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Problem:

The dining philosophers problem encompasses the issues of resource sharing in operating systems. This problem takes four philosophers, north, south, east, and west, and requires them to switch between thinking and eating respectively. When eating the philosopher must acquire two forks, on both his left and right hands respectively. There however are only four forks on the table, one between each philosopher, and therefore they must be shared in a manner that none of the philosophers are starved because of waiting to eat for too long.

Solution:

Our solution to this is to use a switching algorithm to change how the philosophers acquire their resources. The basics of the algorithm is that when a philosopher grabs for the left fork first he will then look for the right fork if that fork is lock by another philosopher then the philosopher will release the left fork and change to look for the right fork first. This allows the philosopher to still maintain a place in the queue but not lock up resources unnecessarily and starve other philosophers.