**COL 733:  CLOUD COMPUTING TECHNOLOGY FUNDAMENTALS**

**Assignment 3**

**Disk Virtualisation**

**Group 11**

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**DISK VIRTUALISATION (CONSOLIDATION & PARTITIONING)**

**Read/Write of Blocks**

We have a class *BlockData*, the objects of which represent each blocks. The class *BlockMetaData* represents the meta data associated with each block. The *free* variable captures the information whether a block is free or not. The class *FileSystem* represents the main file system that is based on the idea of virtual disks. *diskA* and *diskB* represent the physical disks with capacity of 200 and 300 block respectively. The file system has an array *blocksMetaData* of 500 size which stores the meta data corresponding to each block.

**Functions**

* **writeBlock (self, blockNum, writeData):** writes data (*writeData*) to a particular block number (*blockNum*). It initially performs the valid block number check to verify if block number lies between 1 & 500 else returns an Invalid Block Number error. Secondly, it checks whether the size of the *writeData* exceeds the maximum size limit, *blockSize* (100 bytes here). When we write to a block, we update it’s free variable to False and store the data either in *diskA* or *diskB* depending on the block number.
* **readBlock (self,blockNum,readData):** it reads data from a particular block number (*blockNum*) after performing the valid block number check and verifying whether block actually has any data to be read or is free.

**Tests**

The function *runTests()* performs multiple write and read tests using the above two functions. We try to write normally to a valid block, overwrite a block, writing to invalid blocks and writing larger than *blockSize* data. Then, we try to read from blocks with different checks and conditions. As verifiable by executing the code, we obtain the expected and explainable results.