





TASK 1A

Cross-validation for Ridge Regression (graded)

You are in the group  Deepforgetting consisting of  junterhol (junterhol@student.ethz.ch (mailto://junterhol@student.ethz.ch)),  merklec (merklec@student.ethz.ch (mailto://merklec@student.ethz.ch)) and  ribadov (ribadov@student.ethz.ch (mailto://ribadov@student.ethz.ch)).

 1. READ THE TASK DESCRIPTION

 2. SUBMIT SOLUTIONS

 3. HAND IN FINAL SOLUTION


 3. HANDIN CLOSED ON THURSDAY 28 MAR 2024 00:02

HOW TO OBTAIN POINTS

To obtain points for this task, you have to **individually** hand in the task as follows:

- You need to select one of your group's submissions for grading. You will only be graded on that submissions.
- You have to write a short report on the approach that you have used. **Each student has to individually write their own report and you are not allowed to share the report with your other group members.**

If you do not properly hand in the task, you will receive zero points for the task.

 Please double check that your handin was successful by refreshing the page after pressing the hand in button!

CURRENT STATUS

✓ You have successfully handed in the task and it will be graded.

Submission selected for grading

results_Rasim_16.03.2024_1.csv (first try computing RMSE with help of sklearn) with public

Report

We used `np.sqrt()` and `np.mean()` for efficient math computations of the RMSE. For the `'fit()'`-function: We used `np.eye()` to return a 2-D array with ones on the diagonal and zeros elsewhere. We used `'@'` - operator for matrix multiplication when operating on NumPy arrays. For the result we used `np.linalg.solve()` to solve a linear matrix equation.

To execute the Cross-Validation, we implemented 2 nested for loops: The first loop iterates over the folds generated by `'KFold.split(X)'`. To get the indices of the training and testing sets for one fold we used `'kf.split(X)'`. To keep track of the fold index `i` we used `enumerate()`. Within each fold, we separate the dataset into training and testing sets based on the indices from `'kf.split(X)'`. The second loop iterates over the different values of `lambda` specified in the `'lambdas'` list. For each fold and each `lambda`, we fit a ridge regression model to the training data using the regularization parameter `'lam'`. We store each RMSE result in a `'RMSE_mat'` - matrix and return the average RMSE by computing the mean along the rows of that matrix as an end-result.



Preliminary grade

✓ Your submission is better than the baseline. Congratulations, you have passed the task. Your task grade: 6.

Note that the grade is preliminary. We will further assess your submission. In a few cases, we may change the grade for this task throughout the semester.

Grading details

Test set	Your submission's score	Baseline score	Pass
Public	9.303763455113494	39.884937454012814	True

NEW REPORT

Handin has closed on Thursday 28 Mar 2024 00:02. We cannot accept late handins.