Main/Go routine from main

fatRate

MachineOperator

1. Initialization : create a new channel,pass to fatRateMachineOperator

1. Initialization : create a new instant of FatRateRankMachine

2a. Registration : create register method and pass to the fatRatemachine channel

2b. Registration : pick up function from fatRatemachine channel and register

2c. wait till all goroutine in waitgroup has completed, create printscoreboard function and pass to the fatRateMachine channel

2c. print scoreboard

3.a.1. Update :Main program generates 1000 go routine to continuously generate UpdateFucntion and pass to the FatRateMachine channel. If the channel is full (1000 functions), then the goroutine will wait

3.c pick up a Update/GetRank function from fatRatemachine channel and process

3.b.1. GetRank :Main program also generates 1000 go routine to continuously generate GetRank function and pass to the FatRateMachine channel at the same time. If the channel is full (1000 functions), then the goroutine will wait

4a. Terminating : Receive Sigterm,sigint signal from OS or Receive Timeout from context channel, send cancel context action to Update/GetRank Go Routine, wait till all go routine in wait group has finished.

5b. Close FateRateMachine channel

5a Shutdown : instruct fatRateMachineOperator to close FatRateMachine channel.

Using Channel

fatRate

Rank

Machine

fatRate

Rank

Machine

Using

Lock

4.Terminating :

If there is context timeout or cancel action triggered by SIgterm, sigint received, then Person goutine will exit.

3c.GetRank :

If there is a Write lock, then Person will wait till the write lock is released.

3b.GetRank :

Person will get his rank and then release Rlock.

3a.GetRank :

Machine will check if there is no Write Lock, if yes ,it will give Read lock to Person

2a.Update :

Machine will check if there is no RLock and no Write Lock, if yes ,it will give write lock to Person

1a.Register :

Machine will check if there is no RLock and no Write Lock, if yes ,it will give write lock to Person

2c.Update :

If there is no available lock, then Person will wait till the lock is available

2b.Update :

Person update its fatrate to machine and then release lock.

1c.Register :

If there is no available lock, then Person will wait till the lock is available

1b.Register :

Person register its info to machine and then release lock.

MutexFatRateRankMachine

Person