Summing 100,000 Numbers on 10 Processors

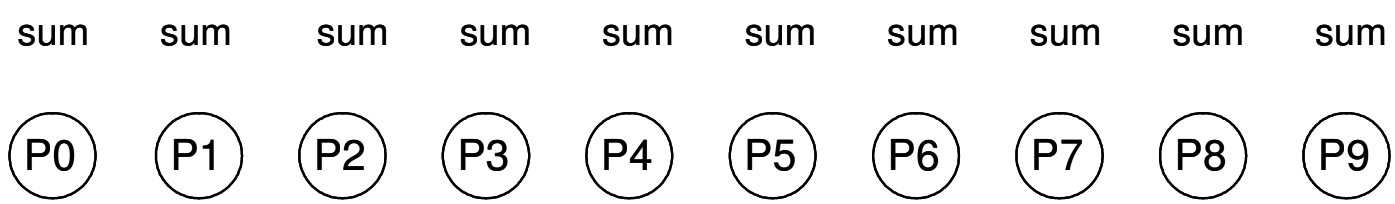
Start by distributing 10,000 elements of vector A to each of the local memories (in Al) and summing each subset in parallel

```
sum = 0;
for (i = 0; i < 10000; i = i + 1)
     sum = sum + Al[i];       /* sum local array subset */
```

The processors then coordinate in adding together the partial sums (Pn is the number of the processor, send(x,y) sends value y to processor x, and receive() receives a value)

```
half = 10;
limit = 10;
repeat
   half = (half + 1) / 2;     /* dividing line */
   if (Pn >= half && Pn < limit)
      send(Pn-half, sum);
   if (Pn < (limit/2))
      sum = sum + receive();
   limit = half;
until (half == 1);       /* final sum in P0's sum */
```

Trace the second segment of code that adds together the partial sums assuming 10 processors.



3. For a 64 processor system, compare the interconnection network for each of the following topologies.

	Bus	Ring	Torus	6-cube	Fully connected
Network bandwidth	1				
Bisection bandwidth	1				
Total # of Switches	1				
Links per switch					
Total # of links	1				