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SUBJECT:IT8711-FOSS and cloud computing laboratory

EXERCISE NO:9

PROCEDURAL STEPS

Step 1: Download the following Packages

1. hadoop-3.2.2.tar.gz

Link: <https://www.apache.org/dyn/closer.cgi/hadoop/common/hadoop-3.2.2/hadoop-3.2.2.tar.gz>

2. 7zip to unzip the tar.gz file

Link: <https://www.7-zip.org/download.html>

3. Java 8 (JDK-8U333 & JRE-8U333)

Link: <https://www.oracle.com/java/technologies/javase/javase8u211-later-archive-downloads.html>

4. Hadoop dll Files

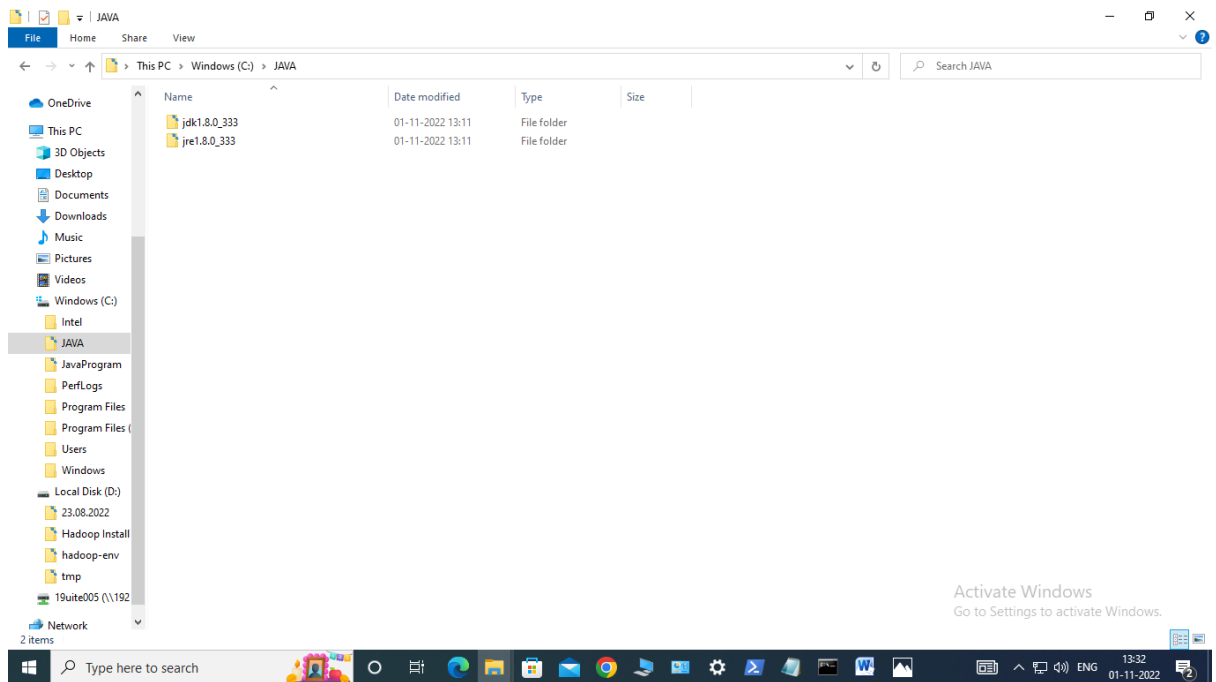
Link: <https://github.com/cdarlint/winutils/archive/refs/heads/master.zip>

5. hadoop-hdfs-3.2.2.jar

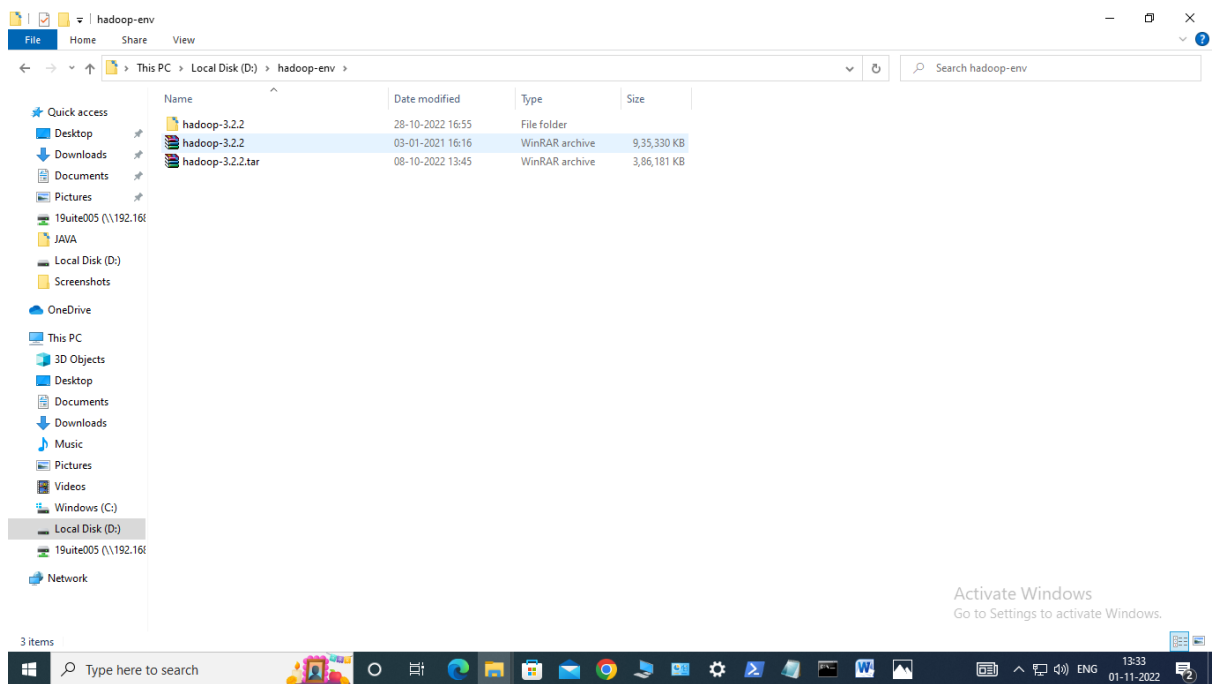
Link: <https://jar-download.com/artifacts/org.apache.hadoop/hadoop-hdfs/3.2.2/source-code>

Step 2: Install / Extract the following Packages:

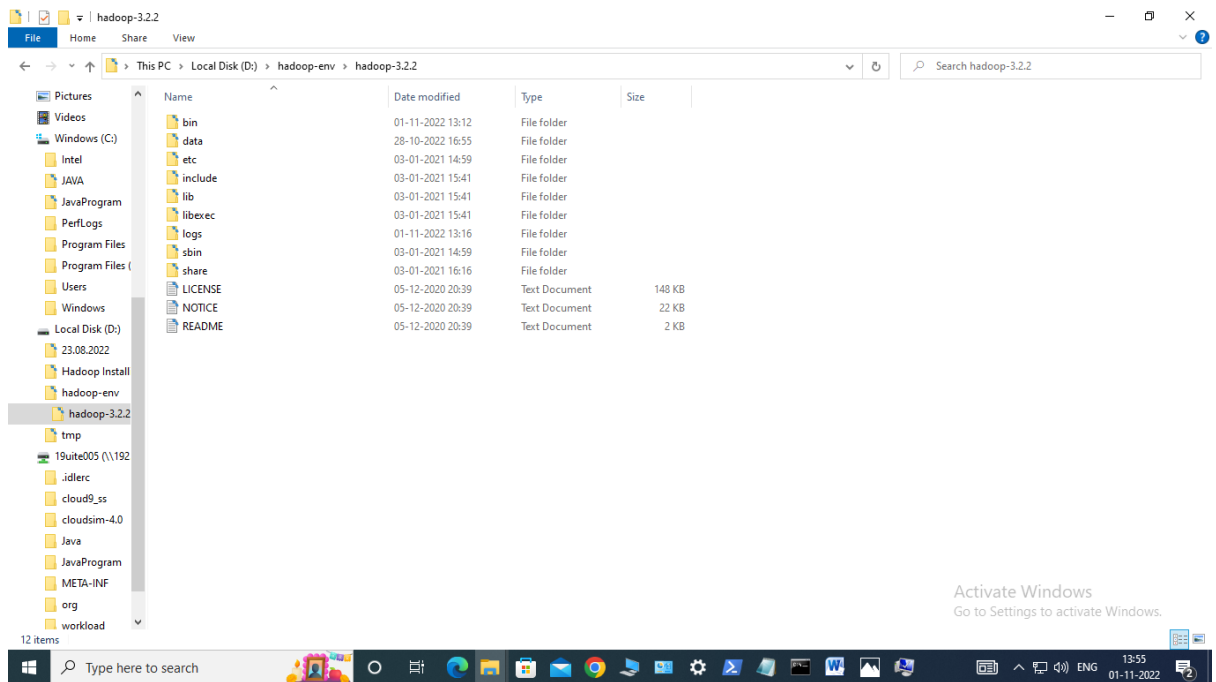
1. Install Java 8 in the location **c:\JAVA**. Also create two folders namely “jdk1.8.0_333” and “jre1.8.0_333”.



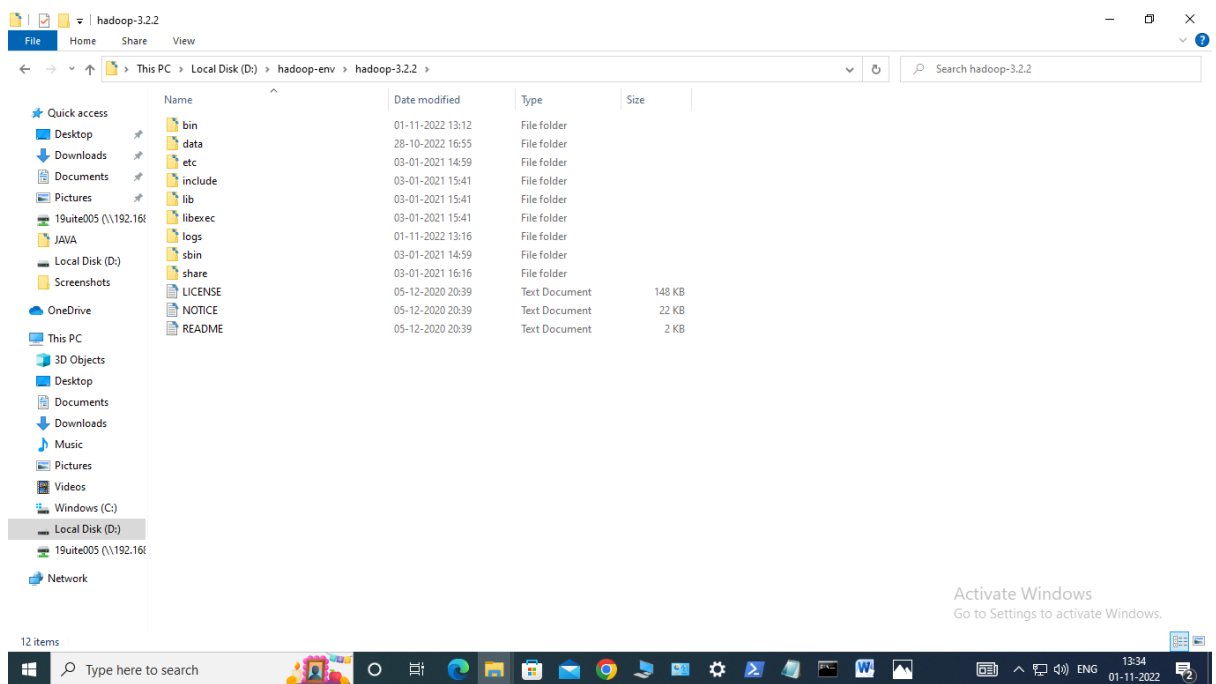
2. Create a folder “hadoop-env” in D:\



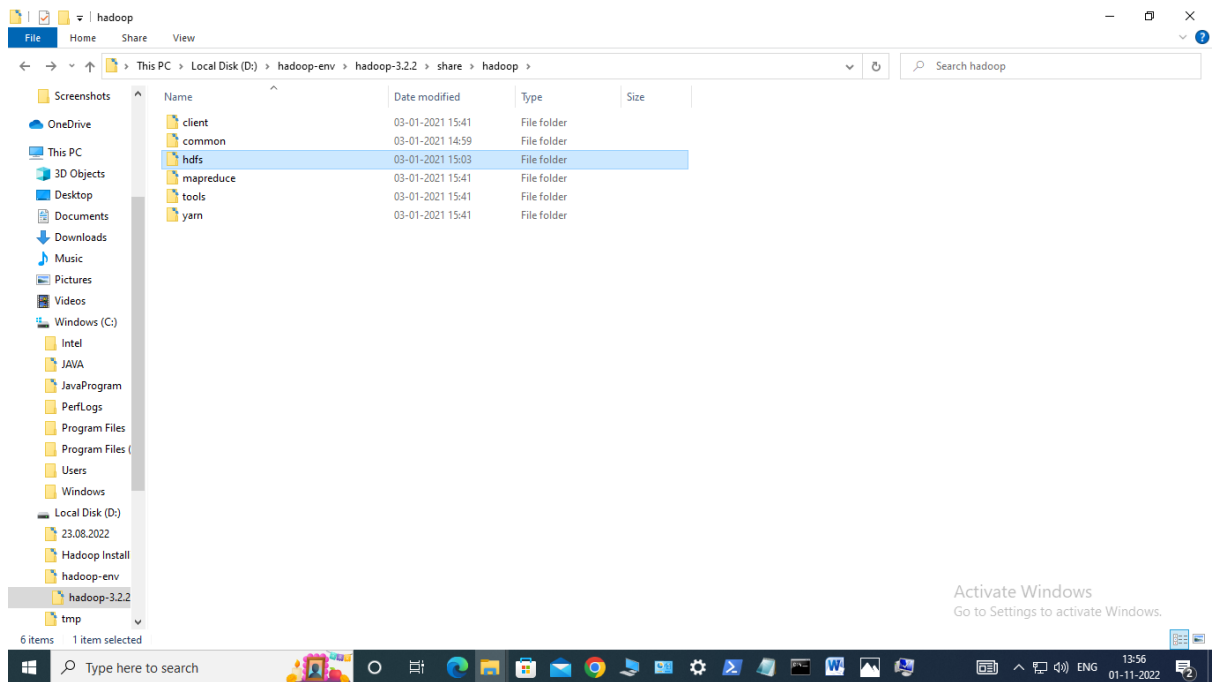
3. Paste the downloaded “hadoop-3.2.2.tar.gz” into “d:\ hadoop-env”



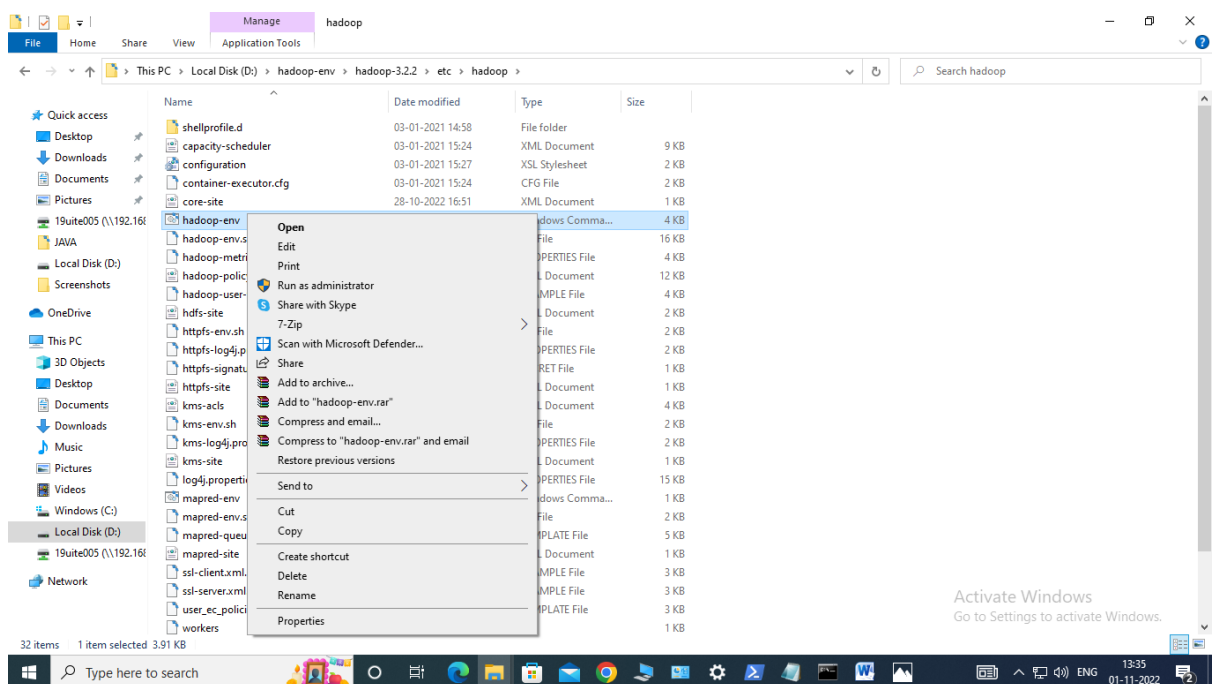
4. Unzip the “hadoop-3.2.2.tar.gz” using 7zip (do the unzip function two times)
5. Copy the downloaded Hadoop dll files to the location “D:\hadoop-env\hadoop-3.2.2\bin”



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

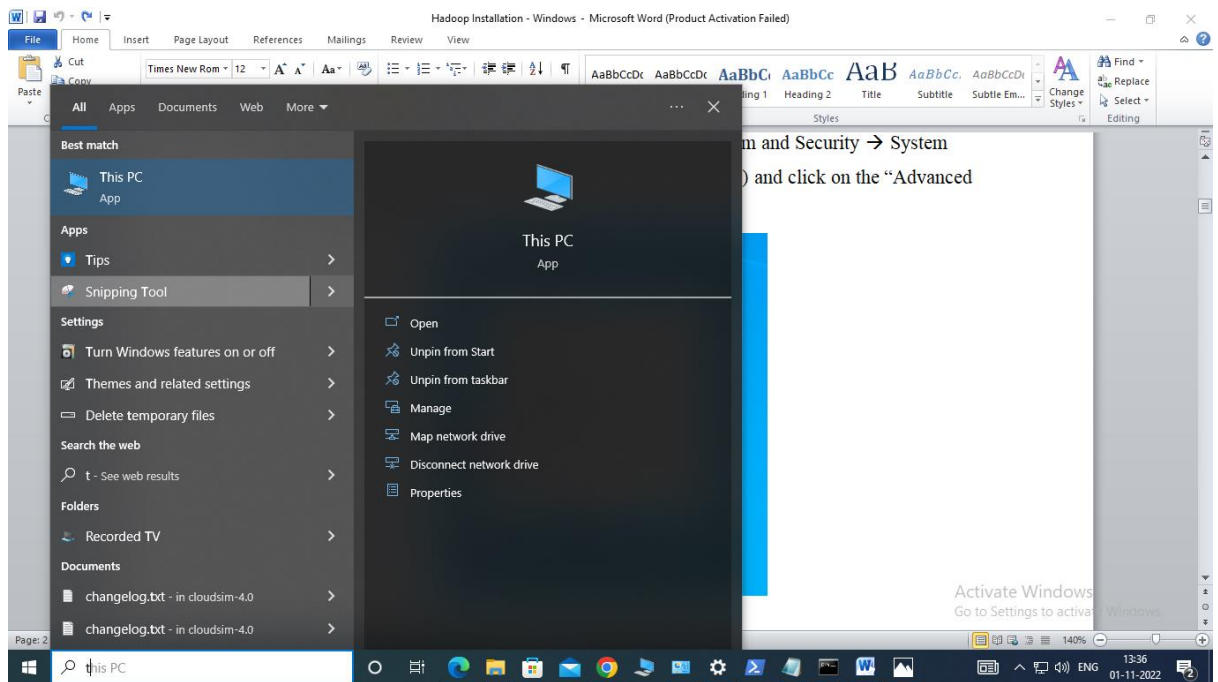


7. Edit the JAVA_HOME = C:\JAVA\jdk1.8.0_333 in the path “D:\hadoop-env\hadoop-3.2.2\etc\hadoop\hadoop-env.cmd

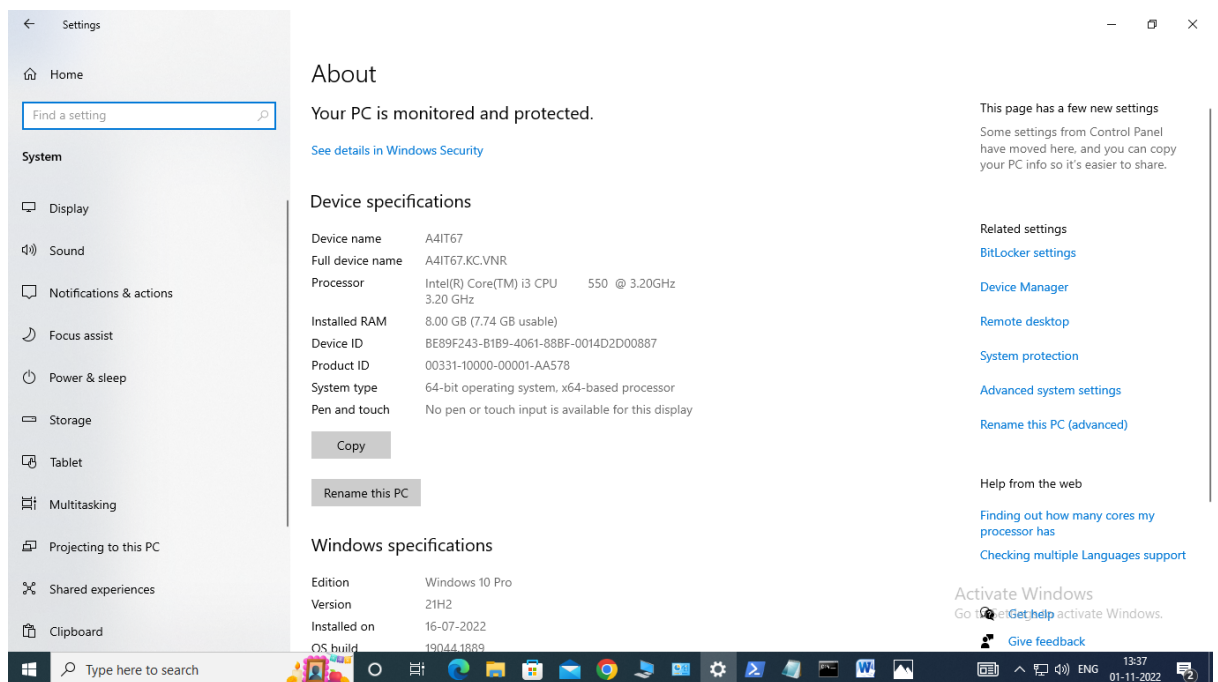


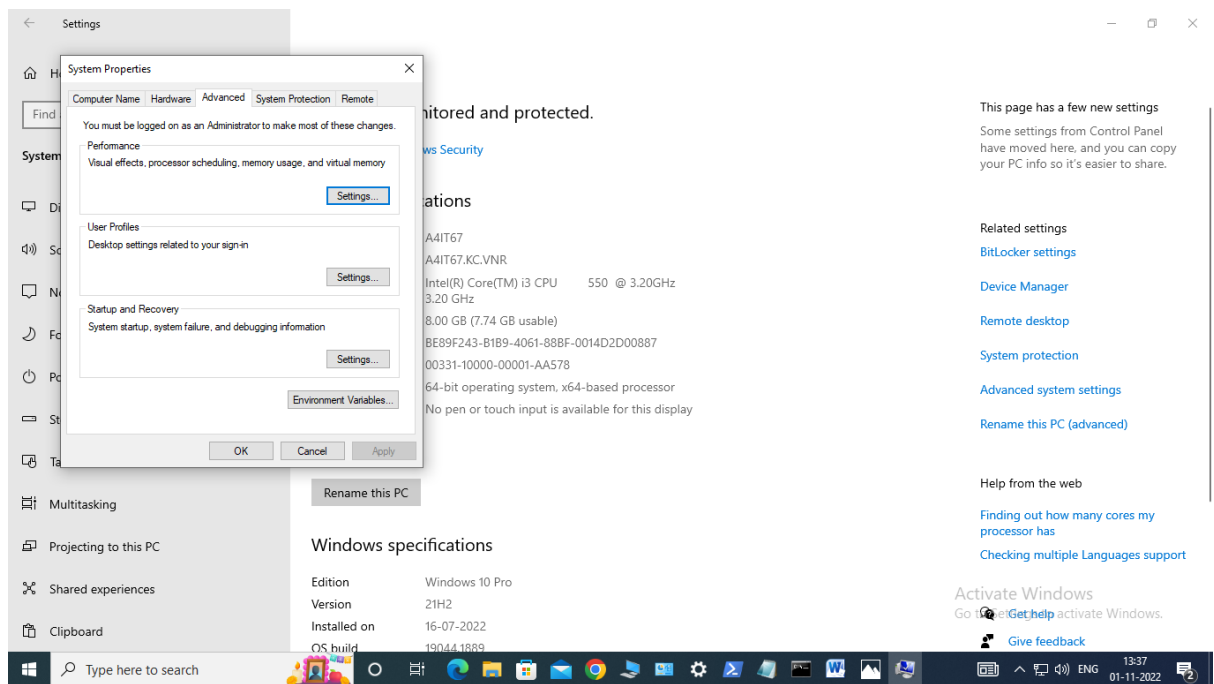
Step 3: Set the path for Java and Hadoop in system environment variables

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.

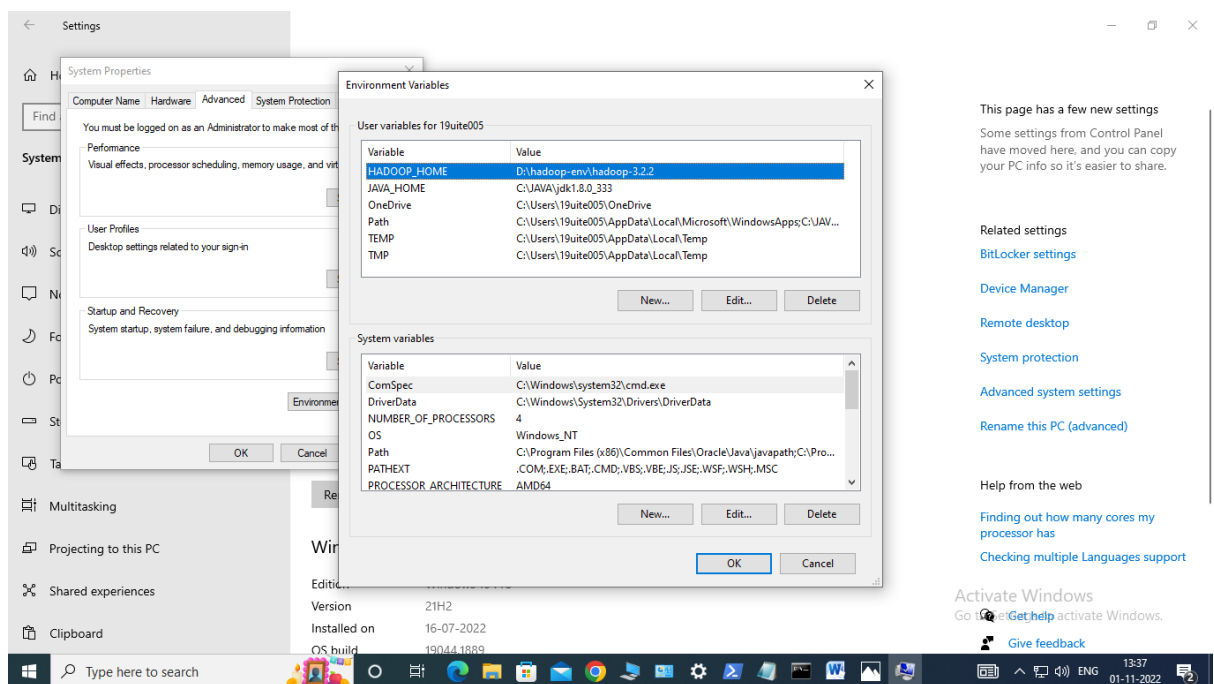


When the “Advanced system settings” dialog appears, go to the “Advanced” tab and click on the “Environment variables” button located on the bottom of the dialog.

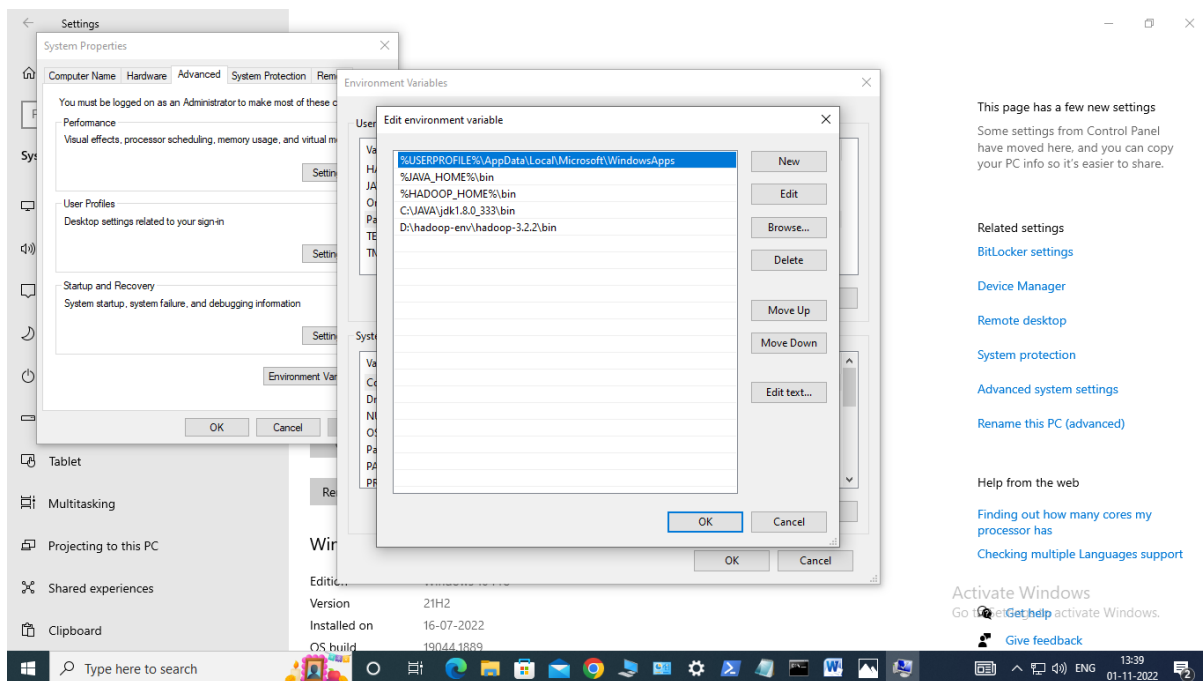
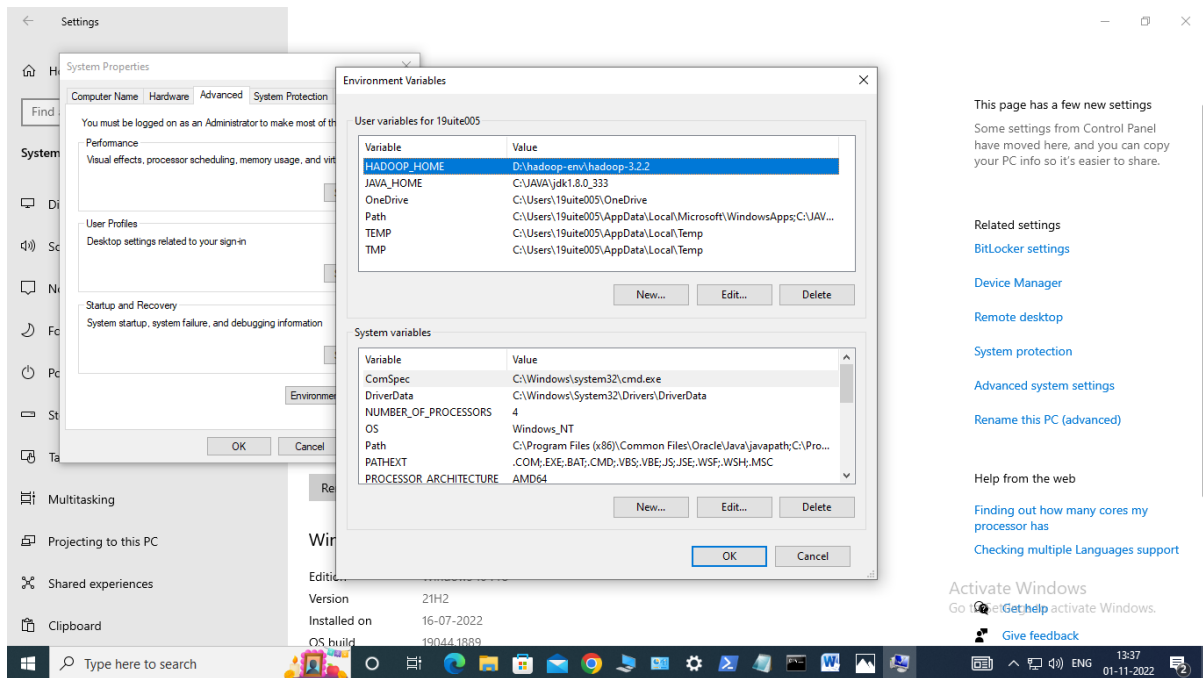




In the “Environment Variables” dialog, press the “New” button to add a new variable.



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



Step 4: Open Command Prompt as Administrator and run the following command:

hadoop -version

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

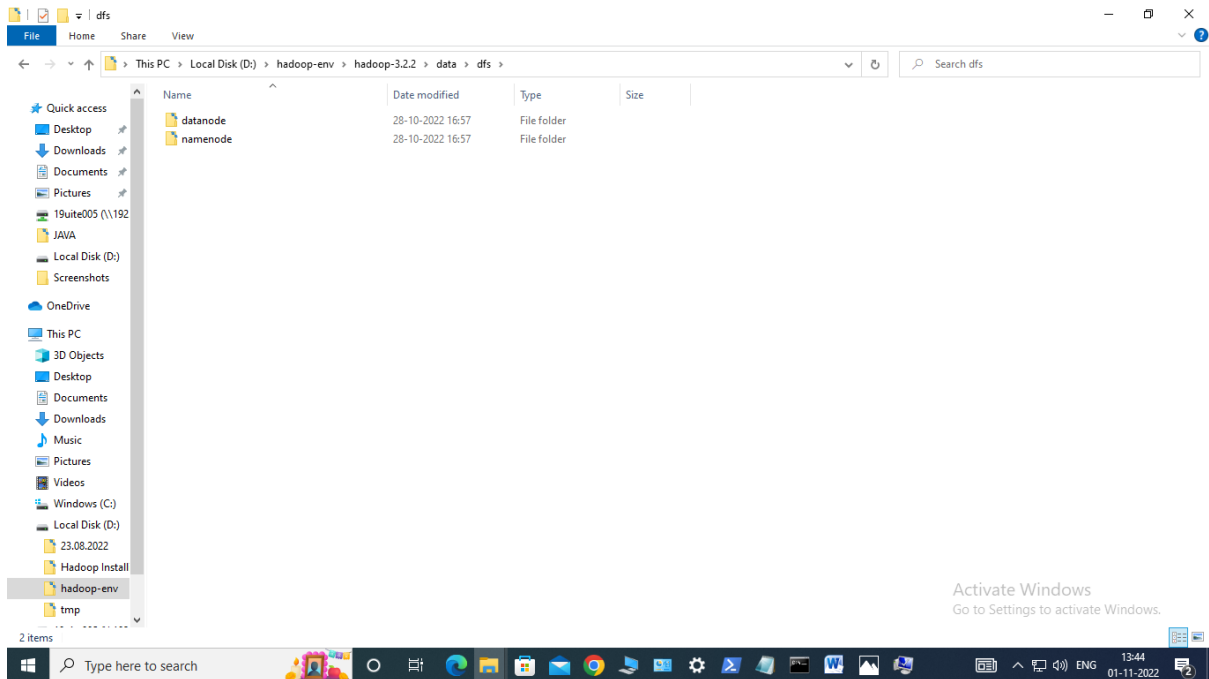
Try the new cross-platform PowerShell https://aka.ms/powershell

PS C:\Windows\system32> hadoop -version
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> hdfs namenode -format
2022-11-01 13:16:31,908 INFO namenode.NameNode: STARTUP_MSG:
=====
STARTUP_MSG: Starting NameNode
STARTUP_MSG: host = A41T67/192.168.56.1
STARTUP_MSG: args = [format]
STARTUP_MSG: version = 3.2.2
STARTUP_MSG: classpath = D:\hadoop-env\hadoop-3.2.2\etc\hadoop\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\accessors-smart-1.2.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\animal-sniffer-annotations-1.17.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\asm-5.0.4.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\checker-qual-2.5.2.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\commons-beanutils-1.9.4.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\commons-cli-1.2.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\commons-codec-1.11.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\commons-collections-3.2.2.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\commons-compress-1.19.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\commons-configuration2-2.11.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\commons-io-2.5.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\commons-lang3-3.7.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\commons-logging-1.1.3.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\commons-math3-3.1.1.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\commons-net-3.6.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\commons-text-1.4.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\curator-client-2.13.0.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\curator-framework-2.13.0.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\curator-recipes-2.13.0.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\dpj-java-2.1.7.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\error-prone-annotations-2.2.0.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\failureaccess-1.0.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\gson-2.2.4.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\guava-27.0-jre.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\hadoop-annotations-3.2.2.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\hadoop-auth-3.2.2.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\htrace-core4-4.1.0-incubating.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\httpclient-4.5.13.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\httpcore-4.4.13.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\j2objc-annotations-1.1.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\jackson-annotations-2.9.10.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\jackson-core-2.9.10.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\jackson-asl-1.9.13.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\jackson-databind-2.9.10.4.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\jackson-jaxrs-1.9.13.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\jackson-mapper-asl-1.9.13.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\jackson-xc-1.9.13.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\javax.activation-api-1.2.0.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\javax.servlet-api-3.1.0.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\jmh-api-2.2.11.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\jmh-jmh-1.2.3-1.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\jcip-annotations-1.0.1.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\jersey-core-1.19.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\jersey-jersey-1.19.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\jersey-jersey-1.19.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\jersey-jersey-1.19.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\jersey-jersey-1.19.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\jetty-http-9.4.20.v20190813.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\jetty-id-9.4.20.v20190813.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\jetty-io-9.4.20.v20190813.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\jetty-security-9.4.20.v20190813.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\jetty-server-9.4.20.v20190813.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\jetty-servlet-9.4.20.v20190813.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\jetty-util-9.4.20.v20190813.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\jetty-webapp-9.4.20.v20190813.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\jetty-xml-9.4.20.v20190813.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\jsch-0.1.55.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\json-smart-2.3.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\jsp-api-2.1.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\jsr305-3.0.2.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\jsr311-api-1.1.1.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\jul-to-slf4j-1.7.25.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\kerb-admin-1.0.1.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\kerb-client-1.0.1.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\kerb-common-1.0.1.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\kerb-core-1.0.1.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\kerb-crypto-1.0.1.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\kerb-identity-1.0.1.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\kerb-server-1.0.1.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\kerb-simplekdc-1.0.1.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\kerb-ua-1.0.1.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\kerby-asn1-1.0.1.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\kerby-config-1.0.1.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\kerby-pkix-1.0.1.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\kerby-util-1.0.1.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\kerby-xdr-1.0.1.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\listenablefuture-9999.0-empty-to-avoid-conflict-with-guava.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\log4j-1.2.17.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\metrics-core-3.2.4.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\metrics-jersey-3.0.6.Final.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\nimbus-jose-jwt-7.9.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\paranamer-2.3.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\protobuf-java-2.5.0.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\common\lib\re2j-
```

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"**

File Name: "hdfs-site.xml"

Add the following properties within the <configuration></configuration> element:

```
<property>
```

```
<name>dfs.replication</name>
```

```
<value>1</value>
```

```
</property>
```

```
<property>
```

```
<name>dfs.namenode.name.dir</name>
```

```
<value>file:///D:/hadoop-env/hadoop-3.2.2/data/dfs/namenode</value>
```

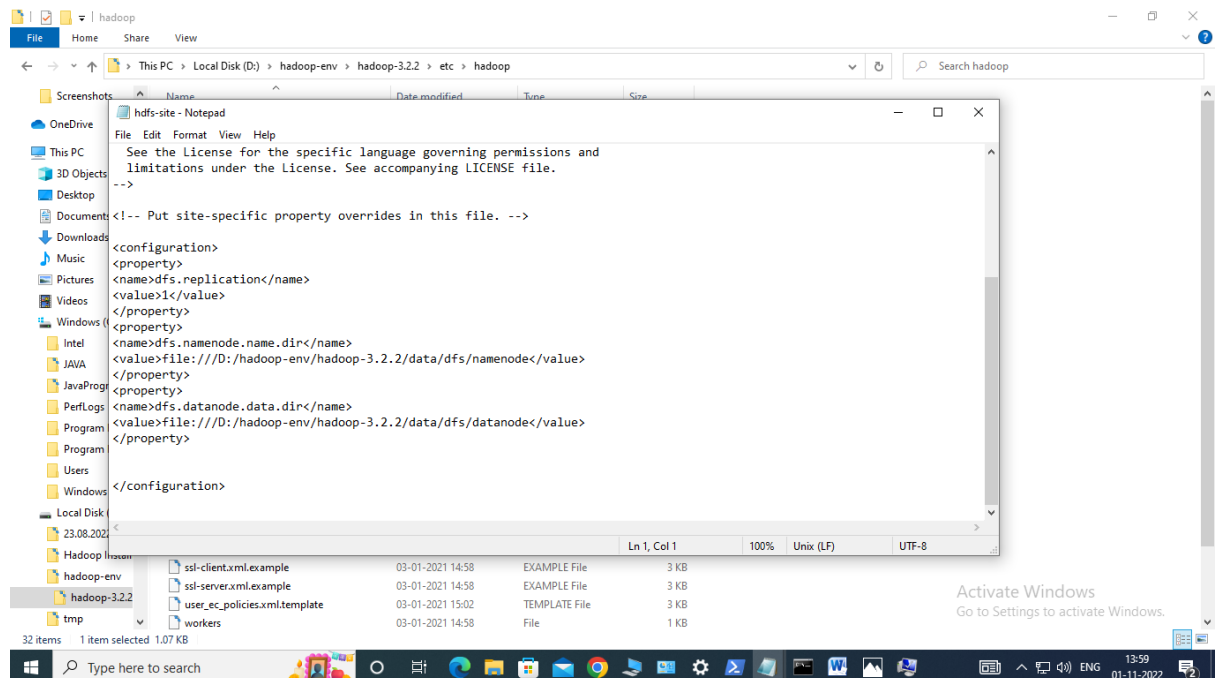
```
</property>
```

```
<property>
```

```
<name>dfs.datanode.data.dir</name>
```

```
<value>file:///D:/hadoop-env/hadoop-3.2.2/data/dfs/datanode</value>
```

```
</property>
```



File Name: “core-site.xml”

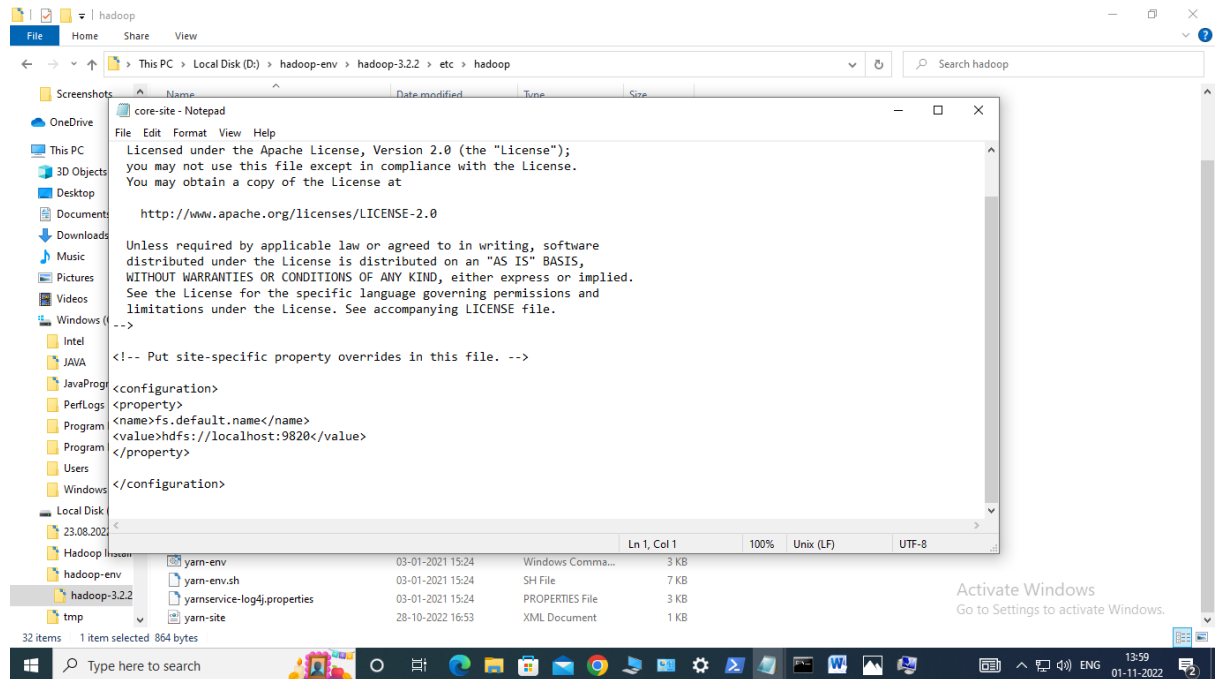
Add the following properties within the <configuration></configuration> element:

```
<property>
```

```
<name>fs.default.name</name>
```

```
<value>hdfs://localhost:9820</value>
```

```
</property>
```



File Name: “mapred-site.xml”

Add the following properties within the <configuration></configuration> element:

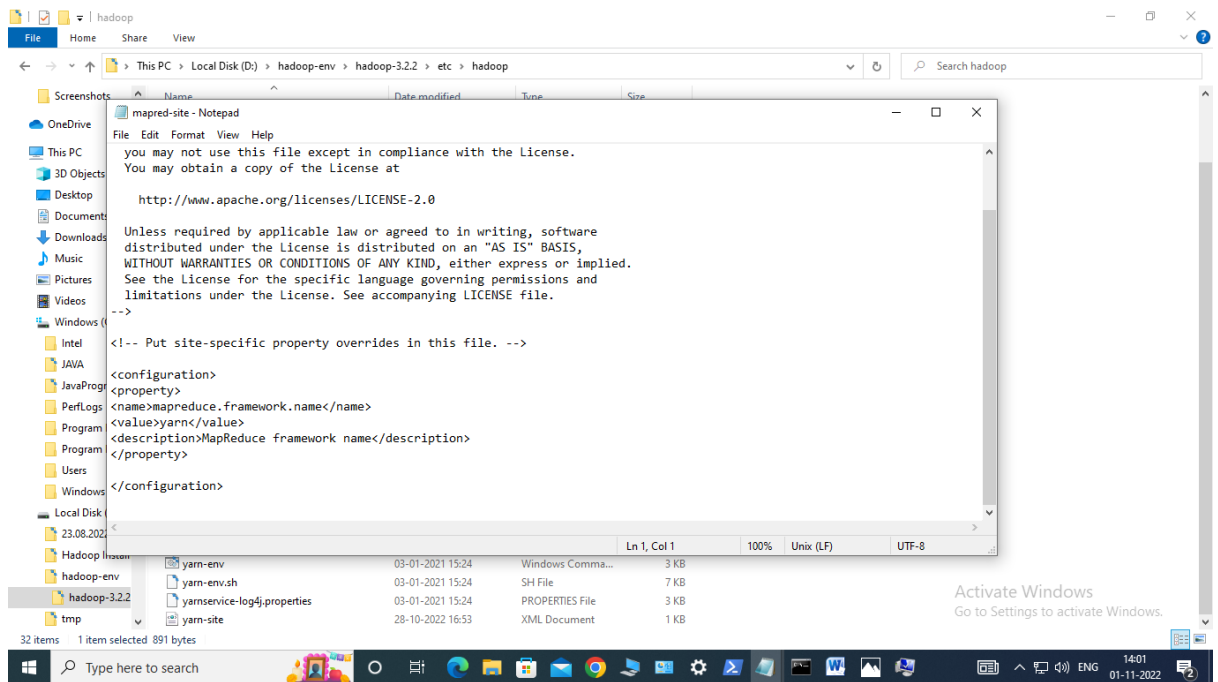
```
<property>
```

```
<name>mapreduce.framework.name</name>
```

```
<value>yarn</value>
```

```
<description>MapReduce framework name</description>
```

```
</property>
```



File Name: "yarn-site.xml"

Add the following properties within the <configuration></configuration> element:

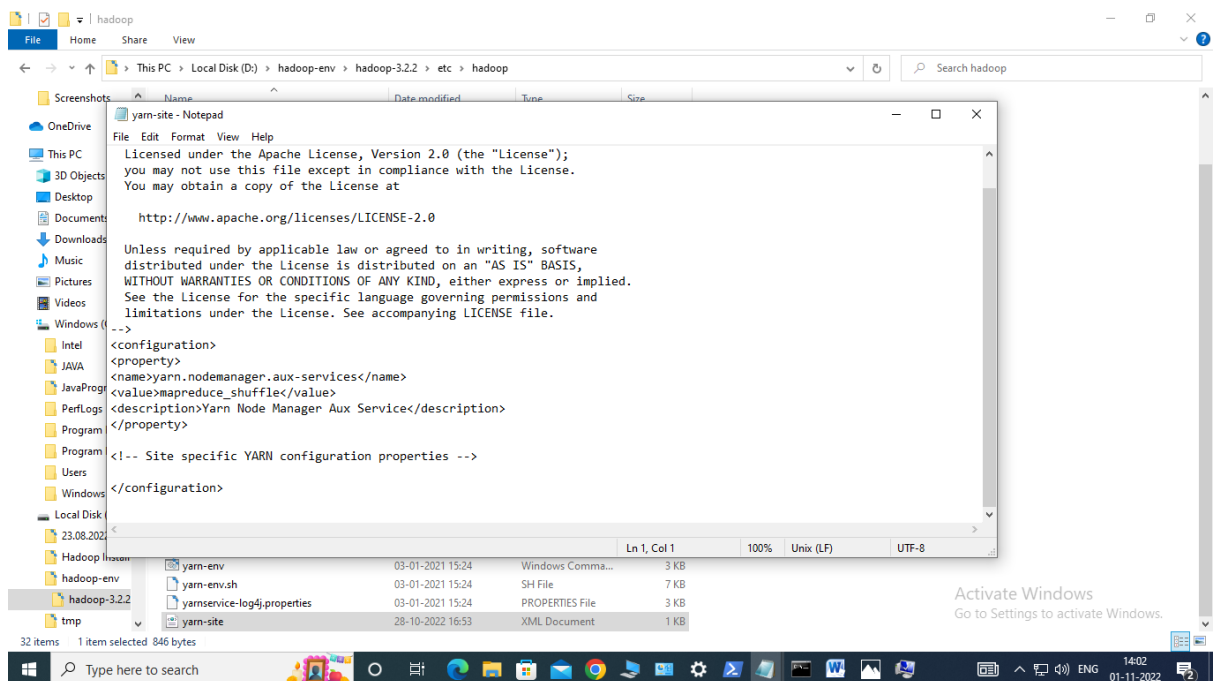
```
<property>
```

```
<name>yarn.nodemanager.aux-services</name>
```

```
<value>mapreduce_shuffle</value>
```

```
<description>Yarn Node Manager Aux Service</description>
```

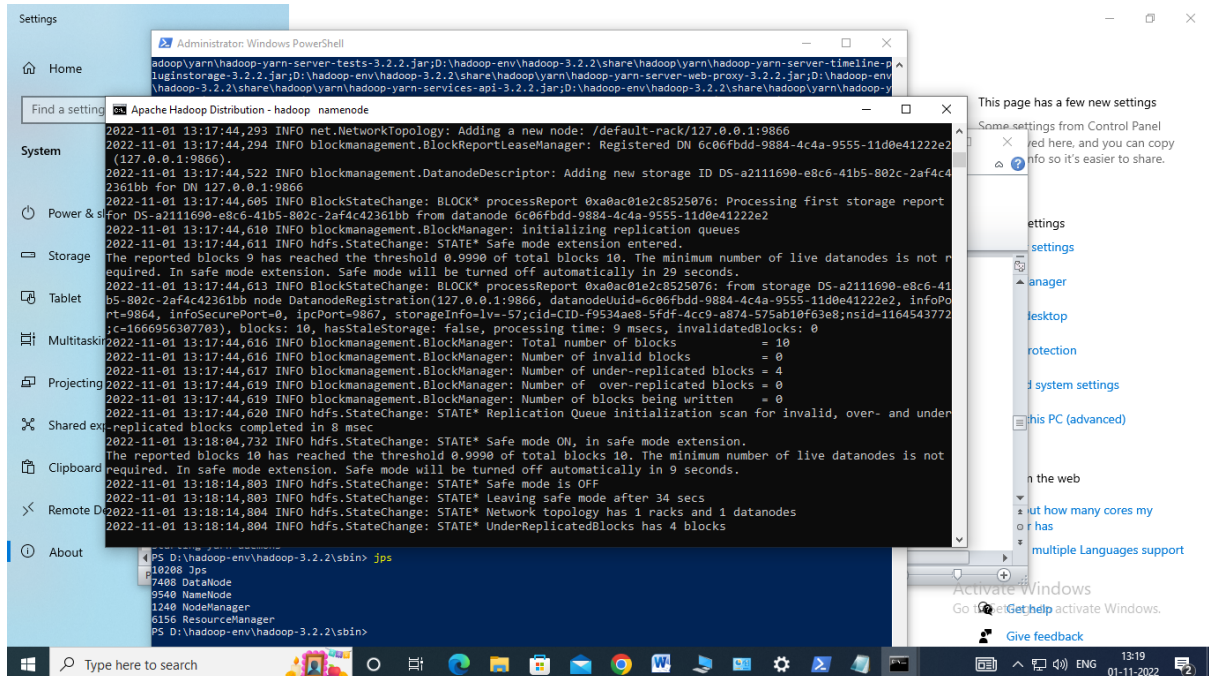
```
</property>
```



Step 6: Format the namenode

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

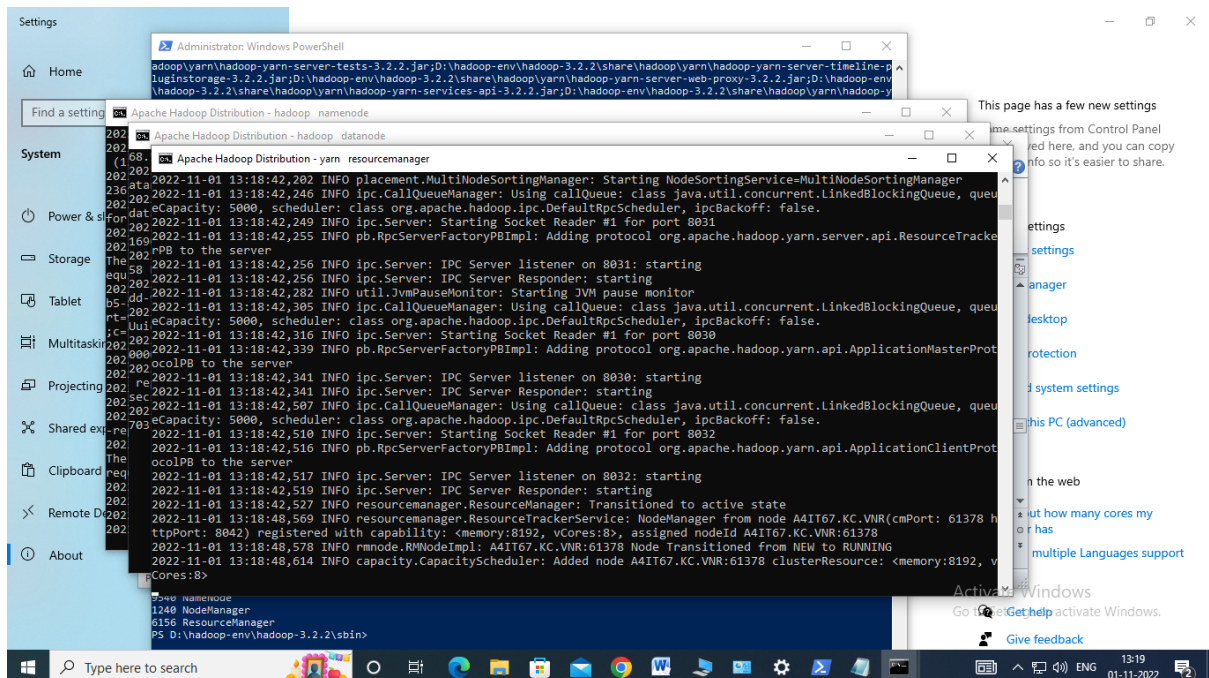
hdfs namenode -format



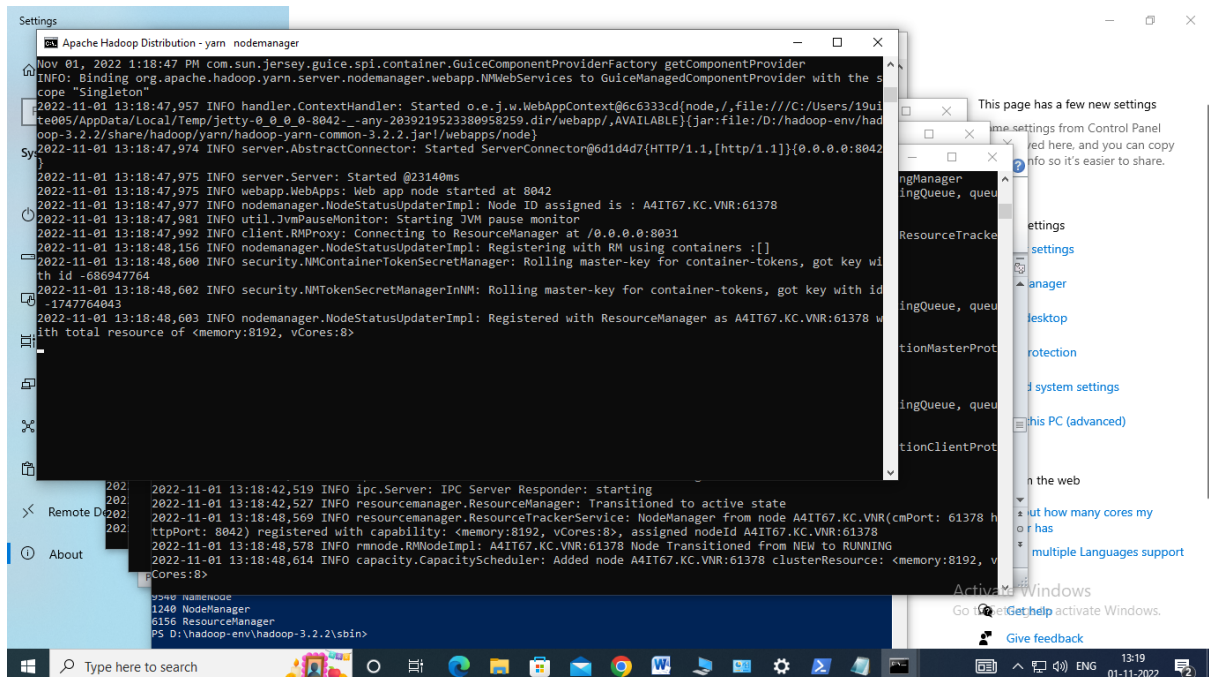
Step 7: Start the Hadoop nodes

Now navigate to the location “D:\hadoop-env\hadoop-3.2.2\sbin” in powershell and then run the following command to start the Hadoop nodes:

.\start-dfs.cmd

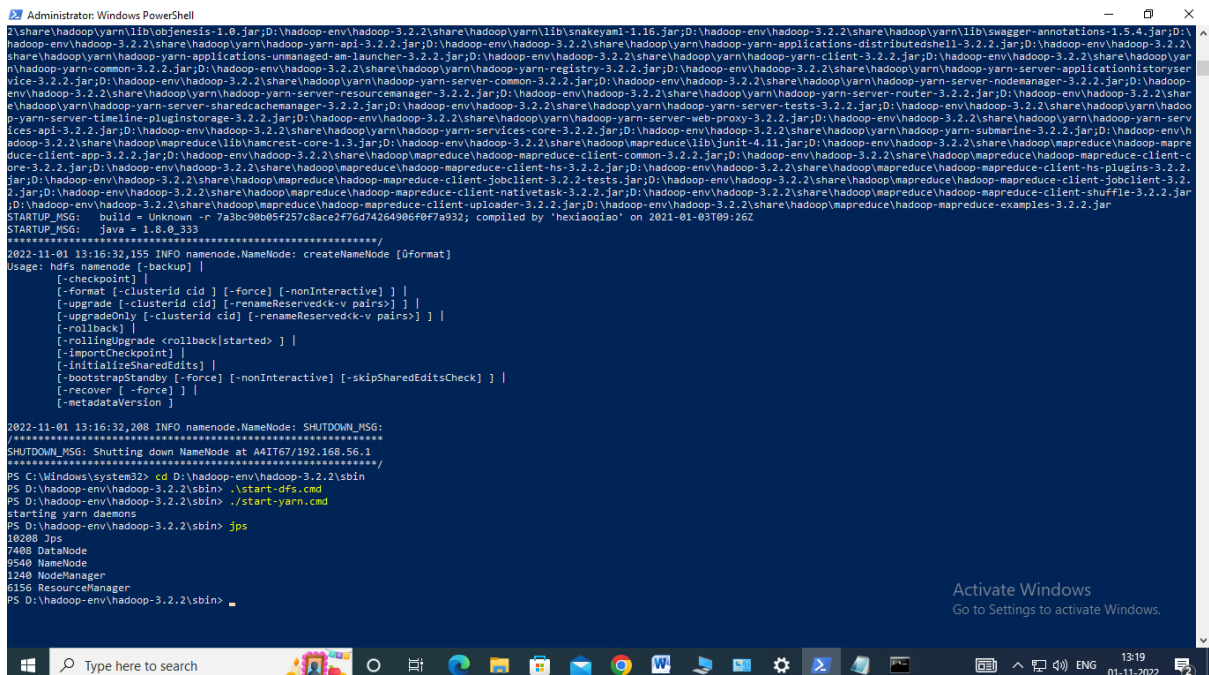


Two command prompt windows will open (one for the **namenode** and one for the **datanode**) as follows:



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

./start-yarn.cmd



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

jps

It should display the following services:

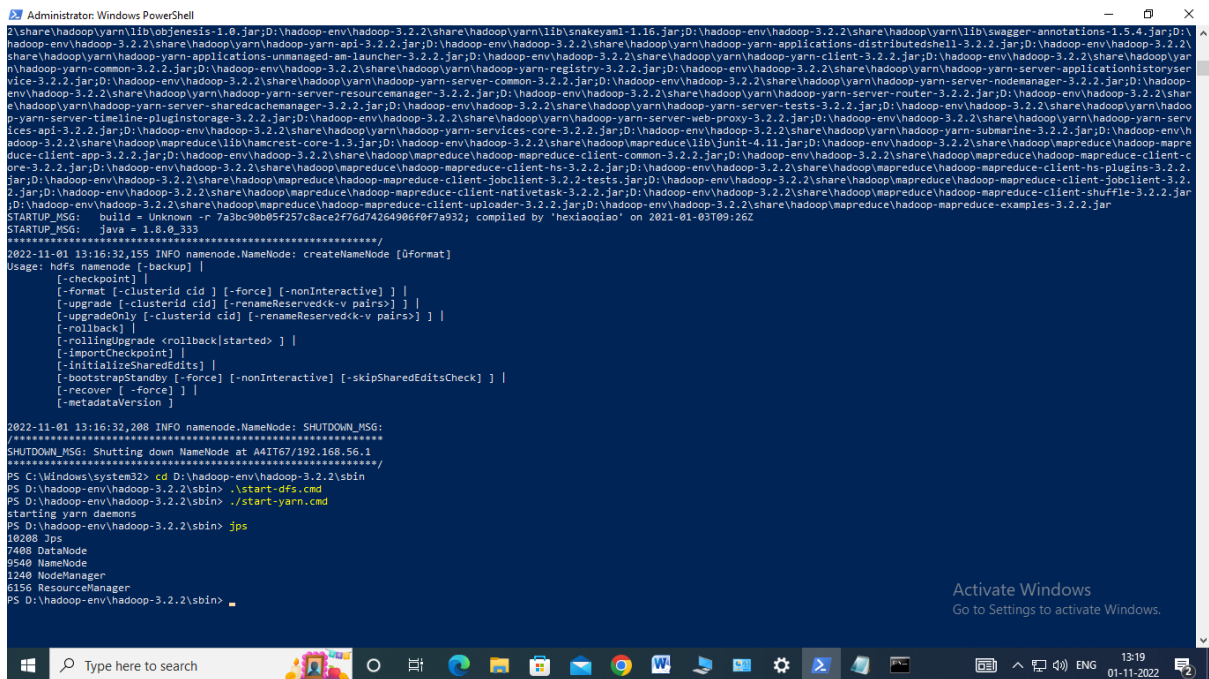
14560 DataNode

4960 ResourceManager

5936 NameNode

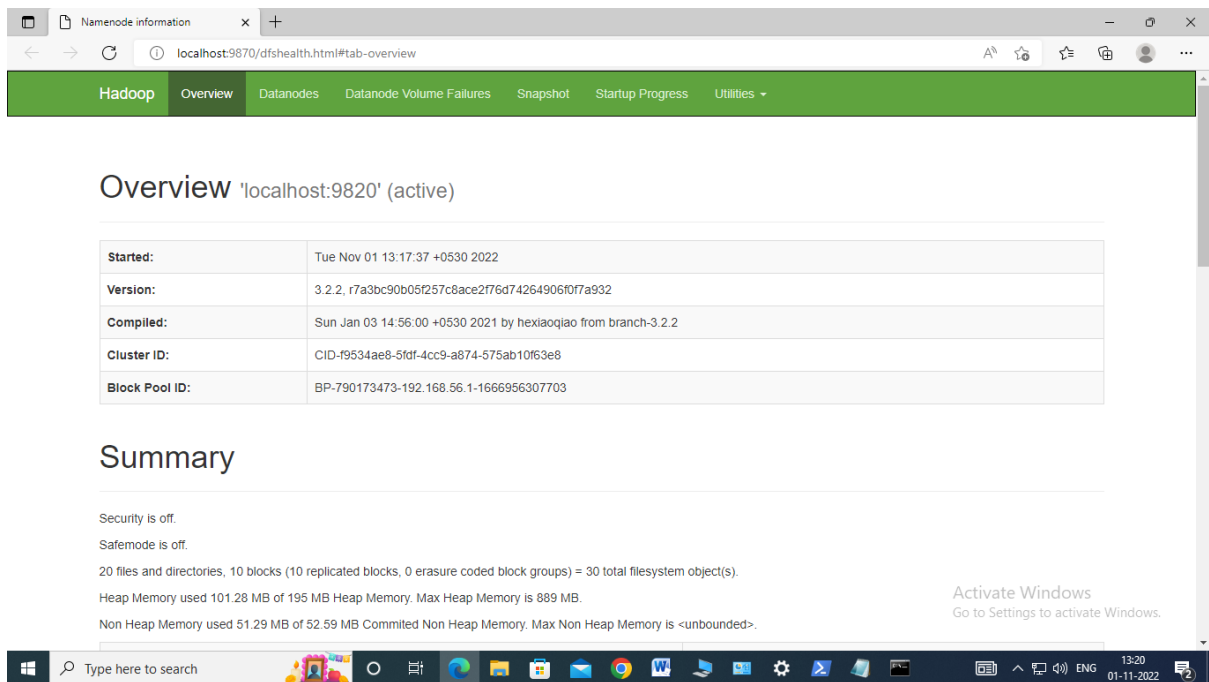
768 NodeManager

14636 Jps



```
Administrator: Windows PowerShell
2\share\hadoop\yarn\lib\cosmos-1.0.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\yarn\lib\snakeyaml-1.16.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\yarn\lib\swagger-annotations-1.5.4.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\yarn\hadoop-yarn-api-3.2.2.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\yarn\hadoop-yarn-applications-distributedshell-3.2.2.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\yarn\hadoop-yarn-applications-unmanaged-am-launcher-3.2.2.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\yarn\hadoop-yarn-client-3.2.2.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\yarn\hadoop-yarn-common-3.2.2.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\yarn\hadoop-yarn-registry-3.2.2.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\yarn\hadoop-yarn-server-applicationhistoryservice-3.2.2.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\yarn\hadoop-yarn-server-common-3.2.2.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\yarn\hadoop-yarn-server-nodemanager-3.2.2.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\yarn\hadoop-yarn-server-resourcemanager-3.2.2.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\yarn\hadoop-yarn-server-router-3.2.2.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\yarn\hadoop-yarn-server-tests-3.2.2.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\yarn\hadoop-yarn-server-timeline-pluginstorage-3.2.2.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\yarn\hadoop-yarn-server-web-proxy-3.2.2.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\yarn\hadoop-yarn-services-api-3.2.2.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\yarn\hadoop-yarn-services-core-3.2.2.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\yarn\hadoop-yarn-submarine-3.2.2.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\mapreduce\lib\hamcrest-core-1.3.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\mapreduce\lib\junit-4.11.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\mapreduce\hadoop-mapreduce-client-app-3.2.2.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\mapreduce\hadoop-mapreduce-client-common-3.2.2.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\mapreduce\hadoop-mapreduce-client-core-3.2.2.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\mapreduce\hadoop-mapreduce-client-hs-3.2.2.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\mapreduce\hadoop-mapreduce-client-hs-plugins-3.2.2.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\mapreduce\hadoop-mapreduce-client-jobclient-3.2.2.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\mapreduce\hadoop-mapreduce-client-jobclient-3.2.2-tests.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\mapreduce\hadoop-mapreduce-client-jobclient-3.2.2.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\mapreduce\hadoop-mapreduce-client-nativeutils-3.2.2.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\mapreduce\hadoop-mapreduce-client-shuffle-3.2.2.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\mapreduce\hadoop-mapreduce-client-uploader-3.2.2.jar;D:\hadoop-env\hadoop-3.2.2\share\hadoop\mapreduce\hadoop-mapreduce-examples-3.2.2.jar
STARTUP_MSG:   build = Unknown -r 7a3bc98b05f257c8ace2f76d74264906f8f7a932; compiled by 'hexiaogiao' on 2021-01-03T09:16Z
STARTUP_MSG:   java = 1.8.0_333
*****
2022-11-01 13:16:32,155 INFO namenode.NameNode: createNameNode [0format]
Usage: hdfs namenode [-backup] |
    [-checkPoint] |
    [-format [-clusterId cid] [-force] [-nonInteractive]] |
    [-upgrade [-clusterId cid] [-renameReservedK-v pairs]] |
    [-upgradeOnly [-clusterId cid] [-renameReservedK-v pairs]] |
    [-rollback] |
    [-rollingUpgrade <rollback>started] |
    [-importCheckpoint] |
    [-initializeSharedEdits] |
    [-bootstrapStandby [-force] [-nonInteractive] [-skipSharedEditsCheck]] |
    [-recover [-force]] |
    [-metadataVersion]
2022-11-01 13:16:32,208 INFO namenode.NameNode: SHUTDOWN_MSG:
*****
SHUTDOWN_MSG: Shutting down NameNode at A41T67/192.168.56.1
*****
PS C:\Windows\system32> cd D:\hadoop-env\hadoop-3.2.2\sbin
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
10208 Jps
7408 DataNode
9540 NameNode
1240 NodeManager
6156 ResourceManager
PS D:\hadoop-env\hadoop-3.2.2\sbin>
```


OUTPUT



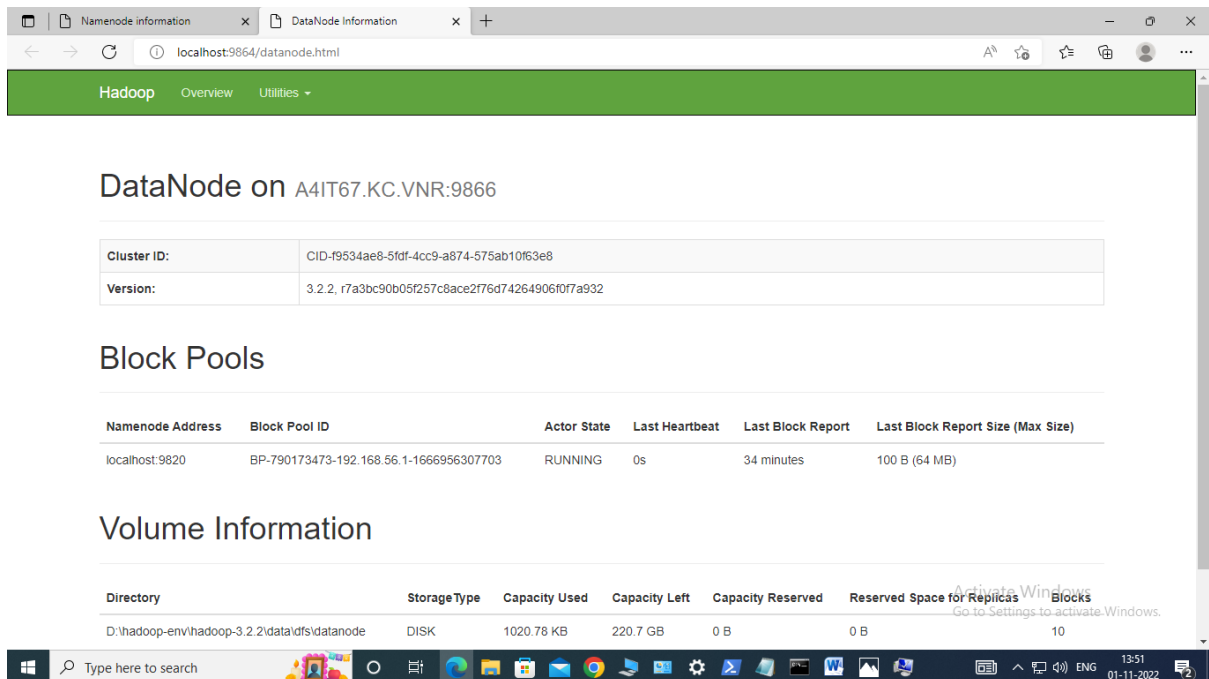
The screenshot shows the Hadoop Overview page for localhost:9820. The page has a green header with navigation tabs: Hadoop, Overview, Datanodes, Datanode Volume Failures, Snapshot, Startup Progress, and Utilities. The Overview tab is selected. Below the header, the title is 'Overview 'localhost:9820' (active)'. A table displays key information:

Started:	Tue Nov 01 13:17:37 +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-f9534ae8-5fdf-4cc9-a874-575ab10f63e8
Block Pool ID:	BP-790173473-192.168.56.1-1666956307703

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

Security is off.
Safemode is off.
20 files and directories, 10 blocks (10 replicated blocks, 0 erasure coded block groups) = 30 total filesystem object(s).
Heap Memory used 101.28 MB of 195 MB Heap Memory. Max Heap Memory is 889 MB.
Non Heap Memory used 51.29 MB of 52.59 MB Committed Non Heap Memory. Max Non Heap Memory is <unbounded>.

An 'Activate Windows' watermark is visible on the right side of the summary section.



The screenshot shows the Hadoop DataNode on A4IT67.KC.VNR:9866. The page has a green header with navigation tabs: Hadoop, Overview, and Utilities. The Overview tab is selected. Below the header, the title is 'DataNode on A4IT67.KC.VNR:9866'. A table displays key information:

Cluster ID:	CID-f9534ae8-5fdf-4cc9-a874-575ab10f63e8
Version:	3.2.2, r7a3bc90b05f257c8ace2f76d74264906f0f7a932


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

Namenode Address	Block Pool ID	Actor State	Last Heartbeat	Last Block Report	Last Block Report Size (Max Size)
localhost:9820	BP-790173473-192.168.56.1-1666956307703	RUNNING	0s	34 minutes	100 B (64 MB)

Below the Block Pools section is a 'Volume Information' section with a table showing the following data:

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	1020.78 KB	220.7 GB	0 B	0 B

An 'Activate Windows' watermark is visible on the right side of the volume information section.



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	
0		0		0		0		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 V-Cores	Allocated Memory MB	Allocated GPUs	Reserved CPU V-Cores
No data available in table															

Showing 0 to 0 of 0 entries