Week 14 - Lab Activity - Configuration & Code - JSON Web Token

For this assignment you will need to create three separate programs. you will also use the Python module [PyJWT  (Links to an external site.)](https://pyjwt.readthedocs.io/en/stable/index.html" \t "_blank)to validate a JSON Web Token. The module must be installed on your computer so please do so before attempting to decode and validate the JWT. It is also recommended that you watch all of the videos in this module first.

**First Program (CreateUser) -**Create a program that after prompting the user for their username, email, password and custom attribute "*allowed\_access*", will create an account in a Amazon Congnito user pool. The program should also confirm the user's authenticity.

**Second Program (LoginUser) -**Create a program that after prompting the user for their username and password, allows the user to sign-in to an Amazon Congnito user pool. To do this implement the "USER\_PASSWORD\_AUTH" authentication flow. Store the JWTs in a file so that they can be read in **VerifyJWTs** below. Note, there is no logout feature available for the client (one can be created but it is beyond the scope of this lab).

**Third Program (VerifyJWTs) -**Create a program that simulates server-side code and verifies the JWT. Verify the expiration date, signature and audience claims. If the verification is successful the program should print "*Access to server resources granted*". If the token cannot be verified the program should print "*Access to server resources denied*"

**Bonus Program (DeleteUser) 20pts -**Create a program that prompts the user for the required information to delete the user from the user pool.

There is sample code on how to decode and validate the specific parameters of a JWT [here (Links to an external site.)](https://pyjwt.readthedocs.io/en/stable/usage.html#encoding-decoding-tokens-with-hs256).

To obtain the Cognito user pools info, use the following CLI functions:

* aws cognito-idp list-user-pools --max-results 20
* aws cognito-idp list-user-pool-clients --user-pool-id <the user pool ID>

Submit the three Python programs below.

**Scoring:**

* 3 programs at 20 point each - 60pts.