CS 5500 Homework 2

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Approach

To simulate pachinko in MPI I chose to use 8 processes (columns) and 100 balls.

I began this assignment thinking of the problem very wrong. I had mismatched receives and sends and my program would never terminate. I had to take a step back and simplify the amount of and locations of sends/receives.
Another problem I ran into was trying to store the totalCounts of processes(columns) in an array. I am new to C++ and got very confused in relation to pointers and unzeroed memory. I found a different method and learned a little bit about pointers along the way.

Implementation

My program uses process 0 as the master who first sends the balls to the middle column. Each process then waits to receive balls and decides to send them left, right, or straight. When a process has a ball reach the bottom row, it sends a message to process 0 telling it that a ball has finished. Once process 0 has received messages that all balls have reached the bottom, it sends a 'poison' message to kill all of the processes.

The simulation runs with the command: `mpirun -np 8 -oversubscribe ./a.out`

Example output looks as follows:

slot1: 7
slot2: 7
slot3: 25
slot4: 27
slot5: 26
slot6: 5
slot7: 3

Concluding Remarks

Overall, this assignment was very difficult for me. One because I was learning C++, but also because I have a hard time debugging in MPI. There's a lot going on so it's not as simple as printing something out to see the execution path.