# OS ASSIGNMENT 3

# README FOR Q1:

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1.

1.(a) i.

For the Strict ordering of resources of i have used mutex locks.i this first i have defines the number of philosophers and the number of forks present using shared variables. then i have assigned each fork to each philosopher.

then i have run a while loop in while will run for an infinite time and then the philosophers start thing and then start eating by taking the forks from their left and right . the philosopher eho are able to eat are in such a way that all resouces gets used but there is no deadlock created among the the philosopher for eating the food . After the 2 philosopher stop eating i have then unlocked the philosopher to let them eat from the resouce available again. in the main function i have created a thread to run the program and then join it for the running of the program created.

1.(a)ii.

In this part i have used semaphores to do the preventing of the deadlocks and it is same as the above process.in this it will create a waiting situation for the other philosophes with sem_wait and then make the philosopher eat what with the forks. after eating we use sem_post for removing the wait condition on the philosopher and then allowing the next 2 philosopher to eat. same as the above part the main function runs by creating threads and initializing the semaphores.

1(b).

In this question we have to the same condition of the above philosohers but with the 2 sauce bowls. which would be required by philosopher for eating them. We have defined the sauce bowl in an array. i have then run a while loop in which all the professors are are first thinking than then i have made a sauce bowl to assign to the philosopher and then made it wait for the philosopher to get the forks and then made the philosophers eat and used sem_wait to prevent deadlocks. then i have removed the forks from the philosophers and even removed the sauce bowls before the forks are relesed for the philosophers by using sem_post. in the main function i have inititated the the no of forks the 2 sauce bowls with sem.Then created a thread for the philosophers to make then eat and run the program. this prevents the deadlocks by strict ordering and using all the resouce available.