CS 188-3 Project 1
Spring 2021
Due 4/29 Thursday, 11:59PM on CCLE

Your task will be to implement the function hashBlock(version, hashPrevBlock, hashMerkleRoot, epochTime, difficulty, nonce) in node.py.

hashBlock will return True or False if the binary output from a call to the sha256 hash function has a number of leading zeros greater than or equal to the difficulty.

hashBlock should also print the hash output and the number of leading zeros. An example output of a call to hashBlock is shown below:

```
$ python3 node.py
epochTime: 0b0000000000000000000000000000000000000000000000000
0000000000000000011000000111011110000000100111100
SHA256 hash output: 000001100111100011011001111100000011111000
11110111101011010100101110011010100100000101011000010011011000
111011101011011011000100001010100100101001001010101001110001111
111010001111110000010101010000001100011101101110001111011000011
010100011111111010000001
Leading Zeroes: 5
Difficulty: 2
Mined block is valid: True
```

Note that the output of calls to node.py can be True or False. As the epochTime is constantly changing, this input will be unique for each call to node.py, and therefore the hash output will be different each time, and may or may not meet our difficulty requirement. The output in the above example just happened to meet our difficulty of 2.

Also, you have been given the helper function sha(blockHeader), which should be used to make calls to the sha256 function.

Like in the homeworks, groups of 2-3 are allowed, but everyone must submit their own work, and team members must be specified. In this case, add a comment on the node.py file with your team members.

You must submit your file node.py to CCLE by Thursday, April 29th at 11:59PM. Note that if the formatting is not exactly correct, you will not be deducted points, so long as all the information is there.