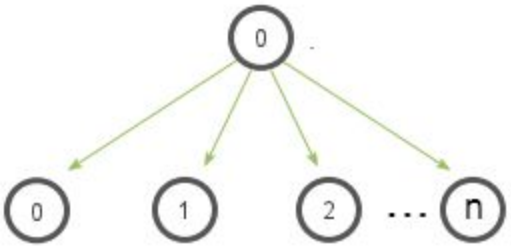
Lab 1 Assignment

1. The sequential program

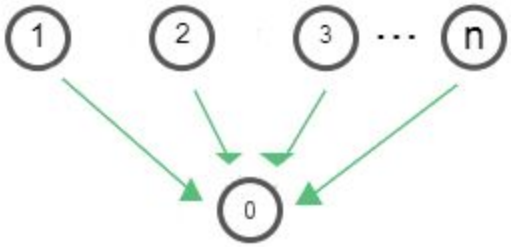
   The sequential program runs in the following way: it creates the array using a for-loop, and then it uses the function flagNonPrime(), which sets the non-prime numbers to 0. Then, when the non-prime numbers are 0, the program writes the non-zero numbers, so the primes, into a text file.

2. The parallel program

   The parallel program is a data-parallel program and runs the following way: process 0 partitions the array into somewhat equal parts and sends them (using MPI_Send and MPI_Recv) amongst the cores (the number of elements that each core receives = size of array / number of cores). The remaining elements are sent to the last core. Then, each core sets the non-prime numbers of their part of the array to 0, including the master core. Then, the master core gathers the parts of the array from the other cores (using MPI_Gather) and the same core writes the non-zero numbers (the prime numbers) into a text file.



MPI_Send



MPI_Gather

Unfortunately, I wasn't able to finish the MPI_Gather function, but this is the final touch that I would have provided.