

Hash



Obrazek podstawowy



Obrazek zmodyfikowany

Kod:

```
import hashlib

def sha256sum(file_path):
    h = hashlib.sha256()
    with open(file_path, 'rb') as f:
        while chunk := f.read(8192):
            h.update(chunk)
    return h.hexdigest()

original_file = 'koteł.bmp'

original_hash = sha256sum(original_file)
print(f'Oryginalny hash SHA-256: {original_hash}')

with open(original_file, 'rb') as f:
    data = bytearray(f.read())

data[99] ^= 1

modified_file = 'zmieniony_obrazek.bmp'
with open(modified_file, 'wb') as f:
    f.write(data)

modified_hash = sha256sum(modified_file)
print(f'Hash zmodyfikowanego pliku SHA-256: {modified_hash}')
```

Wyniki:

Oryginalny hash SHA-256:

44517687d32447ab4b19cfed3a6d98ca86c67d5ac58117d7b336fef511af26b6

Hash zmodyfikowanego pliku SHA-256:

a4e0588d9fbe4145553a14eb8afda9389b0c5ffa2cf12cdcfb6117ea9b11161