

HW_DS_GA_1017_jg6615

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Responsible Data Science Spring 2022: Homework 1

!git clone https://github.com/lurosenb/superquail

!pip install aif360==0.3.0

!pip install BlackBoxAuditing

!pip install tensorflow==1.13.1

!pip install folktables

fatal: destination path 'superquail' already exists and is not an empty directory.

Requirement already satisfied: aif360==0.3.0 in /usr/local/lib/python3.7/dist-packages (0.3.0)

Requirement already satisfied: scipy>=1.2.0 in /usr/local/lib/python3.7/dist-packages (from aif360==0.3.0) (1.4.1)

Requirement already satisfied: scikit-learn>=0.21 in /usr/local/lib/python3.7/dist-packages (from aif360==0.3.0) (1.0.2)

Requirement already satisfied: matplotlib in /usr/local/lib/python3.7/dist-packages (from aif360==0.3.0) (3.2.2)

Requirement already satisfied: numpy>=1.16 in /usr/local/lib/python3.7/dist-packages (from aif360==0.3.0) (1.21.5)

Requirement already satisfied: pandas>=0.24.0 in /usr/local/lib/python3.7/dist-packages (from aif360==0.3.0) (1.3.5)

Requirement already satisfied: pytz>=2017.3 in /usr/local/lib/python3.7/dist-packages (from pandas>=0.24.0->aif360==0.3.0) (2018.9)

Requirement already satisfied: python-dateutil>=2.7.3 in /usr/local/lib/python3.7/dist-packages (from pandas>=0.24.0->aif360==0.3.0) (2.8.2)

Requirement already satisfied: six>=1.5 in /usr/local/lib/python3.7/dist-packages (from python-dateutil>=2.7.3->pandas>=0.24.0->aif360==0.3.0) (1.15.0)

Requirement already satisfied: joblib>=0.11 in /usr/local/lib/python3.7/dist-packages (from scikit-learn>=0.21->aif360==0.3.0) (1.1.0)

Requirement already satisfied: threadpoolctl>=2.0.0 in /usr/local/lib/python3.7/dist-packages (from scikit-learn>=0.21->aif360==0.3.0) (3.1.0)

Requirement already satisfied: pyparsing!=2.0.4,!=2.1.2,!=2.1.6,>=2.0.1 in /usr/local/lib/python3.7/dist-packages (from matplotlib->aif360==0.3.0) (3.0.7)

Requirement already satisfied: cycler>=0.10 in /usr/local/lib/python3.7/dist-packages (from matplotlib->aif360==0.3.0) (0.11.0)

Requirement already satisfied: kiwisolver>=1.0.1 in /usr/local/lib/python3.7/dist-packages (from matplotlib->aif360==0.3.0) (1.3.2)

Requirement already satisfied: BlackBoxAuditing in /usr/local/lib/python3.7/dist-packages (0.1.54)

Requirement already satisfied: numpy in /usr/local/lib/python3.7/dist-packages (from BlackBoxAuditing) (1.21.5)

Requirement already satisfied: networkx in /usr/local/lib/python3.7/dist-packages (from BlackBoxAuditing) (2.6.3)

Requirement already satisfied: pandas in /usr/local/lib/python3.7/dist-packages (from BlackBoxAuditing) (1.3.5)

Requirement already satisfied: matplotlib in /usr/local/lib/python3.7/dist-packages (from BlackBoxAuditing) (3.2.2)

Requirement already satisfied: python-dateutil>=2.1 in /usr/local/lib/python3.7/dist-packages (from matplotlib->BlackBoxAuditing) (2.8.2)

Requirement already satisfied: pyparsing!=2.0.4,!=2.1.2,!=2.1.6,>=2.0.1 in /usr/local/lib/python3.7/dist-packages (from matplotlib->BlackBoxAuditing) (3.0.7)

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Requirement already satisfied: pytz>=2017.3 in /usr/local/lib/python3.7/dist-packages (from pandas->BlackBoxAuditing) (2018.9)

Requirement already satisfied: tensorflow==1.13.1 in /usr/local/lib/python3.7/dist-packages (1.13.1)

Requirement already satisfied: tensorboard<1.14.0,>=1.13.0 in /usr/local/lib/python3.7/dist-packages (from tensorflow==1.13.1) (1.13.1)

Requirement already satisfied: astor>=0.6.0 in /usr/local/lib/python3.7/dist-packages (from tensorflow==1.13.1) (0.8.1)

Requirement already satisfied: termcolor>=1.1.0 in /usr/local/lib/python3.7/dist-packages (from tensorflow==1.13.1) (1.1.0)

Requirement already satisfied: wheel>=0.26 in /usr/local/lib/python3.7/dist-packages (from tensorflow==1.13.1) (0.37.1)

Requirement already satisfied: gast>=0.2.0 in /usr/local/lib/python3.7/dist-packages (from tensorflow==1.13.1) (0.5.3)

Requirement already satisfied: keras-applications>=1.0.6 in /usr/local/lib/python3.7/dist-packages (from tensorflow==1.13.1) (1.0.8)

Requirement already satisfied: numpy>=1.13.3 in /usr/local/lib/python3.7/dist-packages (from tensorflow==1.13.1) (1.21.5)

Requirement already satisfied: six>=1.10.0 in /usr/local/lib/python3.7/dist-packages (from tensorflow==1.13.1) (1.15.0)

Requirement already satisfied: protobuf>=3.6.1 in /usr/local/lib/python3.7/dist-packages (from tensorflow==1.13.1) (3.17.3)

Requirement already satisfied: grpcio>=1.8.6 in /usr/local/lib/python3.7/dist-packages (from tensorflow==1.13.1) (1.44.0)

Requirement already satisfied: keras-preprocessing>=1.0.5 in /usr/local/lib/python3.7/dist-packages (from tensorflow==1.13.1) (1.1.2)

Requirement already satisfied: tensorflow-estimator<1.14.0rc0,>=1.13.0 in /usr/local/lib/python3.7/dist-packages (from tensorflow==1.13.1) (1.13.0)

Requirement already satisfied: absl-py>=0.1.6 in /usr/local/lib/python3.7/dist-packages (from tensorflow==1.13.1) (1.0.0)

Requirement already satisfied: h5py in /usr/local/lib/python3.7/dist-packages (from keras-applications>=1.0.6->tensorflow==1.13.1) (3.1.0)

Requirement already satisfied: werkzeug>=0.11.15 in /usr/local/lib/python3.7/dist-packages (from tensorboard<1.14.0,>=1.13.0->tensorflow==1.13.1) (1.0.1)

Requirement already satisfied: markdown>=2.6.8 in /usr/local/lib/python3.7/dist-packages (from tensorboard<1.14.0,>=1.13.0->tensorflow==1.13.1) (3.3.6)

Requirement already satisfied: importlib-metadata>=4.4 in /usr/local/lib/python3.7/dist-packages (from markdown>=2.6.8->tensorboard<1.14.0,>=1.13.0->tensorflow==1.13.1) (4.11.1)

Requirement already satisfied: typing-extensions>=3.6.4 in /usr/local/lib/python3.7/dist-packages (from importlib-metadata>=4.4->markdown>=2.6.8->tensorboard<1.14.0,>=1.13.0->tensorflow==1.13.1) (3.10.0.2)

Requirement already satisfied: zipp>=0.5 in /usr/local/lib/python3.7/dist-packages (from importlib-metadata>=4.4->markdown>=2.6.8->tensorboard<1.14.0,>=1.13.0->tensorflow==1.13.1) (3.7.0)

[] import random

random.seed(27)

import sys

import warnings

import numpy as np

import pandas as pd

import tensorflow as tf

import json

import time

from tqdm import tqdm

import matplotlib.pyplot as plt

import seaborn as sns

from folktables import ACSDataSource, ACSEmployment, ACSIncome, ACSPublicCoverage, ACSTravelTime

from superquail.data.acs_helper import ACSData

from sklearn.linear_model import LogisticRegression

from sklearn.metrics import accuracy_score, roc_auc_score

from sklearn.ensemble import RandomForestClassifier

from sklearn.pipeline import Pipeline

from sklearn.compose import ColumnTransformer, make_column_selector as selector

from sklearn.model_selection import RandomizedSearchCV, PredefinedSplit, GridSearchCV

from sklearn.preprocessing import MinMaxScaler, StandardScaler, OneHotEncoder, OrdinalEncoder

from aif360.datasets import BinaryLabelDataset, StandardDataset

from aif360.algorithms.preprocessing import DisparateImpactRemover

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