HomeWork 5

Task 1 Distrubuted Pairing (Client Server)

This solution was made with a simple algorithm that makes all the students send in their request to the teacher. And the teacher pairs the students 1-n, where n is the number of students. If n is an odd number the student does not get a partner and works alone. The pairing is done in two phases, the first is when the student sends out the request and the teacher collects them. The second phase, the pairing, is done by iterating the collected students and sending the pairs back to the students, i and i+1. When this is done the program prints out the pairings with the student ID and its partners ID.

In this solution the teacher acts like a server and the students acts like clients.

Task 2 Distrubuted Pairing (Peer-to-Peer)

This solution was made with a bit more complicated algorithm, the tricky part was the randomness and the unstructured peer to peer functionality. The algorithm is started where the teacher randomly selects a student to start the pairing. This student partners up with the peer student to the left. This first student also tells the student to the left of the chosen student that it is that student's turn to find a partner. (chosen student + 2) This continues in a circle until either a student tries to tell the original student that it is its partner, or that it is that one's turn to pick again. Since this is done in an array we loop around it with several if statements. If a student tries to partner up with the student to the left and it is the original chosen by the teacher, the student will partner up with itself. The algorithm ends where every student has a partner or is alone and prints its ID and the partners ID.

Here in this solution the Teacher is only an initializing peer in the distributed program and the students act like peers with equal rights and actions.