Too Much Milk

Roommate A

3:00  Arrive home: no milk
3:05  Leave for store
3:10  Arrive at store
3:15  Leave store
3:20  Arrive home, put milk away
3:25
3:30
<table>
<thead>
<tr>
<th>Time</th>
<th>Roommate A</th>
<th>Time</th>
<th>Roommate B</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:00</td>
<td>Arrive home: no milk</td>
<td>3:00</td>
<td>Arrive home: no milk</td>
</tr>
<tr>
<td>3:05</td>
<td>Leave for store</td>
<td>3:05</td>
<td>Leave for store</td>
</tr>
<tr>
<td>3:10</td>
<td>Arrive at store</td>
<td>3:10</td>
<td>Arrive at store</td>
</tr>
<tr>
<td>3:15</td>
<td>Leave store</td>
<td>3:15</td>
<td>Leave store</td>
</tr>
<tr>
<td>3:20</td>
<td>Arrive home, put milk away</td>
<td>3:20</td>
<td>Arrive at store</td>
</tr>
<tr>
<td>3:25</td>
<td></td>
<td>3:25</td>
<td>Leave store</td>
</tr>
<tr>
<td>3:30</td>
<td></td>
<td>3:30</td>
<td>Arrive home: too much milk!</td>
</tr>
</tbody>
</table>
if (milk == 0) {
  if (note == 0) {
    note = 1;
    buy_milk();
    note = 0;
  }
}

Still Too Much Milk

Thread A:
1 if (milk == 0) {
2    if (note == 0) {
3
4
5
6
7
8
9
10    note = 1;
11    buy_milk();
12    note = 0;
13  }
14 }
Second Attempt

Thread A:
1    if (note == 0) {
2        if (milk == 0) {
3                buy_milk();
4        }
5        note = 1;
6    }

Thread B:
1    if (note == 1) {
2        if (milk == 0) {
3                buy_milk();
4        }
5        note = 0;
6    }
Third Attempt

Thread A:
1. noteA = 1;
2. if (noteB == 0) {
3.     if (milk == 0) {
4.         buy_milk();
5.     }
6. }
7. noteA = 0;

Thread B:
1. noteB = 1;
2. if (noteA == 0) {
3.     if (milk == 0) {
4.         buy_milk();
5.     }
6. }
7. noteB = 0;
Fourth Attempt

Thread A:
1 noteA = 1;
2 if (noteB == 0) {
3   if (milk == 0) {
4     buy_milk();
5   }
6 }
7 noteA = 0;

Thread B:
1 noteB = 1;
2 while (noteA == 1) {
3   // do nothing
4 }
5 if (milk == 0) {
6   buy_milk();
7 }
8 noteB = 0;