xml not found
2022-11-01 14:33:24,376 INFO resource.ResourceUtils: Unable to find 'resource-types.xml'.
2022-11-01 14:33:24,383 INFO conf.Configuration: node-resources.xml not found
2022-11-01 14:33:24,384 INFO resource.ResourceUtils: Unable to find 'node-resources.xml'.
2022-11-01 14:33:24,387 INFO nodemanager.NodeStatusUpdaterImpl: NodeManager resource is set to: <memory:8192, vCores:8>
2022-11-01 14:33:24,992 INFO nodemanager.NodeStatusUpdaterImpl: Initialized nodemanager with : physical-memory=8192 virtual-memory=17204 virtual-cores=8
2022-11-01 14:33:25,328 INFO ipc.CallQueueManager: Using callQueue: class java.util.concurrent.LinkedBlockingQueue, queueCapacity: 2000, scheduler: class org.apache.hadoop.ipc.DefaultRpcScheduler, ipcBackoff: false.
2022-11-01 14:33:25,386 INFO ipc.Server: Starting Socket Reader #1 for port 0
2022-11-01 14:33:25,858 INFO pb.RpcServerFactoryPBImpl: Adding protocol org.apache.hadoop.yarn.api.ContainerManagementProtocolPB to the server
2022-11-01 14:33:25,870 INFO ipc.Server: IPC Server Responder: starting
2022-11-01 14:33:25,870 INFO ipc.Server: IPC Server listener on 0: starting
```


To make sure that all services started successfully, Run the following command:

jps

It should display the following services:

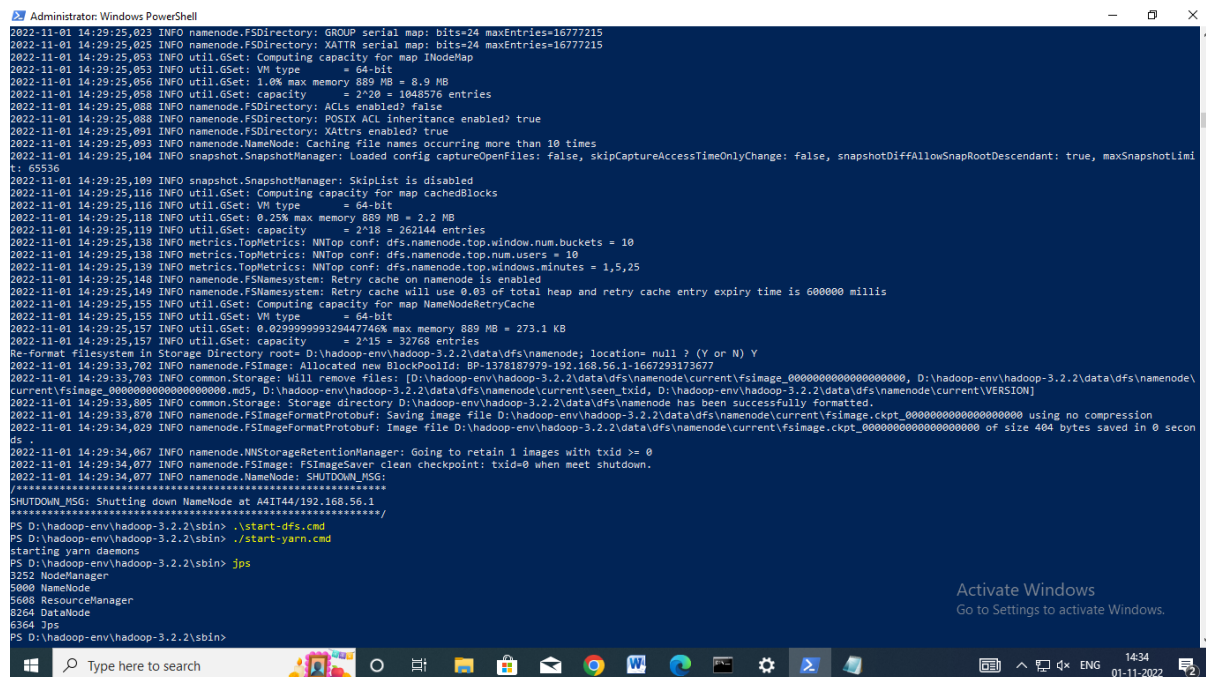
14560 DataNode

4960 ResourceManager

5936 NameNode

768 NodeManager

14636 Jps

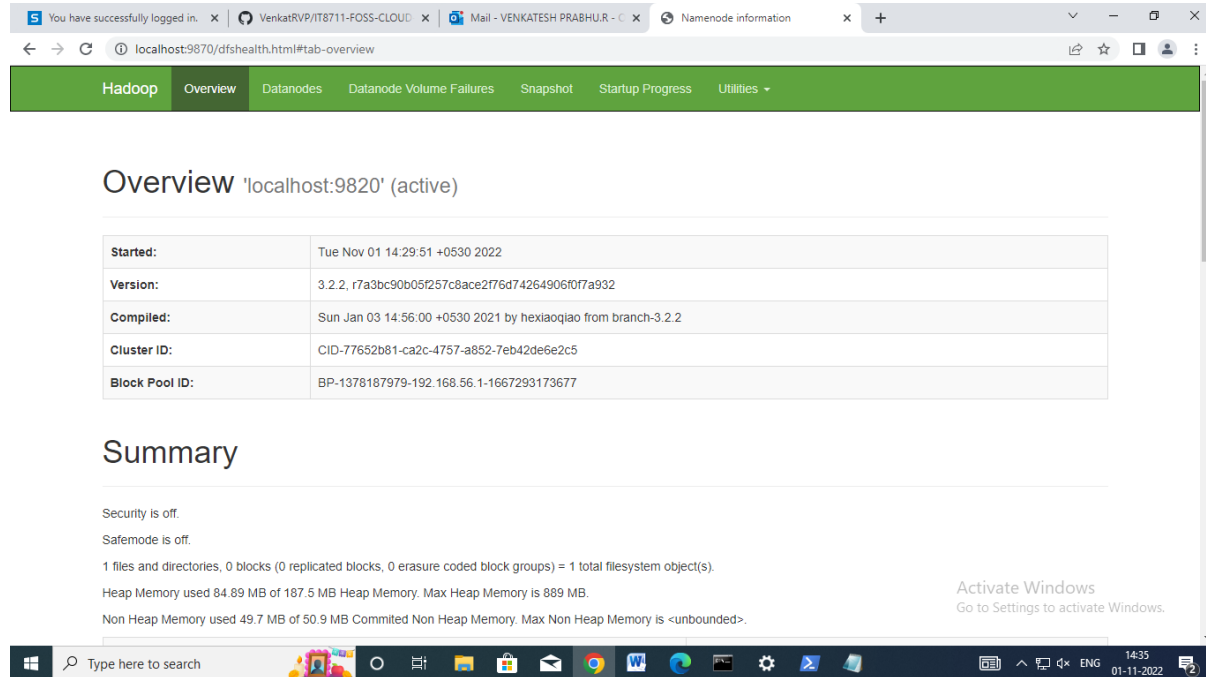


```
Administrator: Windows PowerShell
2022-11-01 14:29:25,023 INFO namenode.FSDirectory: GROUP serial map: bits=24 maxEntries=16777215
2022-11-01 14:29:25,025 INFO namenode.FSDirectory: XATTR serial map: bits=24 maxEntries=16777215
2022-11-01 14:29:25,053 INFO util.GSet: Computing capacity for map INodeMap
2022-11-01 14:29:25,053 INFO util.GSet: VM type = 64-bit
2022-11-01 14:29:25,056 INFO util.GSet: 1.0% max memory 889 MB = 8.9 MB
2022-11-01 14:29:25,058 INFO util.GSet: capacity = 2^20 = 1048576 entries
2022-11-01 14:29:25,088 INFO namenode.FSDirectory: ACLs enabled? false
2022-11-01 14:29:25,088 INFO namenode.FSDirectory: POSIX ACL inheritance enabled? true
2022-11-01 14:29:25,091 INFO namenode.FSDirectory: XAttrs enabled? true
2022-11-01 14:29:25,093 INFO namenode.NameNode: Caching file names occurring more than 10 times
2022-11-01 14:29:25,104 INFO snapshot.SnapshotManager: Loaded config captureOpenFiles: false, skipCaptureAccessTimeOnlyChange: false, snapshotDiffAllowSnapRootDescendant: true, maxSnapshotLimit: 65536
2022-11-01 14:29:25,109 INFO snapshot.SnapshotManager: SkipList is disabled
2022-11-01 14:29:25,116 INFO util.GSet: Computing capacity for map cachedBlocks
2022-11-01 14:29:25,116 INFO util.GSet: VM type = 64-bit
2022-11-01 14:29:25,118 INFO util.GSet: 0.25% max memory 889 MB = 2.2 MB
2022-11-01 14:29:25,119 INFO util.GSet: capacity = 2^18 = 262144 entries
2022-11-01 14:29:25,138 INFO metrics.TopMetrics: NNTop conf: dfs.namenode.top.window.num.buckets = 10
2022-11-01 14:29:25,138 INFO metrics.TopMetrics: NNTop conf: dfs.namenode.top.num.users = 10
2022-11-01 14:29:25,139 INFO metrics.TopMetrics: NNTop conf: dfs.namenode.top.windows.minutes = 1,5,25
2022-11-01 14:29:25,148 INFO namenode.FSNamesystem: Retry cache on namenode is enabled
2022-11-01 14:29:25,149 INFO namenode.FSNamesystem: Retry cache will use 0.03 of total heap and retry cache entry expiry time is 600000 millis
2022-11-01 14:29:25,155 INFO util.GSet: Computing capacity for map NameNodeRetryCache
2022-11-01 14:29:25,155 INFO util.GSet: VM type = 64-bit
2022-11-01 14:29:25,157 INFO util.GSet: 0.029999999999999997% max memory 889 MB = 273.1 KB
2022-11-01 14:29:25,157 INFO util.GSet: capacity = 2^15 = 32768 entries
Re-format filesystem in Storage Directory root= D:\hadoop-env\hadoop-3.2.2\data\dfs\namenode; location= null ? (Y or N) Y
2022-11-01 14:29:33,702 INFO namenode.FSImage: Allocated new BlockPoolId: BP-1378187979-192.168.56.1-1667293173677
2022-11-01 14:29:33,703 INFO common.Storage: Will remove files: [D:\hadoop-env\hadoop-3.2.2\data\dfs\namenode\current\fsimage_00000000000000000000, D:\hadoop-env\hadoop-3.2.2\data\dfs\namenode\current\fsimage_00000000000000000000.mds, D:\hadoop-env\hadoop-3.2.2\data\dfs\namenode\current\seen_txid, D:\hadoop-env\hadoop-3.2.2\data\dfs\namenode\current\VERSION]
2022-11-01 14:29:33,805 INFO common.Storage: Storage directory D:\hadoop-env\hadoop-3.2.2\data\dfs\namenode has been successfully formatted.
2022-11-01 14:29:33,878 INFO namenode.FSImageFormatProtobuf: Saving image file D:\hadoop-env\hadoop-3.2.2\data\dfs\namenode\current\fsimage.ckpt_00000000000000000000 using no compression
2022-11-01 14:29:34,029 INFO namenode.FSImageFormatProtobuf: Image file D:\hadoop-env\hadoop-3.2.2\data\dfs\namenode\current\fsimage.ckpt_00000000000000000000 of size 404 bytes saved in 0 seconds
2022-11-01 14:29:34,067 INFO namenode.NNStorageRetentionManager: Going to retain 1 images with txid >= 0
2022-11-01 14:29:34,077 INFO namenode.FSImage: FSImageSaver clean checkpoint: txid=0 when meet shutdown.
2022-11-01 14:29:34,077 INFO namenode.NameNode: SHUTDOWN_MSG:
#####
SHUTDOWN_MSG: Shutting down NameNode at A41T44/192.168.56.1
#####
PS D:\hadoop-env\hadoop-3.2.2\sbin> .\start-dfs.cmd
PS D:\hadoop-env\hadoop-3.2.2\sbin> .\start-yarn.cmd
starting yarn daemons
PS D:\hadoop-env\hadoop-3.2.2\sbin> jps
3252 NodeManager
5900 NameNode
5908 ResourceManager
8264 DataNode
6364 Jps
PS D:\hadoop-env\hadoop-3.2.2\sbin>
```


Output

Hadoop Web UI

<http://localhost:9870/dfshealth.html>



The screenshot shows the Hadoop Web UI Overview page for 'localhost:9820' (active). The page has a green navigation bar with links: Hadoop, Overview, Datanodes, Datanode Volume Failures, Snapshot, Startup Progress, and Utilities. The main content area is titled 'Overview 'localhost:9820' (active)'. Below the title is a table with the following information:

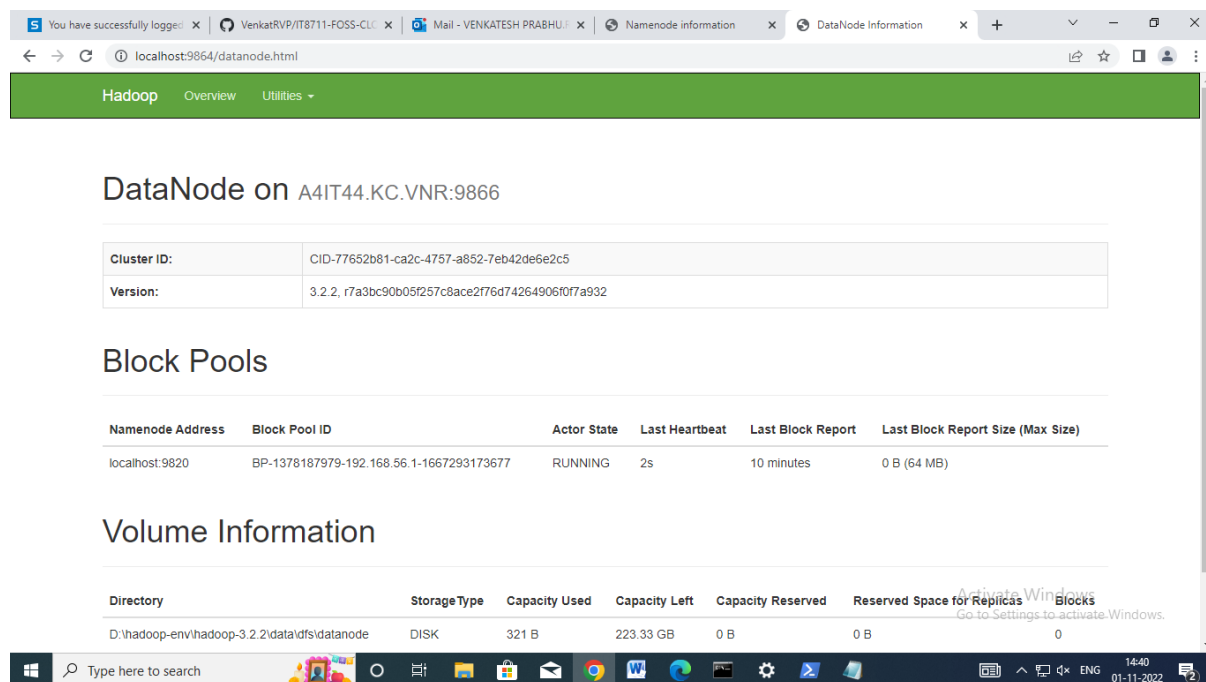
Started:	Tue Nov 01 14:29:51 +0530 2022
Version:	3.2.2, r7a3bc90b05f257c8ace2f76d74264906f0f7a932
Compiled:	Sun Jan 03 14:56:00 +0530 2021 by hexiaoqiao from branch-3.2.2
Cluster ID:	CID-77652b81-ca2c-4757-a852-7eb42de6e2c5
Block Pool ID:	BP-1378187979-192.168.56.1-1667293173677

Below the table is a 'Summary' section with the following text:

Security is off.
Safemode is off.
1 files and directories, 0 blocks (0 replicated blocks, 0 erasure coded block groups) = 1 total filesystem object(s).
Heap Memory used 84.89 MB of 187.5 MB Heap Memory. Max Heap Memory is 889 MB.
Non Heap Memory used 49.7 MB of 50.9 MB Committed Non Heap Memory. Max Non Heap Memory is <unbounded>.

At the bottom of the page, there is a Windows taskbar with the search bar and various application icons. The system clock shows 14:35 on 01-11-2022.

<http://localhost:9864/datanode.html>



The screenshot shows the Hadoop Web UI DataNode page for 'localhost:9864/datanode.html'. The page has a green navigation bar with links: Hadoop, Overview, and Utilities. The main content area is titled 'DataNode on A4IT44.KC.VNR:9866'. Below the title is a table with the following information:

Cluster ID:	CID-77652b81-ca2c-4757-a852-7eb42de6e2c5
Version:	3.2.2, r7a3bc90b05f257c8ace2f76d74264906f0f7a932


Below the table is a 'Block Pools' section with a table showing the following information:

Namenode Address	Block Pool ID	Actor State	Last Heartbeat	Last Block Report	Last Block Report Size (Max Size)
localhost:9820	BP-1378187979-192.168.56.1-1667293173677	RUNNING	2s	10 minutes	0 B (64 MB)

Below the table is a 'Volume Information' section with a table showing the following information:

Directory	Storage Type	Capacity Used	Capacity Left	Capacity Reserved	Reserved Space for Replicas	Blocks
D:\hadoop-env\hadoop-3.2.2\data\dfs\datanode	DISK	321 B	223.33 GB	0 B	0 B	0

At the bottom of the page, there is a Windows taskbar with the search bar and various application icons. The system clock shows 14:40 on 01-11-2022.

<http://localhost:8088/cluster>

All Applications

Cluster

About

Nodes

Node Labels

Applications

NEW

NEW_SAVING

SUBMITTED

ACCEPTED

RUNNING

FINISHED

FAILED

KILLED

Scheduler

Tools

Cluster Metrics

Apps Submitted	Apps Pending	Apps Running	Apps Completed	Containers Running	Used Resources	Total Resources	Reserved Resources
0	0	0	0	0	<memory:0, vCores:0>	<memory:8192, vCores:8>	<memory:0, vCores:0>

Cluster Nodes Metrics

Active Nodes	Decommissioning Nodes	Decommissioned Nodes	Lost Nodes	Unhealthy Nodes
1	0	0	0	0

Scheduler Metrics

Scheduler Type	Scheduling Resource Type	Minimum Allocation	Maximum Allocation
Capacity Scheduler	[memory-mb (unit=Mi), vcores]	<memory:1024, vCores:1>	<memory:8192, vCores:4>

Show 20 entries

ID	User	Name	Application Type	Queue	Application Priority	StartTime	LaunchTime	FinishTime	State	FinalStatus	Running Containers	Allocated CPU VCoers	Allocated Memory MB	Allocated GPUs	Reserved CPU VCoers
No data available in table															

Showing 0 to 0 of 0 entries

Activate Windows
Go to Settings to activate Windows.