```
import java.util.Scanner;

public class MathOperation {
    // Declaration of native methods
    public native int add(int a, int b);
    public native int subtract(int a, int b);
    public native int multiply(int a, int b);
    public native double divide(int a, int b);

    static {
        System.loadLibrary("MathLib"); // Load DLL named MathLib.dll
    }

    public static void main(String[] args) {
        MathOperation obj = new MathOperation();
        Scanner sc = new Scanner(System.in);
        int choice;

        do {
            System.out.println("\n=== Mathematical Operations ===");
            System.out.println("1. Addition");
            System.out.println("2. Subtraction");
            System.out.println("3. Multiplication");
            System.out.println("4. Division");
            System.out.println("5. Exit");
            System.out.print("Enter your choice: ");
            choice = sc.nextInt();

            if (choice == 5) {
                System.out.println("Exiting...");
                break;
```

```
            }

            System.out.print("Enter first number: ");
            int a = sc.nextInt();
            System.out.print("Enter second number: ");
            int b = sc.nextInt();

            switch (choice) {
                case 1:
                    System.out.println("Result = " + obj.add(a, b));
                    break;
                case 2:
                    System.out.println("Result = " + obj.subtract(a, b));
                    break;
                case 3:
                    System.out.println("Result = " + obj.multiply(a, b));
                    break;
                case 4:
                    if (b != 0)
                        System.out.println("Result = " + obj.divide(a, b));
                    else
                        System.out.println("Cannot divide by zero!");
                    break;
                default:
                    System.out.println("Invalid choice!");
            }
        } while (true);
        sc.close();
    }
}
```

Step 2: Generate C Header File

javac MathOperation.java

javah MathOperation

Step 3: Create the C Implementation File

```
#include <jni.h>
#include "MathOperation.h"

JNIEXPORT jint JNICALL Java_MathOperation_add(JNIEnv *env, jobject obj, jint a, jint b) {
    return a + b;
}

JNIEXPORT jint JNICALL Java_MathOperation_subtract(JNIEnv *env, jobject obj, jint a, jint b) {
    return a - b;
}

JNIEXPORT jint JNICALL Java_MathOperation_multiply(JNIEnv *env, jobject obj, jint a, jint b) {
    return a * b;
}

JNIEXPORT jdouble JNICALL Java_MathOperation_divide(JNIEnv *env, jobject obj, jint a, jint b) {
    return (double)a / b;
}
```

Step 4: Compile C Code and Create DLL

On **Windows (Command Prompt):**

```
gcc -I"%JAVA_HOME%\include" -I"%JAVA_HOME%\include\win32" -shared -o MathLib.dll
MathOperation.c
```

Step 5: Run the Java Program

java MathOperation

 # OUTPUT of DLL:

=== Mathematical Operations ===

1. Addition

2. Subtraction

3. Multiplication

4. Division

5. Exit

Enter your choice: 1

Enter first number: 12

Enter second number: 8

Result = 20

=== Mathematical Operations ===

1. Addition

2. Subtraction

3. Multiplication

4. Division

5. Exit

Enter your choice: 4

Enter first number: 25

Enter second number: 5

Result = 5.0

=== Mathematical Operations ===

Enter your choice: 5

Exiting...