



**VILNIUS UNIVERSITY
ŠIAULIAI ACADEMY**

BACHELOR PROGRAMME SOFTWARE ENGINEERING

Object-Oriented Programming

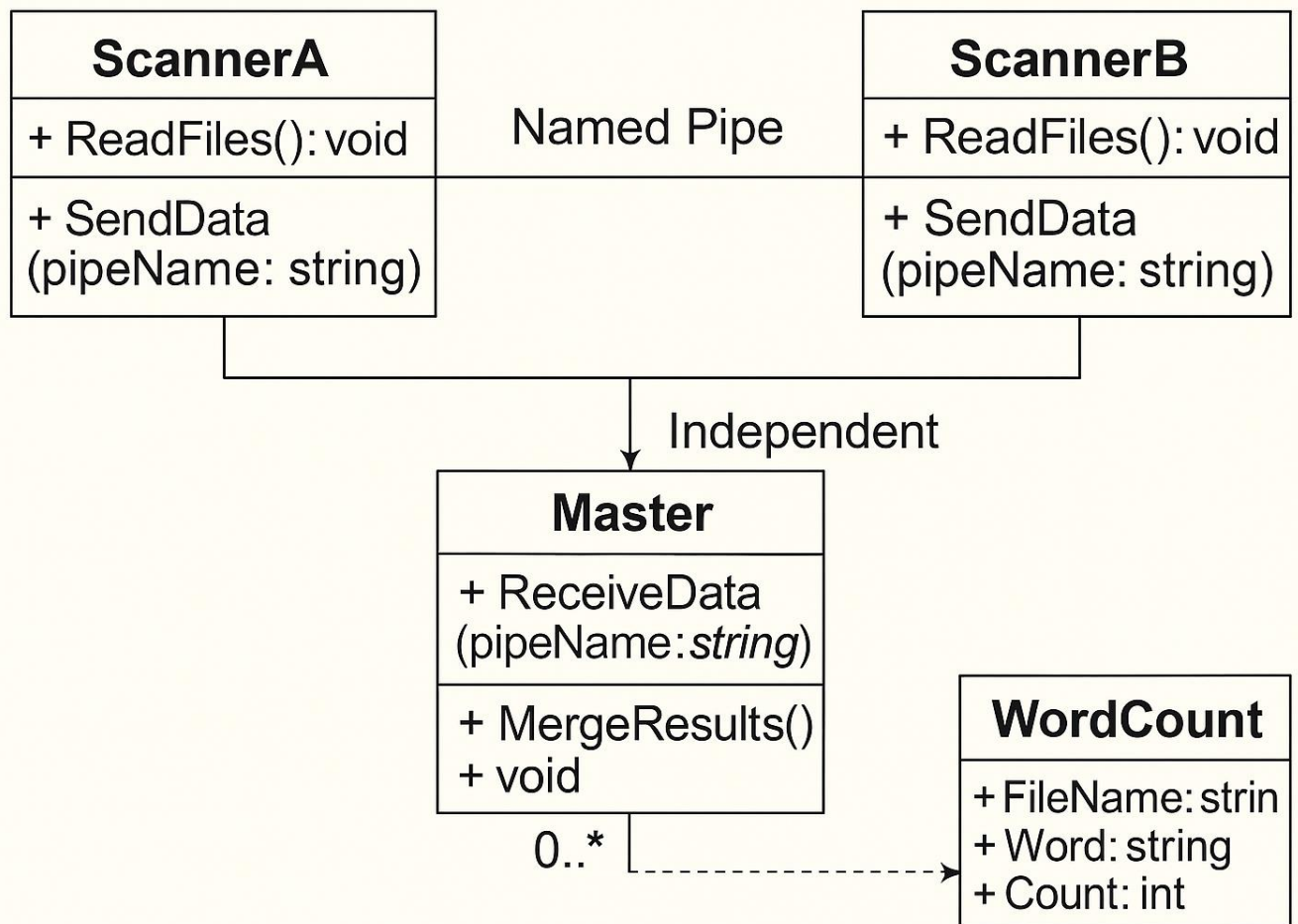
C#final task

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UML diagram:



Git hub link: <https://github.com/ayusha5600/c-final-task>

1. What I Implemented

- Developed three separate C# console applications: ScannerA, ScannerB, and Master.
- ScannerA and ScannerB read .txt files from different folders and count how many times each word appears.
- Used a custom WordCount class that holds FileName, Word, and Count for each entry.

- **Used Named Pipes for communication:** ScannerA sends data through agent1, ScannerB through agent2.
 - **The Master program waits for both scanners, receives the data, merges them, and displays the final word count report.**
 - **All programs use multithreading to perform file reading and communication in parallel.**
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2. Functionality of Each Task

- **ScannerA:**
 - Scans a folder for .txt files.
 - Reads content, counts each word, and sends a structured list of WordCount objects to Master via agent1.
 - **ScannerB:**
 - Similar to ScannerA, but uses a different folder.
 - Sends data via agent2.
 - **Master:**
 - Starts and waits for both agents to connect.
 - Receives and merges both word count lists.
 - Displays combined results with file name, word, and frequency.
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3. Challenges Faced

- **Pipe Busy Error:**
 - Caused when Master was restarted while previous pipes were still open.
 - Fixed by closing running processes using Task Manager.
- **Directory Not Found:**
 - Happened when the given path was incorrect or the folder did not exist.
 - Solved by checking folder name carefully and quoting the path.
- **Spaces in File Path:**
 - Spaces in folder names caused command-line errors.
 - Solved by using double quotes .

Screenshoot:

1.ScannerA:

```
Command Prompt
Microsoft Windows [Version 10.0.26100.3915]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Administrator>cd "C:\Users\Administrator\Documents\oop\scanner project\scannerA\bin\Debug\net6.0"

C:\Users\Administrator\Documents\oop\scanner project\scannerA\bin\Debug\net6.0>scannerA.exe "C:\Users\Administrator\Documents\oop\scanner project\scannerA" agent1
Connecting to pipe: agent1...
Data sent successfully.

C:\Users\Administrator\Documents\oop\scanner project\scannerA\bin\Debug\net6.0>|
```

2.ScannerB:

```
Command Prompt
Microsoft Windows [Version 10.0.26100.3915]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Administrator>cd "C:\Users\Administrator\Documents\oop\scanner project\scannerB\bin\Debug\net6.0"

C:\Users\Administrator\Documents\oop\scanner project\scannerB\bin\Debug\net6.0>scannerB.exe "C:\Users\Administrator\Documents\oop\scanner project\scannerB" agent2
Connecting to pipe: agent2...
Data sent successfully.

C:\Users\Administrator\Documents\oop\scanner project\scannerB\bin\Debug\net6.0>|
```

3.Master:

```
Command Prompt
C:\Users\Administrator>cd "C:\Users\Administrator\Documents\oop\scanner project\master\bin\Debug\net6.0"

C:\Users\Administrator\Documents\oop\scanner project\master\bin\Debug\net6.0>master.exe agent1 agent2
Waiting for connection on pipe: agent1...
Waiting for connection on pipe: agent2...
Data received from agent2.
Data received from agent1.

--- Merged Word Count Results ---
scannerB.TXT:my:1
scannerB.TXT:surname:1
scannerB.TXT:is:1
scannerB.TXT:kattel:1
scannerB.TXT:and:1
scannerB.TXT:am:1
scannerB.TXT:very:1
scannerB.TXT:happy:1
scannerB.TXT:to:1
scannerB.TXT:see:1
scannerB.TXT:you:1
scannerB.TXT:all:1
scannerA.txt:my:1
scannerA.txt:name:1
scannerA.txt:is:1
scannerA.txt:aayusha:1
scannerA.txt:i:1
scannerA.txt:am:1
scannerA.txt:currently:1
scannerA.txt:studying:1
scannerA.txt:in:1
scannerA.txt:vilnius:1
scannerA.txt:university:1
```