

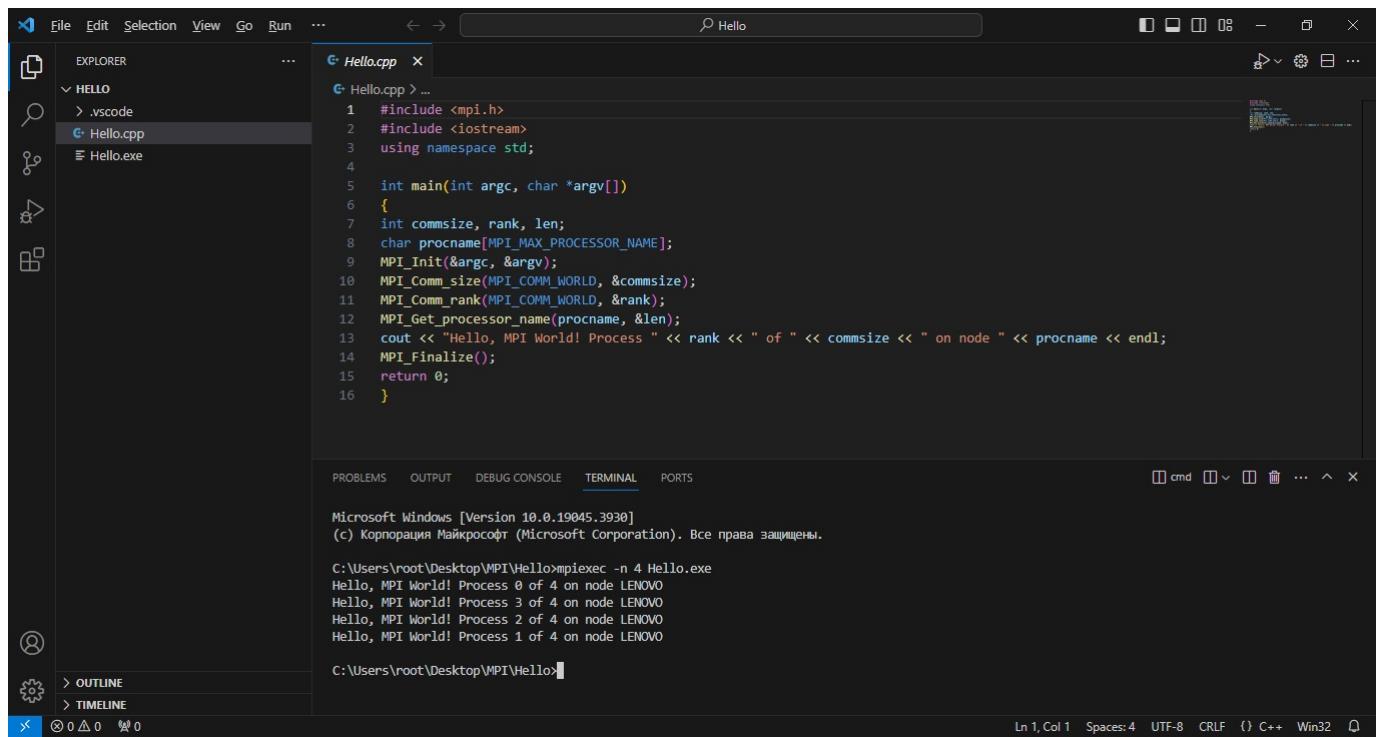
Лабораторная работа 1

Требуется на установить программное обеспечение MPI и реализовать первую параллельную программу на C++.

Listing 1: Первая параллельная программа на C++

```
#include <mpi.h>
#include <iostream>
using namespace std;

int main(int argc, char *argv[])
{
    int commsize, rank, len;
    char procname[MPI_MAX_PROCESSOR_NAME];
    MPI_Init(&argc, &argv);
    MPI_Comm_size(MPI_COMM_WORLD, &commsize);
    MPI_Comm_rank(MPI_COMM_WORLD, &rank);
    MPI_Get_processor_name(procname, &len);
    cout << "Hello, MPI World! Process " << rank << " of " << commsize << " on node " <<
        procname << endl;
    MPI_Finalize();
    return 0;
}
```



The screenshot shows the Visual Studio Code (VS Code) interface. The left sidebar displays a project structure with a folder named 'HELLO' containing files '.vscode', 'Hello.cpp', and 'Hello.exe'. The main editor area shows the 'Hello.cpp' file with its code. Below the editor are tabs for 'PROBLEMS', 'OUTPUT', 'DEBUG CONSOLE', 'TERMINAL', and 'PORTS'. The 'TERMINAL' tab is active, showing the command 'C:\Users\root\Desktop\MPI>Hello> mpiexec -n 4 Hello.exe' followed by four lines of output: 'Hello, MPI World! Process 0 of 4 on node LENOVO', 'Hello, MPI World! Process 3 of 4 on node LENOVO', 'Hello, MPI World! Process 2 of 4 on node LENOVO', and 'Hello, MPI World! Process 1 of 4 on node LENOVO'. The status bar at the bottom right shows 'Ln 1, Col 1' and other file-related information.

Рис. 1: Результат выполнения первой параллельной программы на C++