Machine Learning Exam

1. Linear Regression

Choosing a dataset , please do the following tasks:

a) Plot the data 1p
b) Compute Cost Function 1p
c) Make a function that run gradient descent 1p
d) Compute Cost Function for multivariate Linear Regression 1p
e) Compute Cost for multivariate Gradient Descent 1p
f) Do the feature normalization 1p
g) Make a function that computes the normal equation. 1p

2. Logistic Regression

Choosing a dataset , please do the following tasks:

a) Plot the data 1p
b) Make code that computes sigmoid function 1p
c) Compute the Logistic Regression Cost Function 1p
d) Make a prediction for the test sample 1p
e) Compute Regularized Cost Function 1p

3. Neural Networks

Choosing a dataset , please do the following tasks:

a) Compute the gradient of the sigmoid function 4p
b) Randomly initialize weights 4p
c) Compute Neural network cost function 4p

4. Kmeans

Choosing a dataset , please do the following tasks:

a) Plot the data 1p
b) Initialize K means centroids 1p
c) Find the closesr Centroids 1p
d) Compute Centroids means 1p
e) Run K means algorithm 1p
f) Plot each step of Kmeans as it processds 1p