**Early detection of disease**

Hackathon – AI-based problems.

**Problem: Early detection of disease**

Problem Statement:

You will be given a Clinical Data set (csv) with 13600 rows in it, with relevant clinical parameters and its labels, You need to create Machine learning models with the recommended Tech stack which will predict the Risk levels - 4 Classes (No Risk, Moderate Risk, Early on set, Critical) for each of the following diseases.

    1. Chronic Kidney Disease (CKD)/End Stage Renal Disease (ESRD) ​

    2. Cardiovascular disease (CVDs)

    3. Hypertension​

    4. Diabetes​

    5. COPD

Tech stack Recommendation and Guidelines for Development:

   1. Python 3.6+, Scikit learn, Imbalanced learn.

   2. Algorithm Recommendation - Random forest classifier, Gradient Boosting, SMOTE, etc.

   3. IDE Recommendations - Jupyter Notebook, vscode.

Final Deliverable:

    1. Ability to train models for each disease individually with training dataset and save the model in pickle format.

  2. Ability to predict the Risk levels for each disease type with test data using the models trained in the above step.

Learning Path:

* Python for Data Science

<https://nexversity.udemy.com/course/python-coding/>

* Supervised Learning

<https://nexversity.udemy.com/course/ml-master/>

* ENSEMBLE TECHNIQUES, FMST

<https://nexversity.udemy.com/course/feature-engineering-for-machine-learning/>

* NEURAL NETWORKS BASICS

<https://nexversity.udemy.com/course/nlp-natural-language-processing-with-python/>

* STATISTICAL NLP, NATURAL LANGUAGE PROCESSING

<https://nexversity.udemy.com/course/deep-learning-advanced-nlp/>

* VISUALIZATION USING TENSORBOARD

<https://www.udemy.com/course/deep-learning-with-tensorflow-certification-training/>

Machine learning production

* Introduction to Deployment, Deploy a Model, Web Hosting, Model Monitoring, Updating a Model

<https://nexversity.udemy.com/course/amazon-web-services-machine-learning/>

Using Azure Machine Learning

* Introduction to Azure ML

<https://www.coursera.org/learn/artificial-intelligence-microsoft-azure>

* Workspaces and the Azure ML Studio

<https://www.coursera.org/learn/microsoft-azure-machine-learning>

* Datastores and Datasets

<https://www.coursera.org/learn/nlp-microsoft-azure>

* Training Models in Azure ML

<https://www.coursera.org/learn/microsoft-ai-900-exam-prep>

* The AzureML SDK

<https://www.coursera.org/learn/developing-ai-applications-azure>

* AutoML and Hyperparameter

<https://www.coursera.org/projects/predictive-modelling-azure-machine-learning-studio>

Machine Learning Operations

* Enabling Security, Deploy a ML model, ML Endpoints

<https://nexversity.udemy.com/course/azure-machine-learning-using-cognitive-services/>

* Pipeline Automation

<https://www.coursera.org/learn/azure-machine-learning-studio-pipeline>