# Tutorial 5 – Tasks

# Hashing Algorithm

Invent an implement your own hashing algorithm. A good hashing algorithm should have the following features:

1. Deterministic: Given the same input, a hash function should always produce the same hash value.

2. Uniform Distribution: It should evenly distribute the hash values across the available range.

3. Efficiency: The computation of a hash value should be computationally efficient.

4. Fixed-length output: Regardless of the input size, the output should be of a fixed length.

5. One-way function: It should be very hard, if not impossible, to figure out the original input from the hash.

6. Minimize collisions: It should rarely create the same hash for two different inputs.

7. Dependence on every bit of the key: A good hash function should depend on every single bit of the key.

How would your implementation change if:

* You were only hashing strings, and the only strings being hashed began with the letters A, B and C
* You were only hashing phone numbers.
* You were only hashing bank account numbers.

## Revision

This tutorial is your opportunity to revisit the previous 4 tutorials and master all the concepts from them that you may have missed