```
C: > Users > yamin > OneDrive > Pictures > Documents > MY DOCS > Thesis > Process > ✦ Apotek.py > ...
26    def validate_firebase_auth_token(auth_token):
40        except jwt.InvalidTokenError:
41            print("❌ Firebase AuthToken is invalid.")
42
43    # Function to validate Firebase RefreshToken
44    def validate_firebase_refresh_token(refresh_token):
45        print("\nValidating Firebase RefreshToken...")
46        if refresh_token and len(refresh_token) > 10:  # Basic check for token format
47            print("✅ Firebase RefreshToken appears to be valid.")
48        else:
49            print("❌ Firebase RefreshToken is invalid or malformed.")
50
51    # Function to validate Firebase Session ID
52    def validate_firebase_session_id(session_id):
53        print("\nValidating Firebase Session ID...")
54        if session_id and len(session_id) == 32:  # Basic check for session ID format
55            print("✅ Firebase Session ID appears to be valid.")
56        else:
57            print("❌ Firebase Session ID is invalid or malformed.")
```

```
PROBLEMS ❷   OUTPUT   DEBUG CONSOLE   TERMINAL   PORTS                                    powershell +

PS C:\Users\yamin\OneDrive\Pictures\Documents\MY DOCS\Thesis> cd .\Process\
PS C:\Users\yamin\OneDrive\Pictures\Documents\MY DOCS\Thesis\Process> python Apotek.py
Validating Google Maps API key...
❌ Google Maps API key is invalid or restricted.
Error: This API project is not authorized to use this API.

Validating Firebase AuthToken...
✅ Firebase AuthToken is valid.
Expiration Time: 2025-03-28 19:49:21

Validating Firebase RefreshToken...
✅ Firebase RefreshToken appears to be valid.

Validating Firebase Session ID...
✅ Firebase Session ID appears to be valid.
```

 I found that the **Google Maps API key** is invalid or restricted, which could be a problem if it's exposed, as attackers might misuse it to access services or cause financial harm. The **Firebase AuthToken**, **RefreshToken**, and **Session ID** are all valid, but if they're stored in plaintext or exposed, they could be stolen and used to impersonate the app, access sensitive data, or hijack user sessions


```
generic_x86:/data/data/se.kronansapotek.kronan/files #
generic_x86:/data/data/se.kronansapotek.kronan/files #
generic_x86:/data/data/se.kronansapotek.kronan/files #
generic_x86:/data/data/se.kronansapotek.kronan/files # cat DATA_disk_creation_time_its          8
◆◆◆◆qgeneric_x86:/data/data/se.kronansapotek.kronan/files # cat DATA_disk_creation_time_its_ter
◆◆◆◆ugeneric_x86:/data/data/se.kronansapotek.kronan/files # cat DATA_disk_creation_time_vts_inaka_seat DATA_disk_creation_time_vts_inaka_se.kr
onansapotek.kronan_default                    <
◆◆◆◆◆generic_x86:/data/data/se.kronansapotek.kronan/files # cat DATA_disk_creation_time_vts_labl_se.at DATA_disk_creation_time_vts_labl_se.kro
nansapotek.kronan_default                     <
◆◆◆◆◆generic_x86:/data/data/se.kronansapotek.kronan/files # cat DATA_disk_creation_time_vts_no_pois_at DATA_disk_creation_time_vts_no_pois_se.
kronansapotek.kronan_default                  <
◆◆◆◆sgeneric_x86:/data/data/se.kronansapotek.kronan/files # cat DATA_disk_creation_time_vts_se.kronaat DATA_disk_creation_time_vts_se.kronansa
potek.kronan_default                          <
◆◆◆Pgeneric_x86:/data/data/se.kronansapotek.kronan/files # cat PersistedInstallation.W0RFRkFVTFRd+MVTFRd+MTo1NzczMjAxNzE4ODk6YW5kcm9pZDoyZTk5
NWM4Yjg1ZTU3MTY1YmQ5ZWQw.json                 <
{"Fid":"dU-PplDwRvCLZ-zR0nW5PM","Status":3,"AuthToken":"eyJhbGciOiJFUzI1NiIsInR5cCI6IkpXVCJ9.eyJhcHBJZCI6IjE6NTc3MzIwMTcxODg5OmFuZHJvaWQ6MmU5O
TVjOGI4NWU1NzE2NWJkOWVkMCIsImV4cCI6MTc0MzE4Nzc2MSwiZmlkIjoiZFUtUHBsRHdSdkNMWi16UjBuVzVQTSIsInByb2plY3ROdW1iZXIiOjU3NzMyMDE3MTg4OX0.AB2LPV8wRAI
gHqHvwm-Ae7BLnltgMGO72V-g19yAly6t2kasAali1A4CIFaOsu6CSrciMoyy0rL9t2RLynnMqDdRv97I4e6DrDtn","RefreshToken":"3_AS3qfwJ7bfNTvQvtUQfn-gpPVmSBaDaFb
4qDjnJ-afRqpXMReZQ7XWl3-wpjSRBuxOhwsfEJ7HhswDzBIinSB3SPmC4y_bksSZVkulZDBbW-im0","TokenCreationEpochInSecs":1742582960,"ExpiresInSecs":604800}g
eneric_x86:/data/data/se.kronansapotek.kronan/files # cat ZoomTables.data.v1
Б◆◆:◆

◆
```

discovered a JWT (JSON Web Token) and successfully decoded it, revealing sensitive user details such as the user's first name, last name, identity number, and session ID. Even though the token has expired, the fact that it contains such information is a **security concern**. Since JWTs are base64-encoded and not encrypted, anyone with access to the token can easily decode it and extract this sensitive data.

```
PS C:\Users\yamin\OneDrive\Pictures\Documents\MY DOCS\Thesis\Process> python Apoteket.py
✅ Decoded JWT payload:
{'iat': 1741535573, 'exp': 1741537973, 'sub': '199907263223', 'aud': ['kronansapotek'], 'iss': 'www.kronansapotek.se', 'firstName': 'Yamini', 'lastName': 'Balannagari', 'identityNumber': '199907263223'
, 'sessionId': '868b1804-9392-486c-88b9-e7b15a73ce18', 'token': 'eyJlbmMiOiJBMTI4R0NNIiwiYwxnIjoiUlNBLU9BRVAtNTEyIn0.FKT9L7NcfNe9U32E2Cz9fK5rLXbX31QOvnrjpB0tCtPAwCcv2R6kZAUjV23Wf9PIcUdjCr1NPM1gwCTLtLeA
DnoSUSW0DPXvK2tYOW40qUgv-CAV0PG7IOeyucJvSq7tIcN-L-FdP6qA_zxP1r85TmbrMMi3pWUdituwnixHaWEO3-dOluTdsfjNmgE6egcmlz1Z-t2CQMh2LWDvtbSazjHYTiYz8qUbAR756U9AMY1ALWYP0SGzIsB2xK9C93EpuGR18ttbgCc0RRgoJQjBkH7V6u9OB
RUn9cWf4cBgBcJ_rWZUaKOf2IEr7guSRo5tTHWc0T_Asb_UIeftfCS5Wg.N636mpElQIEylIh9.4CentrB5MqBtRYq0JZzxNdTLgSN7x98NHSOpNY8ojOTGQKLA01jRRBPFCkoHmkYUuCRhpNdL2gYT1qkQ4tLUYcaimu9sa11pfW3-ocSoAseBEO6S9Ov6JJygKltmCx
PrFkMkDAEQON88d16Exi4wzv9Xmxo4RYWut1ilefY1RLWHBMdVMrEiupqWV3fPllXEapNkCBNHoR4AuG2kD28DmIqHhCaP-ZSf7vMQleSVgwtRebp7eVtLwv5BehvRyxYOWkQhsmJTNtzcCDKDe1RM4D2G_n12XH6h7zUwfS1K-wc-svaxcdlYrcX8tokMKQ4KwqtgvCC
OljpGjwp9La7dWJCaKB0gGAKy8SkjuhqyOGUOSG5ffJ4N1Tqb59XfQSzToOrNiMBsNoeuxjER8y8xLgGsgr49LPj_02xLRtmviMmy3aOq2bLwPyD7f3l_gPCIypKEXAoQ7tQewnKZI23AL3sp6DTFY6-Cw-OIQbeLaM68fFE00_9-LbNGo9lGFRt2lqaw3o5u0D46pXca
VmFrx3hgkPzSCAjwvNtiJ6572eRisbqHuBrD09FrWj3l0v9ky3Ns4_hJNRX1uxGG11SfUXJGOiQmTSHodtwBCYR8osrWTCOBsZAFObf8VKJbIQlMZEpeZNzC3t-F6xfxGJ7_rkaq_Dh0WSZy5698iVTRr9-ECsja0Qq7AOWK9wx4Wnct1-yQ7n26vu3MV33fc-RJuBW2EN
09a0GdEhx5qUamKA8TwUzlk2iJ57330ti8hGHISMJJeotrnMSahJOq-fQo-rWPFz6CK7dgQchmBA5XgxYLUc2Xjc7UI42Z6MUkKUEvSnO6h3oK6HL77M42lLpbnqdAU4AObeCa7VxB4y7xFDzJ9WKGT0iFHTIB07HoAIe7lLhFRcZi94WY3HgikUqVjujKX6e2mx60xDBk
DfKHy2DQ23Ak9JLi6d3WckCnIG5OLGGCmKEAF8sER1WVJr_5VDgCrn4t5MyyzZE6qFewB6Wh66vJQFuK1vdtYPubGTnKxeEAg6aJyAcPL_2raK68UdV14OTwMNd0fzT8U4aX85aYD3AbvpXvK8WuKJxhwlRohJ7M4A1Zn9NpmAXfyK-D7wSzDTHkpeALW7h10ek9qALtI
IL8XR5DvaAowHTm5P7cW7ZcKiR35UeaasLJCrJb5tsOtiFcsWAi2NLPii7TiktcjDUISmRTktxv_Ek9KT54XUTvpjjctDp3j3d9u1CC671PeKkRFLSYi0zwRbAkjCPmCUnWX4j9PhMwXYLgFbv8p71hRBIs7LqKxzLWNDufUhE9vh3qba12cdOmLplND4NUp9XuUvZdpZ
Jcq-M6QsCOB9yiK3O6c-Q4B2-ZiEsJrXaCs1WsWwXXmmQvfQl51tbOVH7E1NJukpM5vFkmn5NxZqoJwtij5zjMeqGjFHdP2ZXNoLQS3Xhnmsa60loq7Dy72JUpkavxGpk_-zFFG24FtC1t9lGrU_IlMUy6aPFAIVS_kO52IUPMU2mQisA1cVMzEq9cRyTrnM4uv1uiljp
RfiaS99kvm4U_JCcu1lmZZpmPZMb81GRVd-HReRqaE0ZPf4-g0C8OV64bNwNPLG6MiTpGuBdhqtA.w1AtD6DLzWyZWCUG0T_EUQ'}
C:\Users\yamin\OneDrive\Pictures\Documents\MY DOCS\Thesis\Process\Apoteket.py:16: DeprecationWarning: datetime.datetime.utcfromtimestamp() is deprecated and scheduled for removal in a future version. U
se timezone-aware objects to represent datetimes in UTC: datetime.datetime.fromtimestamp(timestamp, datetime.UTC).
  expiration_time = datetime.utcfromtimestamp(decoded["exp"])
C:\Users\yamin\OneDrive\Pictures\Documents\MY DOCS\Thesis\Process\Apoteket.py:17: DeprecationWarning: datetime.datetime.utcnow() is deprecated and scheduled for removal in a future version. Use timezon
e-aware objects to represent datetimes in UTC: datetime.datetime.now(datetime.UTC).
  current_time = datetime.utcnow()
❌ Token has expired.
```