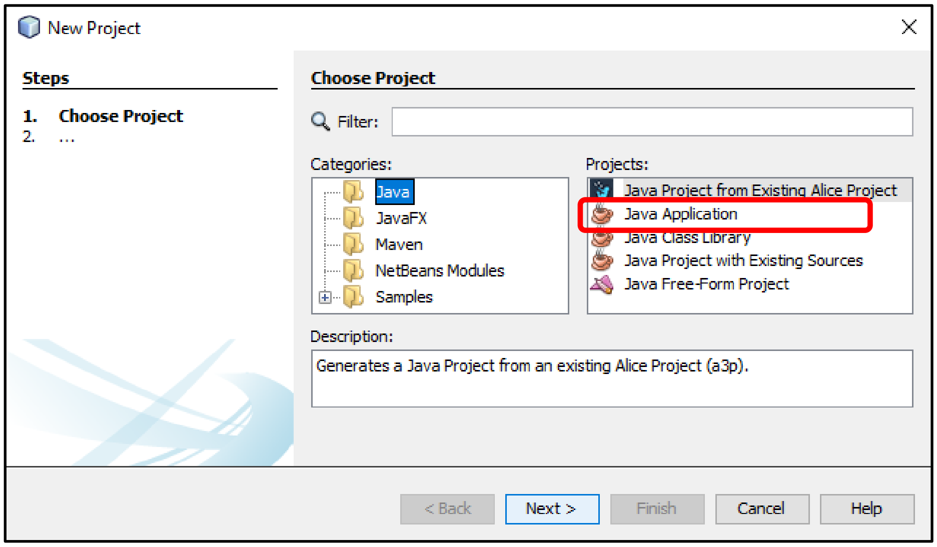
Drawing a Triangle Shape Exercise

1. Open up the NetBeans environment.

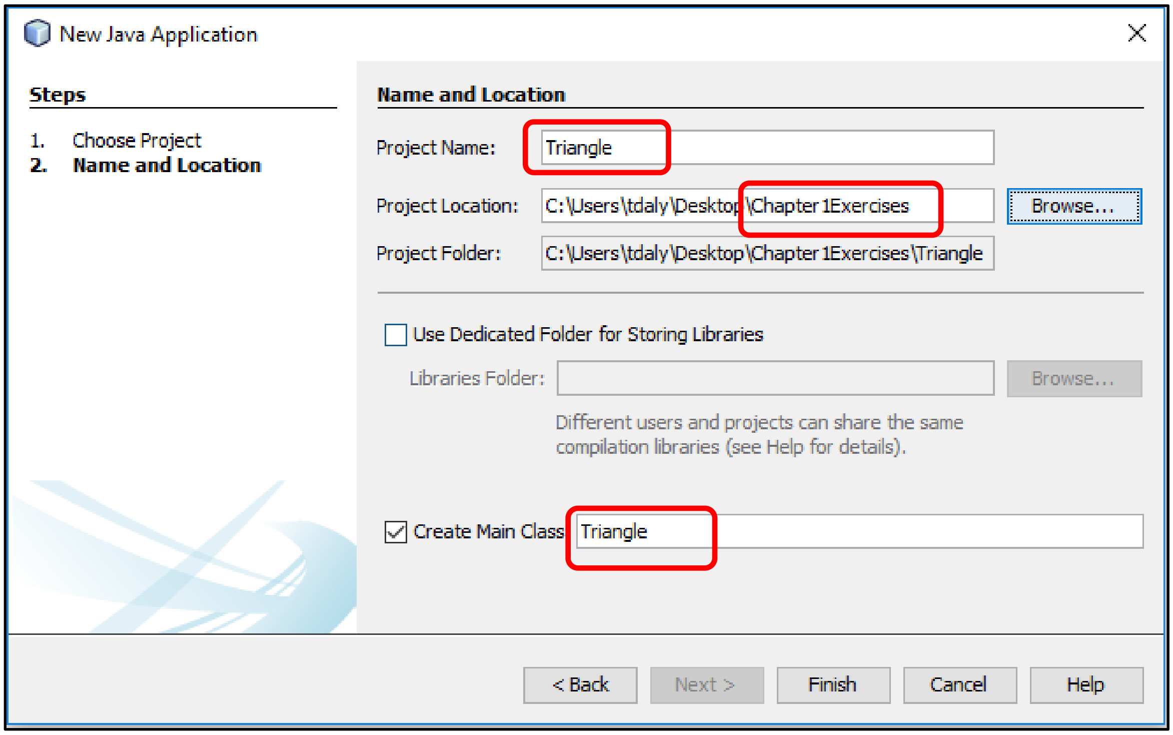
2. Select the **File** menu and then choose **New Project**. Then choose **Java Application** as shown below.



Generates a Java Project from an existing Alice Project (a3p).

3. Click **Next**. Name your NetBeans project, select the **location** of where you would like to save your file, give your file *(Main Class)* a name *(make this name the same as your project name)*, and click **finish**. Although it is not necessary, we are going to name our projects and Java files *(main class)* have the same name. Therefore, make sure that the top and bottom boxes have the same name. NetBeans automatically will try to name your file (main class) triangle.Triangle. Erase the **triangle.** that NetBeans inserts before your file name. Make sure it looks like the following screenshot. Capitalization is important.

    *Project the name **Triangle** (no spaces)*
    *Main class name of **Triangle** (no spaces)*
    *Select the **Location** of where you would like to save your NetBeans project*



Steps

1. Choose Project
2. **Name and Location**

Name and Location

Project Name: Triangle

Project Location: C:\Users\tdaly\Desktop\Chapter1Exercises

Project Folder: C:\Users\tdaly\Desktop\Chapter1Exercises\Triangle

□ Use Dedicated Folder for Storing Libraries

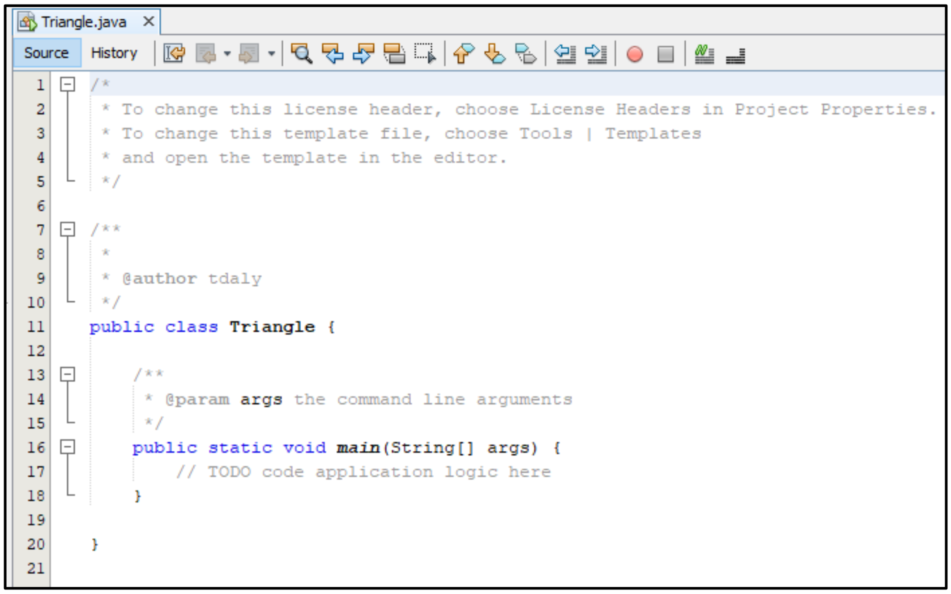
Libraries Folder:

Different users and projects can share the same compilation libraries (see Help for details).

☑ Create Main Class Triangle

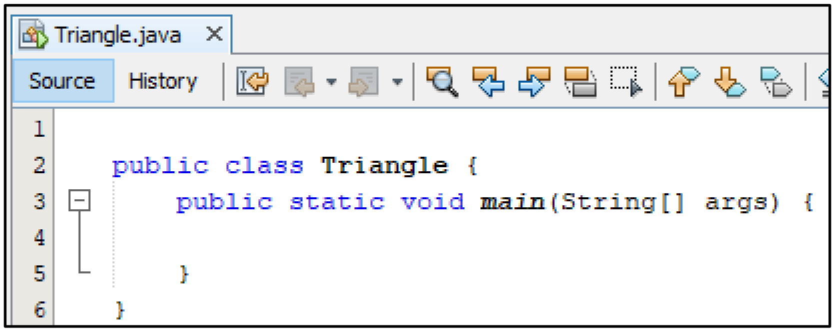
4. If line numbers are not showing, click **View** from the menu, then **Show Line Numbers.**

5. Your project should look as follows. HelloWorld.java is the file that we will be working with. *(Note: If your code has a package statement on line 5, then exit NetBeans and delete the project folder and do step 4 again. Make sure it looks like the screen shot provided. Look carefully at the textbox next to the Create Main Class label in the New Java Application dialog. For your information a package in Java is a folder. The package line indicates that you put your file in a folder when you created the project.)*



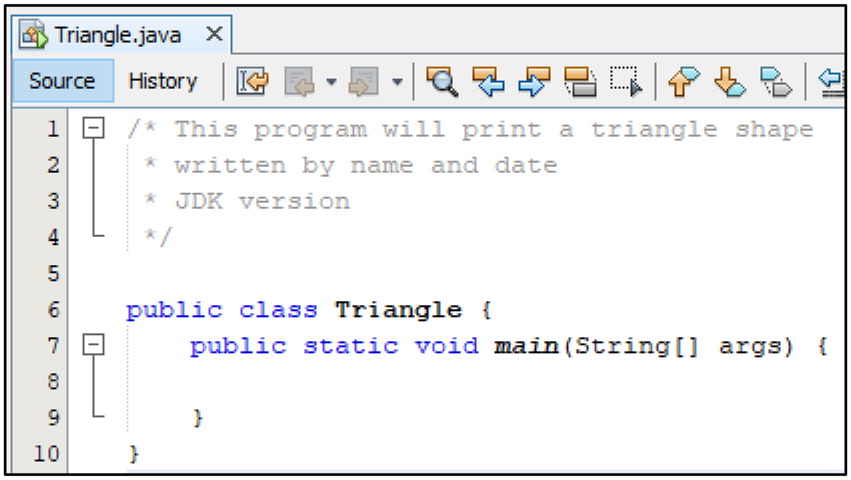
```
 1  /*
 2   * To change this license header, choose License Headers in Project Properties.
 3   * To change this template file, choose Tools | Templates
 4   * and open the template in the editor.
 5   */
 6
 7  /**
 8   *
 9   * @author tdaly
10   */
11  public class Triangle {
12
13      /**
14       * @param args the command line arguments
15       */
16      public static void main(String[] args) {
17          // TODO code application logic here
18      }
19
20  }
21
```

6. Let’s set up our program by deleting the current program comments as shown below.



```

public class Triangle {
    public static void main(String[] args) {

    }
}
```

7. Now we will add our comments (documentation) to the top of our program. We will add our name, today’s date, a description of the program, and the JDK version to the top of all of our programs. *(You can check to see what version of the JDK that you have by clicking **Help** from the menu and then **About** in the NetBeans environment. It will have **Java:** and then a number, this is your JDK version. You do not need the number after the underscore).*



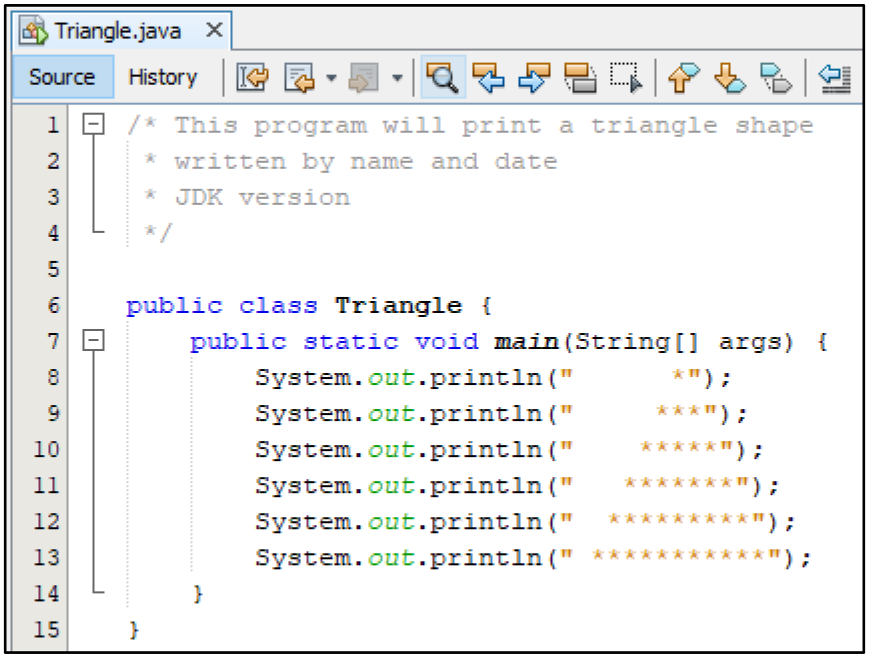
```
/* This program will print a triangle shape
 * written by name and date
 * JDK version
 */

public class Triangle {
    public static void main(String[] args) {

    }
}
```

8. We should develop the logic to solve the program before writing the code. The triangle should be 6 rows by 11 columns.

Below is the layout for the triangle:

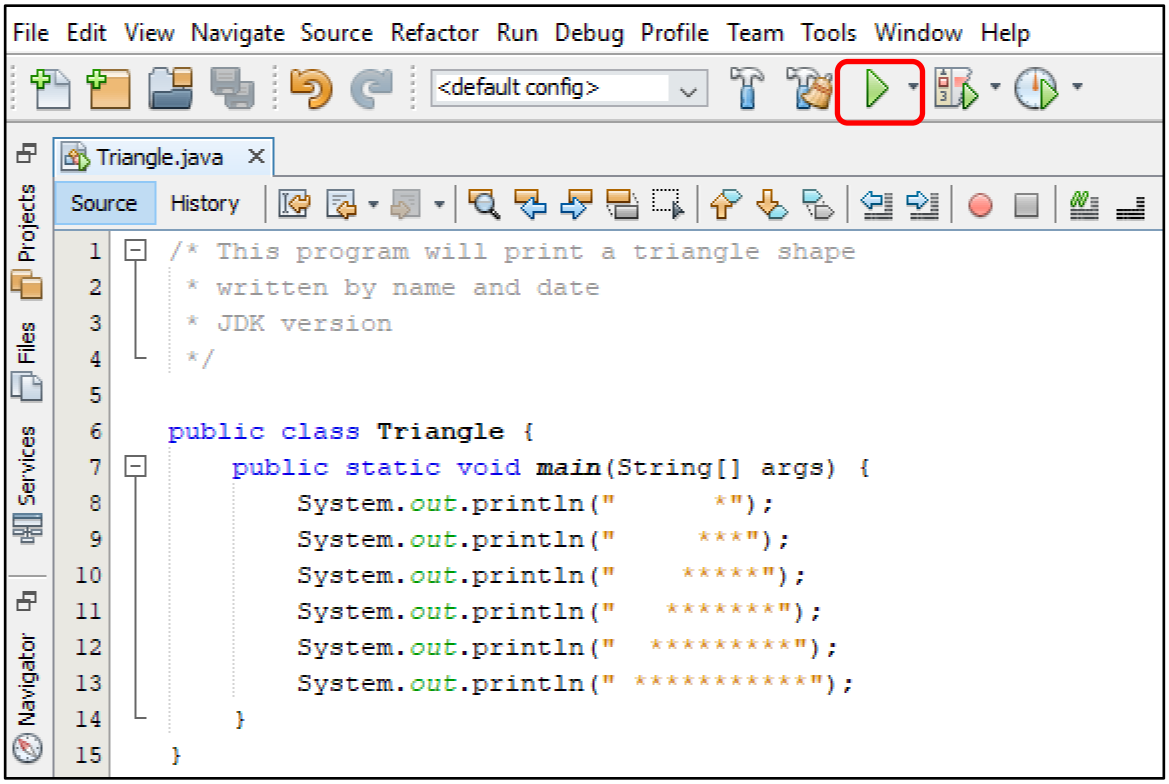
					*					
				*	*	*				
			*	*	*	*	*			
		*	*	*	*	*	*	*		
	*	*	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	*

9. Next, we need to add the Java code that will print our triangle shape. We will use **spaces** and the ***** symbol as text in our **println** method to draw our shape. Please add the following **println** statements to your main method.



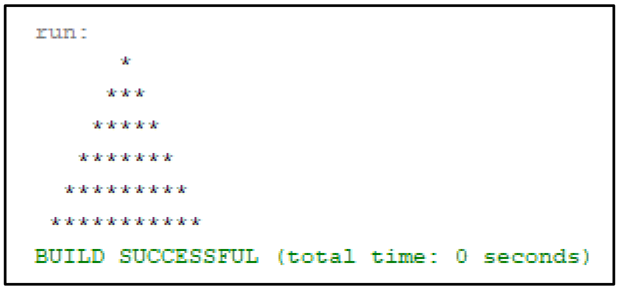
```
/* This program will print a triangle shape
 * written by name and date
 * JDK version
 */

public class Triangle {
    public static void main(String[] args) {
        System.out.println("      *");
        System.out.println("     ***");
        System.out.println("    *****");
        System.out.println("   *******");
        System.out.println("  *********");
        System.out.println(" ***********");
    }
}
```

10. Finally, we need to test our program to ensure that the triangle shape looks good in our output window. Run the program, by clicking on the **Run** button. You shouldn't have any red underlines in your program code. If you do, you will need to compare your code with the code shown below to determine what is different that is causing the problem. Code highlighted with red underlines are known as syntax errors.


File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
<default config>
Triangle.java
Source
History
Projects
Files
Services
Navigator

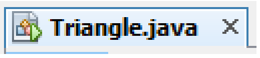
```java
/* This program will print a triangle shape
 * written by name and date
 * JDK version
 */

public class Triangle {
    public static void main(String[] args) {
        System.out.println("      *");
        System.out.println("     ***");
        System.out.println("    *****");
        System.out.println("   *******");
        System.out.println("  *********");
        System.out.println(" ***********");
    }
}
```

11. Your output should look as follows.

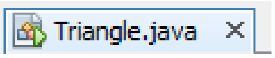


```
run:
      *
     ***
    *****
   *******
  *********
 ***********
BUILD SUCCESSFUL (total time: 0 seconds)
```

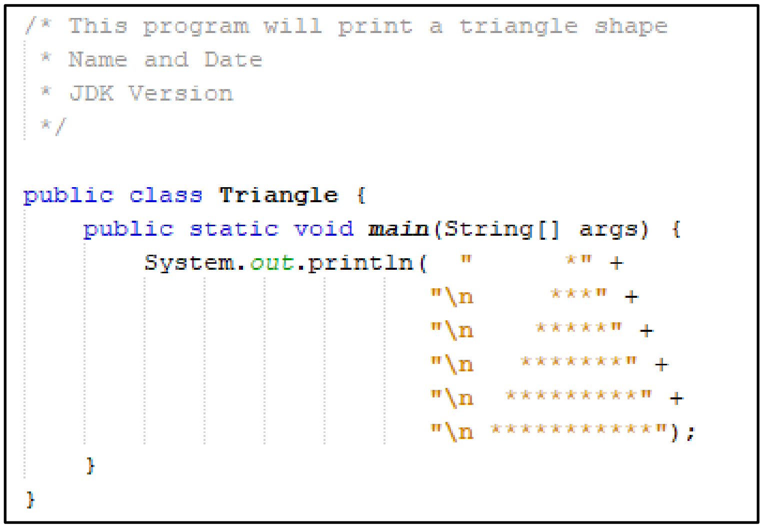
Note: When you run your program in NetBeans, it should save the files automatically, but if you are unsure you can save. **DO NOT use the "Save as" option** in NetBeans. You can go to **File** and choose **Save** or you can use the shortcut command to save (Windows: ctrl + s, Mac: command + s). You can tell if the file is saved by looking at the tabs. If the filename is bold, then it has not been saved recently. If it is not bold, then it is saved. When you close NetBeans, it should warn you if you haven't saved. Please do not right click and rename Java files. Renaming Java files, will mess up the structure of your NetBeans projects and they won't work correctly. This is why I recommend you stay away from the "Save As" option; if you change the name or the location of your Java files, they won't work properly next time you open them.



vs.

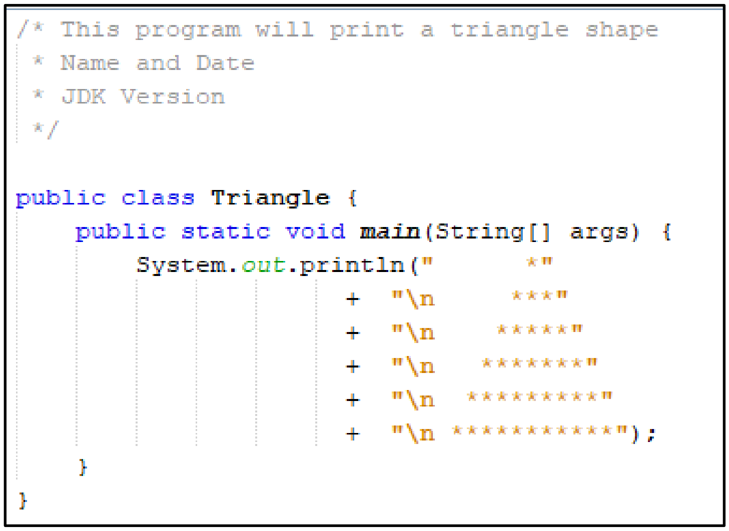


12. This could also be written using the **\n** escape code and it would have the same output result. Either way of coding is fine. *Note: if you are joining two strings on separate lines, it doesn't matter which line you put the plus sign for the concatenation of the strings. You cannot have two plus signs in a row.*



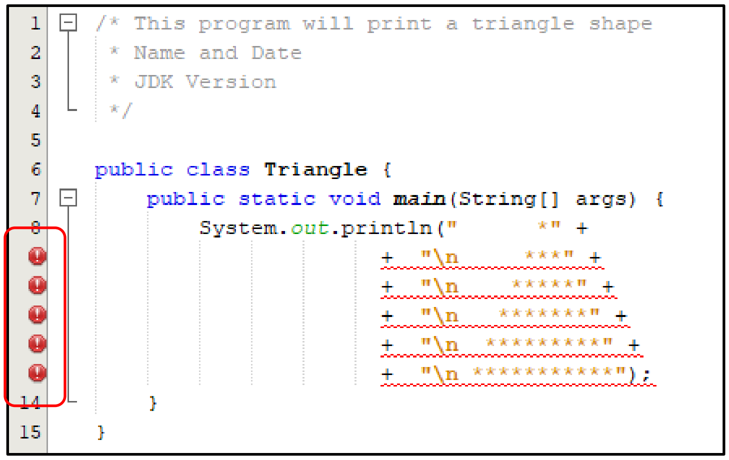
```
/* This program will print a triangle shape
 * Name and Date
 * JDK Version
 */

public class Triangle {
    public static void main(String[] args) {
        System.out.println(  "      *" +
                           "\n     ***" +
                           "\n    *****" +
                           "\n   *******" +
                           "\n  *********" +
                           "\n ***********");
    }
}
```

Or you can write the code with the concatenation operator (plus sign) on the other line:



```
/* This program will print a triangle shape
 * Name and Date
 * JDK Version
 */

public class Triangle {
    public static void main(String[] args) {
        System.out.println("      *"
                      +  "\n     ***"
                      +  "\n    *****"
                      +  "\n   *******"
                      +  "\n  *********"
                      +  "\n ***********");
    }
}
```

You cannot have the concatenation operator (plus sign) twice in a row.

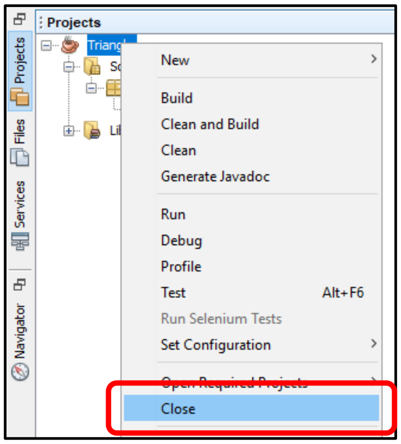


```
/* This program will print a triangle shape
 * Name and Date
 * JDK Version
 */

public class Triangle {
    public static void main(String[] args) {
        System.out.println("      *" +
                      +  "\n     ***" +
                      +  "\n    *****" +
                      +  "\n   *******" +
                      +  "\n  *********" +
                      +  "\n ***********");
    }
}
```

You will get an error that states *bad operand type String for unary operator '+'*

If you hover over the exclamation mark on the line numbers, you can see the errors without buiding the project.

13. Close the **Triangle** project by right clicking on the project in the left pane and choosing **Close**.


Projects
Files
Services
Navigator
Triang
Sc
Li
New
Build
Clean and Build
Clean
Generate Javadoc
Run
Debug
Profile
Test Alt+F6
Run Selenium Tests
Set Configuration
Open Required Projects
Close