OS ASSIGNMENT 3

Q1)
1)
Assumed order of philosophers (P0-P4) and forks (F0-F4)
created threads and joined them and in create called the philosher func
which does the thinking and eating with the use of strict ordering
and in second part by using semaphores.
and in 1b with the use of semaphores added a function saucebowls which only allows 2 people at a time to take it.
Functions used:
pthread_create()
pthread_join()
For semaphores:
sem_init()
sem_wait()
sem_post()

Q2)
Created Three variants of the program P1 (one each for communicating using Unix domain sockets, FIFOs and shared memory respectively)
And Three variants of the program P2 (one each for communicating using Unix domain sockets, FIFOs and shared memory respectively)

The second program P2 accepts the received strings,
and send back the highest ID received back to P1 to acknowledge the strings received. The program P2 simply prints the ID's and the strings on the console.
On receiving the acknowledged packet, P1 sends the next five strings, with the string elements starting from the successor of the acknowledged ID.

And then Printing the amount of time required to
finish receiving the acknowledgment of all 50 strings in the three cases.

Functions used in fifo:
mkfifo()

Functions used in sockets:
connect() by client
bind() , listen() and accept() by server side

Functions used in shared memory:
shmget()
shmat()

Run the make file then run./p1 &./p2

Q3)
implemented a kernel system call as a module then The task of the system call is to read the entries of the process task_struct corresponding to any given process (supplied as input via command line argument) and printing thevalues of the following field: pid, user id, process group id (pgid) and command path.

Function used:
pid_task(find_vpid(pid), PIDTYPE_PID)