

# Ecnrypting and Decrypting Folder

# Encryption

Generate a key with a password first naive approach

```
def __generate_key(self, pwd: str) -> tuple[bytes, bytes]:  
    """Generates a key, IV, and salt from a password using PBKDF2HMAC."""  
    hashed_pwd = hashlib.sha256(pwd.encode()).digest()  
    key = os.urandom(hashed_pwd)  
    iv = os.urandom(16)  
  
    return key, iv
```

This is unsecure

# Encryption

## Better password encryption implementation

```
def __generate_key(self, pwd: str) -> tuple[bytes, bytes]:  
    """Generates a key, IV, and salt from a password using PBKDF2HMAC."""  
    salt = os.urandom(16)  
    kdf = PBKDF2HMAC(  
        algorithm=hashes.SHA256(),  
        length=32,  
        salt=salt,  
        iterations=100000,  
        backend=default_backend()  
    )  
    key = kdf.derive(pwd.encode())  
    iv = os.urandom(16)  
  
    return key, iv, salt
```