Operating Systems – HW1

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Part 1: Goroutine vs Thread

Goroutine is a function/ method that runs independently and at the same time as the other goroutine in an any Go program, while a thread is part of a process that runs an application. Goroutines are managed by the go runtime, and it is cheaper in cost. It is not dependent on hardware and has an easy communication medium, channel. On the other hand, Thread is dependent on hardware, it does not have an easy communication medium, and it is more expensive than goroutine.

Advantages and Disadvantages of Goroutine:
The advantages of Goroutine are that it is lightweight, fast, easy concurrency, and has automatic stack management. Goroutine is lightweight since it uses less memory than OS threads. It has a simpler syntax like, "go functionName(). The channel makes communication easy and safe, and the stacks grow and shrink dynamically, which saves memory. The disadvantages of Goroutine are that it is harder to debug, no direct control over scheduling, and synchronization complexity. Bugs can be difficult to find, making it harder to debug. The program GO decides when it runs instead of the program. Incorrect usage of this can cause some problems and needs channels for safety.

(i am not exactly sure if I am doing this correctly)

https://www.geeksforgeeks.org/go-language/golang-goroutine-vs-thread/

I believe that this source is a credible source to use since I've used it when I do homework for my other classes and it was a helpful source and helped me understand the material when I get confused. It also includes many different topics and subjects that's related to computers.

https://gosuda.org/blog/posts/goroutine-basics-z3fbe209e

I believe that this source is a credible source to use because this is a technical site that focuses on the programming language of Go. This website has content of software engineering throughout and API development of Go. There are multiple contributors writing the content on the website, and it is connected to open-source projects.

https://www.tutorialspoint.com/goroutine-vs-thread-in-golang

I believe that this source is a credible source to use because this website is an educational site that provides tutorials and training on many different programming languages and

computer science topics. The website identifies the author, and it is updated frequently with the update date. It provides examples and definitions of the concepts.

Part 2:

In the GitHub repo: https://github.com/Katw-1/OS-HW1