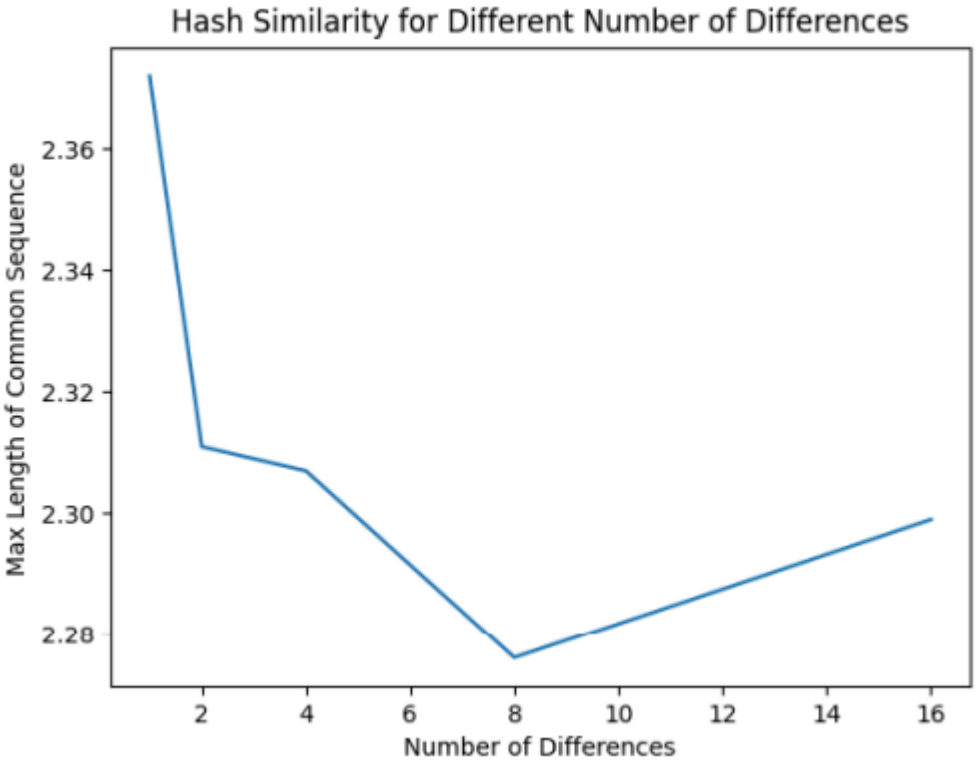
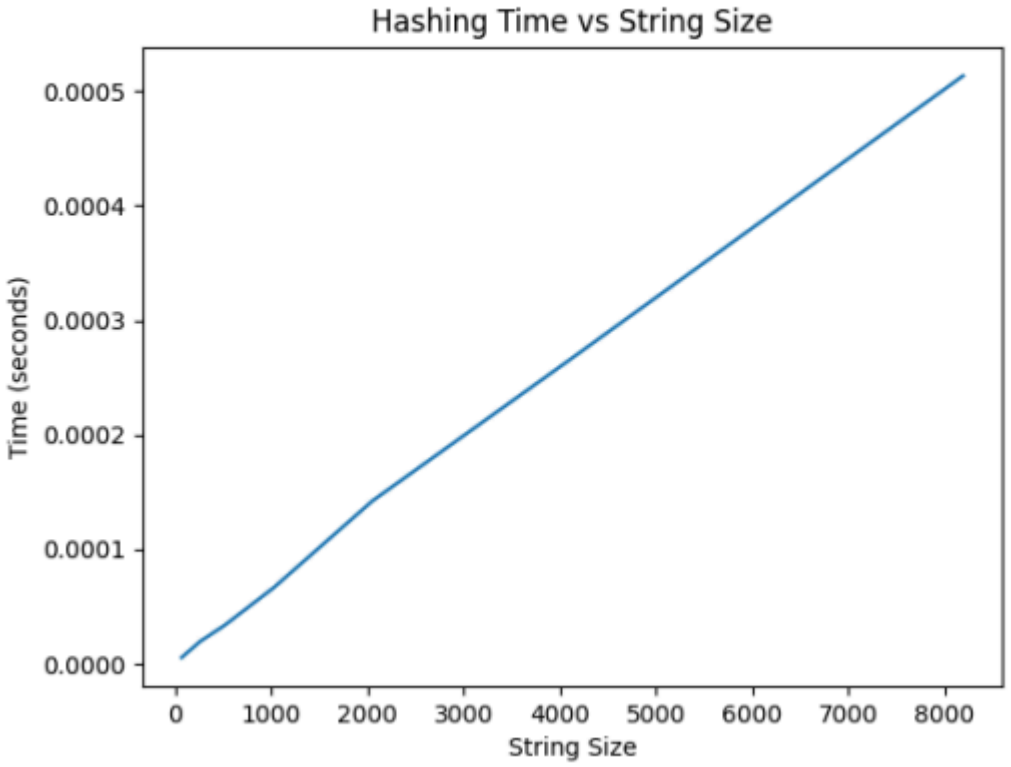
```
Test 1 Results:
Differences: 1, Avg max common length: 2.319
Differences: 2, Avg max common length: 2.271
Differences: 4, Avg max common length: 2.265
Differences: 8, Avg max common length: 2.305
Differences: 16, Avg max common length: 2.32

Test 2 Results:
N = 100, Collisions: 0
N = 1000, Collisions: 0
N = 10000, Collisions: 0
N = 100000, Collisions: 0
N = 1000000, Collisions: 115

Test 3 Results:
Size: 64, Average time (microseconds): 17.235
Size: 128, Average time (microseconds): 20.829
Size: 256, Average time (microseconds): 22.785
Size: 512, Average time (microseconds): 30.872
Size: 1024, Average time (microseconds): 53.625
Size: 2048, Average time (microseconds): 96.936
Size: 4096, Average time (microseconds): 171.657
Size: 8192, Average time (microseconds): 329.459
Ctrl+I to chat, Ctrl+K to generate
```





Заключение. Алгоритм SHA-1 обеспечивает быстрое хеширование (O(N)), но уязвим к коллизиям, что делает его небезопасным для криптографии. • Достоинства: Простая реализация, высокая скорость, подходит для контрольных сумм. • Недостатки: Устаревший, незащищён от атак на коллизии (атака SHAttered, может выдать одинаковый хеш для двух разных сообщений).