INF 551 – Fall 2016 (Morning)
Quiz 4: File systems & HDFS (10 points)
10 minutes

1. [7 points] Consider writing a new file "bar" under the "/foo/more" directory. Fill in the following table by placing "read" or "write" operation in the proper cells. Each row has only one operation. The order of rows indicates the sequence of the operations. (Assume when the file is **opened** for write, the file system does not allocate any data blocks for the file.)

	inode bitmap	data bitmap	root inode	foo inode	more inode	bar inode	root data	foo data	more data	bar data[0]
open()			read							
							read			
				read						
								read		
					read					
									read	
	read									
	write									
						write				
									write	
					write					
write()						read				
		read								
		write								
										write
						write				

2. [3 points] Describe the process (i.e., the steps) of **writing** a file in HDFS.

For every block (64MB typically) of the file, the client asks the NameNode to nominate a number of DataNodes to hold replica of the block.

It then divides the blocks into a number of packets (e.g., 64KB) and sends the packets to the DataNodes in a pipelined fashion. To speed up the process, the client does not wait for the acknowledge of previous packet before sending the next one.