```
C:\Users\xiahaijiao\AppData\Local\Programs\Python\Python310\python.exe D:\Download\hs\code\gitee\python-demo\btc\python\sha256-2.py
0279be667ef9dcbbac55a06295ce870b07029bfcdb2dce28d959f2815b16f81798880000000000000000000000000000000000000000000000000000000
0x108
0279be667ef9dcbbac55a06295ce870b07029bfcdb2dce28d959f2815b16f817988800000000000000000000000000000000000000000000000000000000108
[b'\x02y\xbef~\xf9\xdc\xbb\xacU\xa0b\x95\xce\x87\x0b\x07\x02\x9b\xfc\xdb-
\xce(\xd9Y\xf2\x81[\x16\xf8\x17\x98\x80\x00\x00\x00\x00\x00\x00\x00\x00\x00\x00\x00\x00\x00\x00\x00\x00\x00\x00\x00\x00\x00\x00\x00\x00\x00\x00\x00\x01\x08']
-----------   w   begin ----------------
i=0 0x279be66
i=1 0x7ef9dcbb
i=2 0xac55a062
i=3 0x95ce870b
i=4 0x7029bfc
i=5 0xdb2dce28
i=6 0xd959f281
i=7 0x5b16f817
i=8 0x98800000
i=9 0x0
i=10 0x0
i=11 0x0
i=12 0x0
i=13 0x0
i=14 0x0
i=15 0x108
i=16 0x1085d5f6
i=17 0x38699114
i=18 0xa0e83425
i=19 0xee865ff0
i=20 0x5d1acef2
i=21 0x23a5950f
i=22 0xb3db3b5d
i=23 0xf5ec90f0
i=24 0xcbd32a6c
i=25 0x7b435394
i=26 0xdecf6849
i=27 0x20c1310f
i=28 0x7cbffc73
i=29 0x72897f91
i=30 0x7d78f4a
i=31 0xf74595f2
i=32 0xd4fcf96
i=33 0xe209ac62
i=34 0x4bd5f711
i=35 0xab720696
i=36 0x948cf9d2
i=37 0xd2fc3e9a
i=38 0x6a81837c
i=39 0xa65ddea1
i=40 0x9323e143
i=41 0x6e3cbfa1
i=42 0x6d094e5f
```

```
i=43 0x93ffa030
i=44 0x520bb632
i=45 0x786d8677
i=46 0xfa7bd3d8
i=47 0xdcaba4cd
i=48 0xc1d42a13
i=49 0x4c04c1e3
i=50 0x29ee931e
i=51 0x8028af64
i=52 0xc93df5c8
i=53 0xa5511675
i=54 0xabcbc50b
i=55 0x7f221a1d
i=56 0xda2aaa97
i=57 0xc76b0bc7
i=58 0x88b5ca76
i=59 0xc5524cba
i=60 0xd4153abe
i=61 0xee826d54
i=62 0x1cfaf8b5
i=63 0x674f76d1
----------- w   end ----------------
t          a          b          c          d          e          f          g          h          T1         T2         Kj         Wj
t=0        0x6a09e667 0xbb67ae85 0x3c6ef372 0xa54ff53a 0x510e527f 0x9b05688c 0x1f83d9ab 0x5be0cd19 0xf5f1abce 0x8909ae5  0x428a2f98 0x279be66
t=1        0xfe8246b3 0x6a09e667 0xbb67ae85 0x3c6ef372 0x9b41a108 0x510e527f 0x9b05688c 0x1f83d9ab 0xc4682e80 0xbd2990eb 0x71374491 0x7ef9dcbb
t=2        0x8191bf6b 0xfe8246b3 0x6a09e667 0xbb67ae85 0xd721f2   0x9b41a108 0x510e527f 0x9b05688c 0xec39372d 0x4847b3b4 0xb5c0fbcf 0xac55a062
t=3        0x3480eae1 0x8191bf6b 0xfe8246b3 0x6a09e667 0xa7a0e5b2 0xd721f2   0x9b41a108 0x510e527f 0x960c85c2 0xce030950 0xe9b5dba5 0x95ce870b
t=4        0x640f8f12 0x3480eae1 0x8191bf6b 0xfe8246b3 0x166c29   0xa7a0e5b2 0xd721f2   0x9b41a108 0x672b54e  0x42e398b  0x3956c25b 0x7029bfc
t=5        0xaa0eed9  0x640f8f12 0x3480eae1 0x8191bf6b 0x4f4fc01  0x166c29   0xa7a0e5b2 0xd721f2   0xd757bdab 0xdc5bf96c 0x59f111f1 0xdb2dce28
t=6        0xb3b3b717 0xaa0eed9  0x640f8f12 0x3480eae1 0x58e97d16 0x4f4fc01  0x166c29   0xa7a0e5b2 0xa3470af7 0xbd30dda9 0x923f82a4 0xd959f281
t=7        0x6077e8a0 0xb3b3b717 0xaa0eed9  0x640f8f12 0xd7c7f5d8 0x58e97d16 0x4f4fc01  0x166c29   0x92fa4b68 0xa57066a7 0xab1c5ed5 0x5b16f817
t=8        0x386ab20f 0x6077e8a0 0xb3b3b717 0xaa0eed9  0xf709da7a 0xd7c7f5d8 0x58e97d16 0x4f4fc01  0x75ce971e 0x251f053e 0xd807aa98 0x98800000
t=9        0x9aed9c5c 0x386ab20f 0x6077e8a0 0xb3b3b717 0x806f85f7 0xf709da7a 0xd7c7f5d8 0x58e97d16 0x9a2a10b8 0xaa9e7a1c 0x12835b01 0x0
t=10       0x44c88ad4 0x9aed9c5c 0x386ab20f 0x6077e8a0 0x4dddc7cf 0x806f85f7 0xf709da7a 0xd7c7f5d8 0xd884448e 0x7ea3f03e 0x243185be 0x0
t=11       0x572834cc 0x44c88ad4 0x9aed9c5c 0x386ab20f 0x38fc2d2e 0x4dddc7cf 0x806f85f7 0xf709da7a 0x38285649 0x6a64220a 0x550c7dc3 0x0
t=12       0xa28c7853 0x572834cc 0x44c88ad4 0x9aed9c5c 0x70930858 0x38fc2d2e 0x4dddc7cf 0x806f85f7 0x54532572 0x62677dd1 0x72be5d74 0x0
t=13       0xb6baa343 0xa28c7853 0x572834cc 0x44c88ad4 0xef40c1ce 0x70930858 0x38fc2d2e 0x4dddc7cf 0xe178b29d 0xd3e64422 0x80deb1fe 0x0
t=14       0xb55ef6bf 0xb6baa343 0xa28c7853 0x572834cc 0x26413d71 0xef40c1ce 0x70930858 0x38fc2d2e 0x95cda95e 0xda0fdbe0 0x9bdc06a7 0x0
t=15       0x6fdd853e 0xb55ef6bf 0xb6baa343 0xa28c7853 0xecf5de2a 0x26413d71 0xef40c1ce 0x70930858 0x6d71756d 0x7bef8d5b 0xc19bf174 0x108
t=16       0xe96102c8 0x6fdd853e 0xb55ef6bf 0xb6baa343 0xffdedc0  0xecf5de2a 0x26413d71 0xef40c1ce 0x5820c5c3 0x9571aedd 0xe49b69c1 0x1085d5f6
t=17       0xed9274a0 0xe96102c8 0x6fdd853e 0xb55ef6bf 0xedb6906  0xffdedc0  0xecf5de2a 0x26413d71 0x92b54b01 0xc58276b5 0xefbe4786 0x38699114
t=18       0x5837c1b6 0xed9274a0 0xe96102c8 0x6fdd853e 0x481441c0 0xedb6906  0xffdedc0  0xecf5de2a 0xe0a350c0 0x2ded2953 0xfc19dc6  0xa0e83425
t=19       0xe907a13  0x5837c1b6 0xed9274a0 0xe96102c8 0x5080d5fe 0x481441c0 0xedb6906  0xffdedc0  0x77cf45a1 0x9f6696ef 0x240ca1cc 0xee865ff0
t=20       0x1735dc90 0xe907a13  0x5837c1b6 0xed9274a0 0x61304869 0x5080d5fe 0x481441c0 0xedb6906  0x127079e7 0x54756768 0x2de92c6f 0x5d1acef2
t=21       0x66e5e14f 0x1735dc90 0xe907a13  0x5837c1b6 0x2ee87    0x61304869 0x5080d5fe 0x481441c0 0xd445fd59 0x4afd6afa 0x4a7484aa 0x23a5950f
t=22       0x1f436853 0x66e5e14f 0x1735dc90 0xe907a13  0x2c7dbf0f 0x2ee87    0x61304869 0x5080d5fe 0x8599a87b 0xa04f54c5 0x5cb0a9dc 0xb3db3b5d
t=23       0x25e8fd40 0x1f436853 0x66e5e14f 0x1735dc90 0x942a228e 0x2c7dbf0f 0x2ee87    0x61304869 0x50d2bac6 0x686ff9c3 0x76f988da 0xf5ec90f0
t=24       0xb942b489 0x25e8fd40 0x1f436853 0x66e5e14f 0x68089756 0x942a228e 0x2c7dbf0f 0x2ee87    0x1fb81ccf 0xfe123e13 0x983e5152 0xcbd32a6c
t=25       0x1dca5ae2 0xb942b489 0x25e8fd40 0x1f436853 0x869dfe1e 0x68089756 0x942a228e 0x2c7dbf0f 0x57531aaa 0xb6d4ed5d 0xa831c66d 0x7b435394
t=26       0xe280807  0x1dca5ae2 0xb942b489 0x25e8fd40 0x769682fd 0x869dfe1e 0x68089756 0x942a228e 0x12cf401d 0x40dc87fc 0xb00327c8 0xdecf6849
t=27       0x53abc819 0xe280807  0x1dca5ae2 0xb942b489 0x38b83d5d 0x769682fd 0x869dfe1e 0x68089756 0x821463f9 0xdaaa5219 0xbf597fc7 0x20c1310f
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t=28      0x5cbeb612 0x53abc819  0xe280807 0x1dca5ae2 0x3b571882 0x38b83d5d 0x769682fd 0x869dfe1e 0xf9f5189d 0x3c0f8916 0xc6e00bf3 0x7cbffc73
t=29      0x3604a1b3 0x5cbeb612 0x53abc819  0xe280807 0x17bf737f 0x3b571882 0x38b83d5d 0x769682fd 0x45e4657f 0x294cf4a4 0xd5a79147 0x72897f91
t=30      0x6f315a23 0x3604a1b3 0x5cbeb612 0x53abc819 0x540c6d86 0x17bf737f 0x3b571882 0x38b83d5d 0x3666140f 0x4df454f1  0x6ca6351  0x7d78f4a
t=31      0x845a6900 0x6f315a23 0x3604a1b3 0x5cbeb612 0x8a11dc28 0x540c6d86 0x17bf737f 0x3b571882 0x8c4b5840 0x26c723a5 0x14292967 0xf74595f2
t=32      0xb3127be5 0x845a6900 0x6f315a23 0x3604a1b3 0xe90a0e52 0x8a11dc28 0x540c6d86 0x17bf737f 0xedc8db2a 0xa1190bc7 0x27b70a85  0xd4fcf96
t=33      0x8ee1e6f1 0xb3127be5 0x845a6900 0x6f315a23 0x23cd7cdd 0xe90a0e52 0x8a11dc28 0x540c6d86 0x16deea5d 0x5a023469 0x2e1b2138 0xe209ac62
t=34      0x70e11ec6 0x8ee1e6f1 0xb3127be5 0x845a6900 0x86104480 0x23cd7cdd 0xe90a0e52 0x8a11dc28 0x28495360 0xa152585f 0x4d2c6dfc 0x4bd5f711
t=35      0xc99babbf 0x70e11ec6 0x8ee1e6f1 0xb3127be5 0xaca3bc60 0x86104480 0x23cd7cdd 0xe90a0e52 0xce799168 0x8a18080b 0x53380d13 0xab720696
t=36      0x58919973 0xc99babbf 0x70e11ec6 0x8ee1e6f1 0x818c0d4d 0xaca3bc60 0x86104480 0x23cd7cdd 0xfda5de37 0xb46d0ba9 0x650a7354 0x948cf9d2
t=37      0xb212e9e0 0x58919973 0xc99babbf 0x70e11ec6 0x8c87c528 0x818c0d4d 0xaca3bc60 0x86104480 0xb4dbe6c7   0xba521a 0x766a0abb 0xd2fc3e9a
t=38      0xb59638e1 0xb212e9e0 0x58919973 0xc99babbf 0x25bd058d 0x8c87c528 0x818c0d4d 0xaca3bc60 0x791d9b76 0xa31e5e40 0x81c2c92e 0x6a81837c
t=39      0x1c3bf9b6 0xb59638e1 0xb212e9e0 0x58919973 0x42b94735 0x25bd058d 0x8c87c528 0x818c0d4d 0xb61cc615 0x596bc1a2 0x92722c85 0xa65ddea1
t=40       0xf8887b7 0x1c3bf9b6 0xb59638e1 0xb212e9e0  0xeae5f88 0x42b94735 0x25bd058d 0x8c87c528 0x6c397ec3 0xf9df3b4e 0xa2bfe8a1 0x9323e143
t=41      0x6618ba11  0xf8887b7 0x1c3bf9b6 0xb59638e1 0x1e4c68a3  0xeae5f88 0x42b94735 0x25bd058d 0x490024ad 0xf9fe1790 0xa81a664b 0x6e3cbfa1
t=42      0x42fe3c3d 0x6618ba11  0xf8887b7 0x1c3bf9b6 0xfe965d8e 0x1e4c68a3  0xeae5f88 0x42b94735 0x5145b848 0x903e2c2a 0xc24b8b70 0x6d094e5f
t=43      0xe183e472 0x42fe3c3d 0x6618ba11  0xf8887b7 0x6d81b1fe 0xfe965d8e 0x1e4c68a3  0xeae5f88 0xef89f4b1 0xf700fab6 0xc76c51a3 0x93ffa030
t=44      0xe68aef67 0xe183e472 0x42fe3c3d 0x6618ba11 0xff127c68 0x6d81b1fe 0xfe965d8e 0x1e4c68a3 0x574cd89d 0x8baafc8b 0xd192e819 0x520bb632
t=45      0xe2f7d528 0xe68aef67 0xe183e472 0x42fe3c3d 0xbd6592ae 0xff127c68 0x6d81b1fe 0xfe965d8e 0xa9088947 0x313226e1 0xd6990624 0x786d8677
t=46      0xda3ab028 0xe2f7d528 0xe68aef67 0xe183e472 0xec06c584 0xbd6592ae 0xff127c68 0x6d81b1fe 0xbb6fcdff 0x3fc3d3df 0xf40e3585 0xfa7bd3d8
t=47      0xfb33a1de 0xda3ab028 0xe2f7d528 0xe68aef67 0x9cf3b271 0xec06c584 0xbd6592ae 0xff127c68 0x8ac8aaa4 0x78effb2e 0x106aa070 0xdcaba4cd
t=48       0x3b8a5d2 0xfb33a1de 0xda3ab028 0xe2f7d528 0x71539a0b 0x9cf3b271 0xec06c584 0xbd6592ae 0xfa9cb6ff 0x28241e99 0x19a4c116 0xc1d42a13
t=49      0x22c0d598  0x3b8a5d2 0xfb33a1de 0xda3ab028 0xdd948c27 0x71539a0b 0x9cf3b271 0xec06c584 0x7982a111 0xcad7e9c5 0x1e376c08 0x4c04c1e3
t=50      0x445a8ad6 0x22c0d598  0x3b8a5d2 0xfb33a1de 0x53bd5139 0xdd948c27 0x71539a0b 0x9cf3b271 0x7ccd6545 0xb0685f42 0x2748774c 0x29ee931e
t=51      0x2d35c487 0x445a8ad6 0x22c0d598  0x3b8a5d2 0x78010723 0x53bd5139 0xdd948c27 0x71539a0b 0x64cf24c9 0x5cb6c8d1 0x34b0bcb5 0x8028af64
t=52      0xc185ed9a 0x2d35c487 0x445a8ad6 0x22c0d598 0x6887ca9b 0x78010723 0x53bd5139 0xdd948c27 0xd851e42c 0x1016e8e5 0x391c0cb3 0xc93df5c8
t=53      0xe868cd11 0xc185ed9a 0x2d35c487 0x445a8ad6 0xfb12b9c4 0x6887ca9b 0x78010723 0x53bd5139 0x521a6b68 0x9ac70536 0x4ed8aa4a 0xa5511675
t=54      0xece1709e 0xe868cd11 0xc185ed9a 0x2d35c487 0x9674f63e 0xfb12b9c4 0x6887ca9b 0x78010723 0x81ed510f 0xa2ef2e39 0x5b9cca4f 0xabcbc50b
t=55      0x24dc7f48 0xece1709e 0xe868cd11 0xc185ed9a 0xaf231596 0x9674f63e 0xfb12b9c4 0x6887ca9b 0x9fecb464 0x6f7396ba 0x682e6ff3 0x7f221a1d
t=56       0xf604b1e 0x24dc7f48 0xece1709e 0xe868cd11 0x6172a1fe 0xaf231596 0x9674f63e 0xfb12b9c4 0x800c5ac2 0x86e48d16 0x748f82ee 0xda2aaa97
t=57       0x6f0e7d8  0xf604b1e 0x24dc7f48 0xece1709e 0x687527d3 0x6172a1fe 0xaf231596 0x9674f63e 0x4b56cad9  0x3d3ddc2 0x78a5636f 0xc76b0bc7
t=58      0x4f2aa89b  0x6f0e7d8  0xf604b1e 0x24dc7f48 0x38383b77 0x687527d3 0x6172a1fe 0xaf231596 0xd42e5871 0x4d13a9e9 0x84c87814 0x88b5ca76
t=59      0x2142025a 0x4f2aa89b  0x6f0e7d8  0xf604b1e 0xf90ad7b9 0x38383b77 0x687527d3 0x6172a1fe 0x81b9fb2b 0x99eb84dd 0x8cc70208 0xc5524cba
t=60      0x1ba58008 0x2142025a 0x4f2aa89b  0x6f0e7d8 0x911a4649 0xf90ad7b9 0x38383b77 0x687527d3 0xe8c95063 0x9bcc1d5a 0x90befffa 0xd4153abe
t=61      0x84956dbd 0x1ba58008 0x2142025a 0x4f2aa89b 0xefba383b 0x911a4649 0xf90ad7b9 0x38383b77 0x9204df8f 0x5b0489ee 0xa4506ceb 0xee826d54
t=62      0xed09697d 0x84956dbd 0x1ba58008 0x2142025a 0xe12f882a 0xefba383b 0x911a4649 0xf90ad7b9 0xff565171 0xa28e2edd 0xbef9a3f7 0x1cfaf8b5
t=63      0xa1e4804e 0xed09697d 0x84956dbd 0x1ba58008 0x209853cb 0xe12f882a 0xefba383b 0x911a4649 0xc7d4f61b 0xdd927f2d 0xc67178f2 0x674f76d1
t=final   0xa5677548 0xa1e4804e 0xed09697d 0x84956dbd 0xe37a7623 0x209853cb 0xe12f882a 0xefba383b
h before 0x6a09e667 0xbb67ae85 0x3c6ef372 0xa54ff53a 0x510e527f 0x9b05688c 0x1f83d9ab 0x5be0cd19
h after  0xf715baf 0x5d4c2ed3 0x29785cef 0x29e562f7 0x3488c8a2 0xbb9dbc57   0xb361d5 0x4b9b0554
SHA-256 Hash: 0f715baf5d4c2ed329785cef29e562f73488c8a2bb9dbc5700b361d54b9b0554


Process finished with exit code 0
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