DF-Assignment

Done By:
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RMCA 2025-27

Reflection on Cache Memory

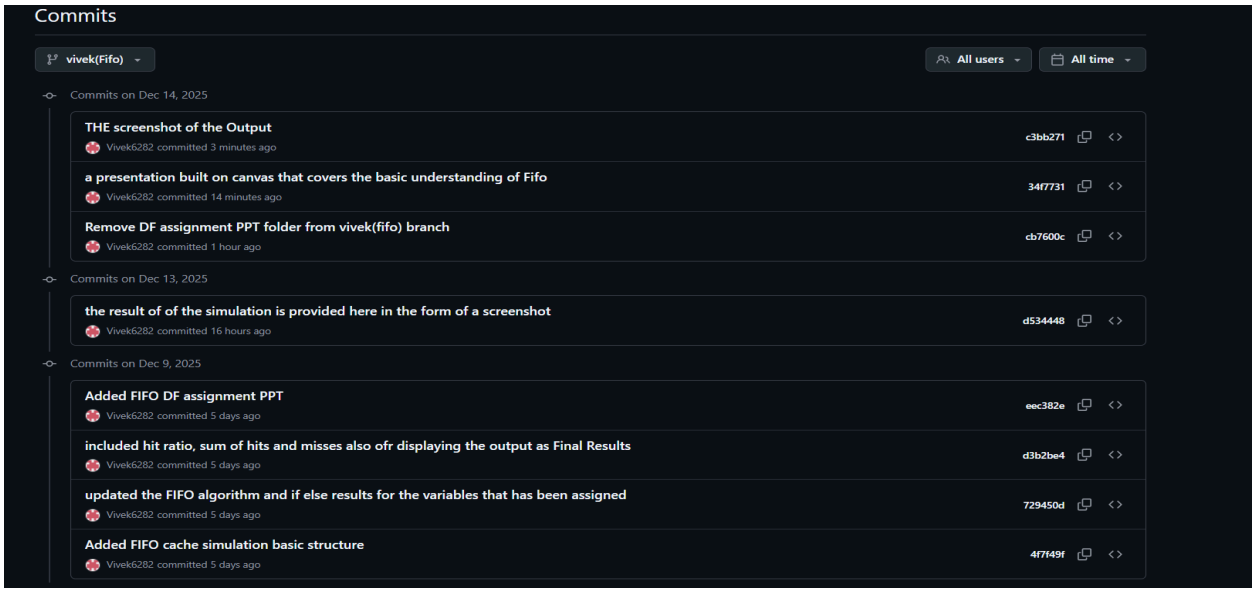
In this project, the concepts of cache memory have been implemented through the use of Python and basic software logic. Cache blocks, cache hits, cache misses and replacement algorithms, among other things, have been expressed using **Python's built-in list data structure, loops and conditional statements**. The FIFO replacement algorithm was used and implemented by keeping track of the elements in the cache to know the order, so that when the cache gets full, it could be emptied of the oldest block(s). By using this method, the functional concept of how cache memory works in a Computer System was understood in a real world way.

While working with a team of five people to develop the project, **GIT was an extremely important asset for version management** due to the nature of working in a team. Each person worked on a different part of the project, so keeping track of who was doing what would have been very difficult if not for GIT, it also allowed us to push our own individual parts, as well as pull updates from the others, while at the same time keeping the project organized and coordinated. Commands such as pull, commit and push allowed us to stay in sync and avoid problems that could arise while working together.

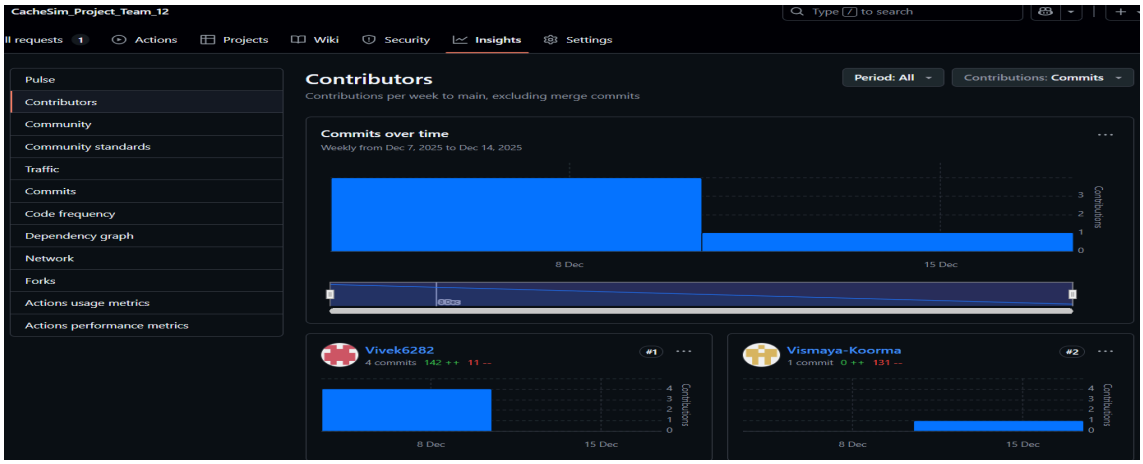
The most difficult and challenging part of the project was the coding aspect. To turn the theoretical concepts of cache memory into Python Logic required a lot of careful planning and logical reasoning. Debugging the errors took quite a bit of time; however, I was able to improve my understanding of the cache memory concepts and how they work in a Computer System. All in all, this project was a great learning experience for me in terms of cache memory, Python programming, and teamwork while using GIT.

Assignment Activities and Contribution

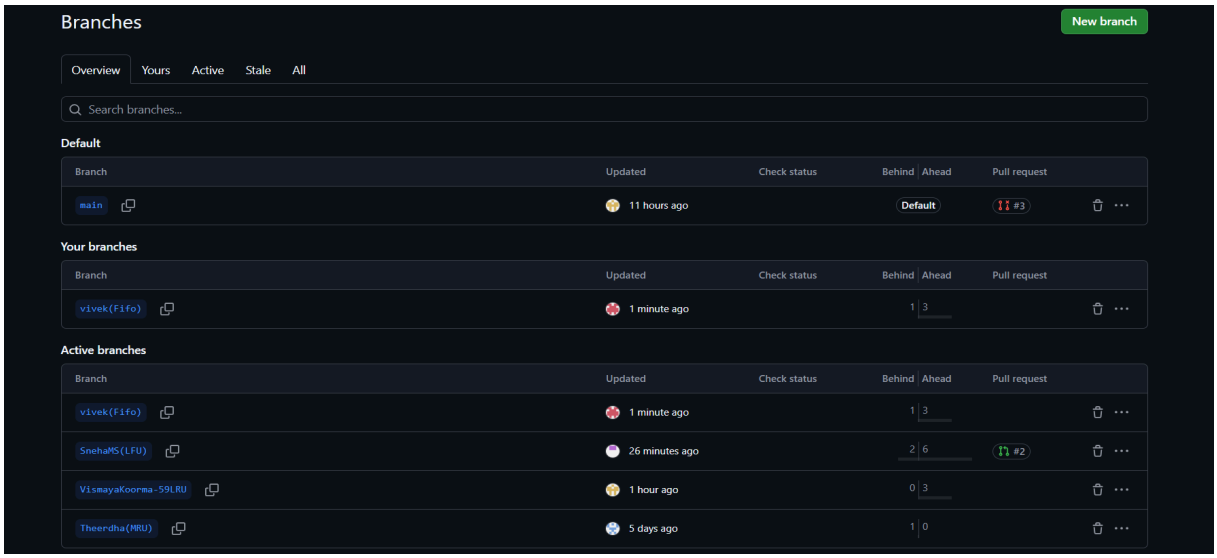
1)Git log



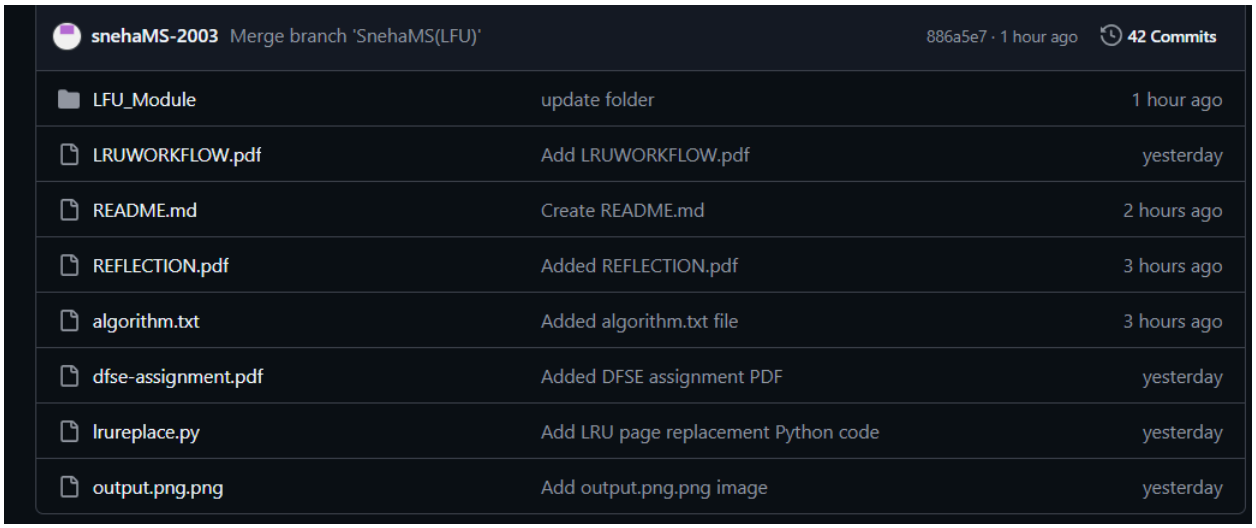
2)Repository Contribution Graph



3)Git Branch



4)Git Merge



5)ReadMe

README

CacheSim_Project_Team_12

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Names	Roles
Sneha M S	LFU (Least Frequently Used)
Vismaya Koorma	LRU (Least Recently Used)
Theerdha Raju	Direct Mapping
Vivek	FIFO (First In First Out)
Subin Joseph	Set Associative Mapping

Link to Our GitHub Repository:
https://github.com/Vismaya-Koorma/CacheSim_Project_Team_12