Project Description: Developing a comprehensive, deployable software application to accurately assess patients who have an imminent (within 1 year) risk of hip fracture.

1. Create a AWS hosted online platform to house, maintain, and deploy to interface with machine learning models for payers and providers specific to fragility fractures. This platform will have the following components:
   - User authentication and user management
   - Interface to allow users to input large medical insurance claims data sets in a variety of formats including CSV and Apache Parquet
   - Interface to send data sets to be run against the machine learning (ML) model
   - Machine learning predictive model will do:

     · Given a selected number of covariates run the trained mode

   - API to communicate with cloud based ML service
   - Interface to display results generated by the ML service
   - Interface to download results generated by the ML service as Excel or PDF reports

   Skills Focus:
   - Back end programming knowledge. Experience with web based programming languages such as Node.JS, PHP or Java.
   - Knowledge of AWS Cloud API development using CloudFormation scripts
   - SQL knowledge. Experience with databases such as MySQL, MS SQL Server, building the database layer for a web application, and ability to write complex SQL queries
   - Understanding of modern source control tools such as Git
   - Preferably some experience with building APIs and developing web services to interface with external systems

2. Create a predictive model using machine learning applications to predict imminent (within 1 year) likelihood of hip fracture using DXA scan clinical images.

   Skills Focus:

   · Data science using ml ensemble using python

   · Train a super learner using the dataset (Random Forest, Logistic Regression, …)