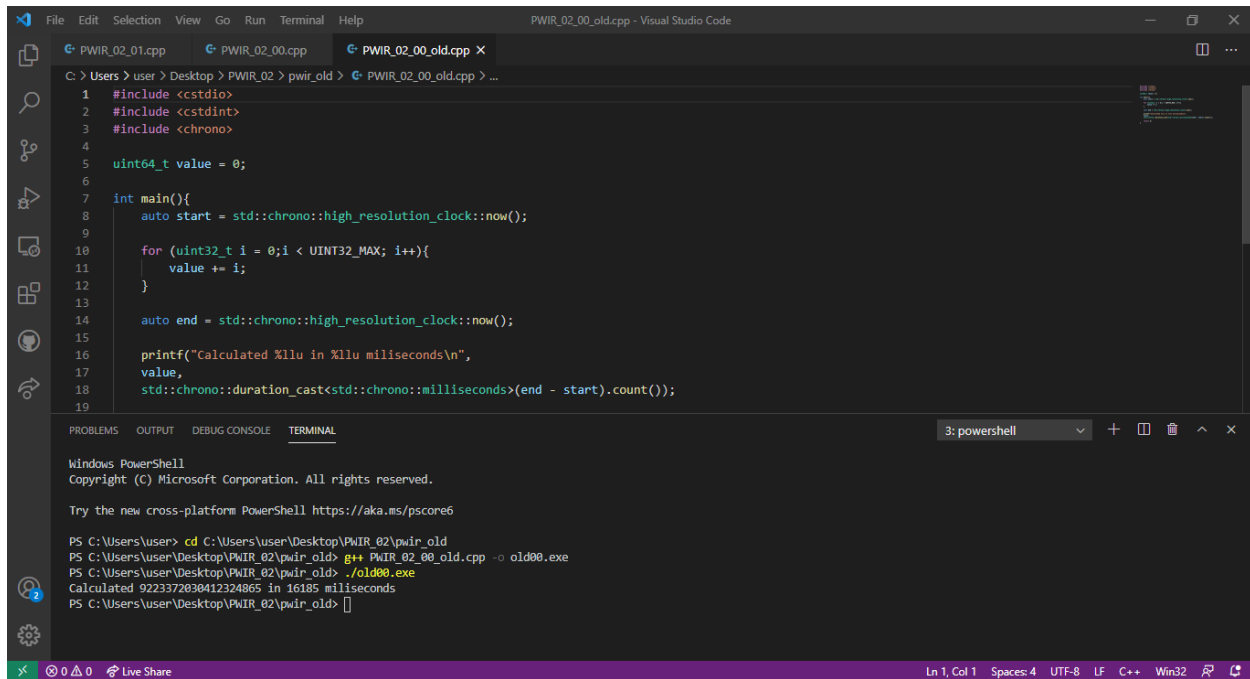


## PWIR\_02\_00

Przed modyfikacją:



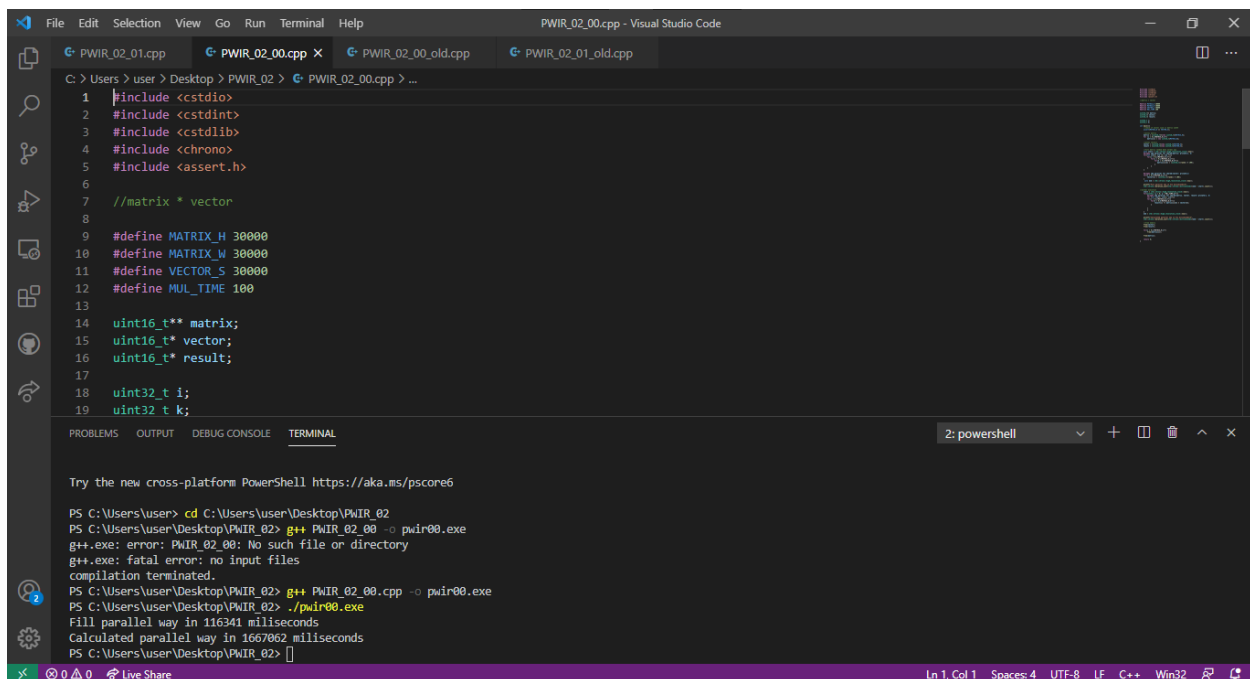
```
1 #include <stdio>
2 #include <stdint>
3 #include <chrono>
4
5 uint64_t value = 0;
6
7 int main(){
8     auto start = std::chrono::high_resolution_clock::now();
9
10    for (uint32_t i = 0; i < UINT32_MAX; i++){
11        value += i;
12    }
13
14    auto end = std::chrono::high_resolution_clock::now();
15
16    printf("Calculated %llu in %llu milliseconds\n",
17        value,
18        std::chrono::duration_cast<std::chrono::milliseconds>(end - start).count());
19 }
```

Windows PowerShell  
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Try the new cross-platform PowerShell <https://aka.ms/pscore6>

PS C:\Users\user> cd C:\Users\user\Desktop\PWIR\_02\pwir\_old  
PS C:\Users\user\Desktop\PWIR\_02\pwir\_old> g++ PWIR\_02\_00\_old.cpp -o old00.exe  
PS C:\Users\user\Desktop\PWIR\_02\pwir\_old> ./old00.exe  
Calculated 9223372036854775807 in 16185 milliseconds  
PS C:\Users\user\Desktop\PWIR\_02\pwir\_old> []

Po modyfikacji:



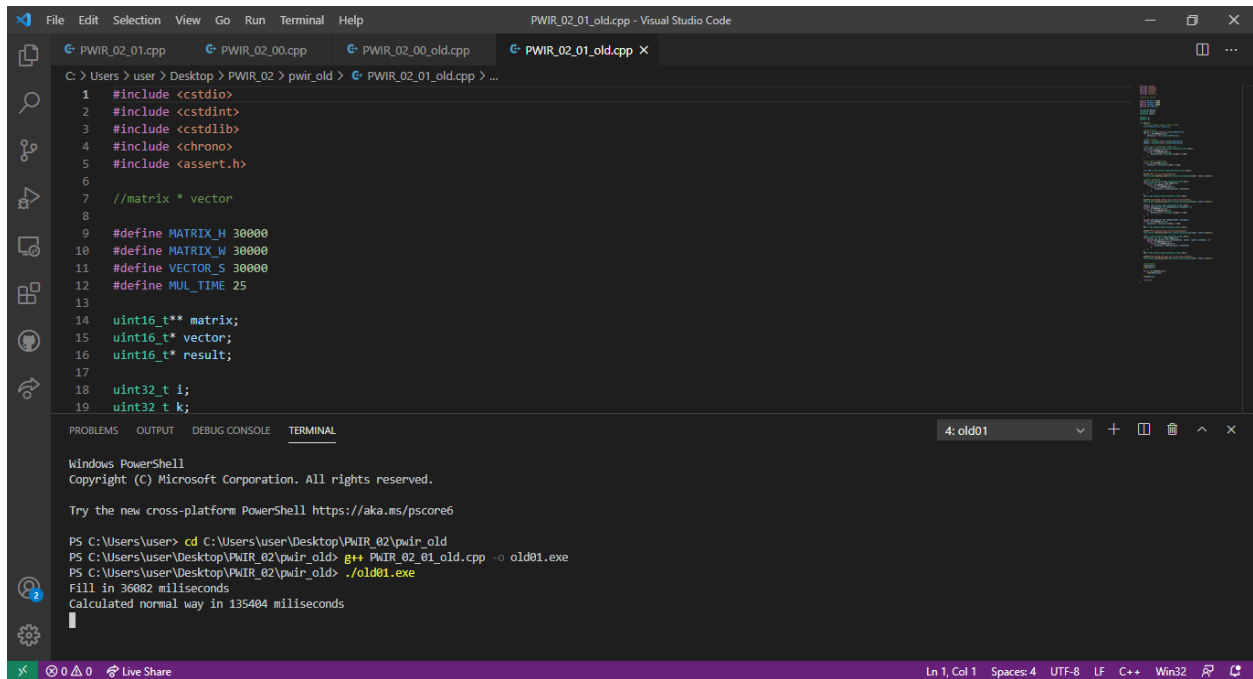
```
1 #include <stdio>
2 #include <stdint>
3 #include <stdlib>
4 #include <chrono>
5 #include <assert.h>
6
7 //matrix * vector
8
9 #define MATRIX_H 30000
10 #define MATRIX_W 30000
11 #define VECTOR_S 30000
12 #define MUL_TIME 100
13
14 uint16_t** matrix;
15 uint16_t* vector;
16 uint16_t* result;
17
18 uint32_t i;
19 uint32_t k;
```

Try the new cross-platform PowerShell <https://aka.ms/pscore6>

PS C:\Users\user> cd C:\Users\user\Desktop\PWIR\_02  
PS C:\Users\user\Desktop\PWIR\_02> g++ PWIR\_02\_00 -o pwir00.exe  
g++.exe: error: PWIR\_02\_00: No such file or directory  
g++.exe: fatal error: no input files  
compilation terminated.  
PS C:\Users\user\Desktop\PWIR\_02> g++ PWIR\_02\_00.cpp -o pwir00.exe  
PS C:\Users\user\Desktop\PWIR\_02> ./pwir00.exe  
Fill parallel way in 116341 milliseconds  
Calculated parallel way in 1667062 milliseconds  
PS C:\Users\user\Desktop\PWIR\_02> []

## PWIR\_02\_01

Przed modyfikacją:



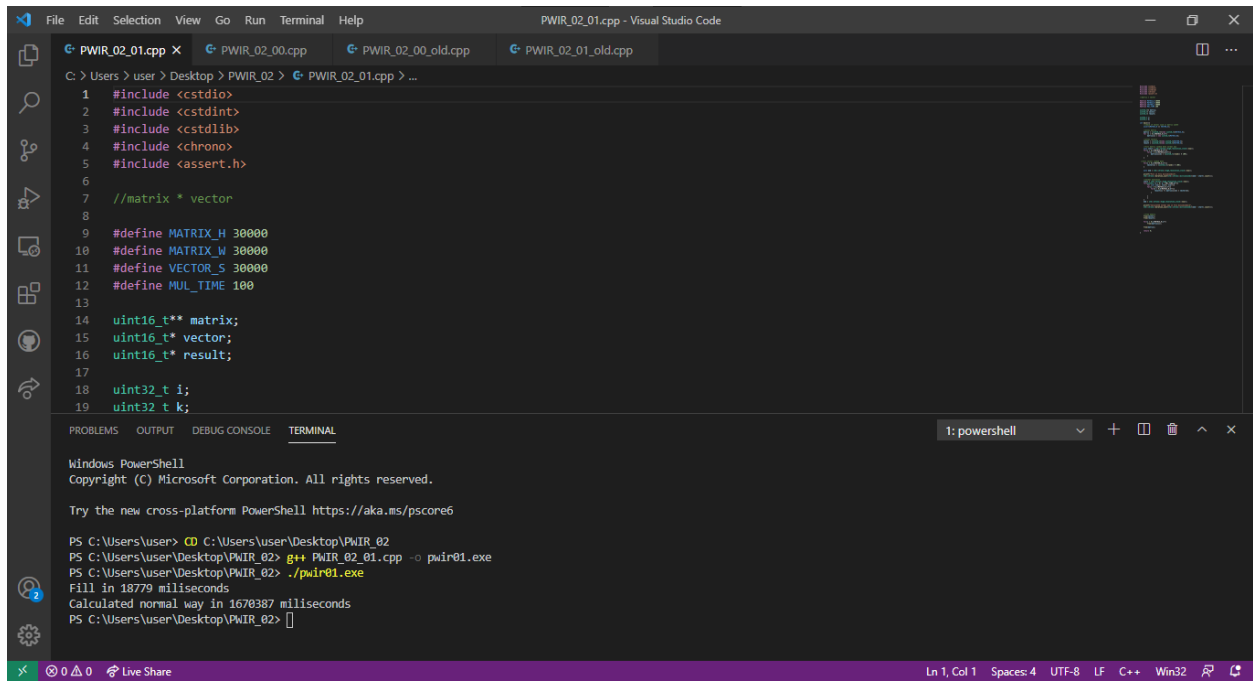
```
1 #include <stdio>
2 #include <stdint>
3 #include <stdlib>
4 #include <chrono>
5 #include <assert.h>
6
7 //matrix * vector
8
9 #define MATRIX_H 30000
10 #define MATRIX_W 30000
11 #define VECTOR_S 30000
12 #define MUL_TIME 25
13
14 uint16_t** matrix;
15 uint16_t* vector;
16 uint16_t* result;
17
18 uint32_t i;
19 uint32_t k;
```

```
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\user> cd C:\Users\user\Desktop\PWIR_02\pwir_old
PS C:\Users\user\Desktop\PWIR_02\pwir_old> g++ PWIR_02_01_old.cpp -o old01.exe
PS C:\Users\user\Desktop\PWIR_02\pwir_old> ./old01.exe
Fill in 36082 milliseconds
Calculated normal way in 135404 milliseconds
```

Po modyfikacji:



```
1 #include <stdio>
2 #include <stdint>
3 #include <stdlib>
4 #include <chrono>
5 #include <assert.h>
6
7 //matrix * vector
8
9 #define MATRIX_H 30000
10 #define MATRIX_W 30000
11 #define VECTOR_S 30000
12 #define MUL_TIME 100
13
14 uint16_t** matrix;
15 uint16_t* vector;
16 uint16_t* result;
17
18 uint32_t i;
19 uint32_t k;
```

```
Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\user> cd C:\Users\user\Desktop\PWIR_02
PS C:\Users\user\Desktop\PWIR_02> g++ PWIR_02_01.cpp -o pwir01.exe
PS C:\Users\user\Desktop\PWIR_02> ./pwir01.exe
Fill in 18779 milliseconds
Calculated normal way in 1670387 milliseconds
PS C:\Users\user\Desktop\PWIR_02>
```