



Maven Assignment

By:
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Maven Assignment



Sakshi Mittal • Yesterday (Edited 12:18 AM)

100 points

Due 11:59 PM

Assignment Part - I

Read the question carefully and select the best answer

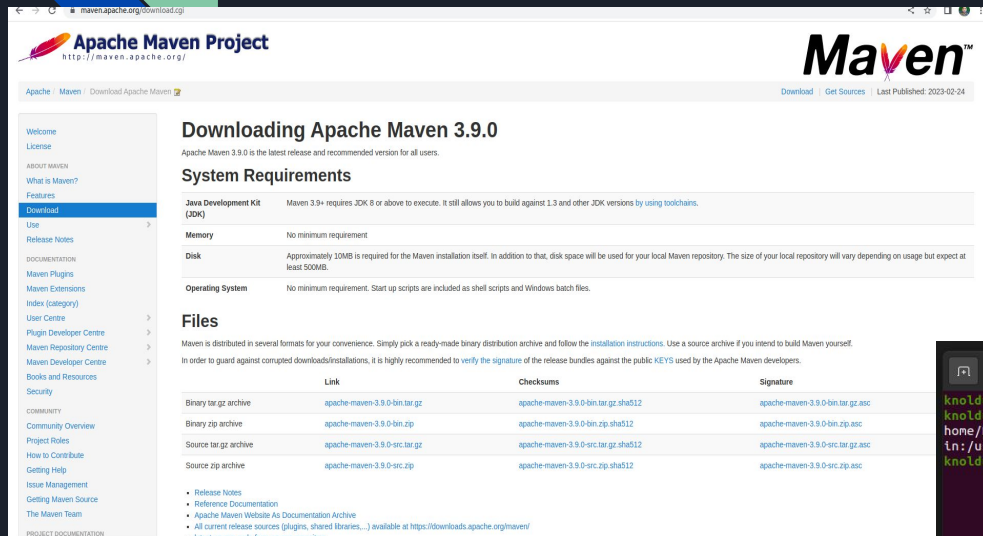
Assignment Part - II

1. Download and install Maven
2. Create a Multi-module project according to the instructions given below:

Instructions -

- 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.

Download and Install Maven



The screenshot shows the Apache Maven Project download page. The page has a header with the Apache Maven Project logo and the URL <http://maven.apache.org/>. Below the header, there is a navigation bar with links for Apache, Maven, and Download Apache Maven. The main content area is titled "Downloading Apache Maven 3.9.0" and includes a sub-header "System Requirements". Below this, there is a table with four rows: Java Development Kit (JDK), Memory, Disk, and Operating System. The table provides details for each requirement. Below the table, there is a section titled "Files" which contains a table with four columns: Link, Checksums, and Signature. The table lists four download options: Binary tar.gz archive, Binary zip archive, Source tar.gz archive, and Source zip archive. Each option provides a direct link, a SHA512 checksum, and a signature file. At the bottom of the page, there is a footer with links for Release Notes, Reference Documentation, Apache Maven Website As Documentation Archive, and All current release sources (plugins, shared libraries, ...) available at <https://downloads.apache.org/maven/>.

Downloading Apache Maven 3.9.0

Apache Maven 3.9.0 is the latest release and recommended version for all users.

System Requirements

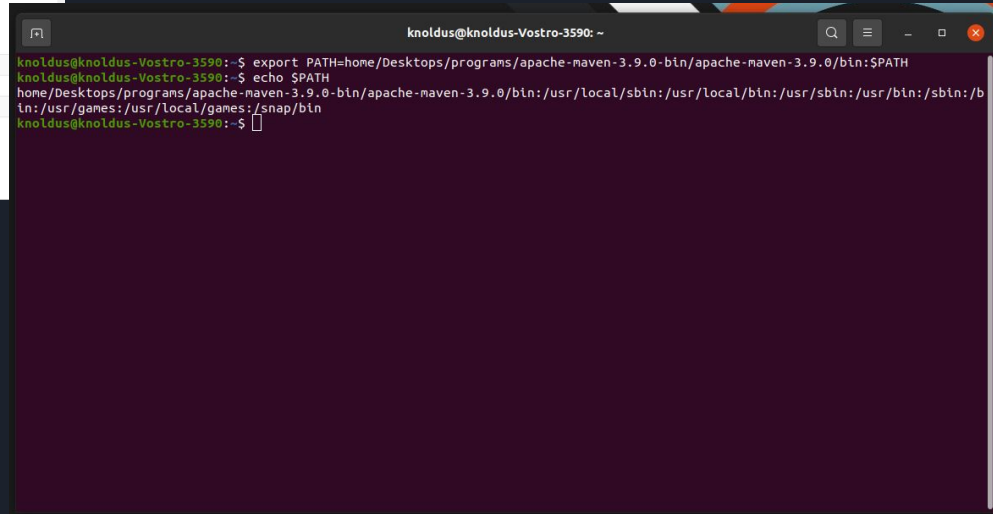
Requirement	Details
Java Development Kit (JDK)	Maven 3.9+ requires JDK 8 or above to execute. It still allows you to build against 1.3 and other JDK versions by using toolchains.
Memory	No minimum requirement
Disk	Approximately 10MB is required for the Maven installation itself. In addition to that, disk space will be used for your local Maven repository. The size of your local repository will vary depending on usage but expect at least 500MB.
Operating System	No minimum requirement. Start up scripts are included as shell scripts and Windows batch files.

Files

Maven is distributed in several formats for your convenience. Simply pick a ready-made binary distribution archive and follow the [installation instructions](#). Use a source archive if you intend to build Maven yourself. In order to guard against corrupted downloads/installations, it is highly recommended to [verify the signature](#) of the release bundles against the public KEYS used by the Apache Maven developers.

	Link	Checksums	Signature
Binary tar.gz archive	apache-maven-3.9.0-bin.tar.gz	apache-maven-3.9.0-bin.tar.gz.sha512	apache-maven-3.9.0-bin.tar.gz.asc
Binary zip archive	apache-maven-3.9.0-bin.zip	apache-maven-3.9.0-bin.zip.sha512	apache-maven-3.9.0-bin.zip.asc
Source tar.gz archive	apache-maven-3.9.0-src.tar.gz	apache-maven-3.9.0-src.tar.gz.sha512	apache-maven-3.9.0-src.tar.gz.asc
Source zip archive	apache-maven-3.9.0-src.zip	apache-maven-3.9.0-src.zip.sha512	apache-maven-3.9.0-src.zip.asc

- Release Notes
- Reference Documentation
- Apache Maven Website As Documentation Archive
- All current release sources (plugins, shared libraries, ...) available at <https://downloads.apache.org/maven/>



The screenshot shows a terminal window with the prompt `knoldus@knoldus-Vostro-3590: ~`. The user has entered the following commands and received the following output:

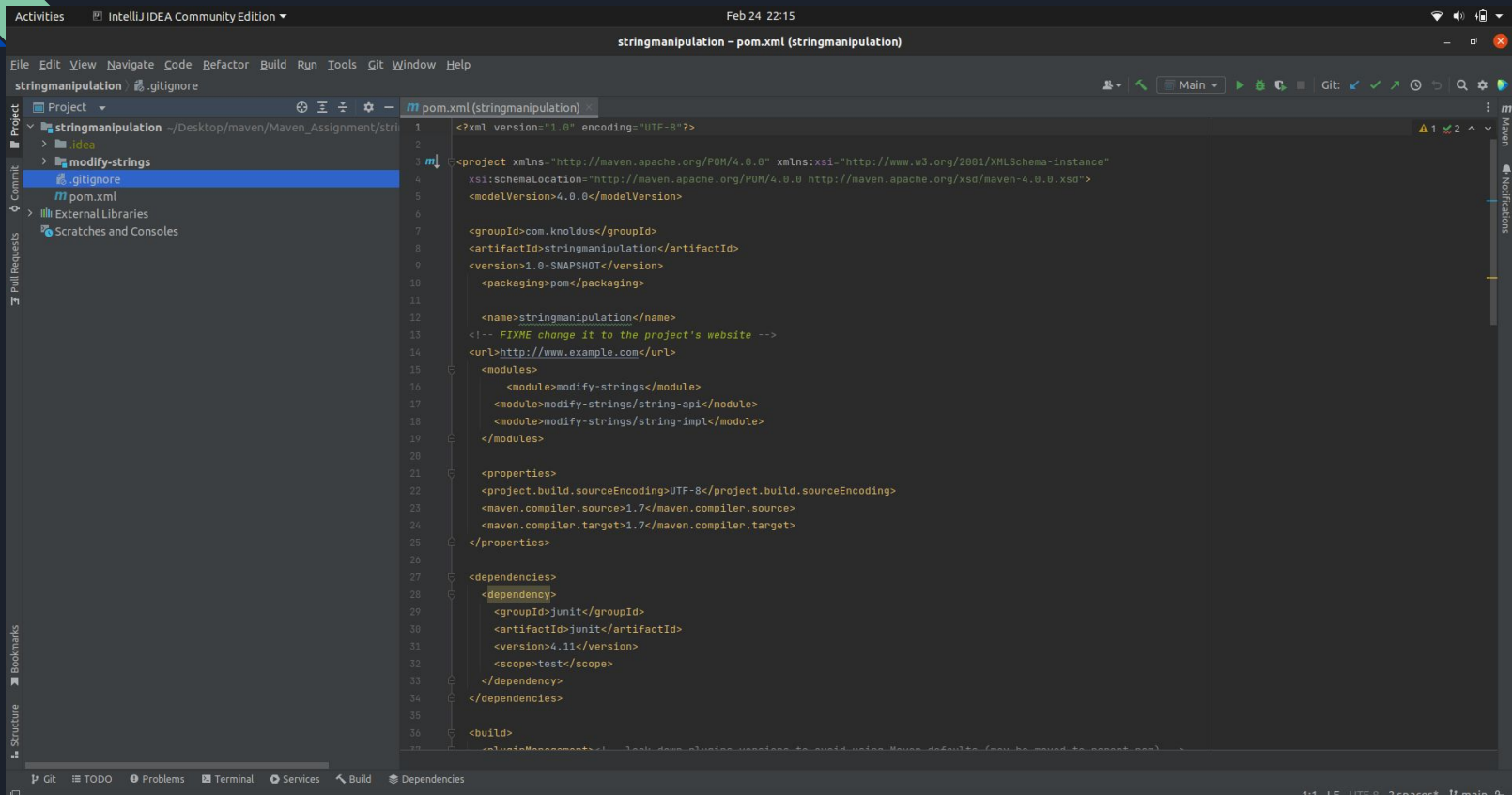
```
knoldus@knoldus-Vostro-3590:~$ export PATH=home/Desktops/programs/apache-maven-3.9.0-bin/apache-maven-3.9.0/bin:$PATH
knoldus@knoldus-Vostro-3590:~$ echo $PATH
home/Desktops/programs/apache-maven-3.9.0-bin/apache-maven-3.9.0/bin:/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/b
tn:/usr/games:/usr/local/games:/snap/bin
knoldus@knoldus-Vostro-3590:~$
```

Building Maven architecture

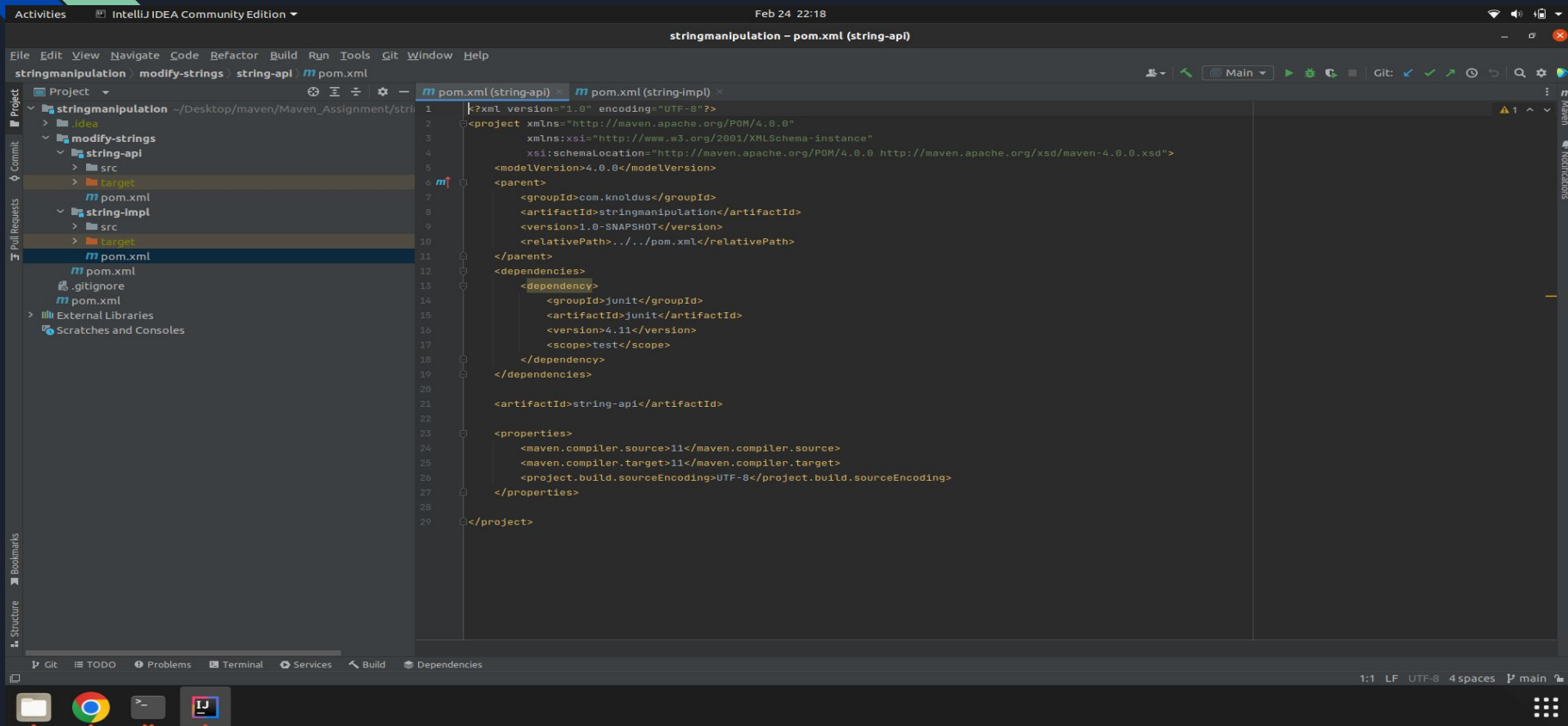
```
knoldus@knoldus-Vostro-3590: ~/Desktop/maven
knoldus@knoldus-Vostro-3590:~$ cd Desktop/
knoldus@knoldus-Vostro-3590:~/Desktop$ mkdir maven
knoldus@knoldus-Vostro-3590:~/Desktop$ cd maven/
knoldus@knoldus-Vostro-3590:~/Desktop/maven$ mvn archetype:generate
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by com.google.inject.internal.cglib.core.$ReflectUtils$1 (file:/usr/share/maven/lib/guice.jar) to method java.lang.ClassLoader.defineClass(java.lang.String,byte[],int,int,java.security.ProtectionDomain)
WARNING: Please consider reporting this to the maintainers of com.google.inject.internal.cglib.core.$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] ----- org.apache.maven:standalone-pom -----
[INFO] Building Maven Stub Project (No POM) 1
[INFO] -----[ pom ]-----
[INFO] >>> maven-archetype-plugin:3.2.1:generate (default-cli) > generate-source
s @ standalone-pom >>>
[INFO] <<< maven-archetype-plugin:3.2.1:generate (default-cli) < generate-source
s @ standalone-pom <<<
```

```
knoldus@knoldus-Vostro-3590: ~/Desktop/maven
[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/maven/stringmanipulation
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 52.016 s
[INFO] Finished at: 2023-02-24T20:03:26+05:30
[INFO] -----
knoldus@knoldus-Vostro-3590:~/Desktop/maven$
```

- 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.

The screenshot displays the IntelliJ IDEA Community Edition interface. The top toolbar shows the 'Main' class is selected. The left sidebar shows the project structure with the following hierarchy:

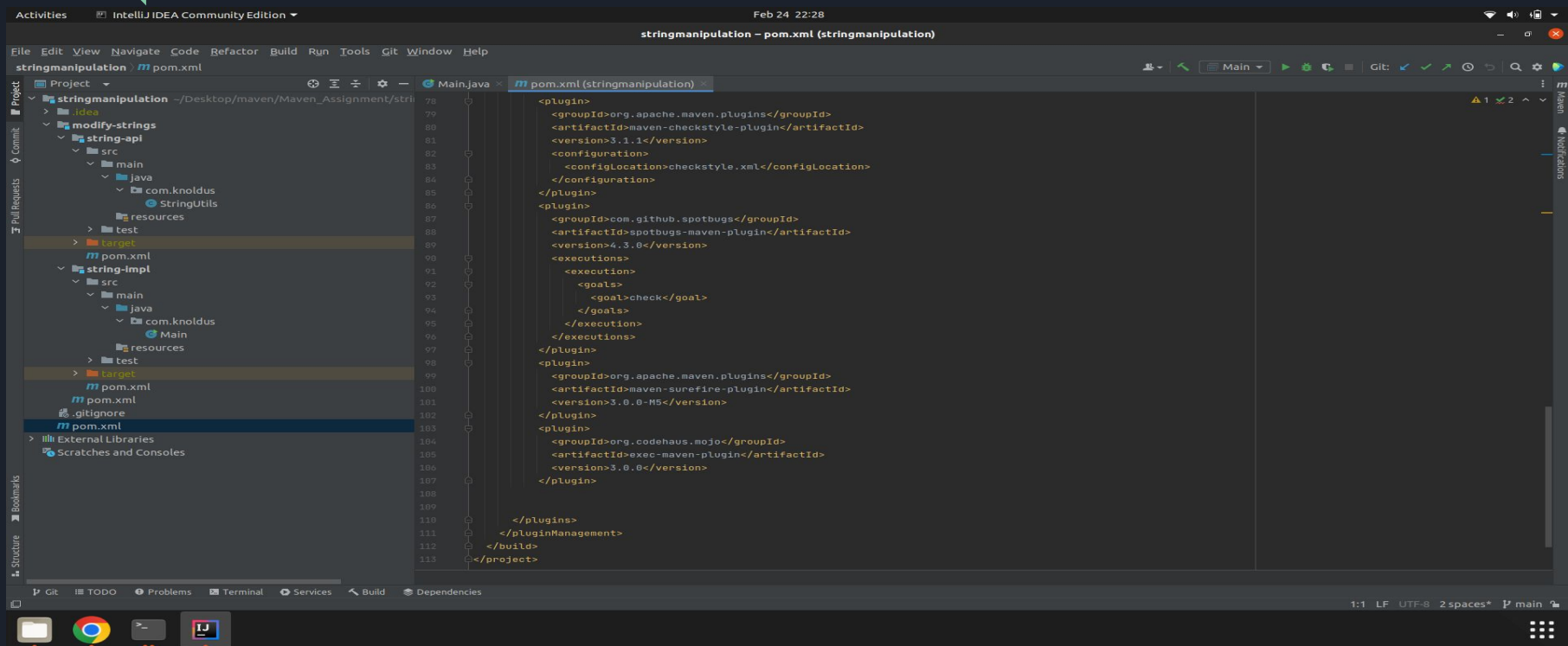
- stringmanipulation
 - idea
 - modify-strings
 - string-api
 - src
 - main
 - java
 - com.knoldus
 - StringUtils
 - test
 - target
 - pom.xml
 - string-impl
 - src
 - main
 - java
 - com.knoldus
 - Main
 - test
 - target
 - pom.xml
 - External Libraries
 - Scratches and Consoles

The main editor window shows the code for `Main.java` in the `string-impl` module. The code is as follows:

```
1 import ...
2
3 no usages 1 Aditya-Singh
4
5 public class Main {
6     no usages 1 Aditya-Singh
7     public static void main(String[] args) {
8         Scanner scanner = new Scanner(System.in);
9
10        System.out.print("Enter a string: ");
11        String str = scanner.nextLine();
12
13        StringUtils stringUtils = new StringUtils();
14        String reversedString = stringUtils.reverseString(str);
15        int stringLength = stringUtils.getStringLength(str);
16
17        System.out.println("Reversed string: " + reversedString);
18        System.out.println("String length: " + stringLength);
19    }
20 }
21
```

The bottom status bar shows the following information: 5:14 LF UTF-8 4spaces P main.

- Mandatory dependencies/plugins that should be in your parent pom:
 - maven-checkstyle-plugin
 - spotbugs-maven-plugin
 - maven-surefire-plugin
 - exec-maven-plugin



IntelliJ IDEA Community Edition

Feb 24 22:28

stringmanipulation - pom.xml (stringmanipulation)

File Edit View Navigate Code Refactor Build Run Tools Git Window Help

stringmanipulation / pom.xml

Project

- stringmanipulation - /Desktop/maven/Maven_Assignment/stringmanipulation
 - .idea
 - modify-strings
 - string-api
 - src
 - main
 - java
 - com.knoldus
 - StringUtils
 - resources
 - test
 - target
 - string-impl
 - src
 - main
 - java
 - com.knoldus
 - Main
 - resources
 - test
 - target
 - pom.xml
 - pom.xml
 - .gitignore
 - pom.xml
- External Libraries
- Scratches and Consoles

Structure

Git TODO Problems Terminal Services Build Dependencies

1:1 LF UTF-8 2 spaces* P main

```
<?xml version="1.0" encoding="UTF-8" ?>
<project xmlns="http://maven.apache.org/POM/4.0.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/xsd/maven-4.0.0.xsd">
    <modelVersion>4.0.0</modelVersion>
    <groupId>com.knoldus</groupId>
    <artifactId>stringmanipulation</artifactId>
    <version>1.0-SNAPSHOT</version>
    <packaging>jar</packaging>
    <name>stringmanipulation</name>
    <description>stringmanipulation</description>
    <url>http://maven.apache.org</url>
    <inceptionYear>2016</inceptionYear>
    <licenses>
        <license>
            <name>The Apache Software License, Version 2.0</name>
            <url>http://www.apache.org/licenses/LICENSE-2.0.txt</url>
        </license>
    </licenses>
    <developers>
        <developer>
            <id>knoldus</id>
            <name>Knoldus</name>
            <email>knoldus@gmail.com</email>
        </developer>
    </developers>
    <dependencies>
        <dependency>
            <groupId>org.apache.commons</groupId>
            <artifactId>commons-lang3</artifactId>
            <version>3.12.0</version>
        </dependency>
    </dependencies>
    <build>
        <plugins>
            <plugin>
                <groupId>org.apache.maven.plugins</groupId>
                <artifactId>maven-checkstyle-plugin</artifactId>
                <version>3.1.1</version>
                <configuration>
                    <configLocation>checkstyle.xml</configLocation>
                </configuration>
            </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>
            <plugin>
                <groupId>org.apache.maven.plugins</groupId>
                <artifactId>maven-surefire-plugin</artifactId>
                <version>3.0.0-M5</version>
            </plugin>
            <plugin>
                <groupId>org.codehaus.mojo</groupId>
                <artifactId>exec-maven-plugin</artifactId>
                <version>3.0.0</version>
            </plugin>
        </plugins>
    </build>
</project>
```

Build Output

The screenshot displays the IntelliJ IDEA Community Edition interface. The top bar shows the date and time as Feb 24 20:41. The title bar indicates the current project is 'stringmanipulation - Main.java [string-impl]'. The main editor window shows the 'Main.java' file with the following code:

```
1 import com.knoldus.StringUtils;
2
3 import java.util.Scanner;
4
5 no usages
6 public class Main {
7     no usages
8     public static void main(String[] args) {
9         Scanner scanner = new Scanner(System.in);
10
11         System.out.print("Enter a string: ");
12         String str = scanner.nextLine();
13
14         StringUtils stringUtils = new StringUtils();
15
16         String reversedString = stringUtils.reverseString(str);
17         int stringLength = stringUtils.getStringLength(str);
18
19         System.out.println("Reversed string: " + reversedString);
20         System.out.println("String length: " + stringLength);
21     }
22 }
```

The left sidebar shows the project structure for 'stringmanipulation' located at '~/Desktop/maven/stringmanipulation'. The structure includes directories for '.idea', 'modify-strings', 'string-api', and 'string-impl'. The 'string-impl' directory is currently selected, showing its 'src' folder with 'main' and 'test' subfolders, each containing 'java' and 'resources' subfolders. The 'Main' class is visible in the 'string-impl/src/main/java/com.knoldus' package.

The bottom panel shows the 'Terminal' output, which displays the following build results:

```
[INFO] stringmanipulation ..... SUCCESS [ 0.165 s]
[INFO] modify-strings ..... SUCCESS [ 0.003 s]
[INFO] string-api ..... SUCCESS [ 0.007 s]
[INFO] string-impl ..... SUCCESS [ 0.003 s]
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 0.288 s
[INFO] Finished at: 2023-02-24T20:37:32+05:30
[INFO] -----
knoldus@knoldus-Vostro-3590:~/Desktop/maven/stringmanipulation$
```

The status bar at the bottom indicates that the build completed successfully in 1 sec, 749 ms (4 minutes ago). The system tray shows the time as 6:29, the encoding as UTF-8, and the cursor position as 4 spaces.

reverseString() and getStringLength() Output

The screenshot displays the IntelliJ IDEA Community Edition interface. The main editor shows the `Main.java` file within the `stringmanipulation` project. The code defines a `Main` class with a `main` method that uses `StringUtils` to reverse a string and calculate its length.

```
1 import java.util.Scanner;
2
3 no usages: Aditya-Singh
4
5 public class Main {
6     no usages: Aditya-Singh
7     public static void main(String[] args) {
8         Scanner scanner = new Scanner(System.in);
9
10        System.out.print("Enter a string: ");
11        String str = scanner.nextLine();
12
13        StringUtils stringUtils = new StringUtils();
14        String reversedString = stringUtils.reverseString(str);
15        int stringLength = stringUtils.getStringLength(str);
16
17        System.out.println("Reversed string: " + reversedString);
18        System.out.println("String length: " + stringLength);
19    }
20 }
21
```

The Run window at the bottom shows the execution of the `Main` class. The output is as follows:

```
Run: Main
/usr/lib/jvm/java-11.0-openjdk-amd64/bin/java -javaagent:/opt/intellij-idea-community/lib/idea_rt.jar=41109:/opt/intellij-idea-community/bin -Dfile.encoding=UTF-8 -classpath /home/knoldus/Desktop/maven/Maven_Assignment/stringmanipulation-1.0-SNAPSHOT.jar: Main
Enter a string: aytda
Reversed string: aytdA
String length: 6
Process finished with exit code 0
```

The status bar at the bottom indicates the file is up-to-date, the editor is in UTF-8 encoding with 4 spaces, and the active file is `main`.

Push project build on Github

```
knoldus@knoldus-Vostro-3590: ~/Desktop/maven/Maven_Assignment
knoldus@knoldus-Vostro-3590:~$ cd Desktop/
knoldus@knoldus-Vostro-3590:~/Desktop$ cd maven/
knoldus@knoldus-Vostro-3590:~/Desktop/maven$ git clone https://github.com/Adii-knolder/Maven_Assignment.git
Cloning into 'Maven_Assignment'...
remote: Enumerating objects: 9, done.
remote: Counting objects: 100% (9/9), done.
remote: Compressing objects: 100% (5/5), done.
remote: Total 9 (delta 1), reused 0 (delta 0), pack-reused 0
Unpacking objects: 100% (9/9), 2.24 KiB | 573.00 KiB/s, done.
knoldus@knoldus-Vostro-3590:~/Desktop/maven$ cd Maven_Assignment/
knoldus@knoldus-Vostro-3590:~/Desktop/maven/Maven_Assignment$ cd stringmanipulation
knoldus@knoldus-Vostro-3590:~/Desktop/maven/Maven_Assignment/stringmanipulation$ gedit .gitignore
knoldus@knoldus-Vostro-3590:~/Desktop/maven/Maven_Assignment/stringmanipulation$ 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)
  ./

nothing added to commit but untracked files present (use "git add" to track)
knoldus@knoldus-Vostro-3590:~/Desktop/maven/Maven_Assignment/stringmanipulation$ git add .
knoldus@knoldus-Vostro-3590:~/Desktop/maven/Maven_Assignment/stringmanipulation$ git status
On branch main
```

```
knoldus@knoldus-Vostro-3590: ~/Desktop/maven/Maven_Assignment
knoldus@knoldus-Vostro-3590:~$ cd Desktop/
knoldus@knoldus-Vostro-3590:~/Desktop$ cd maven/
knoldus@knoldus-Vostro-3590:~/Desktop/maven$ git clone https://github.com/Adii-knolder/Maven_Assignment.git
Cloning into 'Maven_Assignment'...
remote: Enumerating objects: 9, done.
remote: Counting objects: 100% (9/9), done.
remote: Compressing objects: 100% (5/5), done.
remote: Total 9 (delta 1), reused 0 (delta 0), pack-reused 0
Unpacking objects: 100% (9/9), 2.24 KiB | 573.00 KiB/s, done.
knoldus@knoldus-Vostro-3590:~/Desktop/maven$ cd Maven_Assignment/
knoldus@knoldus-Vostro-3590:~/Desktop/maven/Maven_Assignment$ cd stringmanipulation
knoldus@knoldus-Vostro-3590:~/Desktop/maven/Maven_Assignment/stringmanipulation$ gedit .gitignore
knoldus@knoldus-Vostro-3590:~/Desktop/maven/Maven_Assignment/stringmanipulation$ 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)
  ./

nothing added to commit but untracked files present (use "git add" to track)
knoldus@knoldus-Vostro-3590:~/Desktop/maven/Maven_Assignment/stringmanipulation$ git add .
knoldus@knoldus-Vostro-3590:~/Desktop/maven/Maven_Assignment/stringmanipulation$ git status
On branch main
```



GitHub Repository Link

https://github.com/Adii-knolder/Maven_Assignment.git