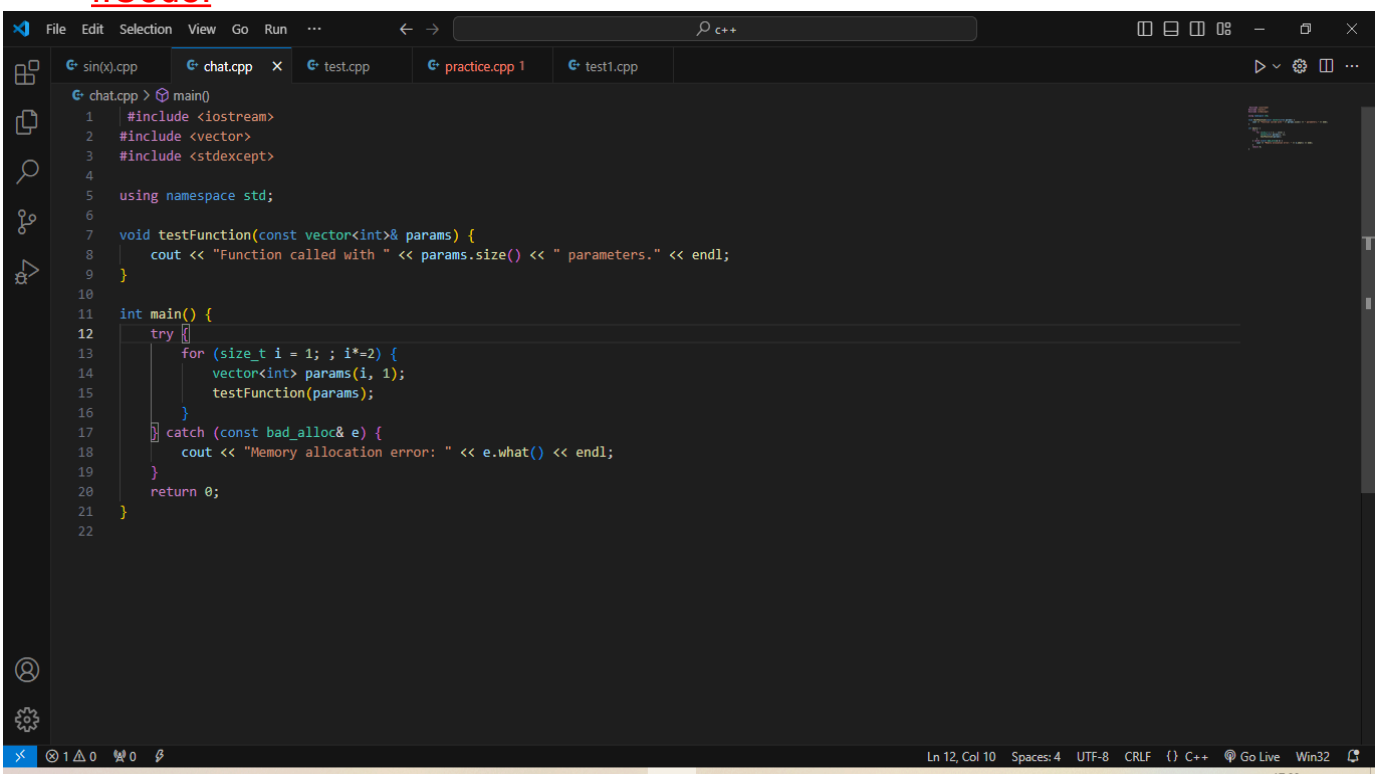
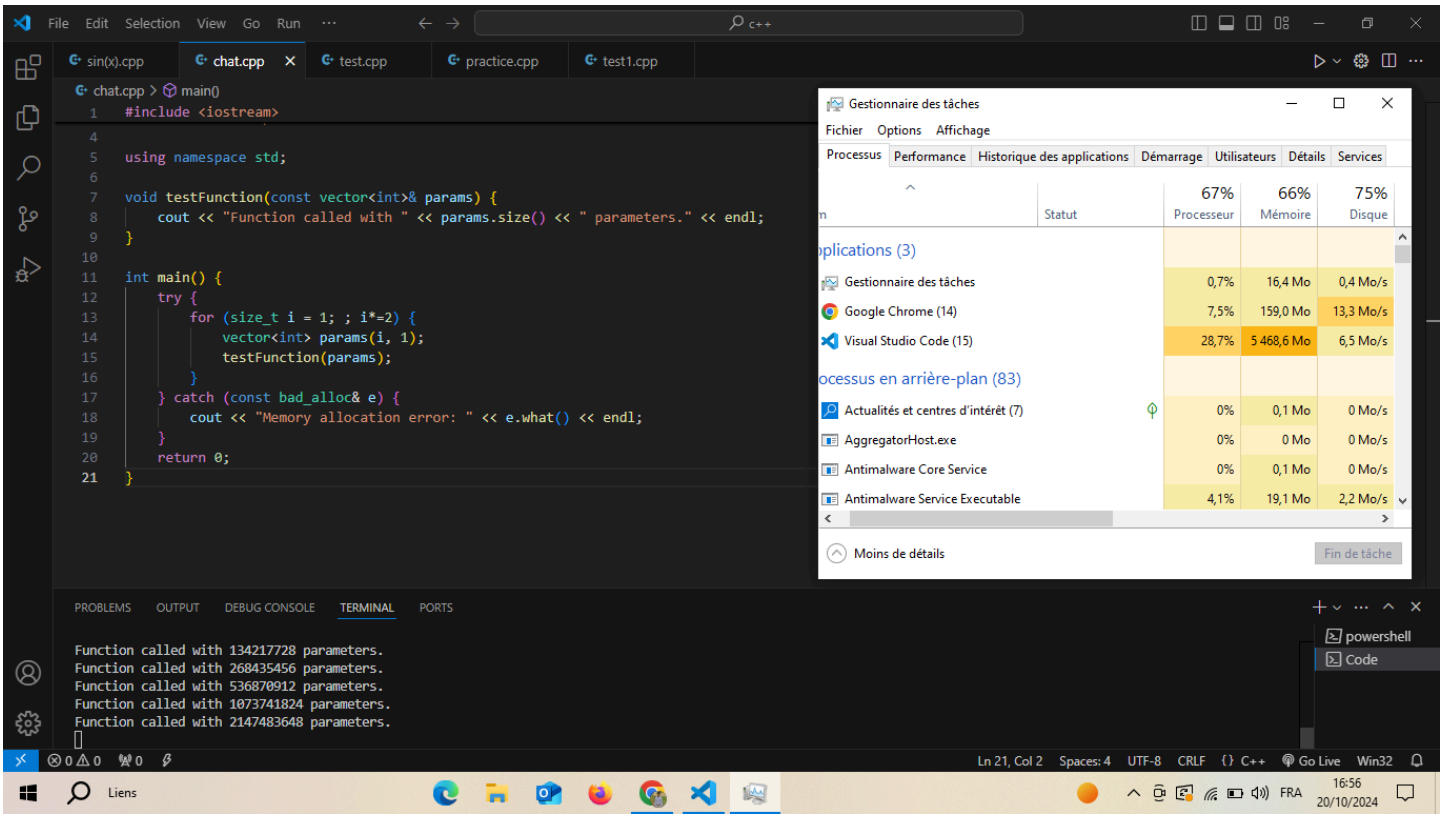
Devoir : le Challenge des paramètres

I.Code:

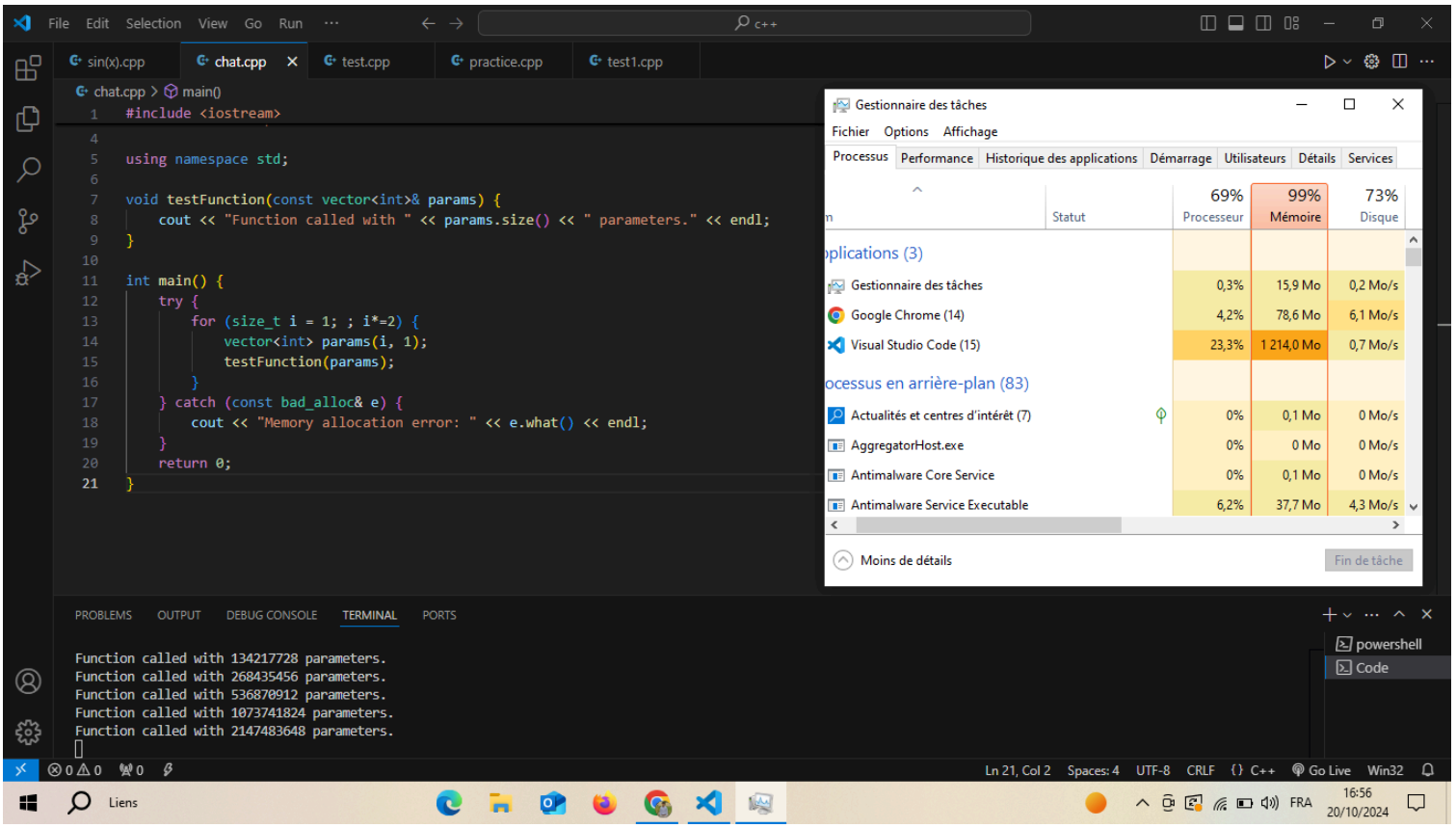


```cpp
#include <iostream>
#include <vector>
#include <stdexcept>

using namespace std;

void testFunction(const vector<int>& params) {
    cout << "Function called with " << params.size() << " parameters." << endl;
}

int main() {
    try {
        for (size_t i = 1; ; i*=2) {
            vector<int> params(i, 1);
            testFunction(params);
        }
    } catch (const bad_alloc& e) {
        cout << "Memory allocation error: " << e.what() << endl;
    }
    return 0;
}
```

Result:



```
Function called with 134217728 parameters.
Function called with 268435456 parameters.
Function called with 536870912 parameters.
Function called with 1073741824 parameters.
Function called with 2147483648 parameters.
```



***Function called with 4294967296 parameters.**
Memory allocation error: std::bad_alloc*/

Conclusion :

After running this code, I noticed that my laptop's memory and processor worked very hard, causing the system to lag before the code finally produced results. I think this behavior would be different on laptops with better hardware. For example, a computer with more RAM or a faster processor would likely perform better and handle larger data sizes more efficiently before hitting memory limits. The code grows the vector exponentially, and the system resources get overwhelmed, which explains the lag and eventual memory allocation error.