Assignment 2

***Goal:***

In this assignment, you will implement Logistic Regression, Regularized (L2) Logistic Regression. The goal of this assignment is to give you experience in implementation of Logistic Regression and analyze the hyperparameter tuning in case of Regularized Logistic Regression.

***Data sets:***

The dataset that you use in this project is “pima-indians-diabetes”.

This dataset describes the medical records for Pima Indians and whether or not each patient will have an onset of diabetes within year.

Fields description follow:

*preg = Number of times pregnant*

*plas = Plasma glucose concentration a 2 hours in an oral glucose tolerance test*

*pres = Diastolic blood pressure (mm Hg)*

*skin = Triceps skin fold thickness (mm)*

*test = 2-Hour serum insulin (mu U/ml)*

*mass = Body mass index (weight in kg/(height in m)^2)*

*pedi = Diabetes pedigree function*

*age = Age (years)*

class = Class variable (1:tested positive for diabetes, 0: tested negative for diabetes)

***Your Task:***

1. Implementing Logistic Regression using given 8 features in the data.
2. Implement Regularized Logistic Regression. For hyperparameter tuning divide the data into training, validation and test set by 70%, 15% and 15% respectively. Find the best hyperparameter on validation set and test on test set.

Note: Regularized Logistic Regression Tutorial:

<https://towardsdatascience.com/implement-logistic-regression-with-l2-regularization-from-scratch-in-python-20bd4ee88a59>.