

Tiempos de Ejecución

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26 de octubre de 2021

1. Introducción

Comparativa de tiempos de ejecución realizadas con los diferentes algoritmos de hashing, MD5, SHA1, SHA256 y Tomi.Hash. Se realizar las pruebas con 6 archivos diferentes, que contenian 1 linea de texto, 10, 20 y 50 lineas de texto, y dado que los tiempos eran bastante similares, se usaron dos archivos extra de 1000 y 5000 lineas de texto.

2. Resultados

1. MD5:

a) Test1

```
tomi@Tomimi-PC:/mnt/d/Criptografia/Laboratorio4-Criptografia$ ./test test1 txt
MD5': e10adc3949ba59abbe56e057f20f883e | 209
Time measured: 0.000 seconds.
```

Figura 1: Primera ejecución MD5.

b) Test10

```
tomi@Tomimi-PC:/mnt/d/Criptografia/Laboratorio4-Criptografia$ ./test test10 txt
MD5': e10adc3949ba59abbe56e057f20f883e | 209
MD5': 827ccb0eea8a706c4c34a16891f84e7b | 209
MD5': 25f9e794323b453885f5181f1b624d0b | 209
MD5': 5f4dcc3b5aa765d61d8327deb882cf99 | 209
MD5': f25a2fc72690b780b2a14e140ef6a9e0 | 209
MD5': 8afa847f50a716e64932d995c8e7435a | 209
MD5': fcea920f7412b5da7be0cf42b8c93759 | 209
MD5': f806fc5a2a0d5ba2471600758452799c | 209
MD5': 25d55ad283aa400af464c76d713c07ad | 209
MD5': e99a18c428cb38d5f260853678922e03 | 209
Time measured: 0.001 seconds.
```

Figura 2: Segunda ejecución MD5.

c) Test20

```
tomi@Tomimi-PC:/mnt/d/Criptografia/Laboratorio4-Criptografia$ ./test test20 txt
MD5': e10adc3949ba59abbe56e057f20f883e | 209
MD5': 827ccb0eea8a706c4c34a16891f84e7b | 209
MD5': 25f9e794323b453885f5181f1b624d0b | 209
MD5': 5f4dcc3b5aa765d61d8327deb882cf99 | 209
MD5': f25a2fc72690b780b2a14e140ef6a9e0 | 209
MD5': 8afa847f50a716e64932d995c8e7435a | 209
MD5': fcea920f7412b5da7be0cf42b8c93759 | 209
MD5': f806fc5a2a0d5ba2471600758452799c | 209
MD5': 25d55ad283aa400af464c76d713c07ad | 209
MD5': e99a18c428cb38d5f260853678922e03 | 209
MD5': fc63f87c08d505264caba37514cd0cfd | 209
MD5': aa47f8215c6f30a0dcdb2a36a9f4168e | 209
MD5': 67881381dbc68d4761230131ae0008f7 | 209
MD5': d0763edaa9d9bd2a9516280e9044d885 | 209
MD5': 061fba5bdfc076bb7362616668de87c8 | 209
MD5': aae039d6aa239cfc121357a825210fa3 | 209
MD5': c33367701511b4f6020ec61ded352059 | 209
MD5': 0acf4539a14b3aa27deeb4cbdf6e989f | 209
MD5': adff44c5102fca279f7559abf66fee | 209
MD5': d8578edf8458ce06fbc5bb76a58c5ca4 | 209
Time measured: 0.001 seconds.
```

Figura 3: Tercera ejecución MD5.

d) Test50

```

tomi@Tomimi-PC:/mnt/d/Criptografia/Laboratorio4-Criptografia$ ./test test50 txt
MD5': e10adc3949ba59abbe56e057f20f883e | 209
MD5': 827ccb0eea8a706c4c34a16891f84e7b | 209
MD5': 25f9e794323b453885f5181f1b624d0b | 209
MD5': 5f4dcc3b5aa765d61d8327deb882cf99 | 209
MD5': f25a2fc72690b780b2a14e140ef6a9e0 | 209
MD5': 8afa847f50a716e64932d995c8e7435a | 209
MD5': fcea920f7412b5da7be0cf42b8c93759 | 209
MD5': f806fc5a2a0d5ba2471600758452799c | 209
MD5': 25d55ad283aa400af464c76d713c07ad | 209
MD5': e99a18c428cb38d5f260853678922e03 | 209
MD5': fc63f87c08d505264caba37514cd0cfd | 209
MD5': aa47f8215c6f30a0dcdb2a36a9f4168e | 209
MD5': 67881381dbc68d4761230131ae0008f7 | 209
MD5': d0763edaa9d9bd2a9516280e9044d885 | 209
MD5': 061fba5bdfc076bb7362616668de87c8 | 209
MD5': aae039d6aa239cf121357a825210fa3 | 209
MD5': c33367701511b4f6020ec61ded352059 | 209
MD5': 0acf4539a14b3aa27deeb4cbdf6e989f | 209
MD5': adfff44c5102fca279f559abf66fee | 209
MD5': d8578edf8458ce06fbc5bb76a58c5ca4 | 209
MD5': 96e79218965eb72c92a549dd5a330112 | 209
MD5': edbd0effac3fcc98e725920a512881e0 | 209
MD5': 670b14728ad9902aeca32e22fa4f6bd | 209
MD5': 2345f10bb948c5665ef91f6773b3e455 | 209
MD5': f78f2477e949bee2d12a2c540fb6084f | 209
MD5': 0571749e2ac330a7455809c6b0e7af90 | 209
MD5': c378985d629e99a4e86213db0cd5e70d | 209
MD5': 7c6a180b36896a0a8c02787eea7b0e4c | 209
MD5': da443a0ad979d5530df38ca1a74e4f80 | 209
MD5': 65fbef05e01fac390cb3fa073fb3e8cf | 209
MD5': 28f20a02bf8a021fab4fcec48afb584e | 209
MD5': 9fd8301ac24fb88e65d9d7cd1dd1b1ec | 209
MD5': bb7aedfa61007447dd6efa9f37641e3 | 209
MD5': f4f068e71e0d87b0ad51e6214ab84e9 | 209
MD5': d16d377af76c99d27093abc22244b342 | 209
MD5': d177b4d1d9e6b6fa86521e4b3d00b029 | 209
MD5': 53dd9c6005f3cdfc5a69c5c07388016d | 209
MD5': 74d738020dca22a731e30058ac7242ee | 209
MD5': 596a96cc7bf9108cd896f33c44aedc8a | 209
MD5': 4297f44b13955235245b2497399d7a93 | 209
MD5': 37b4e2d82900d5e94b8da524fbefb33c0 | 209
MD5': 5ebe2294ecd0e0f08eab7690d2a6ee69 | 209
MD5': 1c42f9c1ca2f65441465b43cd9339d6c | 209
MD5': dc599a9972fde3045dab59dbd1ae170b | 209
MD5': 1660fe5c81c4ce64a2611494c439e1ba | 209
MD5': d1133275ee2118be63a577af759fc052 | 209
MD5': fe75bd065ff48b91c35fe8ff842f986c | 209
MD5': e807f1fcf82d132f9bb018ca6738a19f | 209
MD5': 84d961568a65073a3bcf0eb216b2a576 | 209
MD5': eb09d5e396183f4b71c3c798158f7c07 | 209
Time measured: 0.002 seconds.

```

Figura 4: Cuarta ejecución MD5.

Test1	Test10	Test20	Test50	Test1000	Test5000
0.000s	0.001s	0.001s	0.003	0.056s	0.259s

Cuadro 1: Tabla de los tiempos de ejecucion de MD5.

2. SHA1:

a) Test1

```
tomi@Tomimi-PC:/mnt/d/Criptografia/Laboratorio4-Criptografia$ ./test test1 txt
SHA1: 7c4a8d09ca3762af61e59520943dc26494f8941b | 261
Time measured: 0.000 seconds.
```

Figura 5: Primera ejecución SHA1.

b) Test10

```
tomi@Tomimi-PC:/mnt/d/Criptografia/Laboratorio4-Criptografia$ ./test test10 txt
SHA1: 7c4a8d09ca3762af61e59520943dc26494f8941b | 261
SHA1: 8cb2237d0679ca88db6464eac60da96345513964 | 261
SHA1: f7c3bc1d808e04732adf679965ccc34ca7ae3441 | 261
SHA1: 5baa61e4c9b93f3f0682250b6cf8331b7ee68fd8 | 261
SHA1: ee8d8728f435fd550f83852aabab5234ce1da528 | 261
SHA1: 775bb961b81da1ca49217a48e533c832c337154a | 261
SHA1: 20eabe5d64b0e216796e834f52d61fd0b70332fc | 261
SHA1: f1cf651ce1a2191a760c0b2f161234f7958e26e4 | 261
SHA1: 7c222fb2927d828af22f592134e8932480637c0d | 261
SHA1: 6367c48dd193d56ea7b0baad25b19455e529f5ee | 261
Time measured: 0.001 seconds.
```

Figura 6: Segunda ejecución SHA1.

c) Test20

```
tomi@Tomimi-PC:/mnt/d/Criptografia/Laboratorio4-Criptografia$ ./test test20 txt
SHA1: 7c4a8d09ca3762af61e59520943dc26494f8941b | 261
SHA1: 8cb2237d0679ca88db6464eac60da96345513964 | 261
SHA1: f7c3bc1d808e04732adf679965ccc34ca7ae3441 | 261
SHA1: 5baa61e4c9b93f3f0682250b6cf8331b7ee68fd8 | 261
SHA1: ee8d8728f435fd550f83852aabab5234ce1da528 | 261
SHA1: 775bb961b81da1ca49217a48e533c832c337154a | 261
SHA1: 20eabe5d64b0e216796e834f52d61fd0b70332fc | 261
SHA1: f1cf651ce1a2191a760c0b2f161234f7958e26e4 | 261
SHA1: 7c222fb2927d828af22f592134e8932480637c0d | 261
SHA1: 6367c48dd193d56ea7b0baad25b19455e529f5ee | 261
SHA1: 5fee00239940f883d4c2854e41c7f989e75278a3 | 261
SHA1: 3d0f3b9ddcacec30c4008c5e030e6c13a478cb4f | 261
SHA1: b03b74363bbb6ee42ce248c7a5344e92ffe76cc7 | 261
SHA1: ab87d24bdc7452e55738deb5f868e1f16dea5ace | 261
SHA1: de3460832ea070effabb7032d7594bbde1bb120 | 261
SHA1: 99996b911567c83cce17cdf194f314975c57ddf1 | 261
SHA1: dd5fef9c1c1da1394d6d34b248c51be2ad740840 | 261
SHA1: 17b9e1c64588c7fa6419b4d29dc1f4426279ba01 | 261
SHA1: 782f9b10621e362d5bd0def3a279b5e0908c9ebb | 261
SHA1: b1b3773a05c0ed0176787a4f1574ff0075f7521e | 261
Time measured: 0.001 seconds.
```

Figura 7: Tercera ejecución SHA1.

d) Test50

```

tomie@Tomimi-PC:/mnt/d/Criptografia/Laboratorio4-Criptografia$ ./test test50 txt
SHA1: 7c4a8d09ca3762af61e59520943dc26494f8941b | 261
SHA1: 8cb2237d0679ca88db6464eac60da96345513964 | 261
SHA1: f7c3bc1d808e04732adf679965ccc34ca7ae3441 | 261
SHA1: 5baa61e4c9b93f3f0682250b6cf8331b7ee68fd8 | 261
SHA1: ee8d8728f435fd550f83852aabab5234ce1da528 | 261
SHA1: 775bb961b81da1ca49217a48e533c832c337154a | 261
SHA1: 20eabe5d64b0e216796e834f52d61fd0b70332fc | 261
SHA1: f1cf651ce1a2191a760c0b2f161234f7958e26e4 | 261
SHA1: 7c222fb2927d828af22f592134e8932480637c0d | 261
SHA1: 6367c48dd193d56ea7b0baad25b19455e529f5ee | 261
SHA1: 5fee00239940f883d4c2854e41c7f989e75278a3 | 261
SHA1: 3d0f3b9ddcacec30c4008c5e030e6c13a478cb4f | 261
SHA1: b03b74363bbb6ee42ce248c7a5344e92ffe76cc7 | 261
SHA1: ab87d24bdc7452e55738deb5f868e1f16dea5ace | 261
SHA1: de3460832ea070effabbcb7032d7594bbde1bb120 | 261
SHA1: 99996b911567c83cce17cdf194f314975c57ddfd1 | 261
SHA1: dd5fef9c1c1da1394d6d34b248c51be2ad740840 | 261
SHA1: 17b9e1c64588c7fa6419b4d29dc1f4426279ba01 | 261
SHA1: 782f9b10621e362d5bd0def3a279b5e0908c9ebb | 261
SHA1: b1b3773a05c0ed0176787a4f1574ff0075f7521e | 261
SHA1: 3d4f2bf07dc1be38b20cd6e46949a1071f9d0e3d | 261
SHA1: b78034aacf3559fffbfcb545d9a9122efb93181f | 261
SHA1: c984aed014aec7623a54f0591da07a85fd4b762d | 261
SHA1: 7212a9e01329ea93a57f574bd9bf77695d5fdca4 | 261
SHA1: 6c616f7c2d2fde9018a09f06eaeffcfc7582bc7ba | 261
SHA1: 8d6e34f987851aa599257d3831a1af040886842f | 261
SHA1: 891c5feef171da85aadd3fdb8130ba509b03f5ea | 261
SHA1: e38ad214943daad1d64c102faec29de4afe9da3d | 261
SHA1: 5c17fa03e6d5fc247565e1cd8ffa70e1bfe5b8d9 | 261
SHA1: 6e1a438cf5a6c9e2165665f8c2258849ccc43f0 | 261
SHA1: 3d9209c4598bfbcb38b3c096081bee3a09697e939 | 261
SHA1: ba856797a6ed7651c7e6965efead66cb632f0a5 | 261
SHA1: afaed75406bd414820cea4a5119f90c259c05755 | 261
SHA1: c8a50f632c3c4baf27fc05facb1883104e1d16ef | 261
SHA1: 1cb5bd5a9e45420321f44c72da5d90df0432ffb | 261
SHA1: 068942c83f0e6994d046f7ec01b8f42ba8f317a7 | 261
SHA1: 0ce7911e6479995d6c346d6f03eb723b5135309e | 261
SHA1: 81941add3e463581722bac84d02282cafb1c32c2 | 261
SHA1: dd2edb87ea9eb7a32fd4057276d3a1fab861c1d5 | 261
SHA1: 601f1889667efaebb33b8c12572835da3f027f78 | 261
SHA1: 2d27b62c597ec858f6e7b54e7e58525e6a95e6d8 | 261
SHA1: e5e9fa1ba31ecd1ae84f75caaa474f3a663f05f4 | 261
SHA1: fdb87dfd199045af7165780b11640b83768a0d57 | 261
SHA1: ab5e2bca84933118bbc9d48ffacce3bac4eeb64 | 261
SHA1: e3cd9f6469fc3e1acfb9f2bdfbfc5a3d2bbb8e2ad | 261
SHA1: d6955d9721560531274cb8f50ff595a9bd39d66f | 261
SHA1: 75328ef481b4a7a0b3513179d2780c64d9ae2186 | 261
SHA1: 01b307acba4f54f55aafc33bb06bbbf6ca803e9a | 261
SHA1: 18c28604dd31094a8d69dae60f1bcd347f1afc5a | 261
SHA1: 675dc611bafb0b7348dd3baf7e005b6916fb954d | 261
Time measured: 0.003 seconds.

```

Figura 8: Cuarta ejecución SHA1.

Test1	Test10	Test20	Test50	Test1000	Test5000
0.000s	0.001s	0.001s	0.003	0.057s	0.259s

Cuadro 2: Tabla de los tiempos de ejecucion de SHA1.

3. SHA256:

a) Test1

```
tomi@Tomimi-PC:/mnt/d/Criptografia/Laboratorio4-Criptografia$ ./test test1 txt
SHA256: 8d969eef6ecad3c29a3a629280e686cf0c3f5d5a86aff3ca12020c923adc6c92 | 418
Time measured: 0.000 seconds.
```

Figura 9: Primera ejecución SHA256.

b) Test10

```
tomi@Tomimi-PC:/mnt/d/Criptografia/Laboratorio4-Criptografia$ ./test test10 txt
SHA256: 8d969eef6ecad3c29a3a629280e686cf0c3f5d5a86aff3ca12020c923adc6c92 | 418
SHA256: 5994471abb01112afcc18159f6cc74b4f511b99806da59b3caf5a9c173cacfc5 | 418
SHA256: 15e2b0d3c33891ebb0f1ef609ec419420c20e320ce94c65fbc8c3312448eb225 | 418
SHA256: 5e884898da28047151d0e56f8dc6292773603d0d6aabbdd62a11ef721d1542d8 | 418
SHA256: e4ad93ca07acb8d908a3aa41e920ea4f4ef4f26e7f86cf8291c5db289780a5ae | 418
SHA256: 04e77bf8f95cb3e1a36a59d1e93857c411930db646b46c218a0352e432023cf2 | 418
SHA256: 8bb0cf6eb9b17d0f7d22b456f121257dc1254e1f01665370476383ea776df414 | 418
SHA256: 4980b1f29fa32ff18c95d0ed931fd48e1ad43a729251d6eddb3cece705ed4d05 | 418
SHA256: ef797c8118f02dfb649607dd5d3f8c7623048c9c063d532cc95c5ed7a898a64f | 418
SHA256: 6ca13d52ca70c883e0f0bb101e425a89e8624de51db2d2392593af6a84118090 | 418
Time measured: 0.001 seconds.
```

Figura 10: Segunda ejecución SHA256.

c) Test20

```
tomi@Tomimi-PC:/mnt/d/Criptografia/Laboratorio4-Criptografia$ ./test test20 txt
SHA256: 8d969eef6ecad3c29a3a629280e686cf0c3f5d5a86aff3ca12020c923adc6c92 | 418
SHA256: 5994471abb01112afcc18159f6cc74b4f511b99806da59b3caf5a9c173cacfc5 | 418
SHA256: 15e2b0d3c33891ebb0f1ef609ec419420c20e320ce94c65fbc8c3312448eb225 | 418
SHA256: 5e884898da28047151d0e56f8dc6292773603d0d6aabbdd62a11ef721d1542d8 | 418
SHA256: e4ad93ca07acb8d908a3aa41e920ea4f4ef4f26e7f86cf8291c5db289780a5ae | 418
SHA256: 04e77bf8f95cb3e1a36a59d1e93857c411930db646b46c218a0352e432023cf2 | 418
SHA256: 8bb0cf6eb9b17d0f7d22b456f121257dc1254e1f01665370476383ea776df414 | 418
SHA256: 4980b1f29fa32ff18c95d0ed931fd48e1ad43a729251d6eddb3cece705ed4d05 | 418
SHA256: ef797c8118f02dfb649607dd5d3f8c7623048c9c063d532cc95c5ed7a898a64f | 418
SHA256: 6ca13d52ca70c883e0f0bb101e425a89e8624de51db2d2392593af6a84118090 | 418
SHA256: b54a1af8b666f61c2dd5ae8f8a543133409fd28c3b78064c5db993bf2c8e77bc | 418
SHA256: bd3dae5fb91f88a4f0978222dfd58f59a124257cb081486387cbae9df11fb879 | 418
SHA256: f95fc9d255314deeb3e3be8c7a926caa4e2415c6372befaa8fd6f069b7c4a3 | 418
SHA256: 000c285457fc971f862a79b786476c78812c8897063c6fa9c045f579a3b2d63f | 418
SHA256: f85b43067a280d4cc40f89cb78d8efff6e908727bc3cb43a9ae72b400d2eccc5 | 418
SHA256: e1fc45f7880e0505ff0b6a079b9af149f225e260f59b1d20225357a8cce8ffd8 | 418
SHA256: 481f6cc0511143ccdd7e2d1b1b94faf0a700a8b49cd13922a70b5ae28acaa8c5 | 418
SHA256: 34550715062af006ac4fab288de67ecb44793c3a05c475227241535f6ef7a81b | 418
SHA256: c64975ba3cf3f9cd58459710b0a42369f34b0759c9967fb5a47eea488e8bea79 | 418
SHA256: 65e84be33532fb784c48129675f9eff3a682b27168c0ea744b2cf58ee02337c5 | 418
Time measured: 0.001 seconds.
```

Figura 11: Tercera ejecución SHA256.

d) Test50


```

tomi@Tomimi-PC:/mnt/d/Criptografia/Laboratorio4-Criptografia$ ./test test50 txt
SHA256: 8d969eef6ecad3c29a3a629280e686cf0c3f5d5a86aff3ca12020c923adc6c92 | 418
SHA256: 5994471abb01112afcc18159f6cc74b4f511b99806da59b3caf5a9c173cacfc5 | 418
SHA256: 15e2b0d3c33891ebb0f1ef609ec419420c20e320ce94c65fbc8c3312448eb225 | 418
SHA256: 5e884898da28047151d0e56f8dc6292773603d0d6aabbdd62a11ef721d1542d8 | 418
SHA256: e4ad93ca07acb8d908a3aa41e920ea4f4ef4f26e7f86cf8291c5db289780a5ae | 418
SHA256: 04e77bf8f95cb3e1a36a59d1e93857c411930db646b46c218a0352e432023cf2 | 418
SHA256: 8bb0cf6eb9b17d0f7d22b456f121257dc1254e1f01665370476383ea776df414 | 418
SHA256: 4980b1f29fa32ff18c95d0ed931fd48e1ad43a729251d6eddb3cece705ed4d05 | 418
SHA256: ef797c8118f02dfb649607dd5d3f8c7623048c9c063d532cc95c5ed7a898a64f | 418
SHA256: 6ca13d52ca70c883e0f0bb101e425a89e8624de51db2d2392593af6a84118090 | 418
SHA256: b54a1af8b666f61c2dd5ae8f8a543133409fd28c3b78064c5db993bf2c8e77bc | 418
SHA256: bd3dae5fb91f88a4f0978222dfd58f59a124257cb081486387cbcae9df11fb879 | 418
SHA256: f95fc9d255314deeb3e3be8c7a926caa4e2415c6372befaa8fd6f069b7c4a3 | 418
SHA256: 000c285457fc971f862a79b786476c78812c8897063c6fa9c045f579a3b2d63f | 418
SHA256: f85b43067a280d4cc40f89cb78d8efff6e908727bc3cb43a9ae72b400d2eccc5 | 418
SHA256: e1fc45f7880e0505ff0b6a079b9af149f225e260f59b1d20225357a8c8e8ffd8 | 418
SHA256: 481f6cc0511143ccdd7e2d1b1b94faf0a700a8b49cd13922a70b5ae28acaa8c5 | 418
SHA256: 34550715062af006ac4fab288de67ecb44793c3a05c475227241535f6ef7a81b | 418
SHA256: c64975ba3cf3f9cd58459710b0a42369f34b0759c9967fb5a47eea488e8bea79 | 418
SHA256: 65e84be33532fb784c48129675f9eff3a682b27168c0ea744b2cf58ee02337c5 | 418
SHA256: bcb15f821479b4d5772bd0ca866c00ad5f926e3580720659cc80d39c9d09802a | 418
SHA256: 3972905cc58310b37c7989feb13592ea71cf0902fd0fe4415782ece0c469d22c | 418
SHA256: 91b4d142823f7d20c5f08df69122de43f35f057a988d9619fd6d3138485c9a203 | 418
SHA256: 01621148306fc8fb7c2b95eeb5c37e375f90db53cf8313ea87c9c34c05b7e0e5 | 418
SHA256: abc529a4b673cbbbc532e584706cb8137be876ad53269df3b97fbd40fc76fe57 | 418
SHA256: a941a4c4fd0c01cdde6f61b8be963bf4c1e2b0811c037ce3f1835fdd6f6ef6c223 | 418
SHA256: 7499aced43869b27f505701e4edc737f0cc346add1240d4ba86fbfa251e0fc35 | 418
SHA256: 0b14d501a594442a01c6859541bcb3e8164d183d32937b851835442f69d5c94e | 418
SHA256: 8f27f432fcbaa4b5180a1cc7a8fa166a93cda3c1bce6f19922dd519d02f4bb39 | 418
SHA256: 502913bfdd49eab564282dff101e6d167321237e6ec66eedb2a438ed80fdea0 | 418
SHA256: 2e4b9cc2428beb7bfbf6a56c14d7304e472a23e890e91ef0a6b0b0380e89f9734 | 418
SHA256: fcf075cbe367c158d5cfaa31fa06656a3e68f626388d96ee81b35dda4310b58 | 418
SHA256: 8e0a1b0ada42172886fd1297e25abf99f14396a9400acbd5f20da20289cff02f | 418
SHA256: 519ba91a5a5b4afb9dc66f8805ce8c442b6576316c19c6896af2fa9bda6aff71 | 418
SHA256: 136c67657614311f32238751044a0a3c0294f2a521e573afa8e496992d3786ba | 418
SHA256: 9e861941ad8bf5bcb649e5fde92d712528200a216018c2437371498e6ab7683d | 418
SHA256: 102cf10b5286bad9fcfe5e275ace3ddd7dccc23931fb0ca93dc223daf9877cabd | 418
SHA256: 78fe3f05768ff3a95c74ffa366cc3474022d925ad5593af733bf8ac1ab0de6 | 418
SHA256: 6161b0a284159565a0f7d5df2dd2698b5f87906cd91ff5322caf179b451f5a41 | 418
SHA256: 96cae35ce8a9b0244178bf28e4966c2ce1b8385723a96a6b838858cdd6ca0a1e | 418
SHA256: 6382deaf1f5dc6e792b76db4a4a7bf2ba46884e000b25e7928e621e27fb23cb | 418
SHA256: 2bb80d537b1da3e38bd30361aa855686bde0eacd7162fef6a25fe97bf527a25b | 418
SHA256: 5f3d6952c5c5e22077fabf461de80f1ce475752fe75afc5ca46bac438405619 | 418
SHA256: 7b85175b455060e3237e925f023053ca9515e8682a83c8b09911c724a1f8b75f | 418
SHA256: 9ce8db922a8f4a7abd859adee70bd8b7a63321265487da54cf4bed6a69eb3e1b | 418
SHA256: fcf52fabe94c0e037d2df4498e87481a6438960c9f73d517584a7a5c564535ac4 | 418
SHA256: 2ea0d25e51920dc0ba247fcd47f514f3e8ad6234e704277036df405af860ed6c | 418
SHA256: c775e7b757ede630cd0aa1113bd102661ab38829ca52a6422ab782862f268646 | 418
SHA256: 73cd1b16c4fb83061ad18a0b29b9643a68d4640075a466dc9e51682f84a847f5 | 418
SHA256: fcf81aa34d44660e1012dec26ccda0b469d6c8359e91dc674dab4c095b9fe832 | 418
Time measured: 0.003 seconds.

```

Figura 12: Cuarta ejecución SHA256.

Test1	Test10	Test20	Test50	Test1000	Test5000
0.000s	0.001s	0.001s	0.003s	0.059s	0.271s

Cuadro 3: Tabla de los tiempos de ejecucion de SHA256.

4. TOMI_HASH:

a) Test1

```
tomi@Tomimi-PC:/mnt/d/Criptografia/Laboratorio4-Criptografia$ ./test test1 txt
G=']2)(%abYE.YRgQ/%KDE/EQ | 163
Time measured: 0.000 seconds.
```

Figura 13: Primera ejecución Tomi_Hash.

b) Test10

```
tomi@Tomimi-PC:/mnt/d/Criptografia/Laboratorio4-Criptografia$ ./test test10 txt
G=']2)(%abYE.YRgQ/%KDE/EQ | 163
G=']2$'&'a]I0WPjT,(HFG-GM | 163
G=']2)"+[e\H1V0dN2%KDE/EK | 163
82Y"PbYW$5%8t$-7*Zg6@6L). | 163
1=U%>LVh+*!;b.*&#ec9.@i:' | 163
8CO#<Xzf$%3'&.(k]1,,m8. | 163
G=']2)"$bcZF3TTiS-)G@H,HN | 163
:@I&Rb\%3#>l*-,#dm2>9i(C) | 163
G=']2)" +cd[G2UNCu+'IBC1CQ | 163
)3I`5&HU1e\H^)"jT,U%,H,H! | 163
Time measured: 0.001 seconds.
```

Figura 14: Segunda ejecución Tomi_Hash.

c) Test20

```
tomi@Tomimi-PC:/mnt/d/Criptografia/Laboratorio4-Criptografia$ ./test test20 txt
G=']2)(%abYE.YRgQ/%KDE/EQ | 163
G=']2$'&'a]I0WPjT,(HFG-GM | 163
G=']2)"+[e\H1V0dN2%KDE/EK | 163
82Y"PbYW$5%8t$-7*Zg6@6L). | 163
1=U%>LVh+*!;b.*&#ec9.@i:' | 163
8CO#<Xzf$%3'&.(k]1,,m8. | 163
G=']2)"$bcZF3TTiS-)G@H,HN | 163
:@I&Rb\%3#>l*-,#dm2>9i(C) | 163
G=']2)" +cd[G2UNCu+'IBC1CQ | 163
)3I`5&HU1e\H^)"jT,U%,H,H! | 163
6:I"EXU\1"*k",&^b,,6f*, | 163
,2T(>_KT&-)1a*)2!eX$70_1" | 163
*2H(@\Y_25,>d"-/$ZV<00l1E | 163
5@T&>LTb&+>j$)0!ra272_>+ | 163
4@,\,ELsb"1">i$16&r`2?,f>* | 163
26Y"BVH]/#%.`*%6-l]&*1_81 | 163
B:&^5$#('c\J3VQhT**HCF,JL | 163
5:I):XS`+3&&b!(2#aU(54c(& | 163
)DN%>LHf,*)>^(#/#!rU613_>! | 163
9HK!MlXj/$&>n,B,mm4@,L97e | 163
Time measured: 0.002 seconds.
```

Figura 15: Tercera ejecución Tomi_Hash.

d) Test50


```

tomi@Tomimi-PC:/mnt/d/Criptografia/Laboratorio4-Criptografia$ ./test test50 txt
G=']2)(%abYE.YRgQ/%KDE/EQ | 163
G=']2$'&'a]I0WPJT,(HFG-GM | 163
G=']2)"+[e\H1V0dN2%KDE/EK | 163
82Y"PbYW$5%8t$-7*Zg6@6L). | 163
1=U%>LVh+*!;b.*&#ec9.@i:' | 163
8C0#<XZf$3'$&.( *k]1,,m8. | 163
G=']2)"$bcZF3TTiS-)G@H,HN | 163
:@I&Rb\%3#>l*-,#dm2>9i() | 163
G=']2)" +cd[G2UNCu+'IBC1CQ | 163
)3I`5&HU1e\H^)"jT,U%,H,H! | 163
6:I`EXU\1'"*k""&^b,,6f*, | 163
,2T(>_KT&-)1a*)2!eX$70_1" | 163
*2H(@\Y_25,>d"-/$ZV<0011E | 163
5@T&>LTb&+)>j$)0!ra272_>+ | 163
4@,\,ELsb"1">i$16&r`2?,f>* | 163
26Y"BVH]/#%.`*%6-l]&*1_81 | 163
B:$^5$$(c\J3VQhT**HCF,JL | 163
5:I):XS`+3&&b!(2#aU(54c(& | 163
)DN%>LHf,*)>^(#/!rU613_>! | 163
9HK!MlXj/$&>n,B,mm4@,L97e | 163
G>)`6$($ce]J.ZTjU*%LFH+JQ | 163
1=U%>hP_%Z*r"' ,0^i,56p*3] | 163
H? *a7#)#df^K-[Ukv)$MGI*KR | 163
5:I)>_SX'!-+b!'6'bW+,3f*+ | 163
<:M*>e[\-/)7q"4!kh,0._72 | 163
;FT"A\UX!!Yp#&`!li1</c3#g | 163
+9U.H_Hg/3&4`$':.^W+8*i1! | 163
82Y"PbYWc&-8p,*)" *d$<:q40 | 163
;@I.>eZb13)7p$"8!kg2,*_71 | 163
)?Z)Ha`T&"&4k.$-.ac1B(h9& | 163
.CO,GWZY"-)3a(!)#^b'<-L.# | 163
*FZ*>eM_%4'9q&-5&rV8=;_7$ | 163
8FX!EXWh"&"*m*~+&^d8;7f*. | 163
)?M,ETUZ/*-3d&':( `Y/*5a** | 163
2@X-:aQb"2-3g$-7%g^2;+[3( | 163
4:\,KcVb(*%;b'+,)e`,?,l5- | 163
2FY#BaQh!"%3g*.`#g^8<;c3( | 163
4@,\,FXSb"1!*i$16'^^2?,g** | 163
.FI&Rb\Y!3#>l*!&#dm2>-o() | 163
G='`5&(%ae\H.YRjT,%KDH,HQ | 163
.@U#;TS_.`!9_*'/0c2=)[1*Z | 163
;6I!>gZX1$)9p&")!mg(,9_91 | 163
)?J!>THa0$)&^#!)!ZU1-9_&! | 163
+2X%HfJT"*!8`*-/)lW$;3i8! | 163
26T#BYLe*1Yk"!6,cY170`*0^ | 163
2@Y)NTQb!.`&g$.3/Z^2</o&( | 163
*FH/EXZU!4,1b(#&$['(<)o'E | 163
G=']2)" +[f]I0WP01-MFG-GM | 163
;FV,K`Ha!"*o"$--nd(;4[31 | 163
02T#:[OT&(--e*)-%a\575[-& | 163
Time measured: 0.004 seconds.

```

Figura 16: Cuarta ejecución Tomi.Hash.

Test1	Test10	Test20	Test50	Test1000	Test5000
0.000s	0.001s	0.002s	0.004s	0.065s	0.317s

Cuadro 4: Tabla de los tiempos de ejecución de Tomi.Hash.