Eclipse With Hadoop

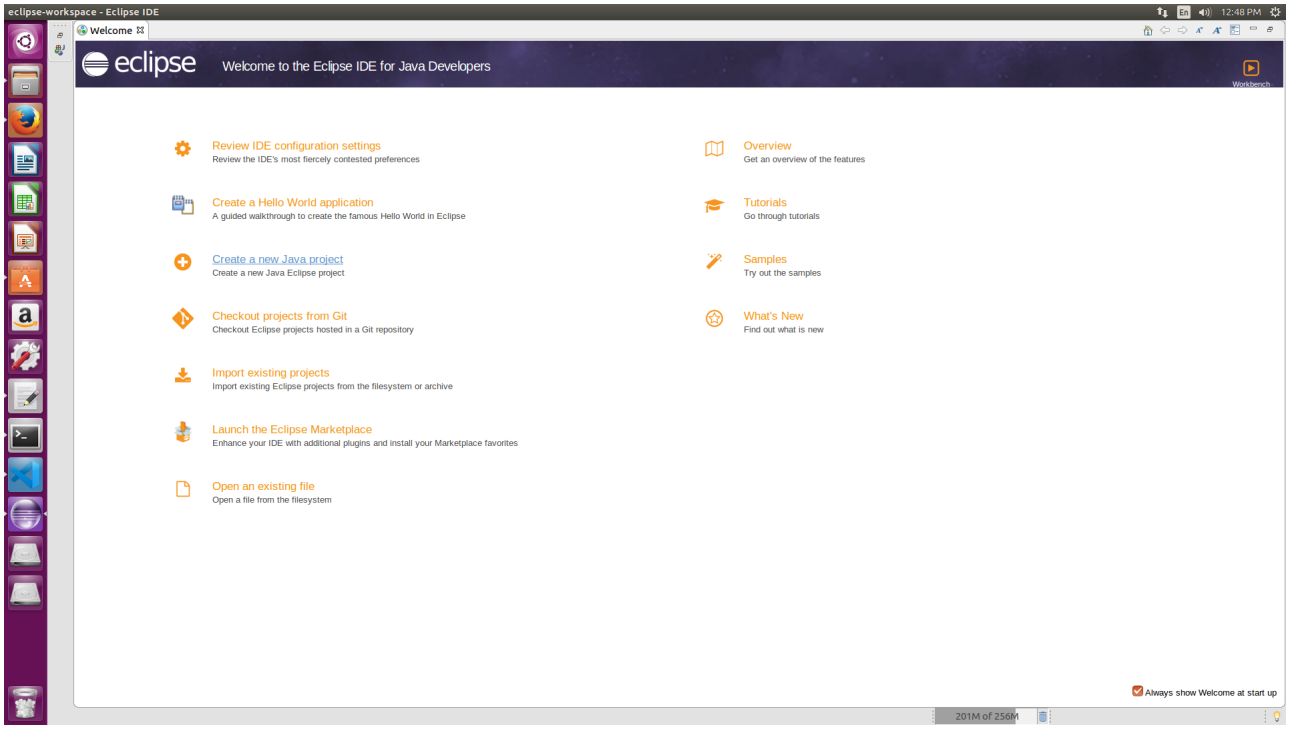
These steps will guide you to integrate Java Eclipse with Hadoop.

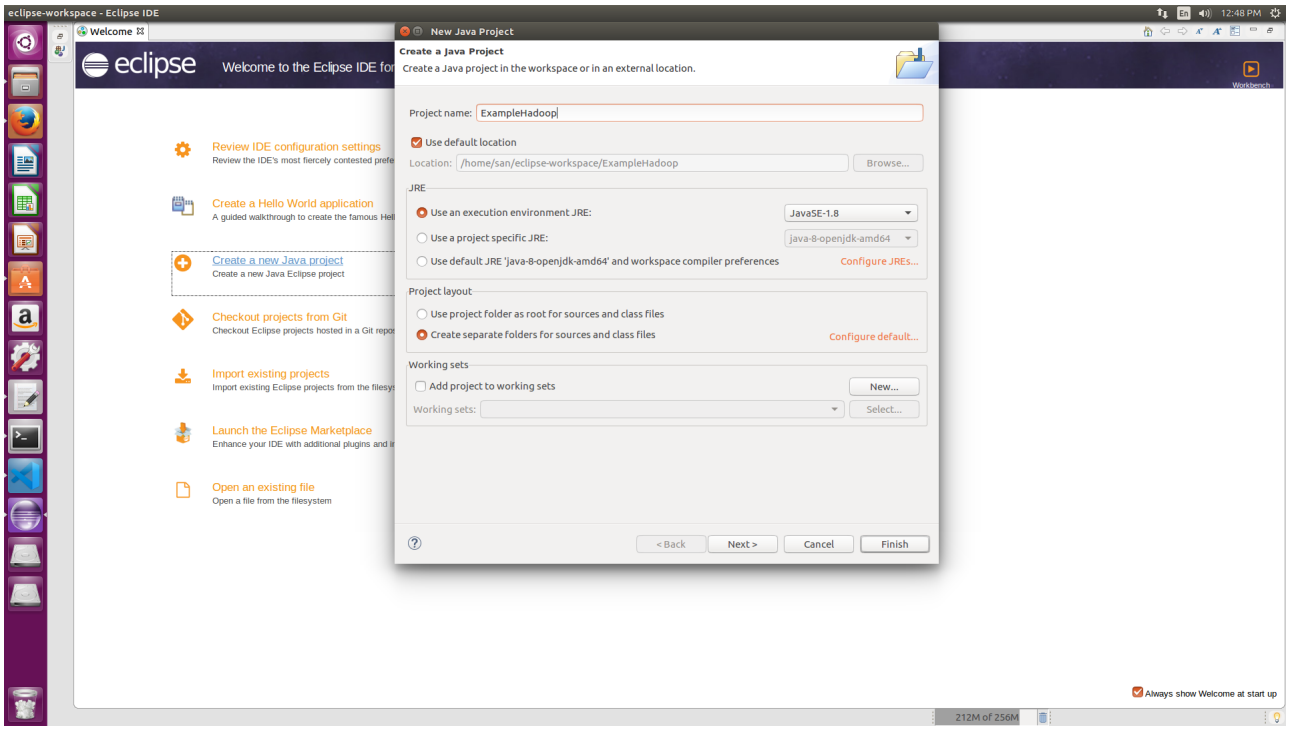
Setting up Eclipse

- Download Eclipse for Ubuntu using this Link: Here
- Extract the `eclipse-inst-linux64.tar.gz` file to `path-to-folder/eclipse-installer`.
- Move to the directory `path-to-folder/eclipse-installer` .
- Double click on `eclipse-inst` file to execute.
- In Eclipse Installer, choose `Eclipse IDE for Java Developers`
- Note the Installation directory.
- Click on Install Button.
- Launch the IDE.
- Right click on Eclipse Icon on Ubuntu Launcher and select `Lock to Launcher` for easy accessibility.

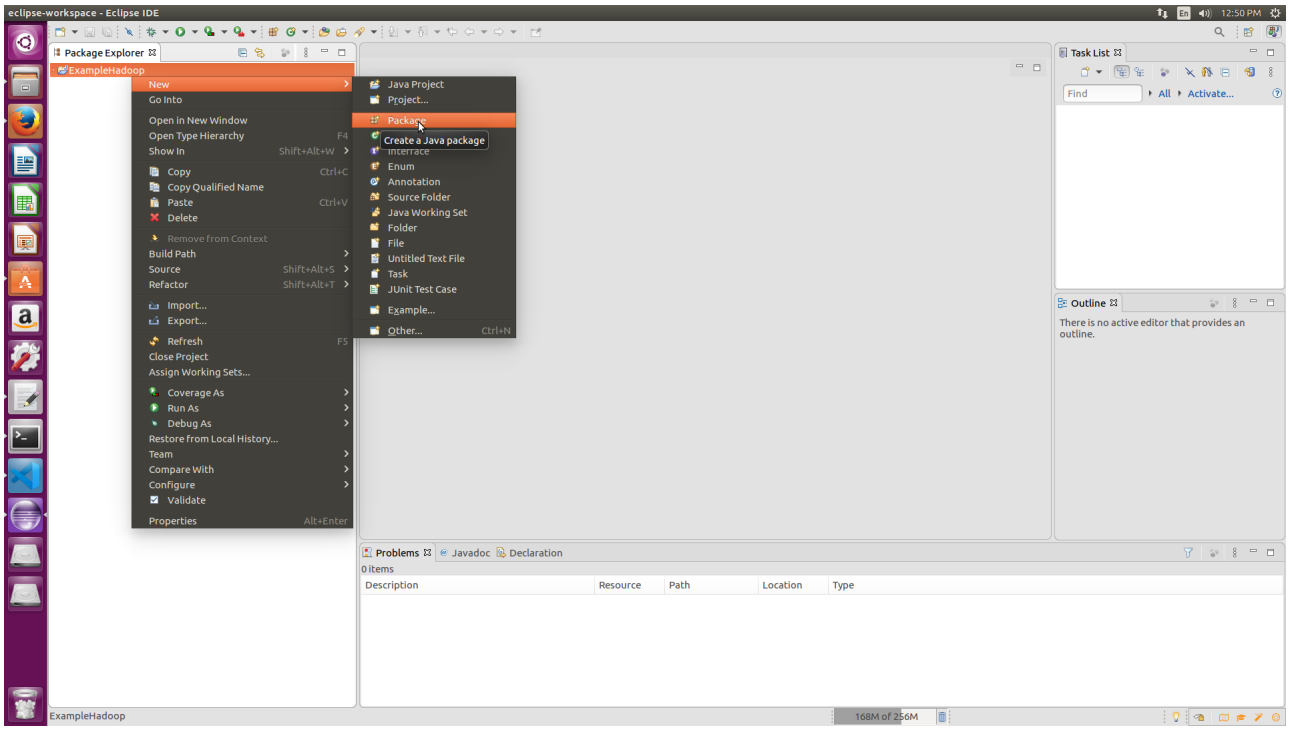
Integrating with Hadoop

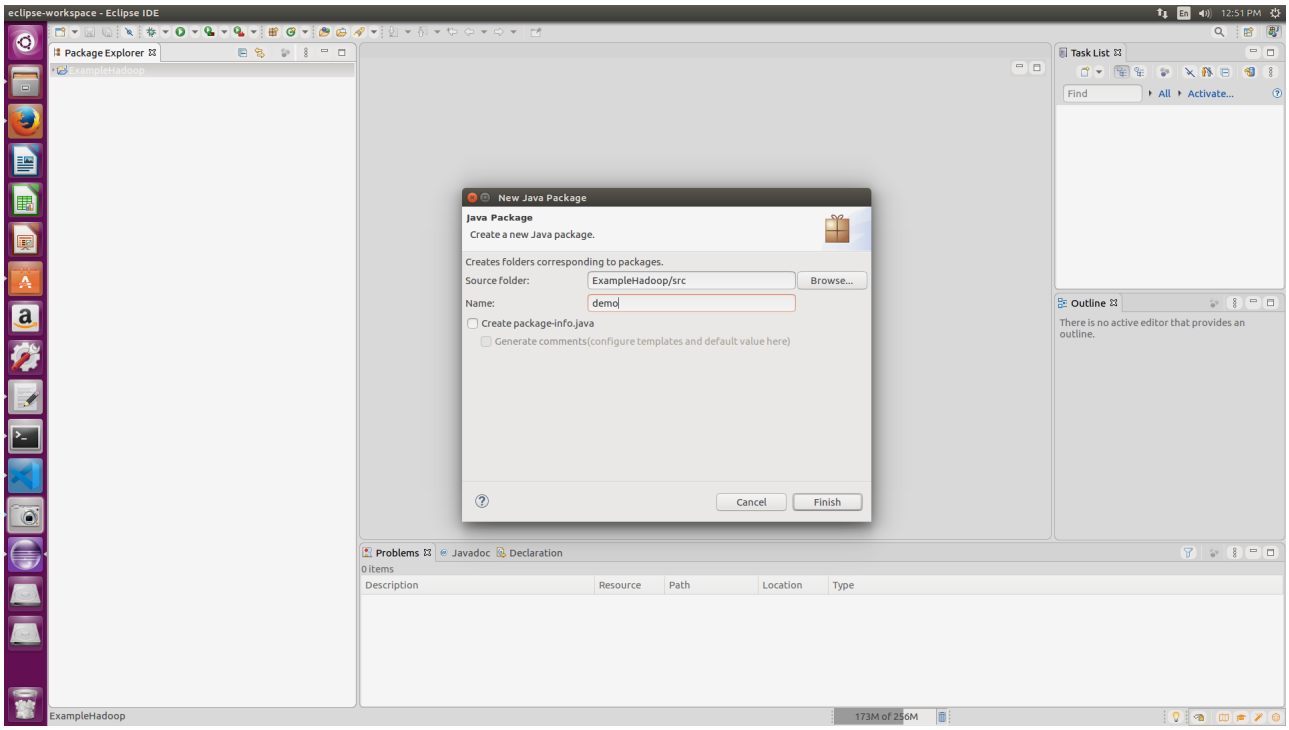
- Open Eclipse IDE.
- Create a new JAVA Project and Name it `ExampleHadoop` and Click `Finish`



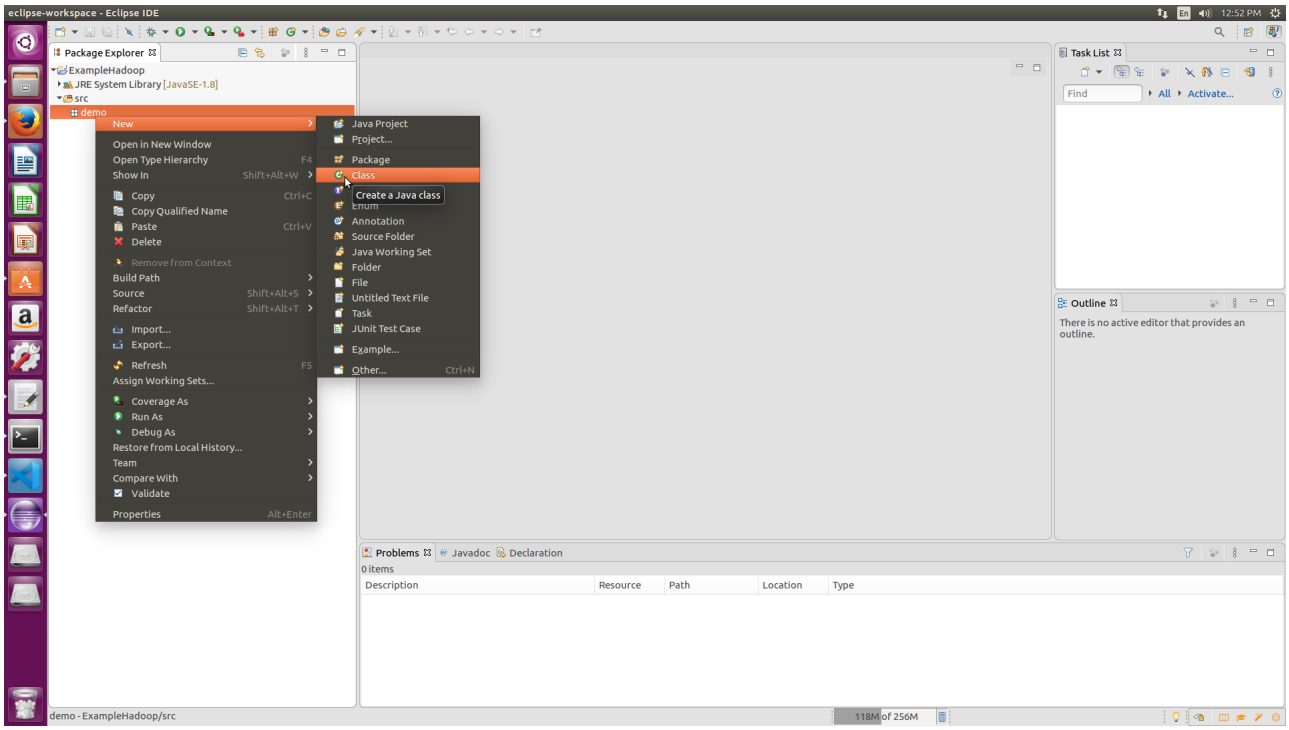


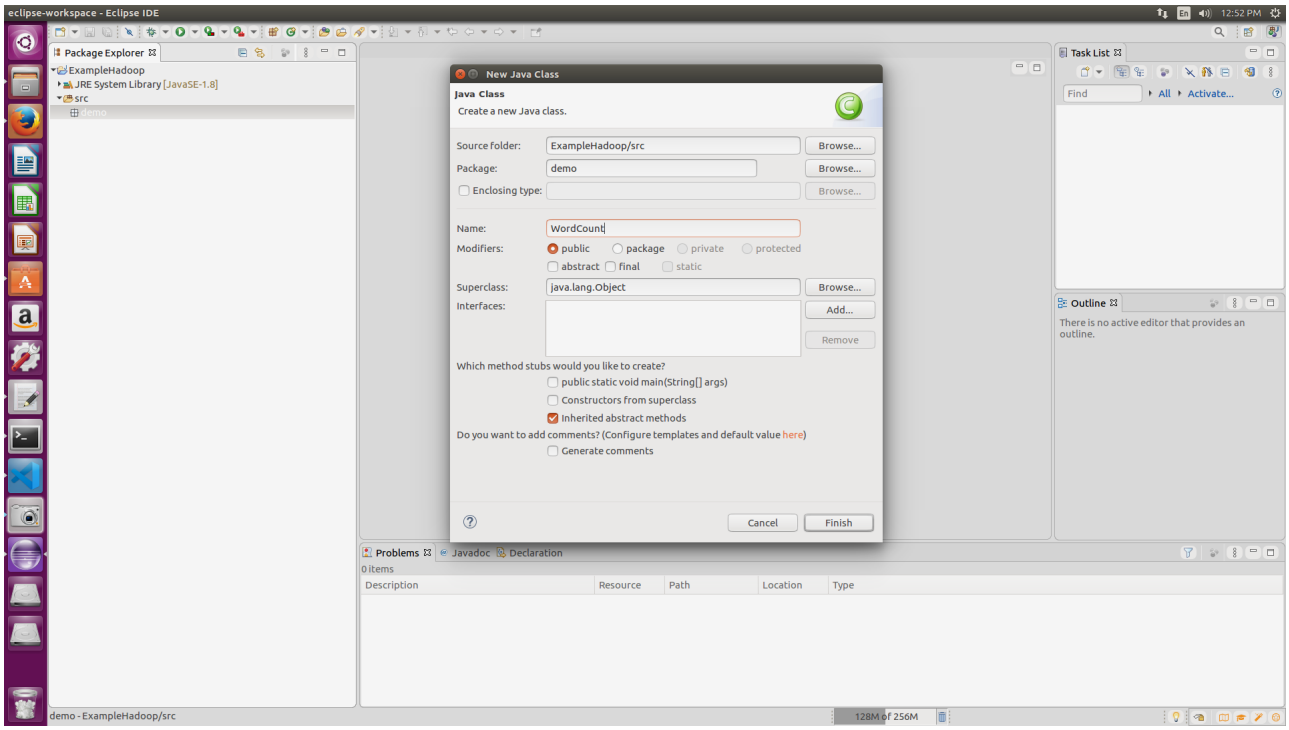
- Right Click on Project > New > Package (Name it - demo) > Finish.





- Right Click on Package > New > Class (Name it - WordCount).



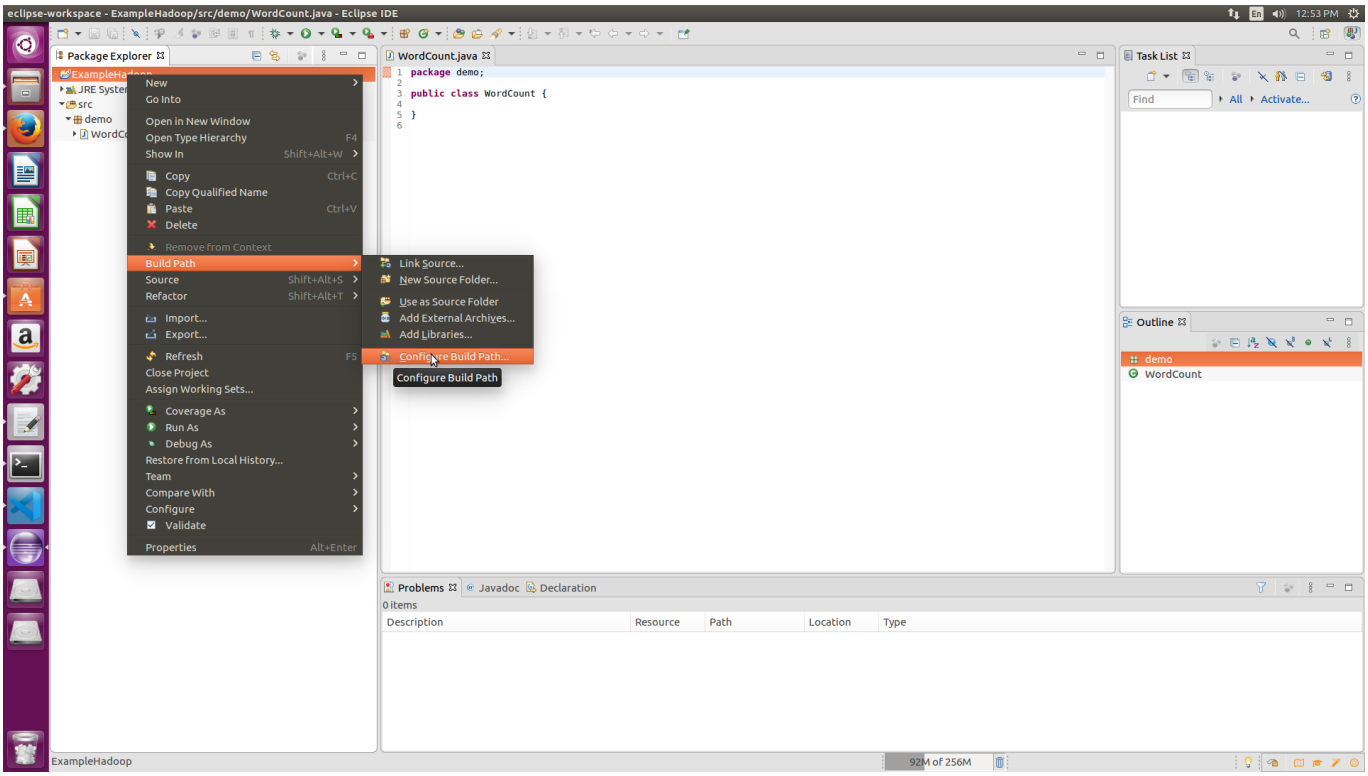


- Add Following Reference Libraries:

  Right Click on Project > Build Path> Add External Jars > Apply and Close

```
/usr/local/hadoop/hadoop-core.jar

/usr/local/hadoop/lib/Commons-cli-1.2.jar
```


eclipse-workspace - ExampleHadoop/src/demo/WordCount.java - Eclipse IDE
Package Explorer
WordCount.java
Task List
Outline
New
Go Into
Open in New Window
Open Type Hierarchy
Show In
Copy
Copy Qualified Name
Paste
Delete
Remove from Context
Build Path
Source
Refactor
Import...
Export...
Refresh
Close Project
Assign Working Sets...
Coverage As
Run As
Debug As
Restore from Local History...
Team
Compare With
Configure
Validate
Properties
Link Source...
New Source Folder...
Use as Source Folder
Add External Archives...
Add Libraries...
Configure Build Path...
Configure Build Path
Problems
Javadoc
Declaration
0 items
Description
Resource
Path
Location
Type
ExampleHadoop
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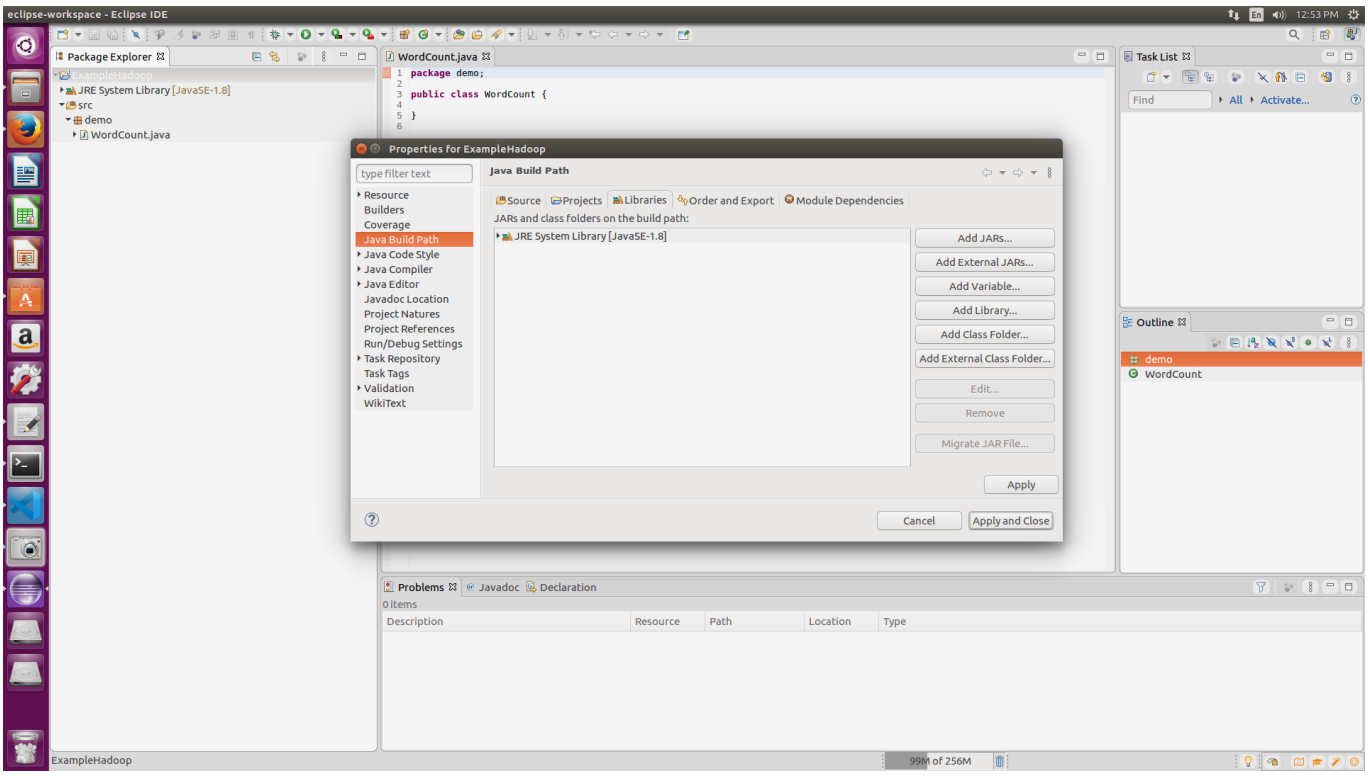
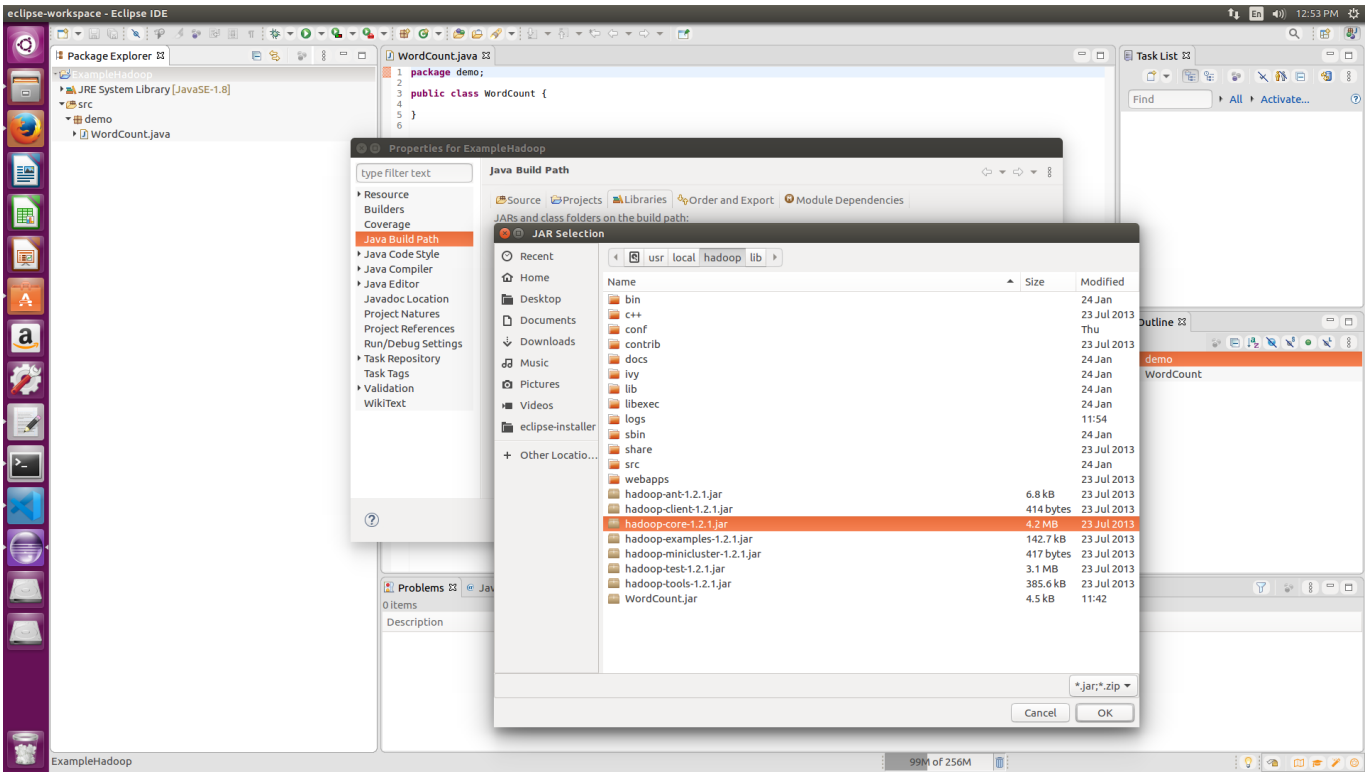
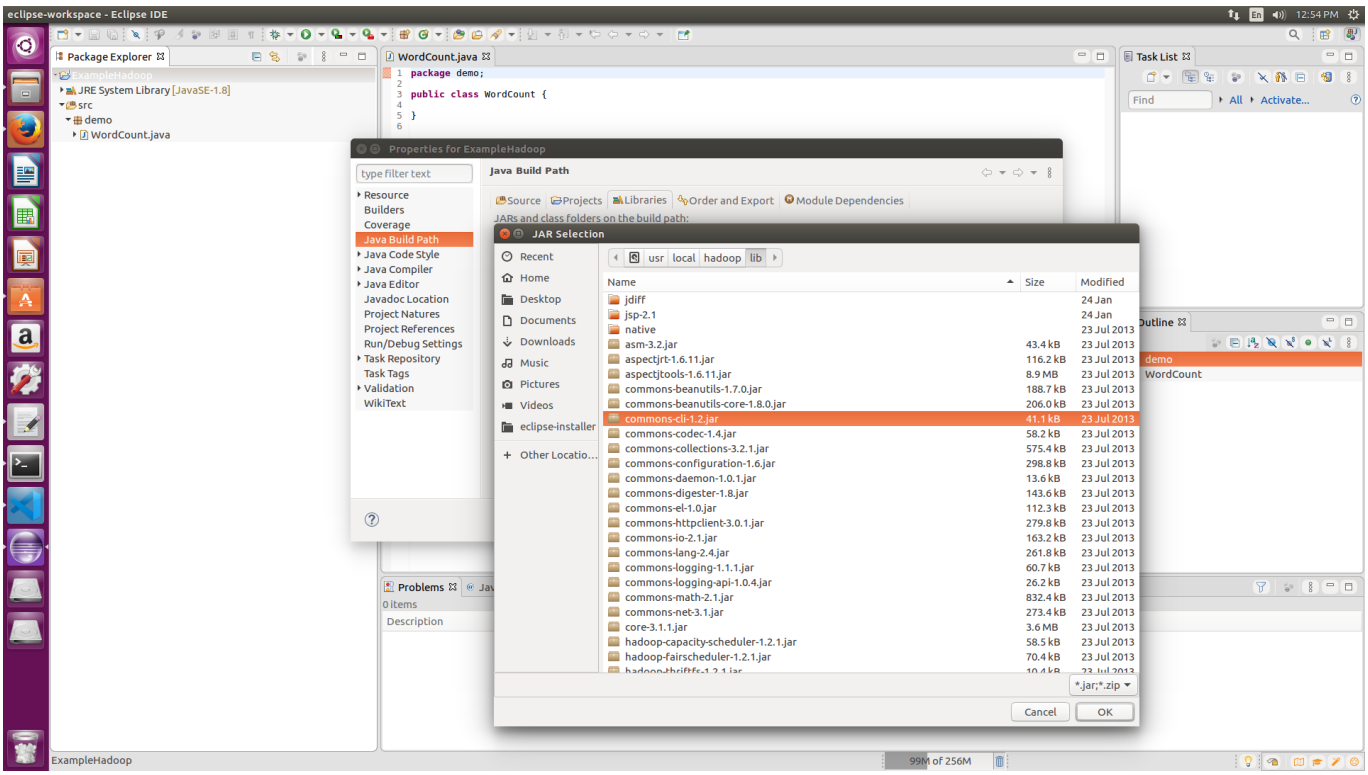

eclipse-workspace - Eclipse IDE
Package Explorer
JRE System Library [JavaSE-1.8]
src
demo
WordCount.java
Properties for ExampleHadoop
type filter text
Resource
Builders
Coverage
Java Build Path
Java Code Style
Java Compiler
Java Editor
Javadoc Location
Project Natures
Project References
Run/Debug Settings
Task Repository
Task Tags
Validation
WikiText
Java Build Path
Source
Projects
Libraries
Order and Export
Module Dependencies
JARs and class folders on the build path:
JRE System Library [JavaSE-1.8]
Add JARs...
Add External JARs...
Add Variable...
Add Library...
Add Class Folder...
Add External Class Folder...
Edit...
Remove
Migrate JAR File...
Apply
Cancel
Apply and Close
99M of 256M





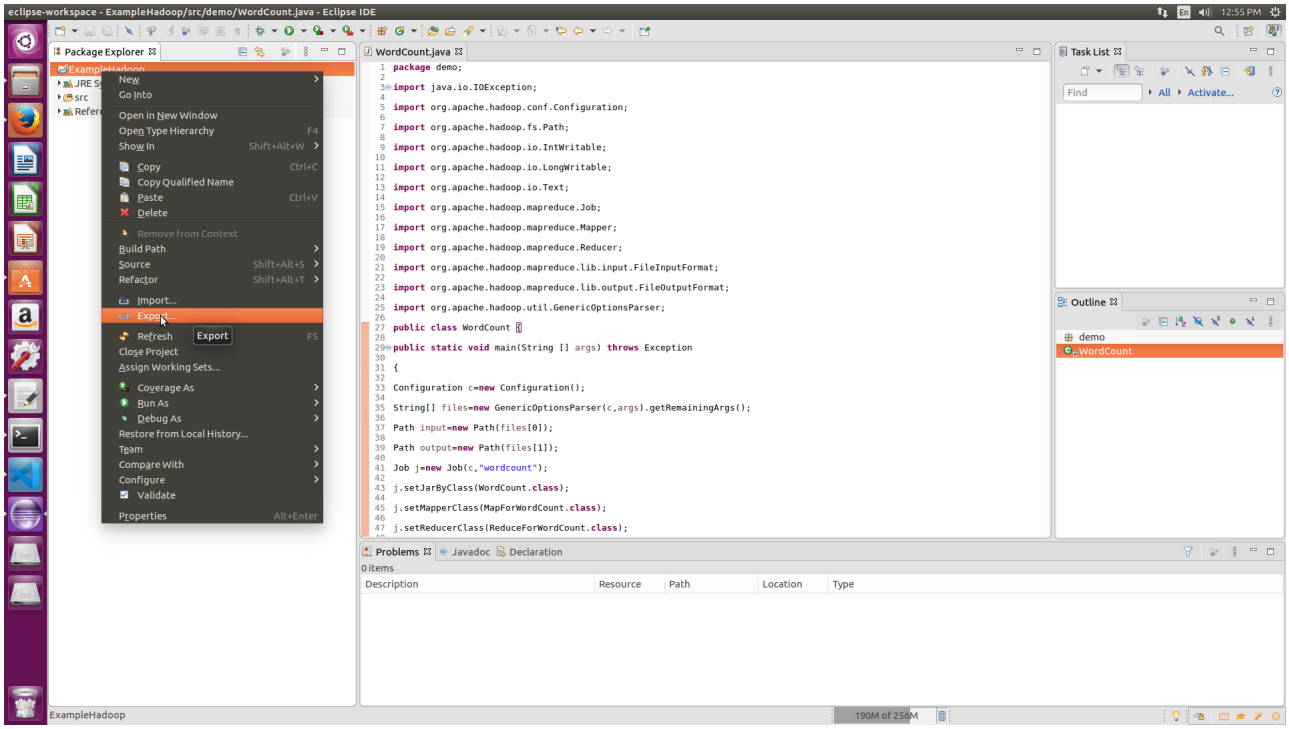
- Add the following code into WordCount.java

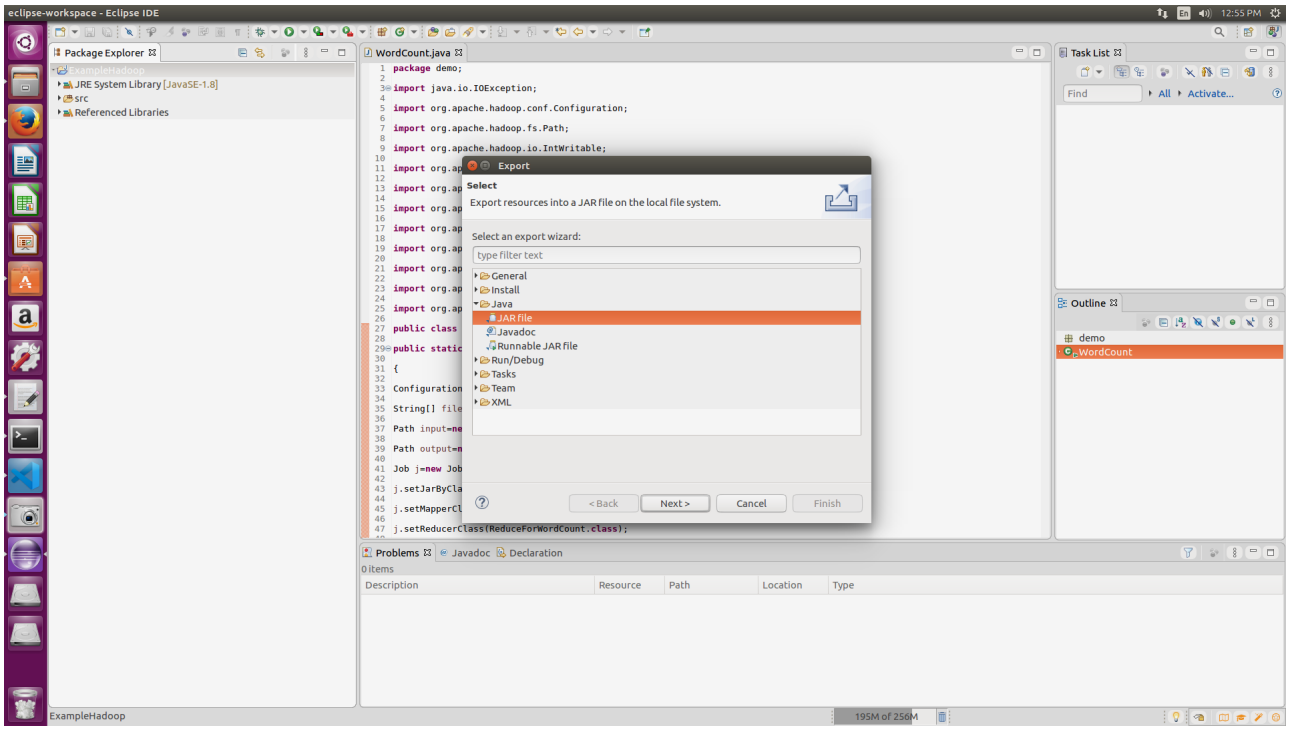
```
package demo;

import java.io.IOException;

import org.apache.hadoop.conf.Configuration;

import org.apache.hadoop.fs.Path;

import org.apache.hadoop.io.IntWritable;
```

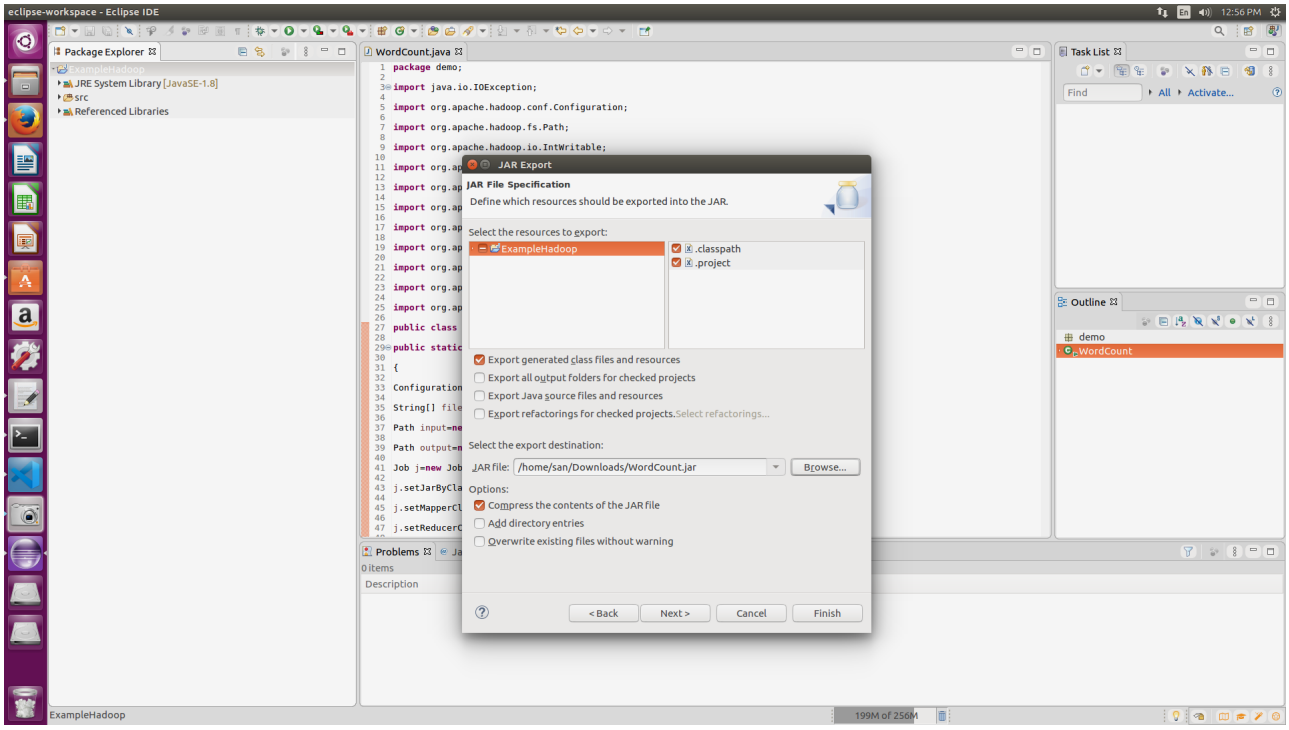
```
  import org.apache.hadoop.io.LongWritable;

  import org.apache.hadoop.io.Text;

  import org.apache.hadoop.mapreduce.Job;

  import org.apache.hadoop.mapreduce.Mapper;

  import org.apache.hadoop.mapreduce.Reducer;

  import org.apache.hadoop.mapreduce.lib.input.FileInputFormat;

  import org.apache.hadoop.mapreduce.lib.output.FileOutputFormat;

  import org.apache.hadoop.util.GenericOptionsParser;

  public class WordCount {

  public static void main(String [] args) throws Exception

  {

  Configuration c=new Configuration();

  String[] files=new GenericOptionsParser(c,args).getRemainingArgs();

  Path input=new Path(files[0]);

  Path output=new Path(files[1]);

  Job j=new Job(c,"wordcount");

  j.setJarByClass(WordCount.class);

  j.setMapperClass(MapForWordCount.class);

  j.setReducerClass(ReduceForWordCount.class);

  j.setOutputKeyClass(Text.class);

  j.setOutputValueClass(IntWritable.class);

  FileInputFormat.addInputPath(j, input);

  FileOutputFormat.setOutputPath(j, output);

  System.exit(j.waitForCompletion(true)?0:1);

  }

  public static class MapForWordCount extends Mapper<LongWritable,
Text, Text, IntWritable>{
```

```
  public void map(LongWritable key, Text value, Context con) throws
IOException, InterruptedException

  {

  String line = value.toString();

  String[] words=line.split(",");

  for(String word: words )

  {

      Text outputKey = new Text(word.toUpperCase().trim());

  IntWritable outputValue = new IntWritable(1);

  con.write(outputKey, outputValue);

  }

  }

  }

  public static class ReduceForWordCount extends Reducer<Text,
IntWritable, Text, IntWritable>

  {

  public void reduce(Text word, Iterable<IntWritable> values, Context
con) throws IOException, InterruptedException

  {

  int sum = 0;

  for(IntWritable value : values)

  {

  sum += value.get();

  }

  con.write(word, new IntWritable(sum));

  }

  }

  }
```

- Save the Jar file to destination Folder. Right Click on Project> Export> Select export destination as Jar File > next> Finish.



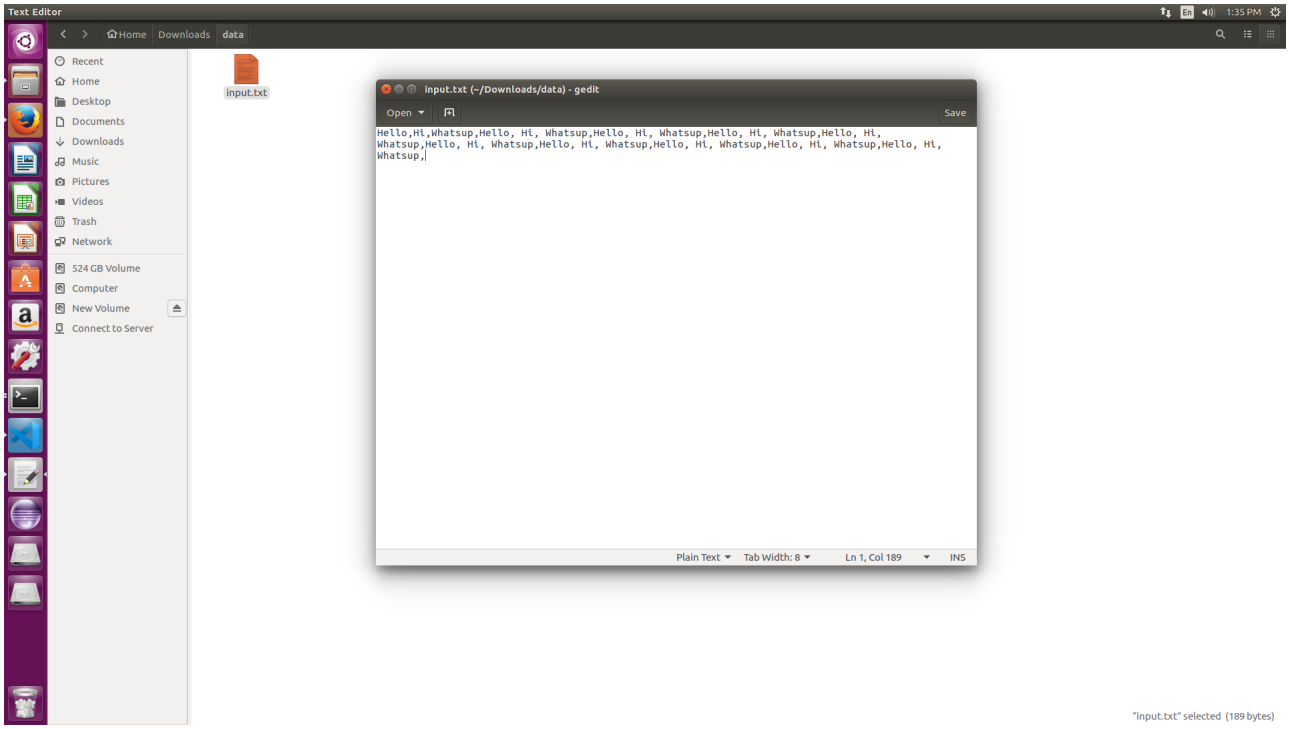




Running the jar File with Hadoop

- `cd /usr/local/hadoop`
- `bin/start-all.sh`

- Create a input.txt file:



- Take a input text file and move it into HDFS format:

```
bin/hadoop fs -put /home/san/Downloads/data/input.txt data/input.txt
```

- Run the jar file:

```
bin/hadoop jar /home/san/Downloads/WordCount.jar demo.WordCount
data/input.txt MRDir3
```

- Open the result:
  - Run `bin/hadoop fs -ls MRDir3`

Output:

> Found 3 items -rw-r--r-- 1 san supergroup 0 2020-02-03 13:27 /user/san/MRDir3/_SUCCESS drwxr-xr-x - san supergroup 0 2020-02-03 13:27 /user/san/MRDir3/_logs -rw-r--r-- 1 san supergroup 26 2020-02-03 13:27 /user/san/MRDir3/part-r-00000

  - Run the final command to see the output `bin/hadoop fs -cat MRDir3/part-r-00000`

Output:

> HELLO 10 HI 10 WHATSUP 10