Maven Assignment

By Manish Mishra

Objective

Create a directory

- stringmanipulation which will have the **main pom.xml**

- **navigate** into the directory and create one module named **modify-strings** which will have its own pom.xml file.
  Navigate into **modify-string** and **create two** more **modules** named string-api and string-impl with a pom.xml

- **string-api and string-impl** will have their own pom.xml files.

- In total : **4 pom.xml** files

- Inside **string-api** : Make two methods **1. reverseString() 2. getStringLength()** and give the implementation of these methods.

- Inside **string-impl** : This will be the **main** class and call these methods here. Take the string input from the user.

Mandatory dependencies/plugins that should be in your parent pom:

- **maven-checkstyle-plugin**

- spotbugs-maven-plugin

- maven-surefire-plugin

- exec-maven-plugin

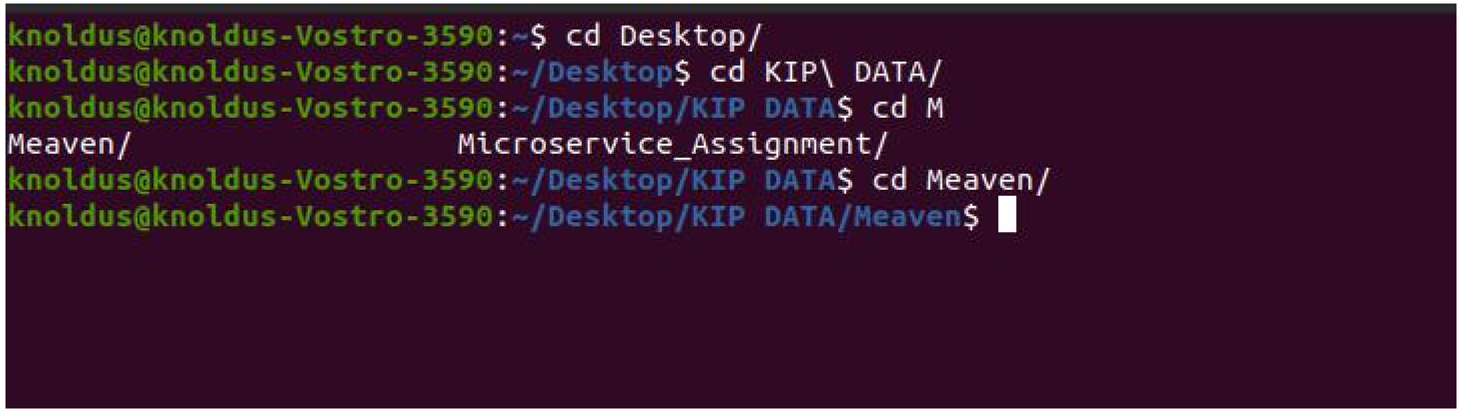
Follow **clean code Practice.**

Solution

To make an application through Maven we have to follow some of the Steps:

Step 1: Open the Linux Terminal.

Step 2: Choose the directory in which you want to create project by using command cd directory name.

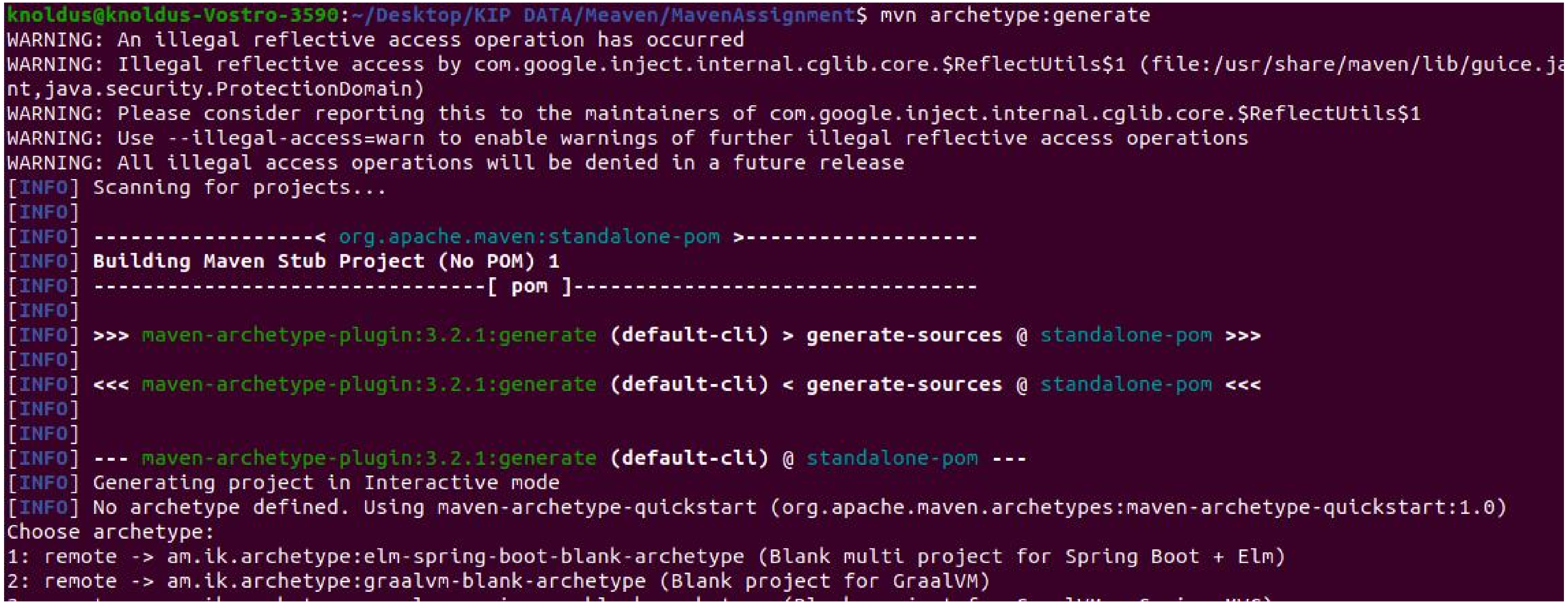


```
knoldus@knoldus-Vostro-3590:~$ cd Desktop/
knoldus@knoldus-Vostro-3590:~/Desktop$ cd KIP\ DATA/
knoldus@knoldus-Vostro-3590:~/Desktop/KIP DATA$ cd M
Meaven/                      Microservice_Assignment/
knoldus@knoldus-Vostro-3590:~/Desktop/KIP DATA$ cd Meaven/
knoldus@knoldus-Vostro-3590:~/Desktop/KIP DATA/Meaven$ 
```

Solution

Step 3: After that generate a new project by using

mvn archetype:generate



```
knoldus@knoldus-Vostro-3590:~/Desktop/KIP DATA/Meaven/MavenAssignment$ mvn archetype:generate
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by com.google.inject.internal.cglib.core.$ReflectUtils$1 (file:/usr/share/maven/lib/guice.ja
nt,java.security.ProtectionDomain)
WARNING: Please consider reporting this to the maintainers of com.google.inject.internal.cglib.core.$ReflectUtils$1
WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations
WARNING: All illegal access operations will be denied in a future release
[INFO] Scanning for projects...
[INFO]
[INFO] ------------------< org.apache.maven:standalone-pom >-------------------
[INFO] Building Maven Stub Project (No POM) 1
[INFO] --------------------------------[ pom ]---------------------------------
[INFO]
[INFO] >>> maven-archetype-plugin:3.2.1:generate (default-cli) > generate-sources @ standalone-pom >>>
[INFO]
[INFO] <<< maven-archetype-plugin:3.2.1:generate (default-cli) < generate-sources @ standalone-pom <<<
[INFO]
[INFO]
[INFO] --- maven-archetype-plugin:3.2.1:generate (default-cli) @ standalone-pom ---
[INFO] Generating project in Interactive mode
[INFO] No archetype defined. Using maven-archetype-quickstart (org.apache.maven.archetypes:maven-archetype-quickstart:1.0)
Choose archetype:
1: remote -> am.ik.archetype:elm-spring-boot-blank-archetype (Blank multi project for Spring Boot + Elm)
2: remote -> am.ik.archetype:graalvm-blank-archetype (Blank project for GraalVM)
```

Solution

Step 4: Then enter the version of POM by default is **2007.**

Step 5: After that select the version of maven-archetype from list. **Select 8**.

Step 6: Now enter the gropuID it must related to your organisation.

com.organisation **Example:** com.knoldus

Step 7: Now Enter the **artifactId**. It means it reflect about your project.

stringmanipulation

Step 8: Now enter the version name on which you are currently working

1.0-SNAPSHOT

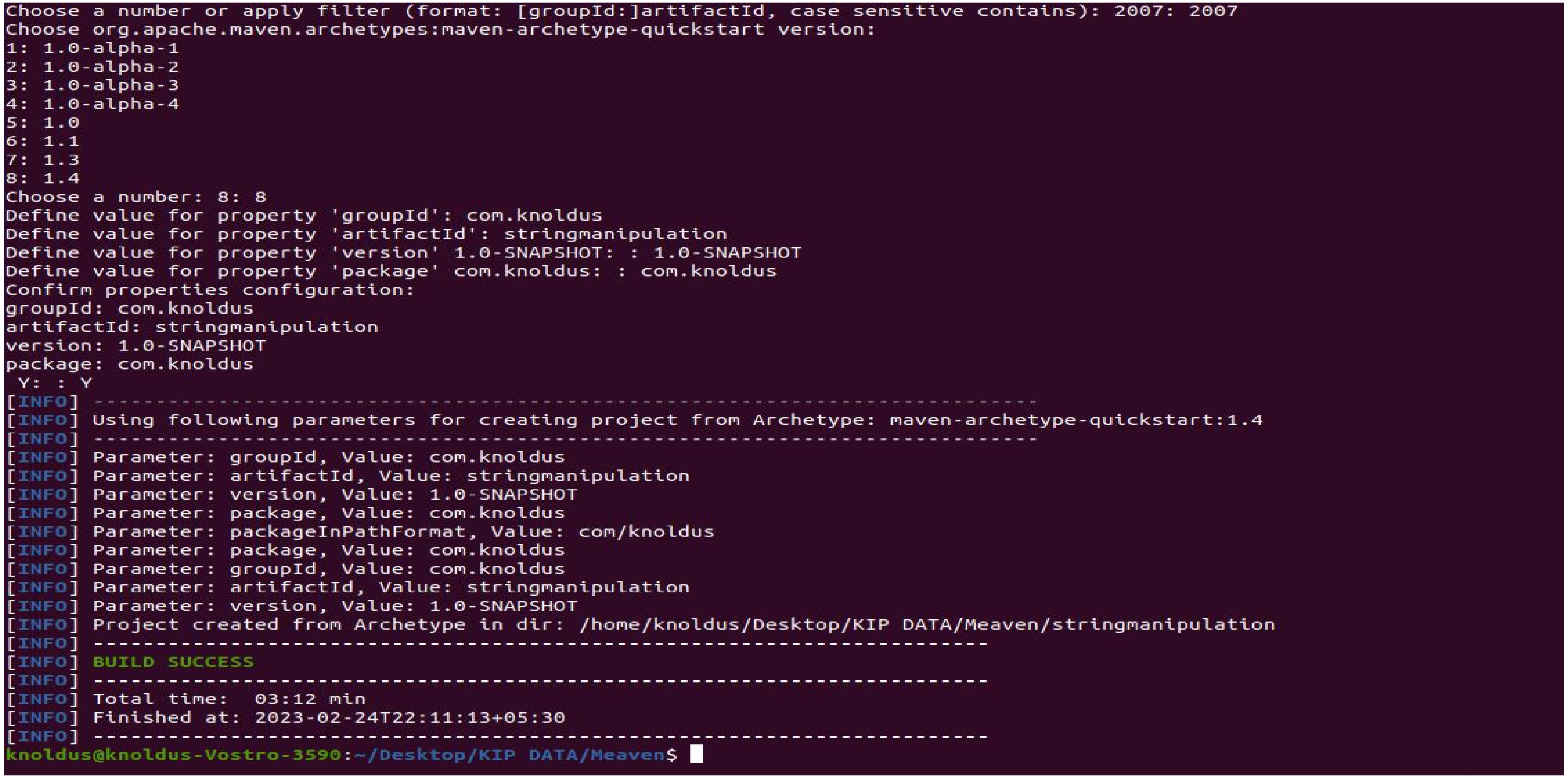
Step 9: After that enter the **package name**

com.knoldus

Step 10: Now Enter **Y** to conform all the data that you entered and your project build succesfully.

Screenshot Attached in next Slide

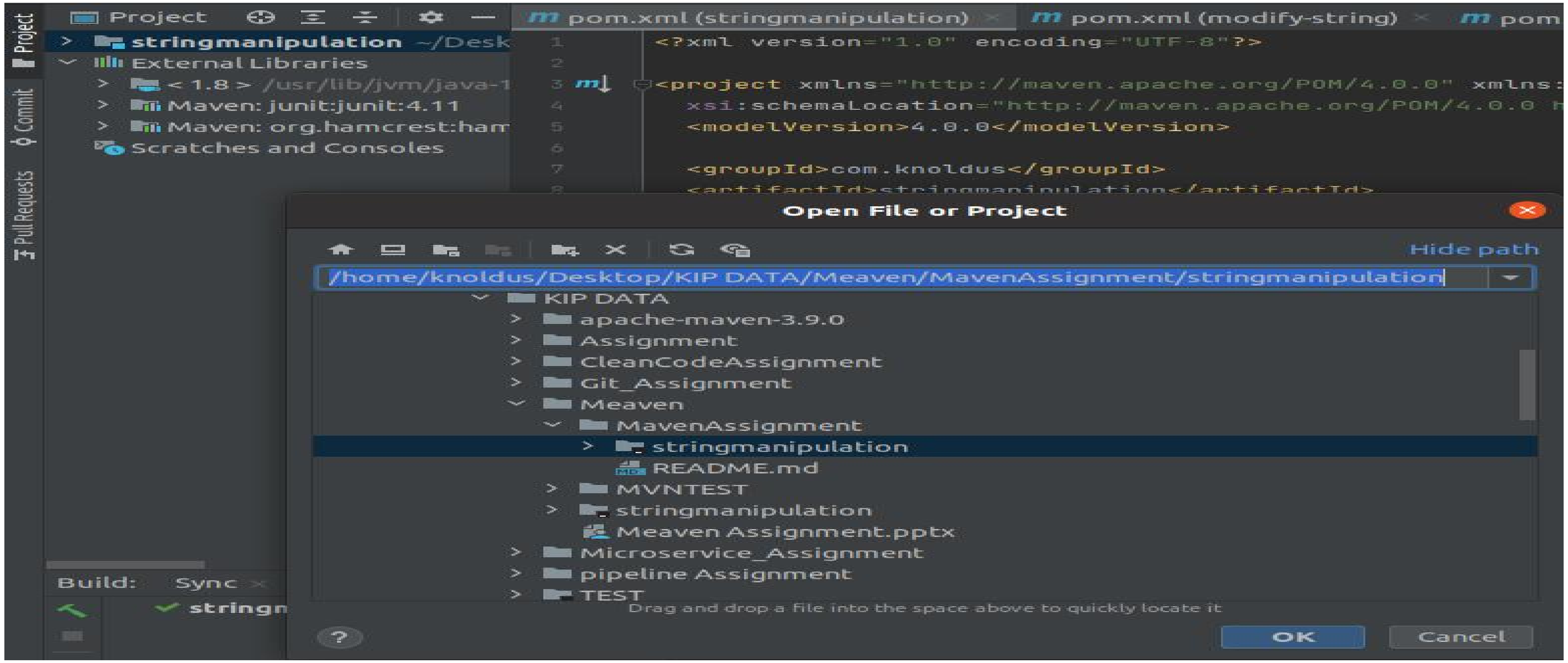
Solution



```
Choose a number or apply filter (format: [groupId:]artifactId, case sensitive contains): 2007: 2007
Choose org.apache.maven.archetypes:maven-archetype-quickstart version:
1: 1.0-alpha-1
2: 1.0-alpha-2
3: 1.0-alpha-3
4: 1.0-alpha-4
5: 1.0
6: 1.1
7: 1.3
8: 1.4
Choose a number: 8: 8
Define value for property 'groupId': com.knoldus
Define value for property 'artifactId': stringmanipulation
Define value for property 'version' 1.0-SNAPSHOT: : 1.0-SNAPSHOT
Define value for property 'package' com.knoldus: : com.knoldus
Confirm properties configuration:
groupId: com.knoldus
artifactId: stringmanipulation
version: 1.0-SNAPSHOT
package: com.knoldus
 Y: : Y
[INFO] ----------------------------------------------------------------------------
[INFO] Using following parameters for creating project from Archetype: maven-archetype-quickstart:1.4
[INFO] ----------------------------------------------------------------------------
[INFO] Parameter: groupId, Value: com.knoldus
[INFO] Parameter: artifactId, Value: stringmanipulation
[INFO] Parameter: version, Value: 1.0-SNAPSHOT
[INFO] Parameter: package, Value: com.knoldus
[INFO] Parameter: packageInPathFormat, Value: com/knoldus
[INFO] Parameter: package, Value: com.knoldus
[INFO] Parameter: groupId, Value: com.knoldus
[INFO] Parameter: artifactId, Value: stringmanipulation
[INFO] Parameter: version, Value: 1.0-SNAPSHOT
[INFO] Project created from Archetype in dir: /home/knoldus/Desktop/KIP DATA/Meaven/stringmanipulation
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  03:12 min
[INFO] Finished at: 2023-02-24T22:11:13+05:30
[INFO] ------------------------------------------------------------------------
knoldus@knoldus-Vostro-3590:~/Desktop/KIP DATA/Meaven$
```

Solution

Step 11: Now open the INtelliJ and go to **folder stringmanipulation** and **click Open** and select the project name and it is available inside the selected directory by you in **STEP-2.** It load the project stringmanipulation into your IntelliJ IDE.



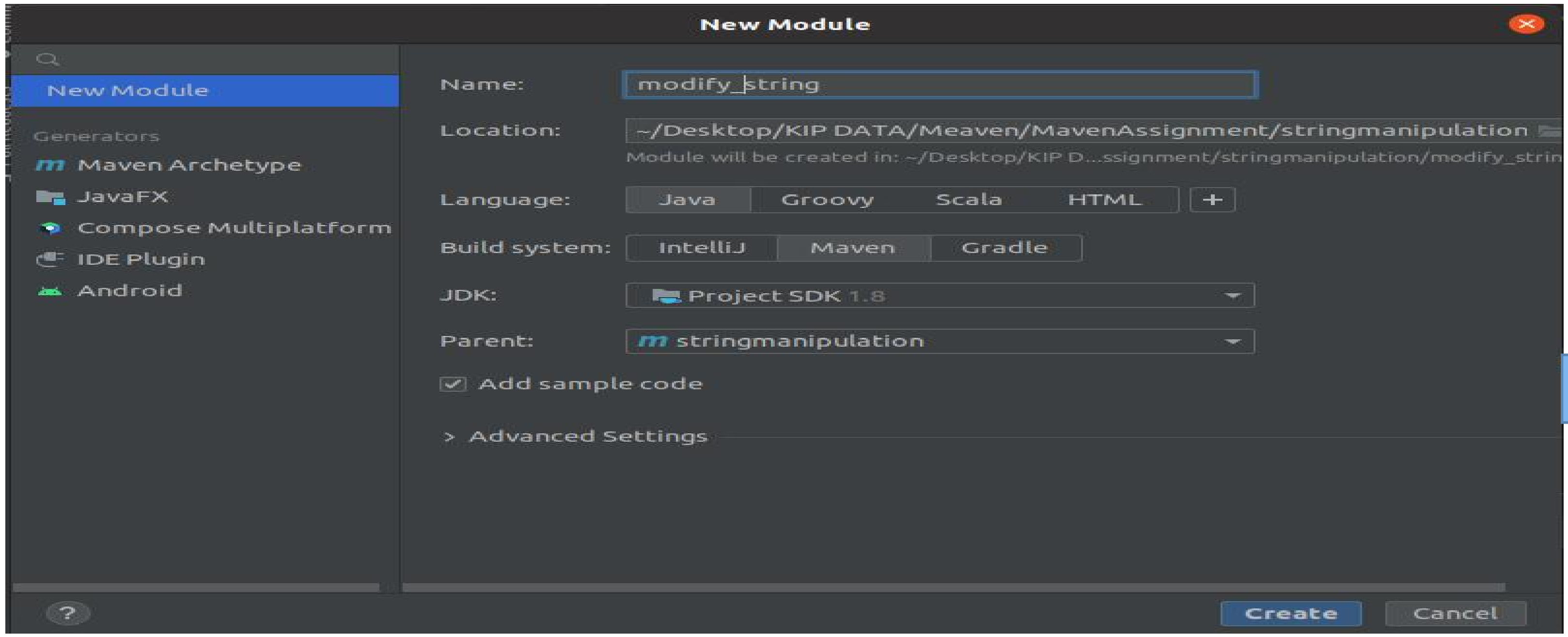
```
<?xml version="1.0" encoding="UTF-8"?>

<project xmlns="http://maven.apache.org/POM/4.0.0" xmlns:
  xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 h
  <modelVersion>4.0.0</modelVersion>

  <groupId>com.knoldus</groupId>
  <artifactId>stringmanipulation</artifactId>
```

Solution

Step 12: Right click on project name and click new and click on module.

Step 13: Now enter the **module name** and in language select java and in build system Maven. Click on Create. It will create the module. **Module** name should be **modify-string**.

Step 14: Again right click on modify-string and create two module **string-api and string impl**. **Follow** Step 12 & Step 13 to create module.



New Module

Generators: Maven Archetype, JavaFX, Compose Multiplatform, IDE Plugin, Android

Name: modify_string

Location: ~/Desktop/KIP DATA/Meaven/MavenAssignment/stringmanipulation

Module will be created in: ~/Desktop/KIP D...ssignment/stringmanipulation/modify_strin

Language: [✓ Java] Groovy Scala HTML

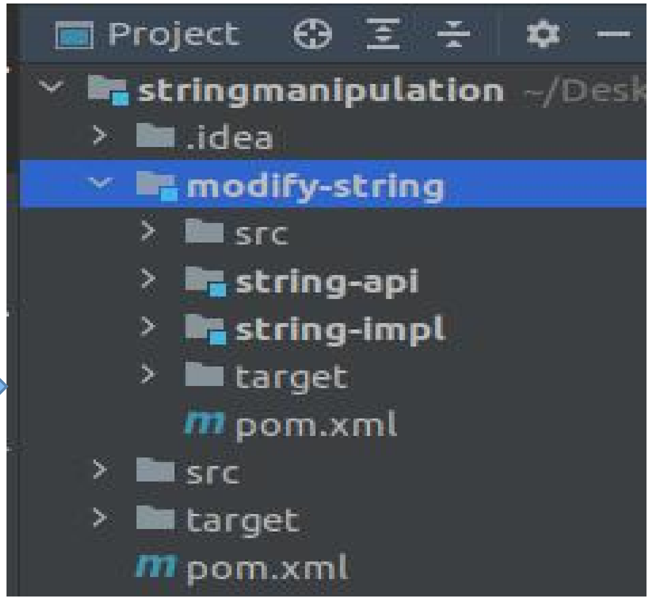
Build system: IntelliJ [✓ Maven] Gradle

JDK: Project SDK 1.8

Parent: stringmanipulation

[✓] Add sample code

> Advanced Settings



```
Project
stringmanipulation ~/Desk
  .idea
  modify-string
    src
    string-api
    string-impl
    target
    pom.xml
  src
  target
  pom.xml
```

Solution

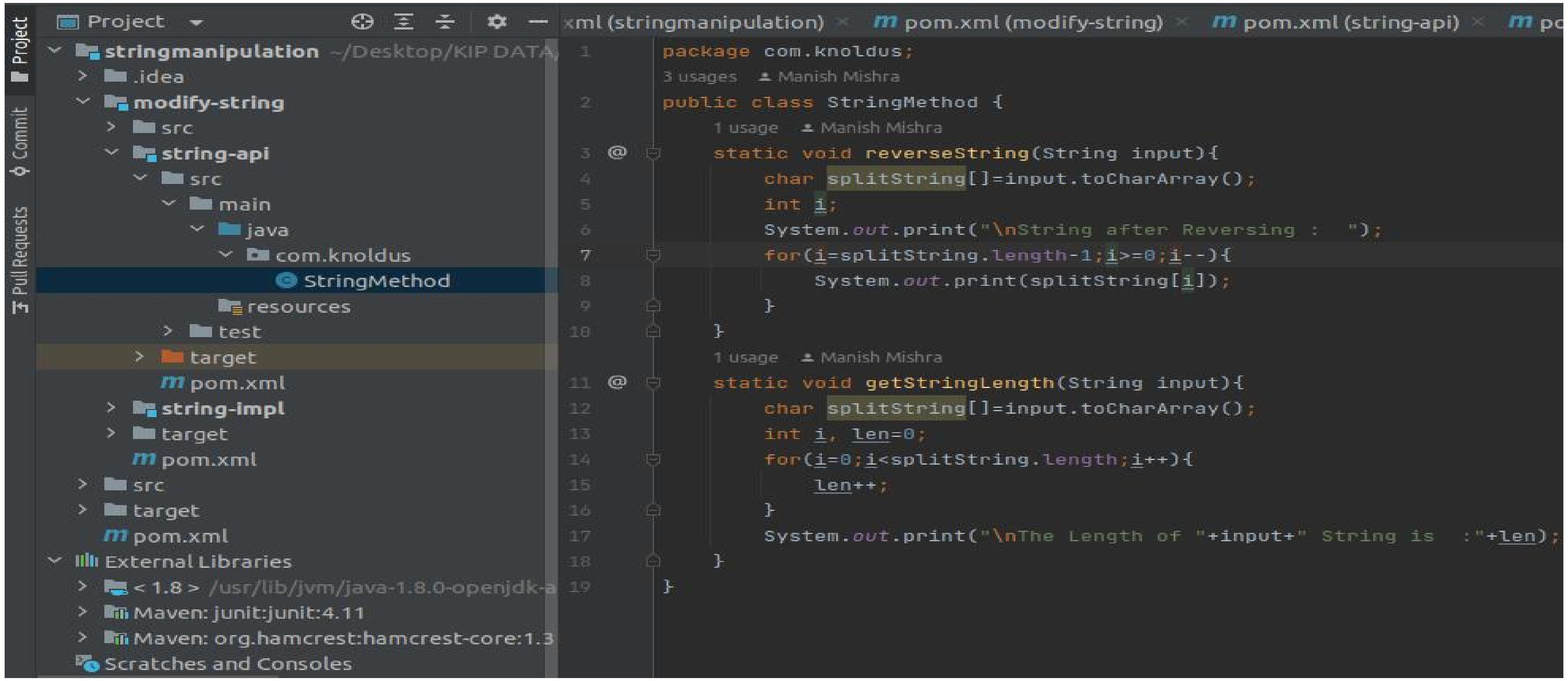
Step 15: Now move to java class of string-api and name the java class to StringMethod.

string-api->src->main->java-com.knoldus->StringMethod.java

Step 16: Write to method inside the StringMethod class with its body. To write the Code.

1.reverseString(String input)

2.getStringLength(String input)



```
stringmanipulation ~/Desktop/KIP DATA/
  .idea
  modify-string
    src
    string-api
      src
        main
          java
            com.knoldus
              StringMethod
          resources
        test
      target
      pom.xml
    string-impl
    target
    pom.xml
  src
  target
  pom.xml
External Libraries
  < 1.8 > /usr/lib/jvm/java-1.8.0-openjdk-a
  Maven: junit:junit:4.11
  Maven: org.hamcrest:hamcrest-core:1.3
Scratches and Consoles
```

```java
package com.knoldus;
3 usages  Manish Mishra
public class StringMethod {
    1 usage  Manish Mishra
    static void reverseString(String input){
        char splitString[]=input.toCharArray();
        int i;
        System.out.print("\nString after Reversing :  ");
        for(i=splitString.length-1;i>=0;i--){
            System.out.print(splitString[i]);
        }
    }
    1 usage  Manish Mishra
    static void getStringLength(String input){
        char splitString[]=input.toCharArray();
        int i, len=0;
        for(i=0;i<splitString.length;i++){
            len++;
        }
        System.out.print("\nThe Length of "+input+" String is  :"+len);
    }
}
```

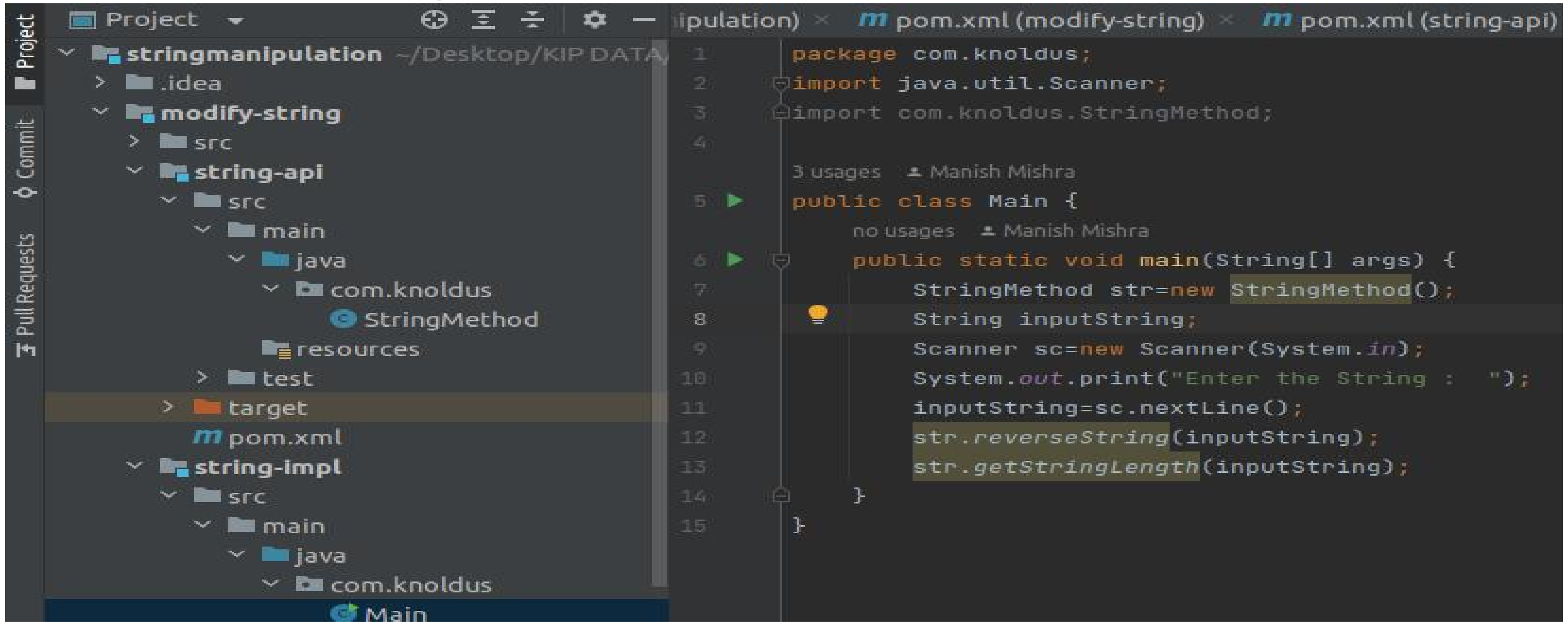
Solution

Step 17: Now move to string-impl module and no need to change the class name. It is considered as Main Class.

string-impl->src->main->java->com.knoldus->Main.java

Step 18: In Main.java class import the package util and import the StringMethod class into Main.java

import com.knoldus.StringMethod

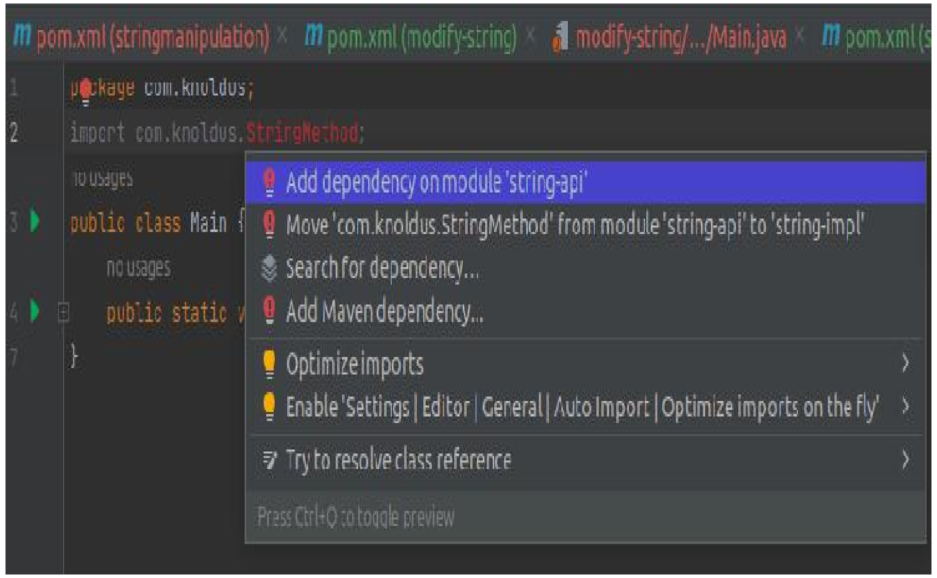


```
package com.knoldus;
import java.util.Scanner;
import com.knoldus.StringMethod;

3 usages  Manish Mishra
public class Main {
    no usages  Manish Mishra
    public static void main(String[] args) {
        StringMethod str=new StringMethod();
        String inputString;
        Scanner sc=new Scanner(System.in);
        System.out.print("Enter the String :  ");
        inputString=sc.nextLine();
        str.reverseString(inputString);
        str.getStringLength(inputString);
    }
}
```

Solution

Step 19: Now **some error** occured you have to **click on import section** of StringMethod and click **Alt+Enter.** It show some option from that option select the **Add dependency of string-api** module inside the string-impl and it will automatically add it inside it's pom.xml file.

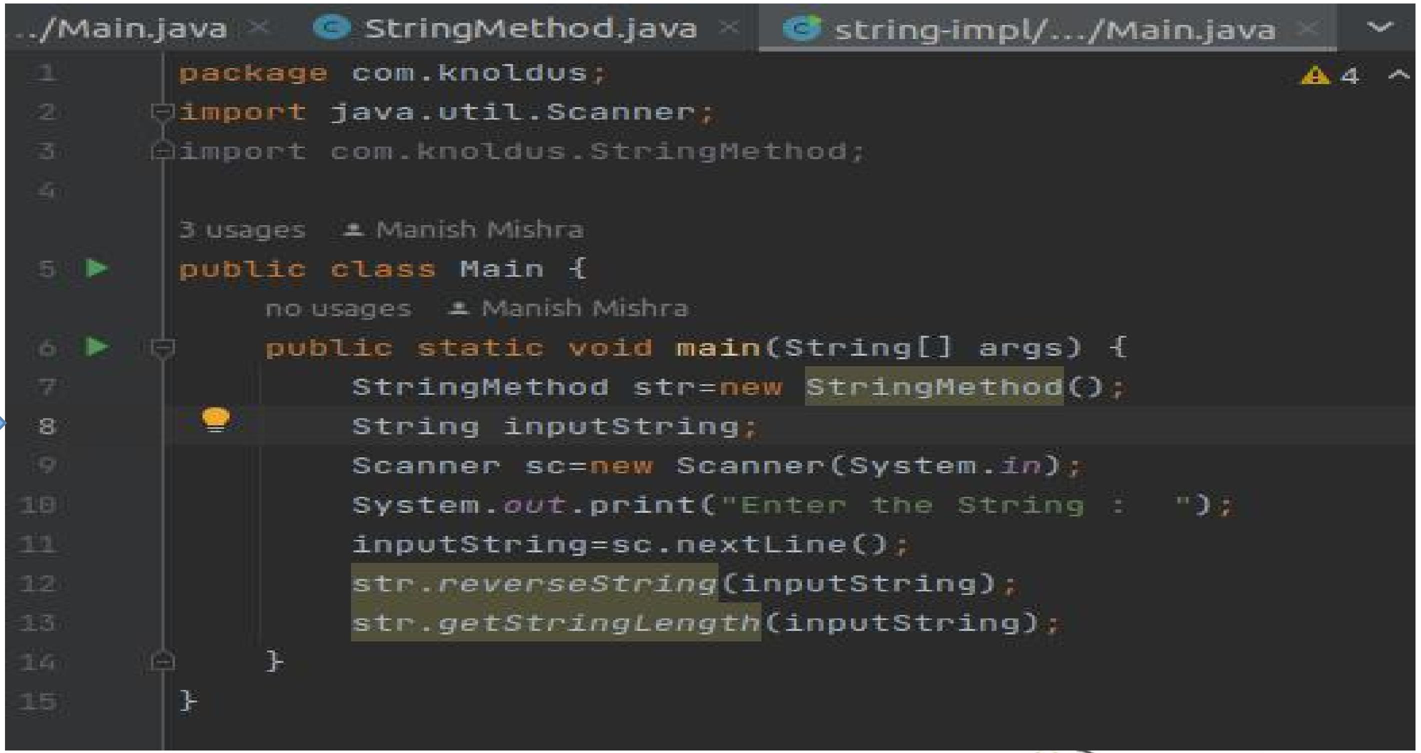
Step 20: Now inside the Main.java class create an object of StringMethod and take input from user and pass that input to method call.



```
package com.knoldus;
import com.knoldus.StringMethod;
no usages
public class Main {
    no usages
    public static v
}
```

- Add dependency on module 'string-api'
- Move 'com.knoldus.StringMethod' from module 'string-api' to 'string-impl'
- Search for dependency...
- Add Maven dependency...
- Optimize imports
- Enable 'Settings | Editor | General | Auto Import | Optimize imports on the fly'
- Try to resolve class reference

Press Ctrl+Q to toggle preview



```
package com.knoldus;
import java.util.Scanner;
import com.knoldus.StringMethod;

3 usages  Manish Mishra
public class Main {
    no usages  Manish Mishra
    public static void main(String[] args) {
        StringMethod str=new StringMethod();
        String inputString;
        Scanner sc=new Scanner(System.in);
        System.out.print("Enter the String :  ");
        inputString=sc.nextLine();
        str.reverseString(inputString);
        str.getStringLength(inputString);
    }
}
```

Solution

Step 21: Now add the plugins to the parent pom.xml of stringmanipulation. To add plugin search on website for the plugin and copy the plugin code and paste it to pom.xml file.

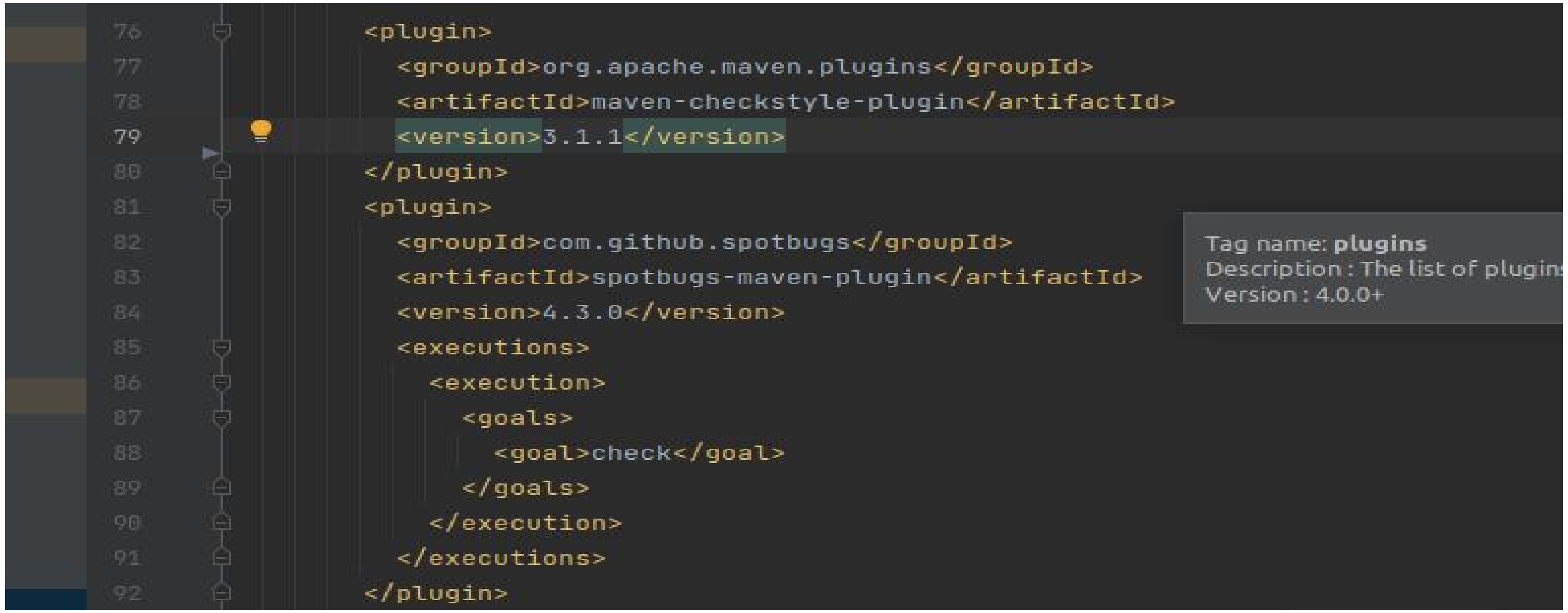
The plugin that should be added are:

maven-checkstyle-plugin

spotbugs-maven-plugin

maven-surefire-plugin

exec-maven-plugin

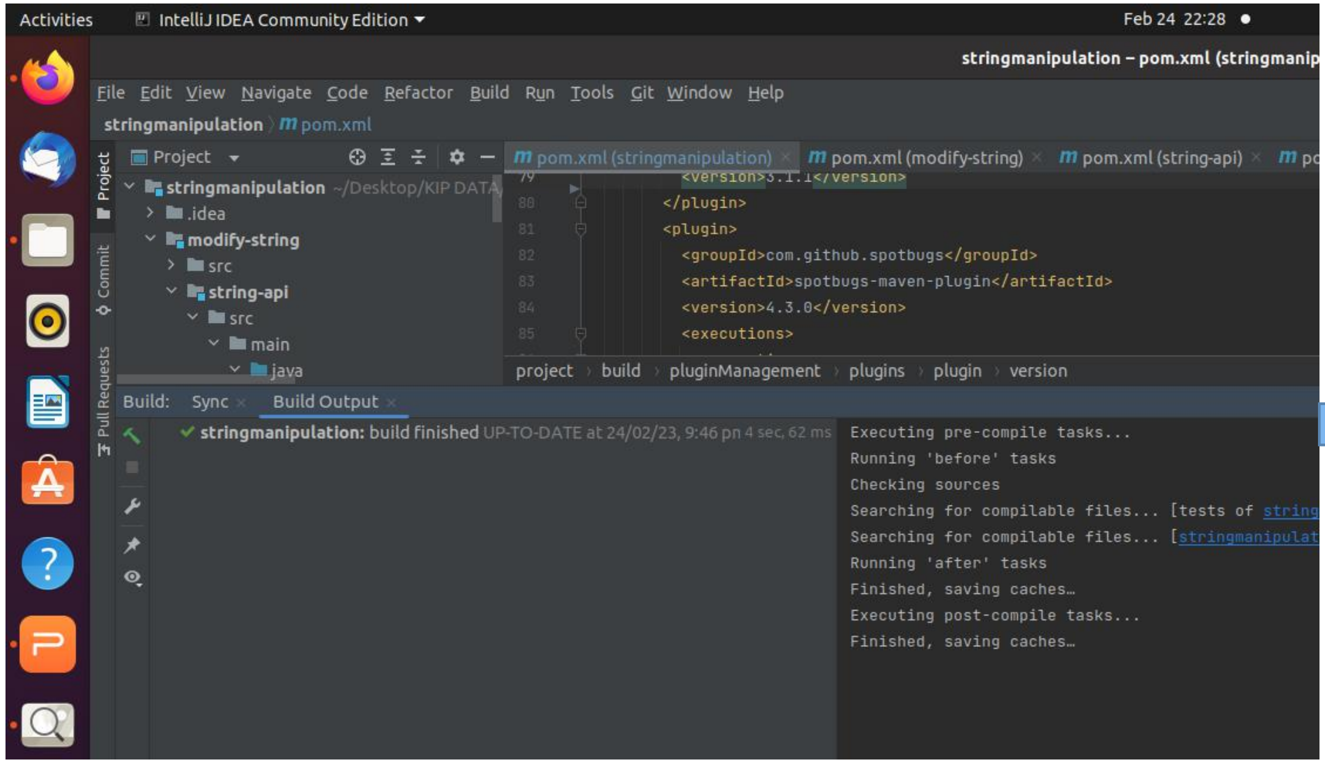


```
<plugin>
  <groupId>org.apache.maven.plugins</groupId>
  <artifactId>maven-checkstyle-plugin</artifactId>
  <version>3.1.1</version>
</plugin>
<plugin>
  <groupId>com.github.spotbugs</groupId>
  <artifactId>spotbugs-maven-plugin</artifactId>
  <version>4.3.0</version>
  <executions>
    <execution>
      <goals>
        <goal>check</goal>
      </goals>
    </execution>
  </executions>
</plugin>
```

Tag name: **plugins**
Description : The list of plugin
Version : 4.0.0+

Solution

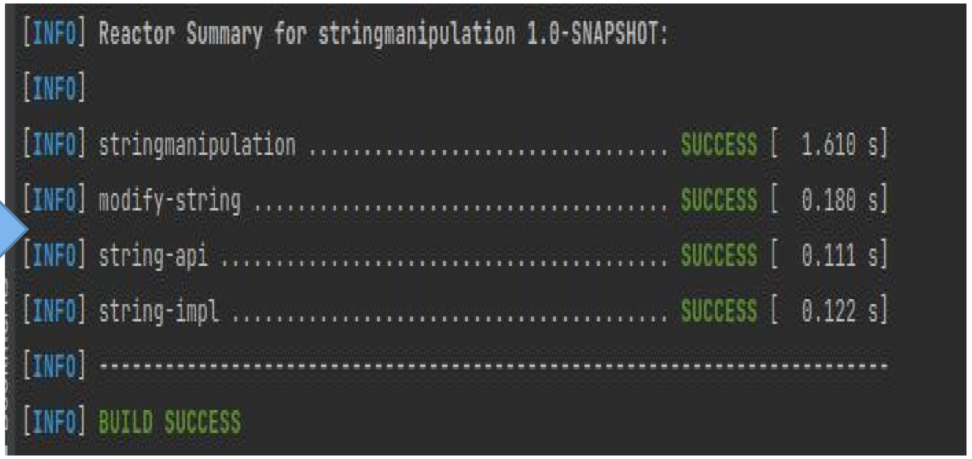
Step 22: Now on the Top bar click on Build then click Build Project. It took some time to building the project.


Activities
IntelliJ IDEA Community Edition
Feb 24 22:28
stringmanipulation – pom.xml (stringmanip
File Edit View Navigate Code Refactor Build Run Tools Git Window Help
stringmanipulation 〉 pom.xml
Project
pom.xml (stringmanipulation)
pom.xml (modify-string)
pom.xml (string-api)
stringmanipulation ~/Desktop/KIP DATA
.idea
modify-string
src
string-api
src
main
java
project › build › pluginManagement › plugins › plugin › version
Build: Sync Build Output

```
        <version>3.1.1</version>
      </plugin>
      <plugin>
        <groupId>com.github.spotbugs</groupId>
        <artifactId>spotbugs-maven-plugin</artifactId>
        <version>4.3.0</version>
        <executions>
```

```
✓ stringmanipulation: build finished UP-TO-DATE at 24/02/23, 9:46 pn 4 sec, 62 ms

Executing pre-compile tasks...
Running 'before' tasks
Checking sources
Searching for compilable files... [tests of string
Searching for compilable files... [stringmanipulat
Running 'after' tasks
Finished, saving caches…
Executing post-compile tasks...
Finished, saving caches…
```

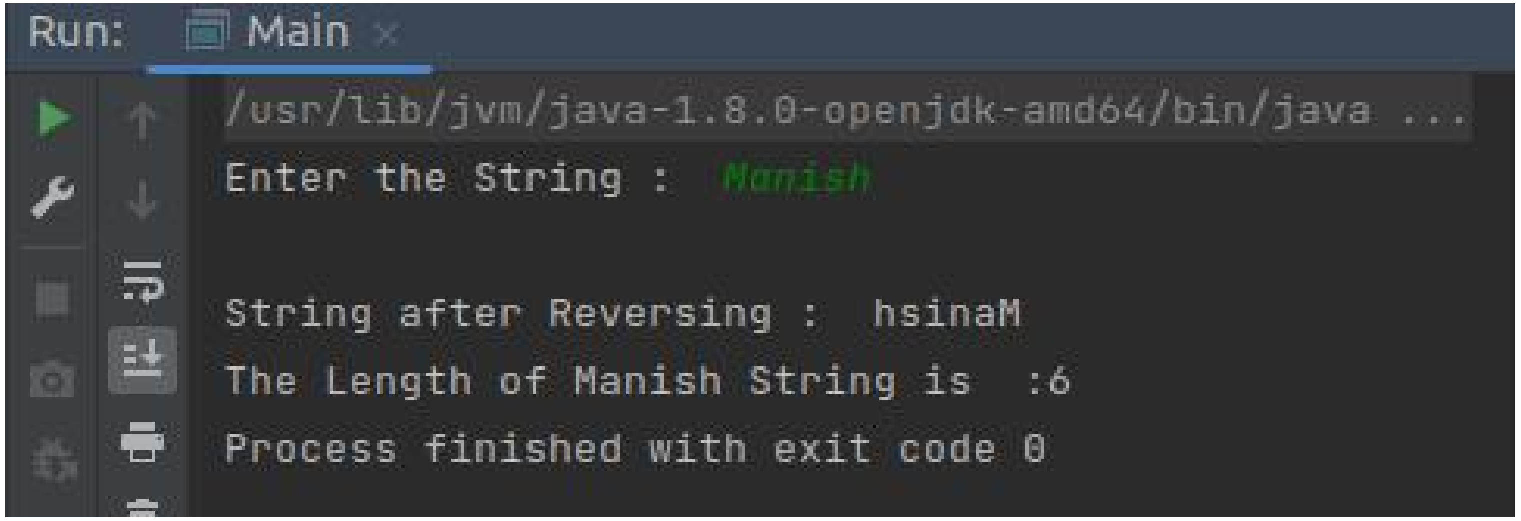
mvn checkstyle:checkstyle



```
[INFO] Reactor Summary for stringmanipulation 1.0-SNAPSHOT:
[INFO]
[INFO] stringmanipulation ................................ SUCCESS [  1.610 s]
[INFO] modify-string ..................................... SUCCESS [  0.180 s]
[INFO] string-api ........................................ SUCCESS [  0.111 s]
[INFO] string-impl ....................................... SUCCESS [  0.122 s]
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
```

Solution

Step 23: Now **run the Main.java** class and **check the output.**



```
/usr/lib/jvm/java-1.8.0-openjdk-amd64/bin/java ...
Enter the String :  Manish

String after Reversing :  hsinaM
The Length of Manish String is  :6
Process finished with exit code 0
```

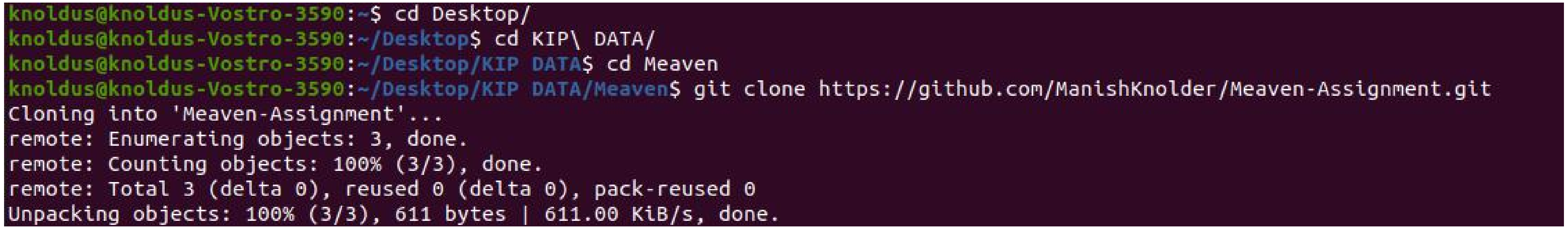
Solution(TO PUSH ON GIT)

To add in git hub

Step 1: Login to Github on search engine and **create a repository of name Maven**.

Step 2: Open the terminal and select the directory and clone the repository into your local system.

Step 3: Move inside the repository directory and paste the Folder of Project stringmanipulation(without using terminal)

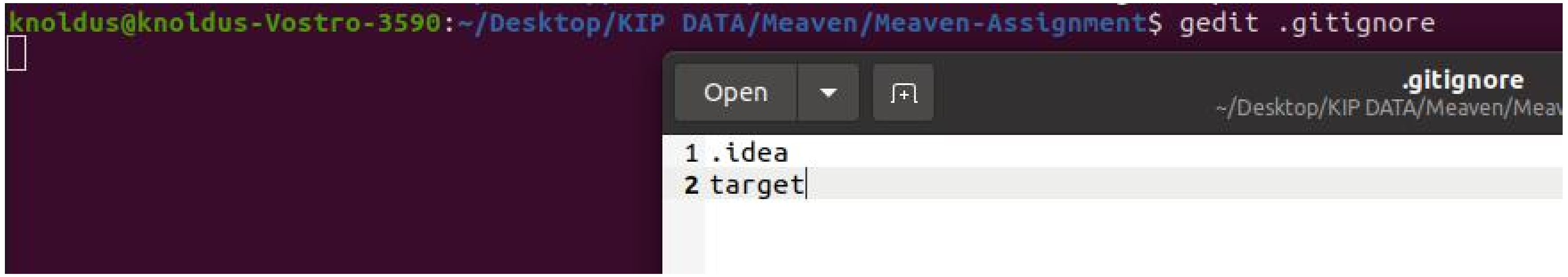


```
knoldus@knoldus-Vostro-3590:~$ cd Desktop/
knoldus@knoldus-Vostro-3590:~/Desktop$ cd KIP\ DATA/
knoldus@knoldus-Vostro-3590:~/Desktop/KIP DATA$ cd Meaven
knoldus@knoldus-Vostro-3590:~/Desktop/KIP DATA/Meaven$ git clone https://github.com/ManishKnolder/Meaven-Assignment.git
Cloning into 'Meaven-Assignment'...
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
Unpacking objects: 100% (3/3), 611 bytes | 611.00 KiB/s, done.
```

Solution

Step 4: Now move to terminal and create .gitignore file by using following command

gedit .gitignore (Now an editor open enter the file name that you want to ignore or not want to push it on remote repository such as **.idea,target)**



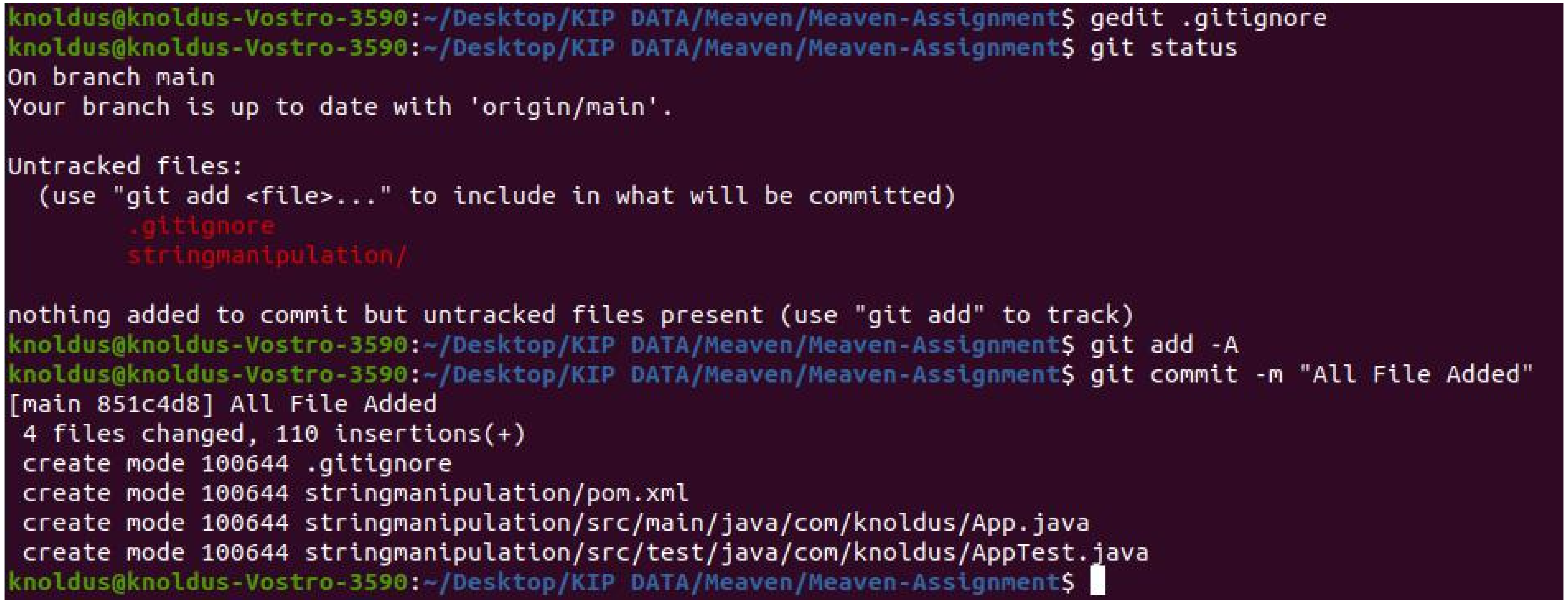
```
knoldus@knoldus-Vostro-3590:~/Desktop/KIP DATA/Meaven/Meaven-Assignment$ gedit .gitignore
```

```
.idea
target
```

Solution

Step 5: Now you have to add .gitignore and the folder you move to repository in Step 3 by using command **git add -A .**

Step 6: Now commit with some meaningful message **git commit -m “Commit message”**



```
knoldus@knoldus-Vostro-3590:~/Desktop/KIP DATA/Meaven/Meaven-Assignment$ gedit .gitignore
knoldus@knoldus-Vostro-3590:~/Desktop/KIP DATA/Meaven/Meaven-Assignment$ git status
On branch main
Your branch is up to date with 'origin/main'.

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        .gitignore
        stringmanipulation/

nothing added to commit but untracked files present (use "git add" to track)
knoldus@knoldus-Vostro-3590:~/Desktop/KIP DATA/Meaven/Meaven-Assignment$ git add -A
knoldus@knoldus-Vostro-3590:~/Desktop/KIP DATA/Meaven/Meaven-Assignment$ git commit -m "All File Added"
[main 851c4d8] All File Added
 4 files changed, 110 insertions(+)
 create mode 100644 .gitignore
 create mode 100644 stringmanipulation/pom.xml
 create mode 100644 stringmanipulation/src/main/java/com/knoldus/App.java
 create mode 100644 stringmanipulation/src/test/java/com/knoldus/AppTest.java
knoldus@knoldus-Vostro-3590:~/Desktop/KIP DATA/Meaven/Meaven-Assignment$ 
```

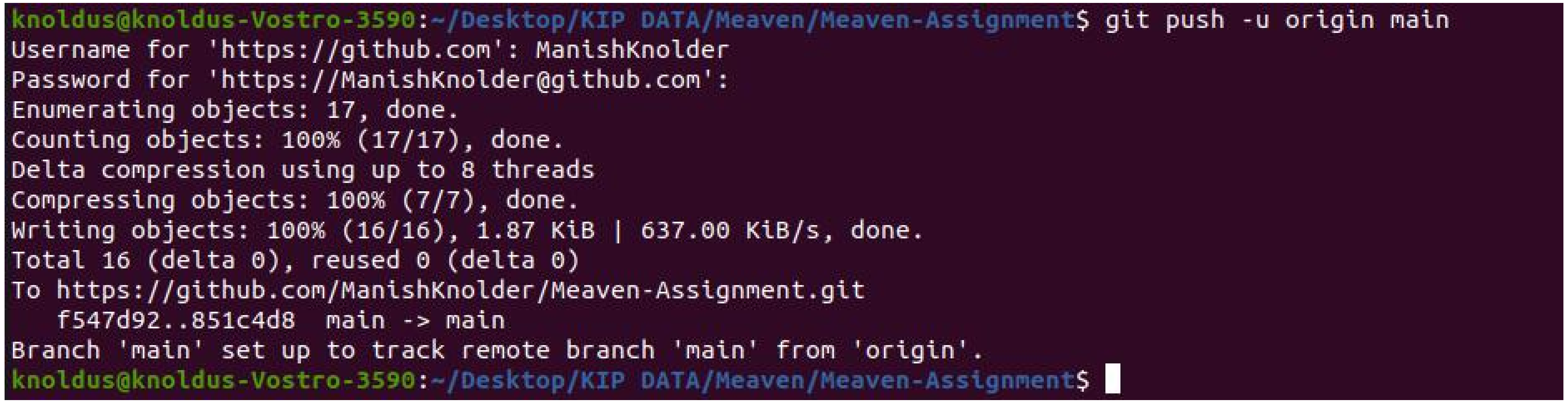
Solution

Step 7: After that push the file to remote repository by using command

git push -u origin branch-name.

Enter the username and password after that it will push your folder to your remote repository.

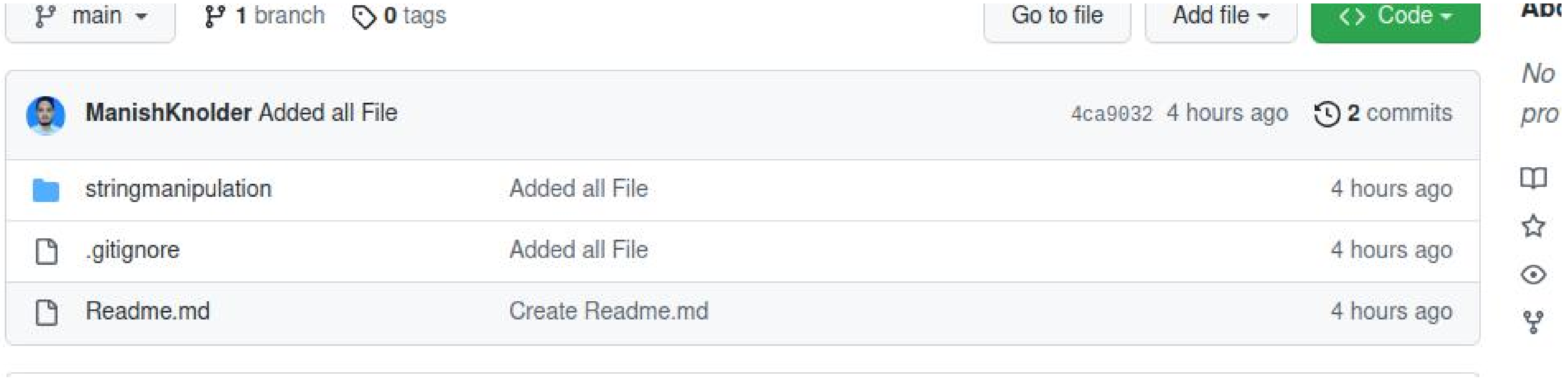
Step 8: You can go to github on browser and check it inside the remote repository



```
knoldus@knoldus-Vostro-3590:~/Desktop/KIP DATA/Meaven/Meaven-Assignment$ git push -u origin main
Username for 'https://github.com': ManishKnolder
Password for 'https://ManishKnolder@github.com':
Enumerating objects: 17, done.
Counting objects: 100% (17/17), done.
Delta compression using up to 8 threads
Compressing objects: 100% (7/7), done.
Writing objects: 100% (16/16), 1.87 KiB | 637.00 KiB/s, done.
Total 16 (delta 0), reused 0 (delta 0)
To https://github.com/ManishKnolder/Meaven-Assignment.git
   f547d92..851c4d8  main -> main
Branch 'main' set up to track remote branch 'main' from 'origin'.
knoldus@knoldus-Vostro-3590:~/Desktop/KIP DATA/Meaven/Meaven-Assignment$
```

Solution

Step 9: You can go to github on browser and check it inside the remote repository



main 1 branch 0 tags Go to file Add file Code

ManishKnolder Added all File 4ca9032 4 hours ago 2 commits

stringmanipulation	Added all File	4 hours ago
.gitignore	Added all File	4 hours ago
Readme.md	Create Readme.md	4 hours ago

THANK YOU