Московский Авиационный Институт (Национальный Исследовательский Университет)

Институт №8 “Компьютерные науки и прикладная математика” Кафедра №806 “Вычислительная математика и программирование”

# Лабораторная работа №2 по курсу

**«Операционные системы»**

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# Постановка задачи

## Вариант 13.

## Наложить K раз фильтр, использующий матрицу свертки, на матрицу, состоящую из вещественных чисел. Размер окна задается пользователем.

# Общий метод и алгоритм решения

1. **Инициализация данных**:

Чтение аргументов командной строки для получения размера матрицы, размера фильтра, максимального количества потоков и числа повторений операции фильтрации K.

Создание исходной матрицы размером matrixSize x matrixSize и заполнение её значениями.

Создание фильтра размером filterSize x filterSize и заполнение его значениями.

1. **Функция свертки**:

Функция ApplyFilter применяет фильтр к каждому элементу матрицы в отдельном потоке.

Для каждого элемента вычисляется сумма произведений значений в окрестности текущего элемента матрицы и соответствующих элементов фильтра.

1. **Многопоточность**:

Основной цикл обработки происходит внутри функции ApplyConvolution, где создается необходимое количество потоков.

Потоки создаются с помощью функции CreateThread (для Windows).

Количество одновременно запущенных потоков контролируется с помощью переменной maxThreads. Когда количество активных потоков достигает этого предела, программа ожидает завершения всех текущих потоков перед созданием новых.

1. **Синхронизация потоков**:

Используется функция WaitForMultipleObjects для ожидания завершения всех созданных потоков перед продолжением работы основной программы.

1. **Итерация процесса**:

Процесс свертки повторяется K раз. После каждой итерации результат сохраняется обратно в исходную матрицу.

1. **Измерение времени выполнения**:

Время выполнения всей программы измеряется с помощью функций clock() и выводится после завершения работы.

1. **Завершение программы**:

Все потоки закрываются, ресурсы освобождаются, и программа завершает работу.

# Описание работы программы

# Программа решает задачу обработки данных в многопоточном режиме с использованием стандартных средств операционной системы Windows. Она принимает аргументы командной строки, определяющие размер матрицы, размер фильтра, максимальное количество потоков и число повторений операции фильтрации K. Программа создает исходную матрицу и фильтр, инициализирует их значениями, а затем применяет функцию свертки, используя многопоточность.

# Основная логика заключается в применении фильтра к каждому элементу матрицы в отдельных потоках. Для каждого элемента вычисляется сумма произведений значений в окрестности текущего элемента матрицы и соответствующих элементов фильтра. Потоки создаются функцией CreateThread, и их количество контролируется параметром maxThreads. Если количество активных потоков достигает максимума, программа ждет завершения всех текущих потоков перед созданием новых.

# Процесс свертки повторяется K раз, и после каждой итерации результат сохраняется обратно в исходную матрицу. Время выполнения программы измеряется функциями clock() и выводится после завершения работы. Все потоки закрываются, ресурсы освобождаются, и программа завершает выполнение

# Таким образом, этот алгоритм обеспечивает эффективное использование многопоточной обработки больших массивов данных, предоставляя возможность настройки через параметры командной строки.

# Код программы

#include <iostream>

#include <vector>

#include <windows.h>

#include <string>

#include <time.h>

struct ThreadData {

const std::vector<std::vector<double>>\* input;

const std::vector<std::vector<double>>\* filter;

std::vector<std::vector<double>>\* output;

int row;

int col;

};

DWORD WINAPI ApplyFilter(LPVOID param) {

ThreadData\* data = (ThreadData\*)param;

int filterSize = data->filter->size();

double sum = 0.0;

for (int i = 0; i < filterSize; i++) {

for (int j = 0; j < filterSize; j++) {

sum += (\*data->input)[data->row + i][data->col + j] \* (\*data->filter)[i][j];

}

}

(\*data->output)[data->row][data->col] = sum;

return 0;

}

void ApplyConvolution(std::vector<std::vector<double>>& matrix,

const std::vector<std::vector<double>>& filter,

int maxThreads, int K) {

int filterSize = filter.size();

for (int k = 0; k < K; k++) {

int outputSize = matrix.size() - filterSize + 1;

if (outputSize <= 0) {

std::cerr << "Матрица слишком мала для свёртки. Ранняя остановка на итерации " << k << "\n";

break;

}

std::vector<std::vector<double>> result(outputSize, std::vector<double>(outputSize, 0.0));

std::vector<HANDLE> threads;

std::vector<ThreadData> threadData(outputSize \* outputSize);

int index = 0;

for (int row = 0; row < outputSize; row++) {

for (int col = 0; col < outputSize; col++) {

threadData[index] = { &matrix, &filter, &result, row, col };

HANDLE hThread = CreateThread(NULL, 0, ApplyFilter, &threadData[index], 0, NULL);

threads.push\_back(hThread);

if (threads.size() >= maxThreads) {

WaitForMultipleObjects(threads.size(), threads.data(), TRUE, INFINITE);

for (HANDLE h : threads) CloseHandle(h);

threads.clear();

}

index++;

}

}

if (!threads.empty()) {

WaitForMultipleObjects(threads.size(), threads.data(), TRUE, INFINITE);

for (HANDLE h : threads) CloseHandle(h);

}

matrix = result;

}

}

int main(int argc, char\* argv[]) {

setlocale(LC\_ALL, "RUS");

clock\_t tStart = clock();

if (argc < 5) {

std::cerr << "Использование: " << argv[0] << " <размер\_матрицы> <размер\_фильтра> <число\_потоков> <повторения\_К>\n";

return 1;

}

int matrixSize = std::stoi(argv[1]);

int filterSize = std::stoi(argv[2]);

int maxThreads = std::stoi(argv[3]);

int K = std::stoi(argv[4]);

if (matrixSize < filterSize) {

std::cerr << "Размер матрицы должен быть больше или равен размеру фильтра.\n";

return 1;

}

std::vector<std::vector<double>> matrix(matrixSize, std::vector<double>(matrixSize, 1.0));

std::vector<std::vector<double>> filter(filterSize, std::vector<double>(filterSize, 1.0));

ApplyConvolution(matrix, filter, maxThreads, K);

std::cout << "Время выполнения: " << ((double)(clock() - tStart) / CLOCKS\_PER\_SEC) << " сек" << std::endl;

std::cout << "Обработка завершена.\n";

return 0;

}

# Протокол работы программы

# Тестирование:

# 

# Process monitor:

# 22:16:36,9522679 Lab\_2.exe 20916 Process Start SUCCESS Parent PID: 3692, Command line:

# 22:16:36,9522770 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 16052

# 22:16:36,9557967 Lab\_2.exe 20916 Load Image D:\OneDrive\Рабочий стол\Lab\_2\x64\Debug\Lab\_2.exe SUCCESS Image Base: 0x7ff7175d0000, Image Size: 0x39000

# 22:16:36,9559106 Lab\_2.exe 20916 Load Image C:\Windows\System32\ntdll.dll SUCCESS Image Base: 0x7ff9de610000, Image Size: 0x217000

# 22:16:36,9560747 Lab\_2.exe 20916 CreateFile C:\Windows\Prefetch\LAB\_2.EXE-A36F4A71.pf SUCCESS Desired Access: Generic Read, Disposition: Open, Options: Synchronous IO Non-Alert, Attributes: n/a, ShareMode: None, AllocationSize: n/a, OpenResult: Opened

# 22:16:36,9562728 Lab\_2.exe 20916 QueryEAFile C:\Windows\Prefetch\LAB\_2.EXE-A36F4A71.pf SUCCESS

# 22:16:36,9568205 Lab\_2.exe 20916 QueryStandardInformationFile C:\Windows\Prefetch\LAB\_2.EXE-A36F4A71.pf SUCCESS AllocationSize: 4 096, EndOfFile: 3 001, NumberOfLinks: 1, DeletePending: False, Directory: False

# 22:16:36,9568510 Lab\_2.exe 20916 ReadFile C:\Windows\Prefetch\LAB\_2.EXE-A36F4A71.pf SUCCESS Offset: 0, Length: 3 001, Priority: Normal

# 22:16:36,9568988 Lab\_2.exe 20916 ReadFile C:\Windows\Prefetch\LAB\_2.EXE-A36F4A71.pf SUCCESS Offset: 0, Length: 3 001, I/O Flags: Non-cached, Paging I/O, Priority: Normal

# 22:16:36,9571844 Lab\_2.exe 20916 CloseFile C:\Windows\Prefetch\LAB\_2.EXE-A36F4A71.pf SUCCESS

# 22:16:36,9658335 Lab\_2.exe 20916 RegQueryValue HKLM\System\CurrentControlSet\Control\Nls\CodePage\ACP SUCCESS Type: REG\_SZ, Length: 10, Data: 1251

# 22:16:36,9658529 Lab\_2.exe 20916 RegQueryValue HKLM\System\CurrentControlSet\Control\Nls\CodePage\OEMCP SUCCESS Type: REG\_SZ, Length: 8, Data: 866

# 22:16:36,9667943 Lab\_2.exe 20916 CreateFile D:\OneDrive\Рабочий стол\Lab\_2\x64\Debug SUCCESS Desired Access: Execute/Traverse, Synchronize, Disposition: Open, Options: Directory, Synchronous IO Non-Alert, Attributes: n/a, ShareMode: Read, Write, AllocationSize: n/a, OpenResult: Opened

# 22:16:36,9669788 Lab\_2.exe 20916 Load Image C:\Windows\System32\kernel32.dll SUCCESS Image Base: 0x7ff9dce80000, Image Size: 0xc4000

# 22:16:36,9671957 Lab\_2.exe 20916 Load Image C:\Windows\System32\KernelBase.dll SUCCESS Image Base: 0x7ff9dba30000, Image Size: 0x3d1000

# 22:16:36,9699677 Lab\_2.exe 20916 RegQueryValue HKLM\System\CurrentControlSet\Control\FileSystem\LongPathsEnabled SUCCESS Type: REG\_DWORD, Length: 4, Data: 1

# 22:16:36,9701133 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 14428

# 22:16:36,9702165 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 9180

# 22:16:36,9702895 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 20536

# 22:16:36,9712494 Lab\_2.exe 20916 CreateFile C:\Windows\System32\msvcp140d.dll SUCCESS Desired Access: Read Attributes, Disposition: Open, Options: Open Reparse Point, Attributes: n/a, ShareMode: Read, Write, Delete, AllocationSize: n/a, OpenResult: Opened

# 22:16:36,9712764 Lab\_2.exe 20916 QueryBasicInformationFile C:\Windows\System32\msvcp140d.dll SUCCESS CreationTime: 18.01.2025 7:51:58, LastAccessTime: 06.03.2025 22:15:35, LastWriteTime: 18.01.2025 7:51:58, ChangeTime: 05.03.2025 12:33:31, FileAttributes: A

# 22:16:36,9712883 Lab\_2.exe 20916 CloseFile C:\Windows\System32\msvcp140d.dll SUCCESS

# 22:16:36,9714254 Lab\_2.exe 20916 CreateFile C:\Windows\System32\vcruntime140d.dll SUCCESS Desired Access: Read Attributes, Disposition: Open, Options: Open Reparse Point, Attributes: n/a, ShareMode: Read, Write, Delete, AllocationSize: n/a, OpenResult: Opened

# 22:16:36,9714342 Lab\_2.exe 20916 CreateFile C:\Windows\System32\vcruntime140\_1d.dll SUCCESS Desired Access: Read Attributes, Disposition: Open, Options: Open Reparse Point, Attributes: n/a, ShareMode: Read, Write, Delete, AllocationSize: n/a, OpenResult: Opened

# 22:16:36,9714503 Lab\_2.exe 20916 QueryBasicInformationFile C:\Windows\System32\vcruntime140d.dll SUCCESS CreationTime: 18.01.2025 7:52:00, LastAccessTime: 06.03.2025 22:15:35, LastWriteTime: 18.01.2025 7:52:00, ChangeTime: 05.03.2025 12:33:31, FileAttributes: A

# 22:16:36,9714717 Lab\_2.exe 20916 CloseFile C:\Windows\System32\vcruntime140d.dll SUCCESS

# 22:16:36,9714808 Lab\_2.exe 20916 QueryBasicInformationFile C:\Windows\System32\vcruntime140\_1d.dll SUCCESS CreationTime: 18.01.2025 7:52:00, LastAccessTime: 06.03.2025 22:15:35, LastWriteTime: 18.01.2025 7:52:00, ChangeTime: 05.03.2025 12:33:31, FileAttributes: A

# 22:16:36,9714958 Lab\_2.exe 20916 CloseFile C:\Windows\System32\vcruntime140\_1d.dll SUCCESS

# 22:16:36,9715258 Lab\_2.exe 20916 CreateFile C:\Windows\System32\ucrtbased.dll SUCCESS Desired Access: Read Attributes, Disposition: Open, Options: Open Reparse Point, Attributes: n/a, ShareMode: Read, Write, Delete, AllocationSize: n/a, OpenResult: Opened

# 22:16:36,9715562 Lab\_2.exe 20916 QueryBasicInformationFile C:\Windows\System32\ucrtbased.dll SUCCESS CreationTime: 21.02.2024 21:00:06, LastAccessTime: 06.03.2025 22:15:35, LastWriteTime: 21.02.2024 21:00:06, ChangeTime: 05.03.2025 12:36:56, FileAttributes: A

# 22:16:36,9715703 Lab\_2.exe 20916 CloseFile C:\Windows\System32\ucrtbased.dll SUCCESS

# 22:16:36,9717865 Lab\_2.exe 20916 CreateFile C:\Windows\System32\msvcp140d.dll SUCCESS Desired Access: Read Data/List Directory, Execute/Traverse, Synchronize, Disposition: Open, Options: Synchronous IO Non-Alert, Non-Directory File, Attributes: n/a, ShareMode: Read, Delete, AllocationSize: n/a, OpenResult: Opened

# 22:16:36,9718460 Lab\_2.exe 20916 CreateFileMapping C:\Windows\System32\msvcp140d.dll FILE LOCKED WITH ONLY READERS SyncType: SyncTypeCreateSection, PageProtection: PAGE\_EXECUTE\_READ|PAGE\_NOCACHE

# 22:16:36,9719313 Lab\_2.exe 20916 CreateFile C:\Windows\System32\vcruntime140d.dll SUCCESS Desired Access: Read Data/List Directory, Execute/Traverse, Synchronize, Disposition: Open, Options: Synchronous IO Non-Alert, Non-Directory File, Attributes: n/a, ShareMode: Read, Delete, AllocationSize: n/a, OpenResult: Opened

# 22:16:36,9719528 Lab\_2.exe 20916 CreateFileMapping C:\Windows\System32\msvcp140d.dll SUCCESS SyncType: SyncTypeOther

# 22:16:36,9719783 Lab\_2.exe 20916 CreateFile C:\Windows\System32\vcruntime140\_1d.dll SUCCESS Desired Access: Read Data/List Directory, Execute/Traverse, Synchronize, Disposition: Open, Options: Synchronous IO Non-Alert, Non-Directory File, Attributes: n/a, ShareMode: Read, Delete, AllocationSize: n/a, OpenResult: Opened

# 22:16:36,9719866 Lab\_2.exe 20916 CreateFileMapping C:\Windows\System32\vcruntime140d.dll FILE LOCKED WITH ONLY READERS SyncType: SyncTypeCreateSection, PageProtection: PAGE\_EXECUTE\_READ|PAGE\_NOCACHE

# 22:16:36,9719871 Lab\_2.exe 20916 CreateFile C:\Windows\System32\ucrtbased.dll SUCCESS Desired Access: Read Data/List Directory, Execute/Traverse, Synchronize, Disposition: Open, Options: Synchronous IO Non-Alert, Non-Directory File, Attributes: n/a, ShareMode: Read, Delete, AllocationSize: n/a, OpenResult: Opened

# 22:16:36,9720410 Lab\_2.exe 20916 CreateFileMapping C:\Windows\System32\vcruntime140d.dll SUCCESS SyncType: SyncTypeOther

# 22:16:36,9720511 Lab\_2.exe 20916 CreateFileMapping C:\Windows\System32\vcruntime140\_1d.dll FILE LOCKED WITH ONLY READERS SyncType: SyncTypeCreateSection, PageProtection: PAGE\_EXECUTE\_READ|PAGE\_NOCACHE

# 22:16:36,9720620 Lab\_2.exe 20916 CreateFileMapping C:\Windows\System32\ucrtbased.dll FILE LOCKED WITH ONLY READERS SyncType: SyncTypeCreateSection, PageProtection: PAGE\_EXECUTE\_READ|PAGE\_NOCACHE

# 22:16:36,9720659 Lab\_2.exe 20916 Load Image C:\Windows\System32\msvcp140d.dll SUCCESS Image Base: 0x7ff93f250000, Image Size: 0xe2000

# 22:16:36,9720995 Lab\_2.exe 20916 CreateFileMapping C:\Windows\System32\vcruntime140\_1d.dll SUCCESS SyncType: SyncTypeOther

# 22:16:36,9721421 Lab\_2.exe 20916 Load Image C:\Windows\System32\vcruntime140d.dll SUCCESS Image Base: 0x7ff948670000, Image Size: 0x2e000

# 22:16:36,9722005 Lab\_2.exe 20916 Load Image C:\Windows\System32\vcruntime140\_1d.dll SUCCESS Image Base: 0x7ff9cf8e0000, Image Size: 0xf000

# 22:16:36,9722432 Lab\_2.exe 20916 CloseFile C:\Windows\System32\msvcp140d.dll SUCCESS

# 22:16:36,9722471 Lab\_2.exe 20916 CloseFile C:\Windows\System32\vcruntime140d.dll SUCCESS

# 22:16:36,9722553 Lab\_2.exe 20916 CreateFileMapping C:\Windows\System32\ucrtbased.dll SUCCESS SyncType: SyncTypeOther

# 22:16:36,9722943 Lab\_2.exe 20916 CloseFile C:\Windows\System32\vcruntime140\_1d.dll SUCCESS

# 22:16:36,9723772 Lab\_2.exe 20916 Load Image C:\Windows\System32\ucrtbased.dll SUCCESS Image Base: 0x7ff93e090000, Image Size: 0x221000

# 22:16:36,9724934 Lab\_2.exe 20916 CloseFile C:\Windows\System32\ucrtbased.dll SUCCESS

# 22:16:36,9738254 Lab\_2.exe 20916 CreateFile C:\Windows\System32\ucrtbased.dll SUCCESS Desired Access: Read Attributes, Disposition: Open, Options: Open Reparse Point, Attributes: n/a, ShareMode: Read, Write, Delete, AllocationSize: n/a, OpenResult: Opened

# 22:16:36,9738587 Lab\_2.exe 20916 QueryBasicInformationFile C:\Windows\System32\ucrtbased.dll SUCCESS CreationTime: 21.02.2024 21:00:06, LastAccessTime: 06.03.2025 22:16:36, LastWriteTime: 21.02.2024 21:00:06, ChangeTime: 05.03.2025 12:36:56, FileAttributes: A

# 22:16:36,9738599 Lab\_2.exe 20916 CreateFile C:\Windows\System32\vcruntime140\_1d.dll SUCCESS Desired Access: Read Attributes, Disposition: Open, Options: Open Reparse Point, Attributes: n/a, ShareMode: Read, Write, Delete, AllocationSize: n/a, OpenResult: Opened

# 22:16:36,9738725 Lab\_2.exe 20916 CloseFile C:\Windows\System32\ucrtbased.dll SUCCESS

# 22:16:36,9738867 Lab\_2.exe 20916 QueryBasicInformationFile C:\Windows\System32\vcruntime140\_1d.dll SUCCESS CreationTime: 18.01.2025 7:52:00, LastAccessTime: 06.03.2025 22:16:36, LastWriteTime: 18.01.2025 7:52:00, ChangeTime: 05.03.2025 12:33:31, FileAttributes: A

# 22:16:36,9738991 Lab\_2.exe 20916 CloseFile C:\Windows\System32\vcruntime140\_1d.dll SUCCESS

# 22:16:36,9739103 Lab\_2.exe 20916 CreateFile C:\Windows\System32\ucrtbased.dll SUCCESS Desired Access: Read Attributes, Disposition: Open, Options: Open Reparse Point, Attributes: n/a, ShareMode: Read, Write, Delete, AllocationSize: n/a, OpenResult: Opened

# 22:16:36,9739222 Lab\_2.exe 20916 CreateFile C:\Windows\System32\ucrtbased.dll SUCCESS Desired Access: Read Attributes, Disposition: Open, Options: Open Reparse Point, Attributes: n/a, ShareMode: Read, Write, Delete, AllocationSize: n/a, OpenResult: Opened

# 22:16:36,9739459 Lab\_2.exe 20916 QueryBasicInformationFile C:\Windows\System32\ucrtbased.dll SUCCESS CreationTime: 21.02.2024 21:00:06, LastAccessTime: 06.03.2025 22:16:36, LastWriteTime: 21.02.2024 21:00:06, ChangeTime: 05.03.2025 12:36:56, FileAttributes: A

# 22:16:36,9739914 Lab\_2.exe 20916 QueryBasicInformationFile C:\Windows\System32\ucrtbased.dll SUCCESS CreationTime: 21.02.2024 21:00:06, LastAccessTime: 06.03.2025 22:16:36, LastWriteTime: 21.02.2024 21:00:06, ChangeTime: 05.03.2025 12:36:56, FileAttributes: A

# 22:16:36,9739975 Lab\_2.exe 20916 CloseFile C:\Windows\System32\ucrtbased.dll SUCCESS

# 22:16:36,9740090 Lab\_2.exe 20916 CloseFile C:\Windows\System32\ucrtbased.dll SUCCESS

# 22:16:36,9745040 Lab\_2.exe 20916 RegQueryValue HKLM\System\CurrentControlSet\Control\Nls\Sorting\Versions\(Default) SUCCESS Type: REG\_SZ, Length: 18, Data: 00060403

# 22:16:36,9745252 Lab\_2.exe 20916 RegQueryValue HKLM\System\CurrentControlSet\Control\Nls\Sorting\Versions\000604xx SUCCESS Type: REG\_SZ, Length: 26, Data: kernel32.dll

# 22:16:36,9757901 Lab\_2.exe 20916 RegEnumValue HKLM\System\CurrentControlSet\Control\Nls\CustomLocale NO MORE ENTRIES Index: 0, Length: 531

# 22:16:36,9758302 Lab\_2.exe 20916 RegEnumValue HKLM\System\CurrentControlSet\Control\Nls\ExtendedLocale NO MORE ENTRIES Index: 0, Length: 531

# 22:16:36,9759261 Lab\_2.exe 20916 RegEnumKey HKCU\Control Panel\International\User Profile SUCCESS Index: 0, Name: en-US

# 22:16:36,9760133 Lab\_2.exe 20916 RegEnumKey HKCU\Control Panel\International\User Profile SUCCESS Index: 1, Name: ru

# 22:16:36,9760956 Lab\_2.exe 20916 RegEnumKey HKCU\Control Panel\International\User Profile NO MORE ENTRIES Index: 2, Length: 526

# 22:16:37,0678837 Lab\_2.exe 20916 ReadFile D:\OneDrive\Рабочий стол\Lab\_2\x64\Debug\Lab\_2.exe SUCCESS Offset: 41 984, Length: 4 096, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0680604 Lab\_2.exe 20916 ReadFile D:\OneDrive\Рабочий стол\Lab\_2\x64\Debug\Lab\_2.exe SUCCESS Offset: 17 408, Length: 32 768, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0682579 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 2 142 208, Length: 8 192, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0683974 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 98 304, Length: 4 096, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0685212 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 2 162 688, Length: 16 384, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0686586 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 98 304, Length: 32 768, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0688270 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 495 616, Length: 4 096, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0689683 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 491 520, Length: 32 768, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0692155 Lab\_2.exe 20916 ReadFile C:\Windows\System32\vcruntime140d.dll SUCCESS Offset: 157 696, Length: 6 144, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0693631 Lab\_2.exe 20916 ReadFile C:\Windows\System32\vcruntime140d.dll SUCCESS Offset: 99 328, Length: 31 744, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0696648 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 19412

# 22:16:37,0697058 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 20456

# 22:16:37,0697528 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 7876

# 22:16:37,0698102 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 4388

# 22:16:37,0698569 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 19412, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0699444 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 4388, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0700424 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 7876, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0701067 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 20456, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0702019 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 11568

# 22:16:37,0702343 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 2108

# 22:16:37,0702736 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 15312

# 22:16:37,0703061 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 19004

# 22:16:37,0703138 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 11568, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0704536 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 15312, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0705281 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 2108, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0705523 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 19004, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0706347 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 1100

# 22:16:37,0706661 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 15552

# 22:16:37,0707016 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 20376

# 22:16:37,0707373 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 2660

# 22:16:37,0708095 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 20376, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0708335 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 1100, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0709591 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 15552, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0709755 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 2660, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0710763 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 2816

# 22:16:37,0711081 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 13260

# 22:16:37,0711486 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 19884

# 22:16:37,0711793 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 2816, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0711812 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 12584

# 22:16:37,0713083 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 19884, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0713706 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 12584, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0713909 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 13260, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0714818 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 17948

# 22:16:37,0715129 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 18588

# 22:16:37,0715523 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 2832

# 22:16:37,0715843 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 9604

# 22:16:37,0716874 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 18588, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0716955 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 17948, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0717754 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 2832, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0718456 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 9604, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0719409 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 7220

# 22:16:37,0719749 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 9868

# 22:16:37,0720057 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 2536

# 22:16:37,0720326 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 4836

# 22:16:37,0721082 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 2536, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0721967 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 9868, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0722795 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 7220, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0722887 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 4836, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0723900 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 19388

# 22:16:37,0724227 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 11912

# 22:16:37,0724512 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 17764

# 22:16:37,0724769 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 12112

# 22:16:37,0726475 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 17764, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0726792 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 19388, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0726850 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 11912, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0727748 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 12112, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0728554 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 11028

# 22:16:37,0728845 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 20424

# 22:16:37,0729278 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 2216

# 22:16:37,0729544 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 20752

# 22:16:37,0730673 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 11028, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0730768 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 2216, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0731505 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 20424, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0732419 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 20752, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0733464 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 16888

# 22:16:37,0734016 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 4992

# 22:16:37,0734468 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 20192

# 22:16:37,0734810 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 12356

# 22:16:37,0736001 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 12356, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0736828 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 20192, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0736959 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 16888, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0736973 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 4992, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0738382 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 3236

# 22:16:37,0738701 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 18892

# 22:16:37,0739053 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 18656

# 22:16:37,0739390 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 17476

# 22:16:37,0739480 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 3236, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0740761 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 18892, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0741606 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 18656, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0741746 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 17476, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0742586 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 19996

# 22:16:37,0742876 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 5064

# 22:16:37,0743234 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 13728

# 22:16:37,0743574 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 10820

# 22:16:37,0743640 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 19996, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0744967 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 5064, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0745662 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 10820, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0745846 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 13728, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0746734 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 6288

# 22:16:37,0747035 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 13236

# 22:16:37,0747413 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 20196

# 22:16:37,0747715 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 6288, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0747750 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 4248

# 22:16:37,0748390 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 13236, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0749313 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 20196, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0749961 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 4248, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0750781 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 17780

# 22:16:37,0751082 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 15288

# 22:16:37,0751476 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 68

# 22:16:37,0751781 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 13248

# 22:16:37,0751890 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 17780, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0753364 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 15288, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0753554 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 68, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0754706 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 13248, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0755386 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 12736

# 22:16:37,0755662 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 19336

# 22:16:37,0755907 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 16144

# 22:16:37,0756127 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 16392

# 22:16:37,0757071 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 16144, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0757128 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 12736, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0758611 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 16392, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0758672 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 19336, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0759832 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 19600

# 22:16:37,0760144 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 19608

# 22:16:37,0760493 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 12620

# 22:16:37,0760880 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 12660

# 22:16:37,0761502 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 12620, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0761787 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 19600, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0763454 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 19608, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0763922 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 12660, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0764915 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 19904

# 22:16:37,0765227 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 11076

# 22:16:37,0765574 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 296

# 22:16:37,0765923 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 20100

# 22:16:37,0766139 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 19904, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0766919 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 11076, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0767728 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 296, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0768385 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 20100, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0769237 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 18304

# 22:16:37,0769538 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 19208

# 22:16:37,0769879 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 20120

# 22:16:37,0770226 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 19988

# 22:16:37,0770839 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 20120, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0771134 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 18304, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0772579 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 19208, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0772679 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 19988, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0773770 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 9560

# 22:16:37,0774091 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 18852

# 22:16:37,0774457 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 21256

# 22:16:37,0774838 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 19328

# 22:16:37,0775446 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 21256, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0775513 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 9560, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0776372 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 18852, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0777091 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 19328, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0777977 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 16644

# 22:16:37,0778292 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 2264

# 22:16:37,0778654 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 11988

# 22:16:37,0779039 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 7124

# 22:16:37,0779602 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 11988, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0779815 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 16644, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0780610 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 7124, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0781219 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 2264, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0782107 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 20108

# 22:16:37,0782648 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 972

# 22:16:37,0783270 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 4272

# 22:16:37,0783733 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 5712

# 22:16:37,0784518 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 972, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0784571 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 20108, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0785453 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 4272, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0786219 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 5712, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0787059 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 18368

# 22:16:37,0788124 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 18368, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0789229 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 7272

# 22:16:37,0789525 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 13920

# 22:16:37,0789809 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 15872

# 22:16:37,0790064 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 21368

# 22:16:37,0791125 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 13920, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0791223 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 7272, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0792742 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 21368, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0792793 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 15872, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0793668 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 16600

# 22:16:37,0793943 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 2128

# 22:16:37,0794184 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 10988

# 22:16:37,0794385 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 19064

# 22:16:37,0794827 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 16600, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0795584 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 2128, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0796370 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 10988, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0797223 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 19064, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0798104 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 21432

# 22:16:37,0798413 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 18148

# 22:16:37,0798756 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 19092

# 22:16:37,0799137 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 6068

# 22:16:37,0799643 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 19092, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0799812 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 21432, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0800585 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 18148, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0801261 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 6068, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0802037 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 18396

# 22:16:37,0802339 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 4592

# 22:16:37,0802637 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 6012

# 22:16:37,0802997 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 21236

# 22:16:37,0804319 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 4592, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0804378 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 18396, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0805309 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 6012, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0805507 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 21236, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0806379 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 15800

# 22:16:37,0806674 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 15216

# 22:16:37,0806991 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 8368

# 22:16:37,0807372 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 11320

# 22:16:37,0808056 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 15800, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0809316 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 15216, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0809328 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 11320, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0809632 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 8368, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0810591 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 20032

# 22:16:37,0810893 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 18096

# 22:16:37,0811187 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 20884

# 22:16:37,0811561 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 21424

# 22:16:37,0812181 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 18096, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0812837 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 20884, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0813751 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 20032, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0814074 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 21424, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0814883 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 1960

# 22:16:37,0815195 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 18880

# 22:16:37,0815500 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 4336

# 22:16:37,0815879 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 16176

# 22:16:37,0816672 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 4336, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0816845 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 1960, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0817783 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 16176, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0818548 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 18880, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0819292 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 304

# 22:16:37,0819621 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 16816

# 22:16:37,0819906 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 20720

# 22:16:37,0820145 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 18488

# 22:16:37,0821201 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 20720, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0821316 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 304, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0822176 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 18488, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0822826 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 16816, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0823670 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 21200

# 22:16:37,0823993 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 15240

# 22:16:37,0824339 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 308

# 22:16:37,0824690 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 15036

# 22:16:37,0825766 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 15240, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0827217 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 21200, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0827232 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 15036, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0827477 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 308, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0828363 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 18748

# 22:16:37,0828663 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 4724

# 22:16:37,0828937 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 7344

# 22:16:37,0829191 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 20460

# 22:16:37,0829353 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 18748, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0830766 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 4724, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0830969 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 7344, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0831911 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 20460, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0832620 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 16404

# 22:16:37,0832943 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 12472

# 22:16:37,0833210 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 15880

# 22:16:37,0833446 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 7316

# 22:16:37,0833680 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 16404, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0835117 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 15880, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0835939 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 12472, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0836076 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 7316, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0837154 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 14816

# 22:16:37,0837484 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 19188

# 22:16:37,0837881 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 16388

# 22:16:37,0838333 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 20416

# 22:16:37,0839137 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 19188, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0839257 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 14816, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0840100 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 20416, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0841015 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 16388, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0841843 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 6644

# 22:16:37,0842141 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 8496

# 22:16:37,0842448 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 20140

# 22:16:37,0842807 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 21388

# 22:16:37,0844367 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 8496, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0844415 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 6644, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0845186 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 21388, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0845417 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 20140, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0846309 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 6132

# 22:16:37,0846618 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 15380

# 22:16:37,0846905 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 16944

# 22:16:37,0847196 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 2156

# 22:16:37,0847343 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 6132, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0848202 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 16944, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0848877 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 2156, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0849511 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 15380, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0850170 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 5612

# 22:16:37,0850472 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 21100

# 22:16:37,0850745 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 9580

# 22:16:37,0851004 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 3344

# 22:16:37,0851641 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 21100, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0851835 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 5612, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0852753 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 3344, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0853434 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 9580, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0854105 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 16228

# 22:16:37,0854391 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 16980

# 22:16:37,0854657 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 5104

# 22:16:37,0854904 Lab\_2.exe 20916 Thread Create SUCCESS Thread ID: 4356

# 22:16:37,0855622 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 5104, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0855867 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 16228, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0857399 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 16980, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0857661 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 4356, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0866650 Lab\_2.exe 20916 ReadFile C:\Windows\System32\msvcp140d.dll SUCCESS Offset: 887 808, Length: 15 872, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0869540 Lab\_2.exe 20916 ReadFile C:\Windows\System32\msvcp140d.dll SUCCESS Offset: 871 424, Length: 16 384, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0871906 Lab\_2.exe 20916 ReadFile C:\Windows\System32\msvcp140d.dll SUCCESS Offset: 705 536, Length: 16 384, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0874132 Lab\_2.exe 20916 ReadFile C:\Windows\System32\msvcp140d.dll SUCCESS Offset: 467 968, Length: 4 096, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0875515 Lab\_2.exe 20916 ReadFile C:\Windows\System32\msvcp140d.dll SUCCESS Offset: 467 968, Length: 32 768, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0877312 Lab\_2.exe 20916 ReadFile C:\Windows\System32\msvcp140d.dll SUCCESS Offset: 859 136, Length: 12 288, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0878791 Lab\_2.exe 20916 ReadFile C:\Windows\System32\msvcp140d.dll SUCCESS Offset: 672 768, Length: 16 384, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0880545 Lab\_2.exe 20916 ReadFile C:\Windows\System32\msvcp140d.dll SUCCESS Offset: 107 520, Length: 4 096, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0881957 Lab\_2.exe 20916 ReadFile C:\Windows\System32\msvcp140d.dll SUCCESS Offset: 107 520, Length: 32 768, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0885977 Lab\_2.exe 20916 ReadFile C:\Windows\System32\msvcp140d.dll SUCCESS Offset: 504 832, Length: 32 768, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0887644 Lab\_2.exe 20916 ReadFile C:\Windows\System32\msvcp140d.dll SUCCESS Offset: 435 200, Length: 32 768, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0889568 Lab\_2.exe 20916 ReadFile C:\Windows\System32\msvcp140d.dll SUCCESS Offset: 95 232, Length: 4 096, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0890886 Lab\_2.exe 20916 ReadFile C:\Windows\System32\msvcp140d.dll SUCCESS Offset: 689 152, Length: 16 384, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0892291 Lab\_2.exe 20916 ReadFile C:\Windows\System32\msvcp140d.dll SUCCESS Offset: 82 944, Length: 24 576, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0894802 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 2 203 648, Length: 12 288, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0896349 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 1 306 624, Length: 4 096, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0897916 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 1 306 624, Length: 32 768, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0900192 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 2 191 360, Length: 8 192, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0901615 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 1 019 904, Length: 4 096, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0902753 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 1 015 808, Length: 32 768, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0904481 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 856 064, Length: 4 096, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0905660 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 856 064, Length: 32 768, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0907426 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 851 968, Length: 4 096, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0908584 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 823 296, Length: 32 768, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0910245 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 929 792, Length: 32 768, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0911977 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 925 696, Length: 4 096, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0913225 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 897 024, Length: 32 768, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0915110 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 1 003 520, Length: 4 096, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0916265 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 983 040, Length: 32 768, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0918085 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 28 672, Length: 4 096, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0919101 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 28 672, Length: 32 768, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0921014 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 1 998 848, Length: 16 384, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0922494 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 16 384, Length: 12 288, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0924006 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 65 536, Length: 4 096, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0925122 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 61 440, Length: 32 768, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0926846 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 966 656, Length: 4 096, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0927937 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 962 560, Length: 20 480, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0930128 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 1 208 320, Length: 4 096, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0931102 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 1 208 320, Length: 32 768, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0932779 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 1 302 528, Length: 4 096, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0933844 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 1 273 856, Length: 32 768, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0935619 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 1 175 552, Length: 4 096, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0936598 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 1 175 552, Length: 32 768, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0938963 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 1 548 288, Length: 4 096, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0940536 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 1 548 288, Length: 32 768, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0942498 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 2 052 096, Length: 16 384, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0944032 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 1 245 184, Length: 4 096, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0945308 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 1 241 088, Length: 32 768, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0946922 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 1 904 640, Length: 16 384, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0948625 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 1 503 232, Length: 4 096, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0950163 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 1 503 232, Length: 32 768, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0952313 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 565 248, Length: 4 096, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0953516 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 544 768, Length: 24 576, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0958489 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 737 280, Length: 4 096, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0959837 Lab\_2.exe 20916 ReadFile C:\Windows\System32\msvcp140d.dll SUCCESS Offset: 656 384, Length: 16 384, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0961566 Lab\_2.exe 20916 ReadFile C:\Windows\System32\ucrtbased.dll SUCCESS Offset: 737 280, Length: 32 768, I/O Flags: Non-cached, Paging I/O, Synchronous Paging I/O, Priority: Normal

# 22:16:37,0980374 Lab\_2.exe 20916 CreateFile C:\Windows\System32\kernel.appcore.dll SUCCESS Desired Access: Read Attributes, Disposition: Open, Options: Open Reparse Point, Attributes: n/a, ShareMode: Read, Write, Delete, AllocationSize: n/a, OpenResult: Opened

# 22:16:37,0980853 Lab\_2.exe 20916 QueryBasicInformationFile C:\Windows\System32\kernel.appcore.dll SUCCESS CreationTime: 28.07.2024 22:00:50, LastAccessTime: 06.03.2025 22:16:33, LastWriteTime: 28.07.2024 22:00:50, ChangeTime: 26.02.2025 13:25:42, FileAttributes: A

# 22:16:37,0981068 Lab\_2.exe 20916 CloseFile C:\Windows\System32\kernel.appcore.dll SUCCESS

# 22:16:37,0983462 Lab\_2.exe 20916 CreateFile C:\Windows\System32\kernel.appcore.dll SUCCESS Desired Access: Read Data/List Directory, Execute/Traverse, Synchronize, Disposition: Open, Options: Synchronous IO Non-Alert, Non-Directory File, Attributes: n/a, ShareMode: Read, Delete, AllocationSize: n/a, OpenResult: Opened

# 22:16:37,0984061 Lab\_2.exe 20916 CreateFileMapping C:\Windows\System32\kernel.appcore.dll FILE LOCKED WITH ONLY READERS SyncType: SyncTypeCreateSection, PageProtection: PAGE\_EXECUTE\_READ|PAGE\_NOCACHE

# 22:16:37,0984428 Lab\_2.exe 20916 CreateFileMapping C:\Windows\System32\kernel.appcore.dll SUCCESS SyncType: SyncTypeOther

# 22:16:37,0985743 Lab\_2.exe 20916 Load Image C:\Windows\System32\kernel.appcore.dll SUCCESS Image Base: 0x7ff9da770000, Image Size: 0x18000

# 22:16:37,0987461 Lab\_2.exe 20916 Load Image C:\Windows\System32\msvcrt.dll SUCCESS Image Base: 0x7ff9dd1d0000, Image Size: 0xa7000

# 22:16:37,0989688 Lab\_2.exe 20916 CloseFile C:\Windows\System32\kernel.appcore.dll SUCCESS

# 22:16:37,0994675 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 14428, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0994835 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 9180, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0995074 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 20536, User Time: 0.0000000, Kernel Time: 0.0000000

# 22:16:37,0997056 Lab\_2.exe 20916 Thread Exit SUCCESS Thread ID: 16052, User Time: 0.0000000, Kernel Time: 0.0625000

# 22:16:37,1000933 Lab\_2.exe 20916 Process Exit SUCCESS Exit Status: 0, User Time: 0.0000000 seconds, Kernel Time: 0.0625000 seconds, Private Bytes: 974 848, Peak Private Bytes: 995 328, Working Set: 5 566 464, Peak Working Set: 5 566 464

# 22:16:37,1002682 Lab\_2.exe 20916 CloseFile D:\OneDrive\Рабочий стол\Lab\_2\x64\Debug SUCCESS

# Вывод

# Лабораторная работа успешно реализует алгоритм свертки матриц с использованием многопоточности. Программа эффективно обрабатывает большие объемы данных, обеспечивая ускорение вычислений за счет параллельной обработки. Управление потоками и измерение времени выполнения делают программу гибкой и производительной.