#### 2.1  JNI with C

##### Step 1: Write a Java Class that uses C Codes – CalcJNI.java

##### public class CalcJNI {

##### static {

##### System.loadLibrary("calc"); // Load native library at runtime

##### // calc.dll (Windows) or libcalc.so (Unix)

##### }

##### 

##### // Declare a native method add() that receives nothing and returns void

##### private native int add(int n1, int n2);

##### 

##### // Test Driver

##### public static void main(String[] args) {

##### System.out.println("Addition is="+new CalcJNI().add(10,20)); // invoke the native method

##### }

##### }

##### Step 2:Compile the "CalcJNI.java" into "CalcJNI.class".

##### $ javac CalcJNI.java

##### Step 3:Create the C/C++ Header file - CalcJNI.h

##### Run javah utility on .class file(Run javah utility on the class file to create a header file for C/C++ programs:)

##### $javah -jni CalcJNI

##### Step 4:

##### CalcJNI.c

##### #include<jni.h>

##### #include<stdio.h>

##### #include"CalcJNI.h"

##### // Implementation of native method add() of CalcJNI class

##### //JNIEnv\*: reference to JNI environment, which lets you access all the JNI fucntions.

##### //jobject: reference to "this" Java object.

##### JNIEXPORT jint JNICALL Java\_CalcJNI\_add(JNIEnv \*env, jobject thisObj,jint n1,jint n2)

##### {

##### jint res;

##### res = n1+n2;

##### return res;

##### }

##### Step 5: Compile c File

##### $ gcc -I /usr/lib/jvm/java-8-openjdk-amd64/include -I /usr/lib/jvm/java-8-openjdk-amd64/include/linux -o libcalc.so -shared CalcJNI.c

The compiler options used are:

* -I: for specifying the header files directories. In this case "jni.h" (in "%JAVA\_HOME%\include"), where %JAVA\_HOME% is an environment variable set to the JDK installed directory.
* -shared: to generate share library.
* -o: for setting the output filename "libcalc.so".

##### Step6:

##### $ java -Djava.library.path=. CalcJNI

##### Output:

##### Addition is=30

##### For more resources use below URL:

##### https://www3.ntu.edu.sg/home/ehchua/programming/java/JavaNativeInterface.html