Work Instruction

PoC/Working Demo

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# **Preface**

The purpose of this document is to provide clear and concise instructions for performing the following:

* Integrating CPU monitoring metrics into the EcoVision plugin.
* Setting up the EcoVision project in Visual Studio.
* Creating sample code for CPU consumption.
* Testing and evaluating the outcome of the EcoVision plugin with integrated CPU monitoring.

# **Introduction:**

This work instruction provides step-by-step guidance on integrating CPU monitoring functionality into the EcoVision plugin project using Visual Studio.  
The objective is to enable real-time monitoring of CPU utilization within the EcoVision environment and provide actionable insights based on the observed CPU load.

# **Prerequisites:**

* Visual Studio installed on your development machine.
* Access to the EcoVision plugin project in Visual Studio

**Install Visual Studio:**

* Download Visual Studio from the official website, ensuring compatibility with your operating system and version preferences.
* Run the downloaded installation file and follow the on-screen instructions to install Visual Studio.
* Upon successful installation, launch Visual Studio to verify proper installation and resolve any potential setup issues.

# **Open Visual Studio:**

* Locate the Visual Studio icon on your desktop or in the Start menu and double-click it to launch the application.
* Wait for Visual Studio to load, which may take a few moments depending on your system specifications.
* Once Visual Studio is open, ensure that you have a valid license or account to access all features and functionalities.
* Create a New Class for CPU Monitoring:
* Right-click on the project in the Solution Explorer.
* Select "Add" > "Class" to create a new class file.
* Name the class file CPUUtilizationMonitor.cs.

**using** System.Diagnostics;

public class CPUUtilizationMonitor

{

public float GetCPUUtilization()

{

return Process.GetCurrentProcess().TotalProcessorTime.TotalPercentProcessorTime;

}

* Copy and paste the provided code into CPUUtilizationMonitor.cs. This class encapsulates the functionality to monitor CPU utilization.

# **Modify the VSIX Manifest:**

* Open the source.extension.vsixmanifest file.
* Add the following line under the <Content> section:

<Content>   
 <ProjectTemplate>CPUUtilizationMonitor.cs</ProjectTemplate>   
</Content>

This ensures that CPUUtilizationMonitor.cs is included in the extension project.

# **Use CPUUtilizationMonitor in Program.cs:**

* Open the Program.cs file in the EcoVision plugin project.
* Modify the Main method to create an instance of CPUUtilizationMonitor and use it to monitor CPU utilization

using System;  
  
class Program

{

static void Main(string[] args)

{

CPUUtilizationMonitor cpuMonitor = new CPUUtilizationMonitor();

while (true)

{

float cpuUtilization = cpuMonitor.GetCPUUtilization();

Console.WriteLine($"CPU Utilization: {cpuUtilization}%");

System.Threading.Thread.Sleep(1000); // Wait for 1 second

}

}

}

# **Integrate with EcoVision Plugin:**

* Open the EcoVision plugin project in Visual Studio.
* Add a reference to the project containing CPUUtilizationMonitor.cs.

Modify the EcoVision plugin code to include functionality that interacts with CPUUtilizationMonitor to monitor CPU consumption.

# **Add Sample Code Snippet for CPU Consumption:**

Within the EcoVision plugin code, add the provided sample code snippet that contributes to CPU consumption.

function heavyCPUTask() {  
// Perform a heavy CPU task   
let sum = 0;   
for (let i = 0; i < 1000000; i++) {  
 sum += i;   
 }   
}   
  
// Call the heavy CPU task function   
heavyCPUTask();

# **Run the EcoVision Plugin:**

* Press F5 or use the "Start" button to run your EcoVision plugin.
* This will launch Visual Studio with your plugin loaded.
* You can now test the functionality of your EcoVision plugin, which should include CPU monitoring capabilities.

# **Testing and Outcome:**

When the heavy CPU task function is executed, monitor the CPU utilization displayed in the console.

The EcoVision plugin should also provide a suggestion message to the user based on the observed CPU load.

Suggestion: Consider optimizing the heavyCPUTask function to reduce CPU load. You can improve performance by optimizing algorithms, parallelizing computations, or using more efficient data structures.   
  
 **Additional Notes:**

Ensure that the EcoVision plugin project is properly configured to interact with the CPUUtilizationMonitor class and provide actionable insights based on CPU utilization data.

Test the integrated CPU monitoring functionality thoroughly to validate its effectiveness in providing meaningful suggestions to users.

# **Conclusion:**

This work instruction provides a detailed guide for integrating CPU monitoring functionality into the EcoVision plugin project using Visual Studio, ensuring that the EcoVision plugin interacts seamlessly with the **CPUUtilizationMonitor** class and provides actionable insights based on CPU utilization data. While this demonstration serves as a foundational example, there is room for further enhancements and optimizations. Please feel free to explore additional features and improvements to advance the solution. Remember, this is only a sample solution design demonstrating the capabilities of EcoVision, and customization is encouraged to meet our project needs.Top of Form

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