Exp No:01

Date:

Maven Installation and Basics

AIM:

To study about the installation of maven tool and to create a maven project and implement the basic arithmetic operations.

MAVEN:

Maven is a build automation and project management tool used, primarily for Java projects. It simplifies the process of managing a project's build, dependencies, Documentation and release. To define the project's structure and dependencies maven Uses a ["pox.xml"] central configuration file abbreviated as project object model.

INSTALLATION ON WINDOWS:

PREREQUISITES:

Java Development Kit(JDK):Maven requires JDK 8 or higher to ensure the installation of java which can be checked by running 'java -version' in the command prompt.

STEPS:

Download the latest version of Maven from the Apache Maven Download Page and select the binary zip archive (apache-maven-x.y.z-bin.zip).

Extract the downloaded zip file to a directory, such as C:\Program Files\Apache\Maven.

Open the Start Menu, search for Environment Variables, and select Edit the system environment variables. In the System Properties window, click Environment Variables.

Add a new system variable named MAVEN_HOME with the value set to the Maven directory path (e.g., C:\Program Files\Apache\Maven). Edit the Path variable under system variables and add %MAVEN_HOME%\bin to it.

Open a Command Prompt, type mvn -v, and press Enter to verify the installation. Maven's version and Java environment details should appear.

Ensure Java (JDK) is installed. Verify by running java -version. If not installed, download and install it from the Oracle or OpenJDK website, and set JAVA_HOME in the environment variables.

INSTALLATION ON LINUX:

Install open JDK by using the following command .

//sudo apt install openjdk-11-jdk

Install Maven using APT:

*Open terminal

*Run the commands

//sudo apt-get update

//sudo apt-get install maven

Verify installation by running the command “mvn -v” to check the maven version and verify the installation.

Once the maven is installed, it can be used to manage java projects efficiently.

PROCEDURE:

Create a maven project by providing the groupID and ArtifactID.

Within the groupId folder,inside the main folder open the mainclass folder and write the code for basic arithmetic operation.

Input two numbers, num1 and num2, from the user through a prompt.

Display a menu with options for various mathematical operations, including addition, subtraction, multiplication, division, and modulo division.

Get the user's choice from the menu and store it in a variable for further processing.

Perform the chosen mathematical operation on num1 and num2, using the corresponding formula or method.

Check for division by zero error and handle it accordingly, by displaying an error message or taking alternative action.

Display the result of the mathematical operation, using a clear and concise format.

Ask the user if they want to continue performing mathematical operations, and get their response.

Repeat steps 2-7 or exit the program, depending on the user's response.

PROGRAM:

```
import java.util.Scanner;
public class Main {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter first number: ");
        double num1 = scanner.nextDouble();
        System.out.print("Enter second number: ");
        double num2 = scanner.nextDouble();
        while (true) {
            System.out.println("Choose an operation:");
            System.out.println("1. Addition");
            System.out.println("2. Subtraction");
            System.out.println("3. Multiplication");
            System.out.println("4. Division");
            System.out.println("5. Modulo Division");
            System.out.println("6. Exit");
            System.out.print("Enter your choice (1-6): ");
            int choice = scanner.nextInt();
            if (choice == 6) {
                System.out.println("Exiting...");
                break;
            }
            switch (choice) {
                case 1:
                    System.out.println("Result: " + add(num1, num2));
                    break;
                case 2:
                    System.out.println("Result: " + subtract(num1, num2));
                    break;
```

```
            case 3:
                System.out.println("Result: " + multiply(num1, num2));
                break;
            case 4:
                if (num2 != 0) {
                    System.out.println("Result: " + divide(num1, num2));
                } else {
                    System.out.println("Error! Division by zero is not allowed.");
                }
                break;
            case 5:
                if (num2 != 0) {
                    System.out.println("Result: " + modulo(num1, num2));
                } else {
                    System.out.println("Error! Modulo division by zero is not allowed.");
                }
                break;
            default:
                System.out.println("Invalid choice. Please choose a valid option.");
        }
    }
}
public static double add(double num1, double num2) {
    return num1 + num2;
}
public static double subtract(double num1, double num2) {
    return num1 - num2;
}
public static double multiply(double num1, double num2) {
    return num1 * num2;
```

```
    }
    public static double divide(double num1, double num2) {
        return num1 / num2;
    }
    public static double modulo(double num1, double num2) {
        return num1 % num2;
    }
}
```

Output:

Enter first number: 10

Enter second number: 5

Choose an operation:

1. Addition

2. Subtraction

3. Multiplication

4. Division

5. Modulo Division

6. Exit

Enter your choice (1-6): 1

Result: 15.0

Choose an operation:

1. Addition

2. Subtraction

3. Multiplication

4. Division

5. Modulo Division

6. Exit

Enter your choice (1-6): 6

Exiting...

Preparation	
Observation	
Output	
Viva	
Record	

RESULT:

Hence the program for executing the basic operations using maven was implemented and the output is verified successfully.