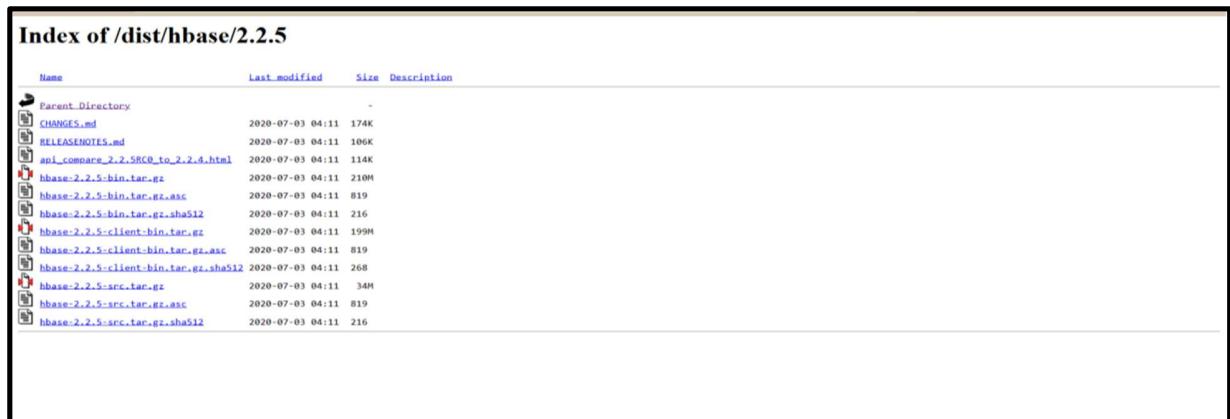


Practical 5: Installation of HBase

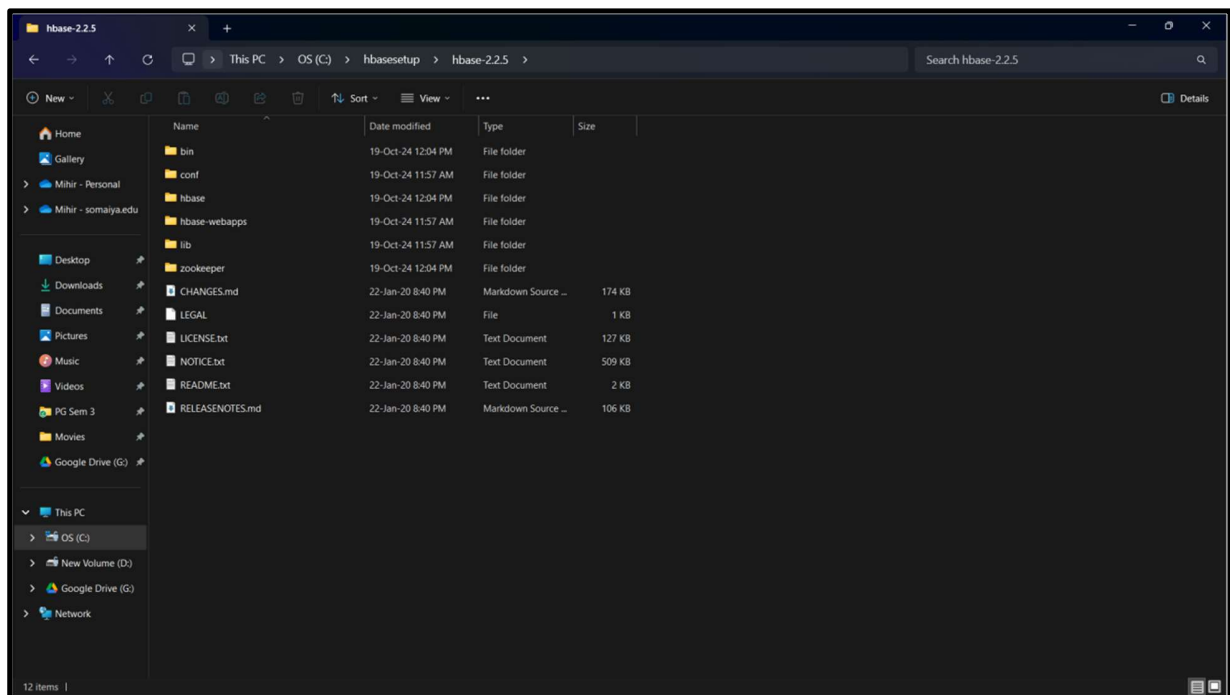
1. Download HBase bin file from [here](#).



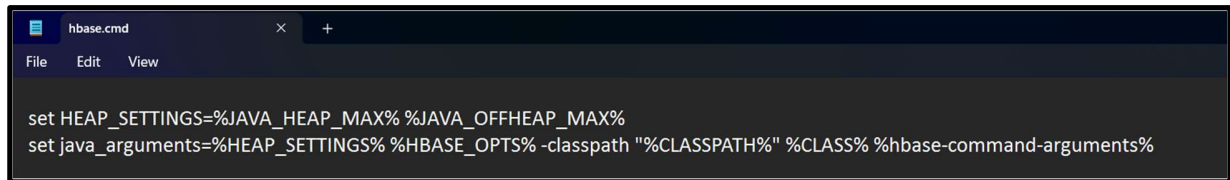
The screenshot shows the 'Index of /dist/hbase/2.2.5' page. It contains a table with columns: Name, Last modified, Size, and Description. The table lists various files including 'Parent Directory', 'CHANGES.md', 'RELEASENOTES.md', 'api_compare_2.2.5RC8_to_2.2.4.html', and several binary and source tarballs for both client and server components, along with their respective SHA512 checksums.

Name	Last modified	Size	Description
Parent Directory	-	-	-
CHANGES.md	2020-07-03 04:11	174K	
RELEASENOTES.md	2020-07-03 04:11	106K	
api_compare_2.2.5RC8_to_2.2.4.html	2020-07-03 04:11	114K	
hbase-2.2.5-bin.tar.gz	2020-07-03 04:11	210M	
hbase-2.2.5-bin.tar.gz.asc	2020-07-03 04:11	819	
hbase-2.2.5-bin.tar.gz.sha512	2020-07-03 04:11	216	
hbase-2.2.5-client-bin.tar.gz	2020-07-03 04:11	199M	
hbase-2.2.5-client-bin.tar.gz.asc	2020-07-03 04:11	819	
hbase-2.2.5-client-bin.tar.gz.sha512	2020-07-03 04:11	268	
hbase-2.2.5-src.tar.gz	2020-07-03 04:11	34M	
hbase-2.2.5-src.tar.gz.asc	2020-07-03 04:11	819	
hbase-2.2.5-src.tar.gz.sha512	2020-07-03 04:11	216	

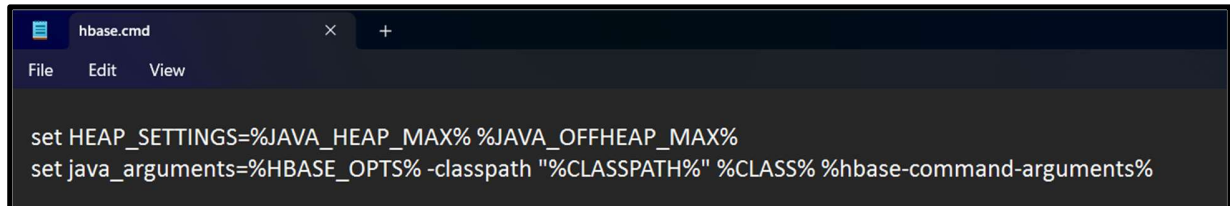
2. Create a new folder in C drive named **hbasesetup**. Extract the files and paste it in the **hbasesetup**. Create 2 new folders **hbase** and **zookeeper** inside.



3. Open the bin folder. Search for the file `hbase.cmd` and edit it in notepad. Search for `java_arguments` and remove `%HEAP_SETTINGS%`.

A screenshot of a Notepad window titled 'hbase.cmd'. The menu bar shows 'File', 'Edit', and 'View'. The text content is:

```
set HEAP_SETTINGS=%JAVA_HEAP_MAX% %JAVA_OFFHEAP_MAX%
set java_arguments=%HEAP_SETTINGS% %HBASE_OPTS% -classpath "%CLASSPATH%" %CLASS% %hbase-command-arguments%
```

A screenshot of a Notepad window titled 'hbase.cmd'. The menu bar shows 'File', 'Edit', and 'View'. The text content is:

```
set HEAP_SETTINGS=%JAVA_HEAP_MAX% %JAVA_OFFHEAP_MAX%
set java_arguments=%HBASE_OPTS% -classpath "%CLASSPATH%" %CLASS% %hbase-command-arguments%
```

4. Open the conf folder and edit the file `hbase-env.cmd` in notepad. Add the following lines inside.

```
set JAVA_HOME=C:\Progra~1\Java\jdk1.8.0_202
set HBASE_CLASSPATH=%HBASE_HOME%\lib\client-facing-thirdparty\*
set HBASE_HEAPSIZE=8000
set HBASE_OPTS="-XX:+UseConcMarkSweepGC" "-Djava.net.preferIPv4Stack=true"
set SERVER_GC_OPTS="-verbose:gc" "-XX:+PrintGCDetails" "-XX:+PrintGCDateStamps"
%HBASE_GC_OPTS%
set HBASE_USE_GC_LOGFILE=true
set HBASE_JMX_BASE="-Dcom.sun.management.jmxremote.ssl=false" "-Dcom.sun.management.jmxremote.authenticate=false"
set HBASE_MASTER_OPTS=%HBASE_JMX_BASE% "-Dcom.sun.management.jmxremote.port=10101"
set HBASE_REGIONSERVER_OPTS=%HBASE_JMX_BASE% "-Dcom.sun.management.jmxremote.port=10102"
set HBASE_THRIFT_OPTS=%HBASE_JMX_BASE% "-Dcom.sun.management.jmxremote.port=10103"
set HBASE_ZOOKEEPER_OPTS=%HBASE_JMX_BASE% "-Dcom.sun.management.jmxremote.port=10104"
set HBASE_REGIONSERVERS=%HBASE_HOME%\conf\regionserver
set HBASE_LOG_DIR=%HBASE_HOME%\logs
set HBASE_IDENT_STRING=%USERNAME%
set HBASE_MANAGES_ZK=true
```

```
hbase-env.cmd
File Edit View

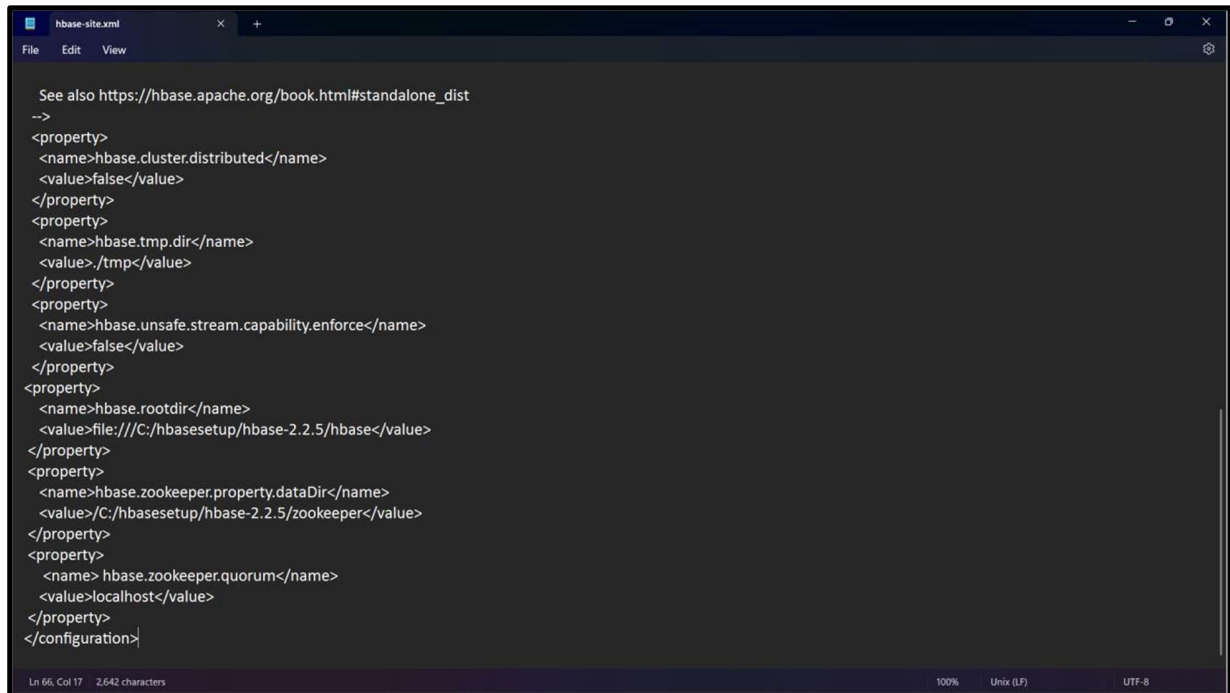
@rem The java implementation to use. Java 1.8+ required.
@rem set JAVA_HOME=c:\apps\java
set JAVA_HOME=C:\Program Files\Java\jdk1.8.0_202
set HBASE_CLASSPATH=%HBASE_HOME%\lib\client-facing-thirdparty\*
set HBASE_HEAPSIZE=8000
set HBASE_OPTS="-XX:+UseConcMarkSweepGC" "-Djava.net.preferIPv4Stack=true"
set SERVER_GC_OPTS="-verbose:gc" "-XX:+PrintGCDetails" "-XX:+PrintGCDateStamps" %HBASE_GC_OPTS%
set HBASE_USE_GC_LOGFILE=true

set HBASE_JMX_BASE="-Dcom.sun.management.jmxremote.ssl=false" "-Dcom.sun.management.jmxremote.authenticate=false"

set HBASE_MASTER_OPTS=%HBASE_JMX_BASE% "-Dcom.sun.management.jmxremote.port=10101"
set HBASE_REGIONSERVER_OPTS=%HBASE_JMX_BASE% "-Dcom.sun.management.jmxremote.port=10102"
set HBASE_THRIFT_OPTS=%HBASE_JMX_BASE% "-Dcom.sun.management.jmxremote.port=10103"
set HBASE_ZOOKEEPER_OPTS=%HBASE_JMX_BASE% "-Dcom.sun.management.jmxremote.port=10104"
set HBASE_REGIONSERVERS=%HBASE_HOME%\conf\regionserver
set HBASE_LOG_DIR=%HBASE_HOME%\logs
set HBASE_IDENT_STRING=%USERNAME%
set HBASE_MANAGES_ZK=true
```

5. Open the conf folder and edit the file `hbase-site.xml` in notepad. Add the following lines after the last property tag.

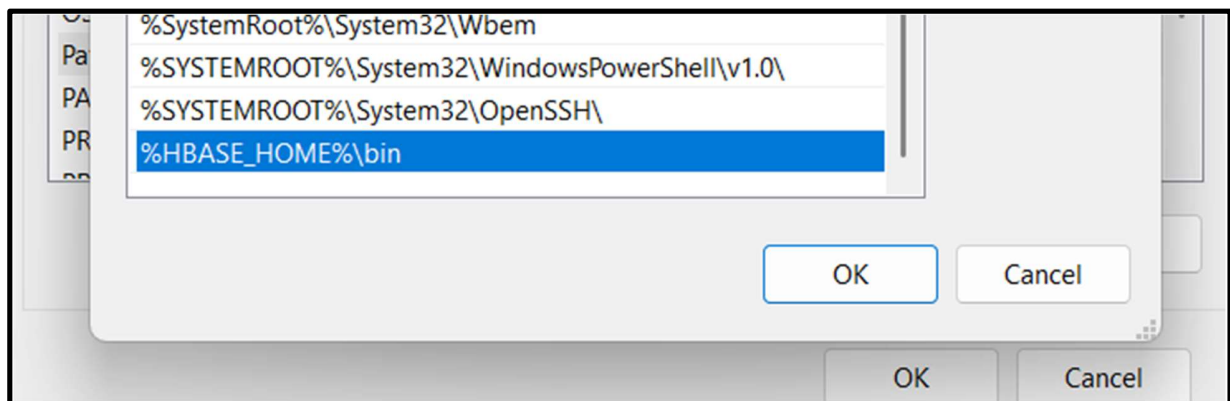
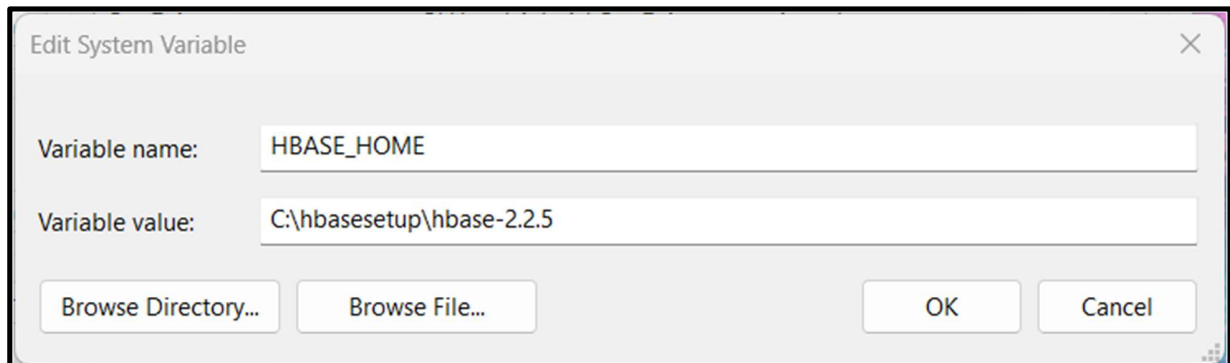
```
<property>
  <name>hbase.rootdir</name>
  <value>file:///C:/hbasesetup/hbase-2.2.5/hbase</value>
</property>
<property>
  <name>hbase.zookeeper.property.dataDir</name>
  <value>C:/hbasesetup/hbase-2.2.5/zookeeper</value>
</property>
<property>
  <name> hbase.zookeeper.quorum</name>
  <value>localhost</value>
</property>
```



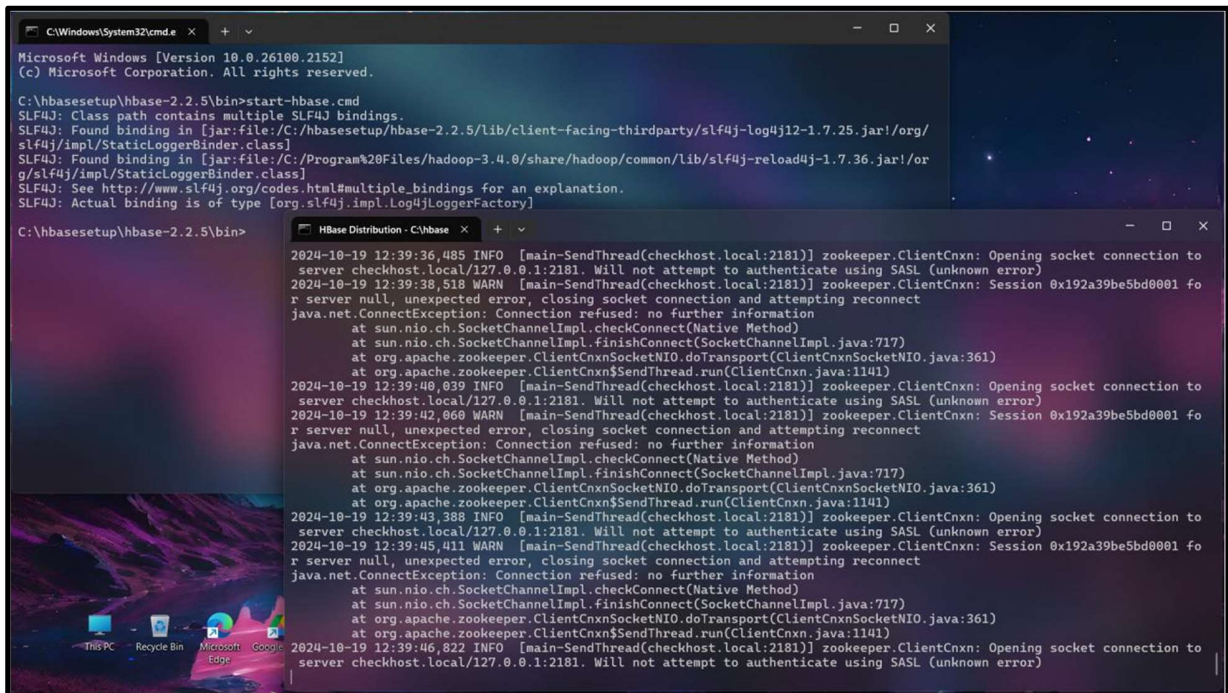
The screenshot shows a text editor window titled 'hbase-site.xml'. The content is an XML configuration file for HBase. It includes a reference to the HBase book and several property tags. The status bar at the bottom indicates 'Ln 66, Col 17' and '2,642 characters'.

```
See also https://hbase.apache.org/book.html#standalone\_dist
-->
<property>
  <name>hbase.cluster.distributed</name>
  <value>>false</value>
</property>
<property>
  <name>hbase.tmp.dir</name>
  <value>./tmp</value>
</property>
<property>
  <name>hbase.unsafe.stream.capability.enforce</name>
  <value>>false</value>
</property>
<property>
  <name>hbase.rootdir</name>
  <value>file:///C:/hbasesetup/hbase-2.2.5/hbase</value>
</property>
<property>
  <name>hbase.zookeeper.property.dataDir</name>
  <value>C:/hbasesetup/hbase-2.2.5/zookeeper</value>
</property>
<property>
  <name>hbase.zookeeper.quorum</name>
  <value>localhost</value>
</property>
</configuration>
```

6. Set the HBase environment variables and its too path as well.



7. Open command prompt and navigate to the hbase bin folder. Run the command `start-hbase.cmd` to start hbase

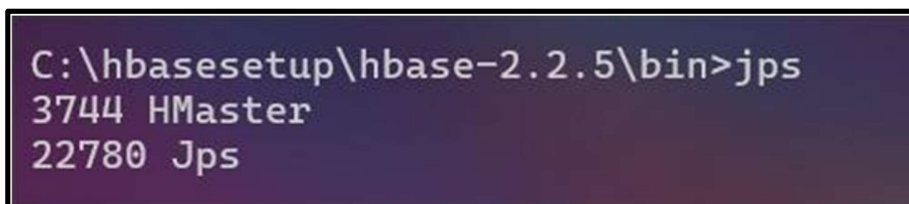


```
C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.26100.2152]
(c) Microsoft Corporation. All rights reserved.

C:\hbase\hbase-2.2.5\bin>start-hbase.cmd
SLF4J: Class path contains multiple SLF4J bindings.
SLF4J: Found binding in [jar:file:/C:/hbase\hbase-2.2.5\lib\client-facing-thirdparty\slf4j-log4j12-1.7.25.jar!/org/slf4j/impl/StaticLoggerBinder.class]
SLF4J: Found binding in [jar:file:/C:/Program%20Files/hadoop-3.4.0/share/hadoop/common/lib/slf4j-reload4j-1.7.36.jar!/org/slf4j/impl/StaticLoggerBinder.class]
SLF4J: See http://www.slf4j.org/codes.html#multiple_bindings for an explanation.
SLF4J: Actual binding is of type [org.slf4j.impl.Log4jLoggerFactory]

C:\hbase\hbase-2.2.5\bin>
HBase Distribution - C:\hbase
2024-10-19 12:39:36,485 INFO [main-SendThread(checkhost.local:2181)] zookeeper.ClientCnxn: Opening socket connection to server checkhost.local/127.0.0.1:2181. Will not attempt to authenticate using SASL (unknown error)
2024-10-19 12:39:38,518 WARN [main-SendThread(checkhost.local:2181)] zookeeper.ClientCnxn: Session 0x192a39be5bd0001 for server null, unexpected error, closing socket connection and attempting reconnect
java.net.ConnectException: Connection refused: no further information
    at sun.nio.ch.SocketChannelImpl.checkConnect(Native Method)
    at sun.nio.ch.SocketChannelImpl.finishConnect(SocketChannelImpl.java:717)
    at org.apache.zookeeper.ClientCnxnSocketNIO.doTransport(ClientCnxnSocketNIO.java:361)
    at org.apache.zookeeper.ClientCnxn$SendThread.run(ClientCnxn.java:1141)
2024-10-19 12:39:40,039 INFO [main-SendThread(checkhost.local:2181)] zookeeper.ClientCnxn: Opening socket connection to server checkhost.local/127.0.0.1:2181. Will not attempt to authenticate using SASL (unknown error)
2024-10-19 12:39:42,060 WARN [main-SendThread(checkhost.local:2181)] zookeeper.ClientCnxn: Session 0x192a39be5bd0001 for server null, unexpected error, closing socket connection and attempting reconnect
java.net.ConnectException: Connection refused: no further information
    at sun.nio.ch.SocketChannelImpl.checkConnect(Native Method)
    at sun.nio.ch.SocketChannelImpl.finishConnect(SocketChannelImpl.java:717)
    at org.apache.zookeeper.ClientCnxnSocketNIO.doTransport(ClientCnxnSocketNIO.java:361)
    at org.apache.zookeeper.ClientCnxn$SendThread.run(ClientCnxn.java:1141)
2024-10-19 12:39:43,388 INFO [main-SendThread(checkhost.local:2181)] zookeeper.ClientCnxn: Opening socket connection to server checkhost.local/127.0.0.1:2181. Will not attempt to authenticate using SASL (unknown error)
2024-10-19 12:39:45,411 WARN [main-SendThread(checkhost.local:2181)] zookeeper.ClientCnxn: Session 0x192a39be5bd0001 for server null, unexpected error, closing socket connection and attempting reconnect
java.net.ConnectException: Connection refused: no further information
    at sun.nio.ch.SocketChannelImpl.checkConnect(Native Method)
    at sun.nio.ch.SocketChannelImpl.finishConnect(SocketChannelImpl.java:717)
    at org.apache.zookeeper.ClientCnxnSocketNIO.doTransport(ClientCnxnSocketNIO.java:361)
    at org.apache.zookeeper.ClientCnxn$SendThread.run(ClientCnxn.java:1141)
2024-10-19 12:39:46,822 INFO [main-SendThread(checkhost.local:2181)] zookeeper.ClientCnxn: Opening socket connection to server checkhost.local/127.0.0.1:2181. Will not attempt to authenticate using SASL (unknown error)
```

8. Using the command `jps` you can check that our HMaster is running.



```
C:\hbase\hbase-2.2.5\bin>jps
3744 HMaster
22780 Jps
```

9. Start the HBase Shell now with the command `hbase shell`. Initial startup may take some time.

```
C:\Windows\System32\cmd.exe x + v
C:\hbase\hbase-2.2.5\bin>jps
3744 HMaster
22788 Jps

C:\hbase\hbase-2.2.5\bin>hbase shell
SLF4J: Class path contains multiple SLF4J bindings.
SLF4J: Found binding in [jar:file:/C:/hbase\hbase-2.2.5\lib\client-facing-thirdparty\slf4j-log4j12-1.7.25.jar!/org/slf4j/impl/StaticLoggerBinder.class]
SLF4J: Found binding in [jar:file:/C:/Program%20Files/hadoop-3.4.0/share/hadoop/common/lib/slf4j-reload4j-1.7.36.jar!/org/slf4j/impl/StaticLoggerBinder.class]
SLF4J: See http://www.slf4j.org/codes.html#multiple_bindings for an explanation.
SLF4J: Actual binding is of type [org.slf4j.impl.Log4jLoggerFactory]
HBase Shell
Use "help" to get list of supported commands.
Use "exit" to quit this interactive shell.
For Reference, please visit: http://hbase.apache.org/2.0/book.html#shell
Version 2.2.5, rf76a601273e834267b55c0cda12474590283fd4c, 2020? 05? 21? ??? 18:34:40 CST
[ERROR] Terminal initialization failed; falling back to unsupported
java.lang.NoClassDefFoundError: Could not initialize class org.fusesource.jansi.internal.Kernel32
    at org.fusesource.jansi.internal.WindowsSupport.getConsoleMode(WindowsSupport.java:50)
```

10. Your HBase Shell has been started. Ignore the warnings received while starting the shell.

```
C:\Windows\System32\cmd.exe x + v
at org.jruby.runtime.callsite.CachingCallSite.call(CachingCallSite.java:131)
at C:\hbase\hbase-2.2.5\bin\hirb.invokeOther172:print_banner(C:\hbase\hbase-2.2.5\bin\hirb.rb:190)
at C:\hbase\hbase-2.2.5\bin\hirb.RUBY$script(C:\hbase\hbase-2.2.5\bin\hirb.rb:190)
at java.lang.invoke.MethodHandle.invokeWithArguments(MethodHandle.java:627)
at org.jruby.ir.Compiler$1.load(Compiler.java:95)
at org.jruby.Ruby.runScript(Ruby.java:828)
at org.jruby.Ruby.runNormally(Ruby.java:747)
at org.jruby.Ruby.runNormally(Ruby.java:765)
at org.jruby.Ruby.runFromMain(Ruby.java:578)
at org.jruby.Main.doRunFromMain(Main.java:417)
at org.jruby.Main.internalRun(Main.java:305)
at org.jruby.Main.run(Main.java:232)
at org.jruby.Main.main(Main.java:204)

Took 0.0040 seconds
'stty' is not recognized as an internal or external command,
operable program or batch file.
hbase(main):001:0> |
```