Abdullah Emin Ak- aak
Kaan Oğuzhan- koguzhan

Project 2

In log.h we defined structs of plane and queue and then in project2.c we implemented queues and 2 functions for logging where it opens up a new file planes.log and writes the passed string to the file which we used later for logging the departing or landing planes.

Every plane struct has a mutex and condition variable so we initiate a plane array globally, queues, time_t variables and then we get probability and other command line arguments and then until the end of simulation, threads are created where we handle all of 3 parts in the project, ATC controls if there more than 3 planes in departing queue or if the front of the queue has been waiting for over 10 seconds and then it allows a plane to depart. This caused some starvation for landing planes so we decided not to let departing queue grow so much and put a limit of 8 planes so this way we ensured the landing planes won't crush or run out of fuel. After specific conditions are met, we signal a specific plane which means only one thread will wake up and it will land or depart so keeping condition variable and mutex in plane struct was really useful instead of defining global condition variables. a mutex called plane_mutex was used to ensure ATC and departing, landing planes did their work atomically. After the simulation time has been passed, threads are joined and then mutex and condition variables are destroyed.