LEARNING OUTCOME 2 : APPLY SOLIDITY BASICS

INDICATIVE CONTENT 2: SET UP SOLIDITY ENVIRONMENT

By the end of this guide, you will have a complete Solidity development environment installed and ready to write, compile, and deploy smart contracts.

1. Install a Code Editor

Option A: Remix IDE (Browser-Based)

1.   Open your browser and go to: https://remix.ethereum.org

2.   No installation needed — Remix runs directly in your browser.

3.   Explore the interface:

     ✓   **File Explorer**: Create and manage Solidity files.

     ✓   **Solidity Compiler**: Compile smart contracts.

     ✓   **Deploy & Run**: Deploy contracts to a test blockchain.

✅ Remix is ready to use.

Option B: Visual Studio Code (Local Editor)

1.   Download VS Code: https://code.visualstudio.com

2.   Install it with default settings.

3.   Open VS Code → Go to **Extensions** (left sidebar) → Search for **"Solidity"** → Install the extension by *Juan Blanco*.

4.   Create a new folder for your Solidity projects and open it in VS Code.

✅ VS Code is ready for Solidity development.

2. Install Node.js and npm

1.   Go to https://nodejs.org.

2.   Download the **LTS (Long-Term Support)** version for your operating system.

3.   Run the installer and keep default settings.

4.   Verify installation:

Open cmd and type :

     ✓   node -v
     ✓   npm -v

✅ Node.js and npm are installed.

3. Install the Solidity Compiler (solc)

1.   Open your terminal/command prompt.

2.   Run: npm install -g solc

3.   Verify installation: solcjs --version

✅ Solidity compiler is installed.

4. Install Ethereum Development Tools

A. Truffle Framework

1.   Run: npm install -g truffle

2.   Verify: truffle version

✅ Truffle is installed.

B. Hardhat Framework

1.   Create a new project folder:

    mkdir solidity-project

    cd solidity-project

2.   Initialize npm: npm init -y

3.   Install Hardhat: npm install --save-dev hardhat

4.   Create a Hardhat project: npx hardhat

5.   Select **"Create a basic sample project"** and follow the prompts.

✅ Hardhat project is ready.

5. Test with a Sample Contract

1.   In Remix or VS Code, create a file named *HelloWorld.sol*

2.   Paste this code:

> **// SPDX-License-Identifier: MIT**
>
> **pragma solidity ^0.8.0;**
>
> **contract HelloWorld {**
>
>   **string public message = "Hello, Solidity!";**
>
> **}**

3.   Compile it in Remix (or with solc).

4.   Deploy it using Remix's "Deploy & Run" tab or Hardhat's local blockchain.

✅ You have successfully written, compiled, and deployed your first Solidity contract!