

# Blockchain and Cryptocurrencies Assignment

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## Task 1. Mining Puzzles

1. **userID:** mmgw12
2. **The block hash target:** 0x000003E7FC18000
3. **The nonce value of valid block:** 6162644
4. **Number of double hashes performed:** 6162644
5. **Time taken:** 110079 ms

6. **Estimate how long it will take to mine a block:**

let **target\_1** = 0x00000000FFFF000

and let **current\_target** = **target\_1** / **difficulty**

- difficulty at 1

**current\_target** = **target\_1**

=0x00000000FFFF000

for this case there are  $8*4+2$  leading zeros so it can be approximated that  $2^{34}$  hashes will be required.

- difficulty at 7,454,968,648,263

**current\_target** = **target\_1** / 7,454,968,648,263

=0x00000000000000000000000025C191000001580000000000000000000000000000000000

for this case there are  $18*4+2$  leading zeros so it can be approximated that  $2^{74}$  hashes will be required.