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| L3Line |
| -int tagBits  -int mesifState  -int dirtyBit |
| +L3Line()  +L3Line(unsigned int tag, int mesifState)  \\ It generates a line and save its TAG bits and in which state should the line be in.  -~L3Line()  \\ destructor  +void setMESIF (int state)  \\ To change the MESIF State of a line.  +int getMESIF();  \\ It returns the MESIF state of the line.  +void setTag(int tag)  \\  +unsigned int getTag()  \\ It returns the Tag of the line.  +void setDirtyBit()  \\ It will toggle the bit.  +int getDirtyBit()  \\ To get the condition of the dirtiness of the line.  +void print()  \\ It prints the Tag, MESIF, and the Dirty bit in the console. |

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| L3Set |
| - L3Line l3Line[NUM\_LINES]  - string lruBits  -int numLines |
| + L3Set(const int numLines)  \\ The constructor of the L3Set object where number of line per set is passed to the function to generate an array of lines.  -~L3Set()  \\ destructor  - int getLRU()  \\ The class uses this function to get the LRU line in order to evict it form the line. Therefore, there will be a room for a new line. Read the binary tree to get the LRU.  - unsigned int evict(int evictedLineNum)  \\ This function will evict the LRU line to the write buffer if it is dirty, and delete the line if it is not dirty. It uses the getLRU function.  + string readData(unsigned int tag)  \\ It will return hit or not hit according to the data presents. Change the LRU bits according to where the MRU line is.  + string writeData(unsigned int tag, int mesifState)  \\ It takes the address and the MESIF state of the line, and make a new line. In case there is not space it will return “No space” and calls the evict function. If modified, then set dirty bit.  + string checkHit(unsigned int tag)  \\ If it is hit by calling the (readData function). Then return the MESIF state of that address.  + string mesifStateModifier(unsigned int tag, int mesifState)  \\ It will change the MESIF state of the given address and return that state.  -void changeLRUBits(int numLine) |