**Report for Assignment 2**

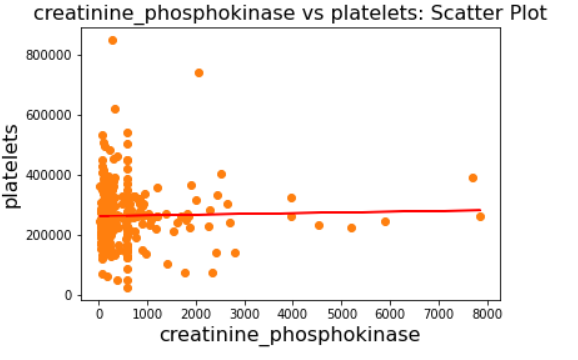
**Linear Regression Using Pseudo Inverse Method**

I implemented Logistic Regression Classifier on dataset “heart\_failure\_clinical\_records\_dataset.csv” which I imported from Kaggle.com. Here we are trying to find platelets from creatinine\_phosphokinase data.

Here, I first wrote all calculation steps for Linear Regression using Pseudo Matrix Method and implemented on the dataset. Then I checked my result using LinearRegression Package from sklearn.

Steps are,

* After loading the dataset, we perform normalization on entries of dataset.
* Then we used train\_test\_split from sklearn.model\_selection to split features and target in train and test variables.
* Then using beta\_hat = np.linalg.inv(X\_mat.T.dot(X\_mat)).dot(X\_mat.T).dot(Y) we computer the required pseudo matrix multiplication.
* The variable beta\_hat contains the estimates of the two parameters of the linear model.
* We get, beta\_hat= [2.61923277e+05 2.46588986e+00]
* And by using LinearRegression Package from sklearn we get two parameters [261923.27722818268 2.46588986]



**Linear Regression Using Gradient Descent Method**

I implemented Logistic Regression Classifier on dataset “housing.csv” which I imported from Kaggle.com. Here we are trying to find maiden house value from features data given.

Here, I first wrote all calculation steps for Linear Regression using Gradient Descent Method and implemented on the dataset.

Steps are,

* After loading the dataset, we perform normalization on entries of dataset.
* Then we wrote main gradient\_decent function here.
* Then we used train\_test\_split from sklearn.model\_selection to split features and target in train and test variables.
* After implementing gradient\_decent function in training data we get value cost function as 0.02325241790276246 and we got the required predicted maiden house value in normalized form.