

# ProjectStartUp1\_LeastSquares

November 17, 2020

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[62]: from scipy.io import loadmat
import numpy as np

#LASSO Solver - provided code in earlier assignment
def ista_solve_hot( A, d, la_array ):
    # ista_solve_hot: Iterative soft-thresholding for multiple values of
    # lambda with hot start for each case - the converged value for the previous
    # value of lambda is used as an initial condition for the current lambda.
    # this function solves the minimization problem
    # Minimize  $\|Ax-d\|_2^2 + \lambda\|x\|_1$  (Lasso regression)
    # using iterative soft-thresholding.
    max_iter = 10**4
    tol = 10**(-3)
    tau = 1/np.linalg.norm(A,2)**2
    n = A.shape[1]
    w = np.zeros((n,1))
    num_lam = len(la_array)
    X = np.zeros((n, num_lam))
    for i, each_lambda in enumerate(la_array):
        for j in range(max_iter):
            z = w - tau*(A.T@(A@w-d))
            w_old = w
            w = np.sign(z) * np.clip(np.abs(z)-tau*each_lambda/2, 0, np.inf)
            X[:, i:i+1] = w
            if np.linalg.norm(w - w_old) < tol:
                break
    return X

#####
#SETUP
X = loadmat("RawData.mat")['X']
y = loadmat("RawData.mat")['y']
Xones = np.ones((len(X),1))

#Optional: Eliminate high values
#for i in range(110):
#    X = np.delete(X, np.argmax(y), 0)
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#     y = np.delete(y, np.argmax(y), 0)
#     X = np.delete(X, np.argmax(y), 0)
#     y = np.delete(y, np.argmax(y), 0)

TwoNormCol = np.zeros((len(X.T),1))

#Remove keyword columns (poorly treated data)
X = np.delete(X, 17, 1)
X = np.delete(X, 17, 1)
X = np.delete(X, 17, 1)
X = np.delete(X, 17, 1)
X = np.delete(X, 17, 1)
X = np.delete(X, 17, 1)
X = np.delete(X, 17, 1)
X = np.delete(X, 17, 1)
X = np.delete(X, 17, 1)
X = np.delete(X, 17, 1)

#Normalize columns to 2-norm
for i in range(len(X.T)):
    TwoNormCol[i] = np.sqrt(X[i,:] $\otimes$ X[i,:])
    X[i,:] = X[i,:]/TwoNormCol[i]
#print(TwoNormCol)
#print(X[0,:])
#print(y)

#Form subsets (indices, first group is full X)
Xsubs = np.
    →array([[0,49],[0,5],[5,7],[7,9],[9,11],[11,17],[17,20],[20,26],[28,33],[33,37],[37,45],[45,

#Create and run over 11 sets of 3604 entries from X and y,
#using 1 as a primary test set (when needed for lambda)
setArr = np.array([[0,int(len(X)/11),[int(len(X)/11),int(2*len(X)/
    →11)],int(2*len(X)/11),int(3*len(X)/11)],\
                    [int(3*len(X)/11),int(4*len(X)/11)],int(4*len(X)/
    →11),int(5*len(X)/11)],\
                    [int(5*len(X)/11),int(6*len(X)/11)],int(6*len(X)/
    →11),int(7*len(X)/11)],\
                    [int(7*len(X)/11),int(8*len(X)/11)],int(8*len(X)/
    →11),int(9*len(X)/11)],\
                    [int(9*len(X)/11),int(10*len(X)/11)],int(10*len(X)/
    →11),int(len(X))]))
#print(setArr)

#Set up lambda
lambdaCount = 20
lambdaTest = 5*np.logspace(-6, 12, lambdaCount)

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#Error tally storage
errorOrig = np.zeros((12,1))
#errorOrigOnes = np.zeros((11,1))
errorLASSO = np.zeros((12,1))
#errorRidge = np.zeros((11,1))

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#Loops over (1) all X subsets, (2 and 3) over all 11 sets for testing (1320
→loops total)
for Xset in range(len(Xsubs)):
    for i in range(11):
        for j in range(11):
            if i != j:
                print("X subset = ",Xset," , i = ",i," , j = ",j)
                testTally = 0
                #Set up Training and testing sets
                for k in range(11):
                    if i == k:
                        XTest1 = X[setArr[i,0]:setArr[i,1],Xsubs[Xset,0]:
→Xsubs[Xset,1]]

                        #print(XTest1)
                        yTest1 = y[setArr[i,0]:setArr[i,1]]
                        #print(yTest1)
                    if j == k:
                        XTest2 = X[setArr[j,0]:setArr[j,1],Xsubs[Xset,0]:
→Xsubs[Xset,1]]

                        #print(XTest2)
                        yTest2 = y[setArr[j,0]:setArr[j,1]]
                        #print(yTest2)
                    if k != j and k != i:
                        if testTally == 0:
                            XTrain = X[setArr[k,0]:setArr[k,1],Xsubs[Xset,0]:
→Xsubs[Xset,1]]

                            yTrain = y[setArr[k,0]:setArr[k,1]]
                            testTally = 1
                        else:
                            XTrain = np.concatenate((XTrain, X[setArr[k,0]:
→setArr[k,1],Xsubs[Xset,0]:Xsubs[Xset,1]]),\
                                                    axis=0)
                            yTrain = np.concatenate((yTrain, y[setArr[k,0]:
→setArr[k,1]]), axis=0)
                            #print(len(XTrain))
                            #print(len(XTrain.T))

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#Add a column of ones for comparison
Xones = np.ones((len(XTrain),1))
XTrainwithOne = np.concatenate((XTrain, Xones), axis=1)
Xones2 = np.ones((len(XTest2),1))
XTest2withOne = np.concatenate((XTest2, Xones2), axis=1)

#Additional polynomial tests
#UPDATE 11/13: SOME RESULT IN SINGULAR MATRICES, NOT TESTING
↪ FURTHER

#Xpoly2 = np.concatenate((XTrain, XTrain*XTrain, Xones), axis=1)
#Xpoly3 = np.concatenate((XTrain, XTrain*XTrain,
↪ XTrain*XTrain*XTrain, Xones), axis=1)

#Training 1 (for sets that need it)
#Lowest error is based on lowest average differences (abs val)
↪ between y and Xw
WLASSO = ista_solve_hot(XTrain,yTrain,lambdaTest)

# Storage for current iteration ridge regression
#Wrid = np.zeros((len(X.T),lambdaCount))

#UPDATE 11/15: Has been too much for the kernel to handle
↪ (using optimized setup per activity 17)
#Not continuing with Ridge Regression
# Ridge regression
#for index in range(lambdaCount):
#    #WRID[:,index] = np.linalg.inv(XTrain.
↪ T@XTrain+lambdaTest[index]*\
#np.
↪ identity(len(XTrain)))@XTrain.T@yTrain[:,0]

#check with Test Set 1
y_lasso1 = XTest1@WLASSO
#y_rid1 = XTest1@WRID
errorTallyLasso = np.zeros((lambdaCount,1))
#errorTallyRid = np.zeros((lambdaCount,1))
for lam in range(lambdaCount):
    for index in range(len(XTest1)):
        errorTallyLasso[lam] = errorTallyLasso[lam] +
↪ abs(yTest1[index]-y_lasso1[index,lam])\
        /yTest1[index]
        #errorTallyRid[lam] = errorTallyRid +
↪ abs(yTest1[index]-y_rid1[index])
        #print(errorTallyLasso[lam]/(len(X)/11))

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        #print(errorTallyLasso)
        #print(errorTallyRid)
        OptimalLambdaLasso = np.argmin(errorTallyLasso)
        #print("Optimal lambda: ",lambdaTest[OptimalLambdaLasso]," with
→ min ",min(errorTallyLasso)/(len(X)/11))
        #print(np.argmin(errorTallyLasso))
        #OptimalLambdaRid = np.argmin(errorTallyRid)
        #print(np.argmin(errorTallyRid))

        #Running on Testing 2
        wOrig = np.linalg.inv(XTrain.T@XTrain)@XTrain.T@yTrain
        yTestOrig = XTest2@wOrig
        #print(yTestOrig)
        yTestLASSO = XTest2@WLASSO[:,OptimalLambdaLasso]

        errorOrigTemp = 0
        errorLASSOTemp = 0
        for index in range(len(XTest2)):
            errorOrigTemp = errorOrigTemp +
→ abs(yTest1[index]-yTestOrig[index])/yTest1[index]
            errorLASSOTemp = errorLASSOTemp +
→ abs(yTest1[index]-yTestLASSO[index])/yTest1[index]

        errorOrigTemp = errorOrigTemp/len(XTest2)
        errorLASSOTemp = errorLASSOTemp/len(XTest2)
        print("Mean error from standard least squares: ",errorOrigTemp)
        print("Mean error from LASSO: ",errorLASSOTemp)

        errorOrig[Xset] = errorOrig[Xset] + errorOrigTemp
        errorLASSO[Xset] = errorLASSO[Xset] + errorLASSOTemp

        #UPDATE 11/13: SOME ONES X RESULT IN SINGULAR MATRIX, NOT
→ TESTING FURTHER

        #wOrigOnes = np.linalg.inv(XTrainwithOne.
→ T@XTrainwithOne)@XTrainwithOne.T@yTrain
        #yTestOrigOne = XTest2withOne@wOrigOnes
        #print(yTestOrigOne)

GlobalMeanOrigError = np.zeros((11,1))
GlobalMeanLASSOError = np.zeros((11,1))
for index in range(11):
    GlobalMeanOrigError[index] = errorOrig[index]/110
    GlobalMeanLASSOError[index] = errorLASSO[index]/110
    print("Mean Error for pure least squares, X subset ",(index+1)," =
→ ",GlobalMeanOrigError[index])

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print("Mean Error for LASSO, X subset ",(index+1)," =  
↪",GlobalMeanLASSOError[index])
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X subset = 0 , i = 0 , j = 1
Mean error from standard least squares: [2.87405386]
Mean error from LASSO: [0.94831663]
X subset = 0 , i = 0 , j = 2
Mean error from standard least squares: [8.25789016]
Mean error from LASSO: [0.91782115]
X subset = 0 , i = 0 , j = 3
Mean error from standard least squares: [22.22399951]
Mean error from LASSO: [0.88043183]
X subset = 0 , i = 0 , j = 4
Mean error from standard least squares: [2.69954955]
Mean error from LASSO: [0.9274099]
X subset = 0 , i = 0 , j = 5
Mean error from standard least squares: [7.19580145]
Mean error from LASSO: [0.89175439]
X subset = 0 , i = 0 , j = 6
Mean error from standard least squares: [5.25253998]
Mean error from LASSO: [0.99420246]
X subset = 0 , i = 0 , j = 7
Mean error from standard least squares: [2.36663485]
Mean error from LASSO: [0.96640917]
X subset = 0 , i = 0 , j = 8
Mean error from standard least squares: [43.74057366]
Mean error from LASSO: [0.89942192]
X subset = 0 , i = 0 , j = 9
Mean error from standard least squares: [4.39785643]
Mean error from LASSO: [0.91319599]
X subset = 0 , i = 0 , j = 10
Mean error from standard least squares: [2.67685471]
Mean error from LASSO: [0.91477238]
X subset = 0 , i = 1 , j = 0
Mean error from standard least squares: [2.6683274]
Mean error from LASSO: [0.90603275]
X subset = 0 , i = 1 , j = 2
Mean error from standard least squares: [3.80135621]
Mean error from LASSO: [0.93173275]
X subset = 0 , i = 1 , j = 3
Mean error from standard least squares: [18.9639004]
Mean error from LASSO: [0.9513288]
X subset = 0 , i = 1 , j = 4
Mean error from standard least squares: [27.85986858]
Mean error from LASSO: [0.95221615]
X subset = 0 , i = 1 , j = 5
Mean error from standard least squares: [56.72423868]
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Mean error from LASSO: [0.9734224]  
X subset = 0 , i = 1 , j = 6  
Mean error from standard least squares: [18.02292168]  
Mean error from LASSO: [1.01585156]  
X subset = 0 , i = 1 , j = 7  
Mean error from standard least squares: [2.26633871]  
Mean error from LASSO: [0.93361378]  
X subset = 0 , i = 1 , j = 8  
Mean error from standard least squares: [24.83741825]  
Mean error from LASSO: [0.92206426]  
X subset = 0 , i = 1 , j = 9  
Mean error from standard least squares: [5.49169075]  
Mean error from LASSO: [0.89371633]  
X subset = 0 , i = 1 , j = 10  
Mean error from standard least squares: [2.18574285]  
Mean error from LASSO: [0.90710485]  
X subset = 0 , i = 2 , j = 0  
Mean error from standard least squares: [13.04459778]  
Mean error from LASSO: [0.91713471]  
X subset = 0 , i = 2 , j = 1  
Mean error from standard least squares: [5.5032457]  
Mean error from LASSO: [1.06855896]  
X subset = 0 , i = 2 , j = 3  
Mean error from standard least squares: [127.00029063]  
Mean error from LASSO: [0.92694756]  
X subset = 0 , i = 2 , j = 4  
Mean error from standard least squares: [15.87532021]  
Mean error from LASSO: [1.04901032]  
X subset = 0 , i = 2 , j = 5  
Mean error from standard least squares: [55.65259485]  
Mean error from LASSO: [1.01542457]  
X subset = 0 , i = 2 , j = 6  
Mean error from standard least squares: [5.54957825]  
Mean error from LASSO: [1.10543622]  
X subset = 0 , i = 2 , j = 7  
Mean error from standard least squares: [11.64589861]  
Mean error from LASSO: [1.17772402]  
X subset = 0 , i = 2 , j = 8  
Mean error from standard least squares: [187.10963593]  
Mean error from LASSO: [0.98368511]  
X subset = 0 , i = 2 , j = 9  
Mean error from standard least squares: [17.76738617]  
Mean error from LASSO: [0.94267093]  
X subset = 0 , i = 2 , j = 10  
Mean error from standard least squares: [6.50247466]  
Mean error from LASSO: [0.94348276]  
X subset = 0 , i = 3 , j = 0  
Mean error from standard least squares: [24.10600272]

Mean error from LASSO: [0.90999195]  
X subset = 0 , i = 3 , j = 1  
Mean error from standard least squares: [22.49120407]  
Mean error from LASSO: [0.95699656]  
X subset = 0 , i = 3 , j = 2  
Mean error from standard least squares: [89.57258294]  
Mean error from LASSO: [0.92161154]  
X subset = 0 , i = 3 , j = 4  
Mean error from standard least squares: [9.37819548]  
Mean error from LASSO: [0.94209096]  
X subset = 0 , i = 3 , j = 5  
Mean error from standard least squares: [5.25517596]  
Mean error from LASSO: [0.90133118]  
X subset = 0 , i = 3 , j = 6  
Mean error from standard least squares: [3.58115377]  
Mean error from LASSO: [0.97914912]  
X subset = 0 , i = 3 , j = 7  
Mean error from standard least squares: [8.1346568]  
Mean error from LASSO: [0.9765232]  
X subset = 0 , i = 3 , j = 8  
Mean error from standard least squares: [290.5935209]  
Mean error from LASSO: [0.92408443]  
X subset = 0 , i = 3 , j = 9  
Mean error from standard least squares: [6.36307168]  
Mean error from LASSO: [0.8929728]  
X subset = 0 , i = 3 , j = 10  
Mean error from standard least squares: [5.50259698]  
Mean error from LASSO: [0.90192446]  
X subset = 0 , i = 4 , j = 0  
Mean error from standard least squares: [4.58229744]  
Mean error from LASSO: [0.98722778]  
X subset = 0 , i = 4 , j = 1  
Mean error from standard least squares: [34.68002055]  
Mean error from LASSO: [0.98197052]  
X subset = 0 , i = 4 , j = 2  
Mean error from standard least squares: [18.57997759]  
Mean error from LASSO: [0.9364983]  
X subset = 0 , i = 4 , j = 3  
Mean error from standard least squares: [10.13744072]  
Mean error from LASSO: [0.94554216]  
X subset = 0 , i = 4 , j = 5  
Mean error from standard least squares: [4.94487577]  
Mean error from LASSO: [0.91629636]  
X subset = 0 , i = 4 , j = 6  
Mean error from standard least squares: [9.15908203]  
Mean error from LASSO: [1.41726605]  
X subset = 0 , i = 4 , j = 7  
Mean error from standard least squares: [4.80951623]



Mean error from LASSO: [0.94445539]  
X subset = 0 , i = 4 , j = 8  
Mean error from standard least squares: [512.25039512]  
Mean error from LASSO: [0.92506556]  
X subset = 0 , i = 4 , j = 9  
Mean error from standard least squares: [22.78481453]  
Mean error from LASSO: [0.95723241]  
X subset = 0 , i = 4 , j = 10  
Mean error from standard least squares: [9.17035501]  
Mean error from LASSO: [0.92500386]  
X subset = 0 , i = 5 , j = 0  
Mean error from standard least squares: [6.64635052]  
Mean error from LASSO: [0.91658416]  
X subset = 0 , i = 5 , j = 1  
Mean error from standard least squares: [65.90185554]  
Mean error from LASSO: [0.9726753]  
X subset = 0 , i = 5 , j = 2  
Mean error from standard least squares: [34.42943008]  
Mean error from LASSO: [0.92993703]  
X subset = 0 , i = 5 , j = 3  
Mean error from standard least squares: [4.21686101]  
Mean error from LASSO: [0.87774582]  
X subset = 0 , i = 5 , j = 4  
Mean error from standard least squares: [4.12248807]  
Mean error from LASSO: [0.95278282]  
X subset = 0 , i = 5 , j = 6  
Mean error from standard least squares: [2.89766295]  
Mean error from LASSO: [0.96812044]  
X subset = 0 , i = 5 , j = 7  
Mean error from standard least squares: [13.16791493]  
Mean error from LASSO: [0.95147977]  
X subset = 0 , i = 5 , j = 8  
Mean error from standard least squares: [96.49013031]  
Mean error from LASSO: [0.89537189]  
X subset = 0 , i = 5 , j = 9  
Mean error from standard least squares: [18.7231203]  
Mean error from LASSO: [0.90985882]  
X subset = 0 , i = 5 , j = 10  
Mean error from standard least squares: [9.16766717]  
Mean error from LASSO: [0.89533193]  
X subset = 0 , i = 6 , j = 0  
Mean error from standard least squares: [4.57892481]  
Mean error from LASSO: [0.90100865]  
X subset = 0 , i = 6 , j = 1  
Mean error from standard least squares: [17.1671308]  
Mean error from LASSO: [0.96156732]  
X subset = 0 , i = 6 , j = 2  
Mean error from standard least squares: [3.4143912]

Mean error from LASSO: [0.91109537]  
X subset = 0 , i = 6 , j = 3  
Mean error from standard least squares: [2.99372641]  
Mean error from LASSO: [0.87252095]  
X subset = 0 , i = 6 , j = 4  
Mean error from standard least squares: [8.66413162]  
Mean error from LASSO: [0.94367166]  
X subset = 0 , i = 6 , j = 5  
Mean error from standard least squares: [2.75815691]  
Mean error from LASSO: [0.88195305]  
X subset = 0 , i = 6 , j = 7  
Mean error from standard least squares: [20.48766683]  
Mean error from LASSO: [0.9360253]  
X subset = 0 , i = 6 , j = 8  
Mean error from standard least squares: [37.65178272]  
Mean error from LASSO: [0.88556202]  
X subset = 0 , i = 6 , j = 9  
Mean error from standard least squares: [4.30038878]  
Mean error from LASSO: [0.89744414]  
X subset = 0 , i = 6 , j = 10  
Mean error from standard least squares: [5.93704221]  
Mean error from LASSO: [0.90431212]  
X subset = 0 , i = 7 , j = 0  
Mean error from standard least squares: [2.34583086]  
Mean error from LASSO: [0.91057942]  
X subset = 0 , i = 7 , j = 1  
Mean error from standard least squares: [2.27586625]  
Mean error from LASSO: [0.98205308]  
X subset = 0 , i = 7 , j = 2  
Mean error from standard least squares: [8.23542486]  
Mean error from LASSO: [0.9469035]  
X subset = 0 , i = 7 , j = 3  
Mean error from standard least squares: [7.91746437]  
Mean error from LASSO: [0.86711184]  
X subset = 0 , i = 7 , j = 4  
Mean error from standard least squares: [4.5782137]  
Mean error from LASSO: [0.93444815]  
X subset = 0 , i = 7 , j = 5  
Mean error from standard least squares: [14.48019315]  
Mean error from LASSO: [0.87850723]  
X subset = 0 , i = 7 , j = 6  
Mean error from standard least squares: [21.37962012]  
Mean error from LASSO: [1.0378242]  
X subset = 0 , i = 7 , j = 8  
Mean error from standard least squares: [40.65632531]  
Mean error from LASSO: [0.92166275]  
X subset = 0 , i = 7 , j = 9  
Mean error from standard least squares: [3.70734548]

Mean error from LASSO: [0.89239867]  
X subset = 0 , i = 7 , j = 10  
Mean error from standard least squares: [2.21315381]  
Mean error from LASSO: [0.88828402]  
X subset = 0 , i = 8 , j = 0  
Mean error from standard least squares: [14.57441151]  
Mean error from LASSO: [0.90800277]  
X subset = 0 , i = 8 , j = 1  
Mean error from standard least squares: [10.95520571]  
Mean error from LASSO: [0.95527418]  
X subset = 0 , i = 8 , j = 2  
Mean error from standard least squares: [7.89739583]  
Mean error from LASSO: [0.93166553]  
X subset = 0 , i = 8 , j = 3  
Mean error from standard least squares: [14.27286852]  
Mean error from LASSO: [0.87001224]  
X subset = 0 , i = 8 , j = 4  
Mean error from standard least squares: [8.84396909]  
Mean error from LASSO: [0.92558243]  
X subset = 0 , i = 8 , j = 5  
Mean error from standard least squares: [10.14288413]  
Mean error from LASSO: [0.89304825]  
X subset = 0 , i = 8 , j = 6  
Mean error from standard least squares: [3.60280916]  
Mean error from LASSO: [0.97611577]  
X subset = 0 , i = 8 , j = 7  
Mean error from standard least squares: [35.9691385]  
Mean error from LASSO: [0.96771264]  
X subset = 0 , i = 8 , j = 9  
Mean error from standard least squares: [17.21284388]  
Mean error from LASSO: [0.9018671]  
X subset = 0 , i = 8 , j = 10  
Mean error from standard least squares: [6.45509594]  
Mean error from LASSO: [0.88830812]  
X subset = 0 , i = 9 , j = 0  
Mean error from standard least squares: [5.23852018]  
Mean error from LASSO: [0.93890112]  
X subset = 0 , i = 9 , j = 1  
Mean error from standard least squares: [6.66769285]  
Mean error from LASSO: [0.95316326]  
X subset = 0 , i = 9 , j = 2  
Mean error from standard least squares: [15.02401847]  
Mean error from LASSO: [0.91729766]  
X subset = 0 , i = 9 , j = 3  
Mean error from standard least squares: [7.79833748]  
Mean error from LASSO: [0.87143125]  
X subset = 0 , i = 9 , j = 4  
Mean error from standard least squares: [25.23613352]

Mean error from LASSO: [0.95383687]  
X subset = 0 , i = 9 , j = 5  
Mean error from standard least squares: [24.62023222]  
Mean error from LASSO: [0.88925845]  
X subset = 0 , i = 9 , j = 6  
Mean error from standard least squares: [6.09942969]  
Mean error from LASSO: [1.12963475]  
X subset = 0 , i = 9 , j = 7  
Mean error from standard least squares: [4.77919805]  
Mean error from LASSO: [0.96920475]  
X subset = 0 , i = 9 , j = 8  
Mean error from standard least squares: [66.74806133]  
Mean error from LASSO: [0.95305416]  
X subset = 0 , i = 9 , j = 10  
Mean error from standard least squares: [2.90449945]  
Mean error from LASSO: [0.89219669]  
X subset = 0 , i = 10 , j = 0  
Mean error from standard least squares: [2.78457731]  
Mean error from LASSO: [0.90108656]  
X subset = 0 , i = 10 , j = 1  
Mean error from standard least squares: [3.96315473]  
Mean error from LASSO: [0.95769049]  
X subset = 0 , i = 10 , j = 2  
Mean error from standard least squares: [5.6949611]  
Mean error from LASSO: [1.07444495]  
X subset = 0 , i = 10 , j = 3  
Mean error from standard least squares: [6.5085076]  
Mean error from LASSO: [0.88663946]  
X subset = 0 , i = 10 , j = 4  
Mean error from standard least squares: [9.38464629]  
Mean error from LASSO: [0.96148059]  
X subset = 0 , i = 10 , j = 5  
Mean error from standard least squares: [9.98987776]  
Mean error from LASSO: [0.90518576]  
X subset = 0 , i = 10 , j = 6  
Mean error from standard least squares: [10.13544232]  
Mean error from LASSO: [1.13898036]  
X subset = 0 , i = 10 , j = 7  
Mean error from standard least squares: [2.72213735]  
Mean error from LASSO: [1.00473671]  
X subset = 0 , i = 10 , j = 8  
Mean error from standard least squares: [18.5745653]  
Mean error from LASSO: [0.96368687]  
X subset = 0 , i = 10 , j = 9  
Mean error from standard least squares: [2.98168072]  
Mean error from LASSO: [0.89890889]  
X subset = 1 , i = 0 , j = 1  
Mean error from standard least squares: [1.49539011]

Mean error from LASSO: [0.68918277]  
X subset = 1 , i = 0 , j = 2  
Mean error from standard least squares: [1.56161887]  
Mean error from LASSO: [0.69806869]  
X subset = 1 , i = 0 , j = 3  
Mean error from standard least squares: [1.6100792]  
Mean error from LASSO: [0.70729158]  
X subset = 1 , i = 0 , j = 4  
Mean error from standard least squares: [1.6206756]  
Mean error from LASSO: [0.71018511]  
X subset = 1 , i = 0 , j = 5  
Mean error from standard least squares: [1.6953634]  
Mean error from LASSO: [0.73480465]  
X subset = 1 , i = 0 , j = 6  
Mean error from standard least squares: [1.75626959]  
Mean error from LASSO: [0.72890505]  
X subset = 1 , i = 0 , j = 7  
Mean error from standard least squares: [1.83234392]  
Mean error from LASSO: [0.74137365]  
X subset = 1 , i = 0 , j = 8  
Mean error from standard least squares: [2.20683127]  
Mean error from LASSO: [0.73565939]  
X subset = 1 , i = 0 , j = 9  
Mean error from standard least squares: [1.90152468]  
Mean error from LASSO: [0.72933795]  
X subset = 1 , i = 0 , j = 10  
Mean error from standard least squares: [1.98696353]  
Mean error from LASSO: [0.73580596]  
X subset = 1 , i = 1 , j = 0  
Mean error from standard least squares: [1.28751936]  
Mean error from LASSO: [0.81241573]  
X subset = 1 , i = 1 , j = 2  
Mean error from standard least squares: [1.41504787]  
Mean error from LASSO: [0.68790653]  
X subset = 1 , i = 1 , j = 3  
Mean error from standard least squares: [1.34075165]  
Mean error from LASSO: [0.72059958]  
X subset = 1 , i = 1 , j = 4  
Mean error from standard least squares: [1.47376907]  
Mean error from LASSO: [0.68458943]  
X subset = 1 , i = 1 , j = 5  
Mean error from standard least squares: [1.48966506]  
Mean error from LASSO: [0.73352249]  
X subset = 1 , i = 1 , j = 6  
Mean error from standard least squares: [1.49612905]  
Mean error from LASSO: [0.71082528]  
X subset = 1 , i = 1 , j = 7  
Mean error from standard least squares: [1.57747091]

Mean error from LASSO: [0.72900644]  
X subset = 1 , i = 1 , j = 8  
Mean error from standard least squares: [2.1597124]  
Mean error from LASSO: [0.69973539]  
X subset = 1 , i = 1 , j = 9  
Mean error from standard least squares: [1.68781552]  
Mean error from LASSO: [0.6942701]  
X subset = 1 , i = 1 , j = 10  
Mean error from standard least squares: [1.87539219]  
Mean error from LASSO: [0.73259666]  
X subset = 1 , i = 2 , j = 0  
Mean error from standard least squares: [2.87183695]  
Mean error from LASSO: [0.95790555]  
X subset = 1 , i = 2 , j = 1  
Mean error from standard least squares: [2.75315906]  
Mean error from LASSO: [0.89935971]  
X subset = 1 , i = 2 , j = 3  
Mean error from standard least squares: [3.00715348]  
Mean error from LASSO: [0.95406503]  
X subset = 1 , i = 2 , j = 4  
Mean error from standard least squares: [2.96754498]  
Mean error from LASSO: [0.94249566]  
X subset = 1 , i = 2 , j = 5  
Mean error from standard least squares: [3.0704219]  
Mean error from LASSO: [1.03579213]  
X subset = 1 , i = 2 , j = 6  
Mean error from standard least squares: [3.15857591]  
Mean error from LASSO: [0.97512817]  
X subset = 1 , i = 2 , j = 7  
Mean error from standard least squares: [3.24046733]  
Mean error from LASSO: [1.03229349]  
X subset = 1 , i = 2 , j = 8  
Mean error from standard least squares: [4.37758367]  
Mean error from LASSO: [1.06092488]  
X subset = 1 , i = 2 , j = 9  
Mean error from standard least squares: [3.38883938]  
Mean error from LASSO: [1.04781899]  
X subset = 1 , i = 2 , j = 10  
Mean error from standard least squares: [3.58142148]  
Mean error from LASSO: [1.04227898]  
X subset = 1 , i = 3 , j = 0  
Mean error from standard least squares: [1.74399493]  
Mean error from LASSO: [0.70308547]  
X subset = 1 , i = 3 , j = 1  
Mean error from standard least squares: [1.6938546]  
Mean error from LASSO: [0.68466956]  
X subset = 1 , i = 3 , j = 2  
Mean error from standard least squares: [1.75090115]

Mean error from LASSO: [0.69293794]  
X subset = 1 , i = 3 , j = 4  
Mean error from standard least squares: [1.80118941]  
Mean error from LASSO: [0.71551074]  
X subset = 1 , i = 3 , j = 5  
Mean error from standard least squares: [1.8942174]  
Mean error from LASSO: [0.7538233]  
X subset = 1 , i = 3 , j = 6  
Mean error from standard least squares: [1.94206879]  
Mean error from LASSO: [0.71254871]  
X subset = 1 , i = 3 , j = 7  
Mean error from standard least squares: [2.0396281]  
Mean error from LASSO: [0.75319016]  
X subset = 1 , i = 3 , j = 8  
Mean error from standard least squares: [2.85943861]  
Mean error from LASSO: [0.74130289]  
X subset = 1 , i = 3 , j = 9  
Mean error from standard least squares: [2.12088163]  
Mean error from LASSO: [0.72812835]  
X subset = 1 , i = 3 , j = 10  
Mean error from standard least squares: [2.20381157]  
Mean error from LASSO: [0.73230315]  
X subset = 1 , i = 4 , j = 0  
Mean error from standard least squares: [2.20364047]  
Mean error from LASSO: [1.]  
X subset = 1 , i = 4 , j = 1  
Mean error from standard least squares: [2.38544852]  
Mean error from LASSO: [1.]  
X subset = 1 , i = 4 , j = 2  
Mean error from standard least squares: [2.59646534]  
Mean error from LASSO: [1.]  
X subset = 1 , i = 4 , j = 3  
Mean error from standard least squares: [2.42624925]  
Mean error from LASSO: [1.]  
X subset = 1 , i = 4 , j = 5  
Mean error from standard least squares: [2.61484842]  
Mean error from LASSO: [1.]  
X subset = 1 , i = 4 , j = 6  
Mean error from standard least squares: [2.18999702]  
Mean error from LASSO: [1.]  
X subset = 1 , i = 4 , j = 7  
Mean error from standard least squares: [2.42671966]  
Mean error from LASSO: [1.]  
X subset = 1 , i = 4 , j = 8  
Mean error from standard least squares: [3.87019977]  
Mean error from LASSO: [1.]  
X subset = 1 , i = 4 , j = 9  
Mean error from standard least squares: [2.96999137]

Mean error from LASSO: [1.]  
X subset = 1 , i = 4 , j = 10  
Mean error from standard least squares: [2.98263704]  
Mean error from LASSO: [1.]  
X subset = 1 , i = 5 , j = 0  
Mean error from standard least squares: [1.38537524]  
Mean error from LASSO: [0.69125291]  
X subset = 1 , i = 5 , j = 1  
Mean error from standard least squares: [1.34924667]  
Mean error from LASSO: [0.67779304]  
X subset = 1 , i = 5 , j = 2  
Mean error from standard least squares: [1.36801821]  
Mean error from LASSO: [0.69135192]  
X subset = 1 , i = 5 , j = 3  
Mean error from standard least squares: [1.43889277]  
Mean error from LASSO: [0.68908101]  
X subset = 1 , i = 5 , j = 4  
Mean error from standard least squares: [1.41767214]  
Mean error from LASSO: [0.68857214]  
X subset = 1 , i = 5 , j = 6  
Mean error from standard least squares: [1.53618608]  
Mean error from LASSO: [0.68916573]  
X subset = 1 , i = 5 , j = 7  
Mean error from standard least squares: [1.59946214]  
Mean error from LASSO: [0.72833452]  
X subset = 1 , i = 5 , j = 8  
Mean error from standard least squares: [1.85638337]  
Mean error from LASSO: [0.7156228]  
X subset = 1 , i = 5 , j = 9  
Mean error from standard least squares: [1.63906922]  
Mean error from LASSO: [0.6988421]  
X subset = 1 , i = 5 , j = 10  
Mean error from standard least squares: [1.73745128]  
Mean error from LASSO: [0.71932779]  
X subset = 1 , i = 6 , j = 0  
Mean error from standard least squares: [1.35944466]  
Mean error from LASSO: [0.68889215]  
X subset = 1 , i = 6 , j = 1  
Mean error from standard least squares: [1.30338382]  
Mean error from LASSO: [0.6647722]  
X subset = 1 , i = 6 , j = 2  
Mean error from standard least squares: [1.35457744]  
Mean error from LASSO: [0.68487875]  
X subset = 1 , i = 6 , j = 3  
Mean error from standard least squares: [1.38947342]  
Mean error from LASSO: [0.68199988]  
X subset = 1 , i = 6 , j = 4  
Mean error from standard least squares: [1.37611518]



Mean error from LASSO: [0.6805008]  
X subset = 1 , i = 6 , j = 5  
Mean error from standard least squares: [1.43962453]  
Mean error from LASSO: [0.69700897]  
X subset = 1 , i = 6 , j = 7  
Mean error from standard least squares: [1.58671665]  
Mean error from LASSO: [0.67524657]  
X subset = 1 , i = 6 , j = 8  
Mean error from standard least squares: [2.179097]  
Mean error from LASSO: [0.67982914]  
X subset = 1 , i = 6 , j = 9  
Mean error from standard least squares: [1.63117191]  
Mean error from LASSO: [0.67898728]  
X subset = 1 , i = 6 , j = 10  
Mean error from standard least squares: [1.6968648]  
Mean error from LASSO: [0.66865065]  
X subset = 1 , i = 7 , j = 0  
Mean error from standard least squares: [1.53656127]  
Mean error from LASSO: [0.68783281]  
X subset = 1 , i = 7 , j = 1  
Mean error from standard least squares: [1.49219472]  
Mean error from LASSO: [0.68874767]  
X subset = 1 , i = 7 , j = 2  
Mean error from standard least squares: [1.54317124]  
Mean error from LASSO: [0.68004944]  
X subset = 1 , i = 7 , j = 3  
Mean error from standard least squares: [1.5927554]  
Mean error from LASSO: [0.69784933]  
X subset = 1 , i = 7 , j = 4  
Mean error from standard least squares: [1.57962158]  
Mean error from LASSO: [0.6853464]  
X subset = 1 , i = 7 , j = 5  
Mean error from standard least squares: [1.67610935]  
Mean error from LASSO: [0.72838332]  
X subset = 1 , i = 7 , j = 6  
Mean error from standard least squares: [1.74041629]  
Mean error from LASSO: [0.68001901]  
X subset = 1 , i = 7 , j = 8  
Mean error from standard least squares: [2.217422]  
Mean error from LASSO: [0.70999178]  
X subset = 1 , i = 7 , j = 9  
Mean error from standard least squares: [1.86130582]  
Mean error from LASSO: [0.72206522]  
X subset = 1 , i = 7 , j = 10  
Mean error from standard least squares: [1.95640574]  
Mean error from LASSO: [0.72972401]  
X subset = 1 , i = 8 , j = 0  
Mean error from standard least squares: [1.8073401]

Mean error from LASSO: [0.70002776]  
X subset = 1 , i = 8 , j = 1  
Mean error from standard least squares: [1.76907516]  
Mean error from LASSO: [0.69971228]  
X subset = 1 , i = 8 , j = 2  
Mean error from standard least squares: [1.82890195]  
Mean error from LASSO: [0.71096381]  
X subset = 1 , i = 8 , j = 3  
Mean error from standard least squares: [1.86356592]  
Mean error from LASSO: [0.69031002]  
X subset = 1 , i = 8 , j = 4  
Mean error from standard least squares: [1.77773376]  
Mean error from LASSO: [0.7244902]  
X subset = 1 , i = 8 , j = 5  
Mean error from standard least squares: [1.89561044]  
Mean error from LASSO: [0.74581893]  
X subset = 1 , i = 8 , j = 6  
Mean error from standard least squares: [1.90216873]  
Mean error from LASSO: [0.72857286]  
X subset = 1 , i = 8 , j = 7  
Mean error from standard least squares: [2.00647623]  
Mean error from LASSO: [0.76464002]  
X subset = 1 , i = 8 , j = 9  
Mean error from standard least squares: [1.90505244]  
Mean error from LASSO: [0.74869647]  
X subset = 1 , i = 8 , j = 10  
Mean error from standard least squares: [1.88863615]  
Mean error from LASSO: [0.75587331]  
X subset = 1 , i = 9 , j = 0  
Mean error from standard least squares: [1.96957301]  
Mean error from LASSO: [0.72929167]  
X subset = 1 , i = 9 , j = 1  
Mean error from standard least squares: [1.90396283]  
Mean error from LASSO: [0.73971679]  
X subset = 1 , i = 9 , j = 2  
Mean error from standard least squares: [1.9477371]  
Mean error from LASSO: [0.78095642]  
X subset = 1 , i = 9 , j = 3  
Mean error from standard least squares: [2.04397868]  
Mean error from LASSO: [0.79180196]  
X subset = 1 , i = 9 , j = 4  
Mean error from standard least squares: [2.01444888]  
Mean error from LASSO: [0.77395066]  
X subset = 1 , i = 9 , j = 5  
Mean error from standard least squares: [2.10162816]  
Mean error from LASSO: [0.8041034]  
X subset = 1 , i = 9 , j = 6  
Mean error from standard least squares: [2.20965597]

Mean error from LASSO: [0.76970474]  
X subset = 1 , i = 9 , j = 7  
Mean error from standard least squares: [1.99833158]  
Mean error from LASSO: [0.73478263]  
X subset = 1 , i = 10 , j = 3  
Mean error from standard least squares: [2.04130913]  
Mean error from LASSO: [0.77111397]  
X subset = 1 , i = 10 , j = 4  
Mean error from standard least squares: [2.09235029]  
Mean error from LASSO: [0.83837306]  
X subset = 1 , i = 10 , j = 5  
Mean error from standard least squares: [2.22311252]  
Mean error from LASSO: [0.8025494]  
X subset = 1 , i = 10 , j = 6  
Mean error from standard least squares: [2.26653815]  
Mean error from LASSO: [0.82863666]  
X subset = 1 , i = 10 , j = 7  
Mean error from standard least squares: [2.3196436]  
Mean error from LASSO: [0.80475174]  
X subset = 1 , i = 10 , j = 8  
Mean error from standard least squares: [2.4694472]  
Mean error from LASSO: [0.81598023]  
X subset = 1 , i = 10 , j = 9  
Mean error from standard least squares: [2.49267987]  
Mean error from LASSO: [0.81471946]  
X subset = 2 , i = 0 , j = 1  
Mean error from standard least squares: [1.02320287]  
Mean error from LASSO: [0.80612024]  
X subset = 2 , i = 0 , j = 2  
Mean error from standard least squares: [1.10490749]  
Mean error from LASSO: [0.81542086]  
X subset = 2 , i = 0 , j = 3  
Mean error from standard least squares: [1.2107071]  
Mean error from LASSO: [0.87417282]  
X subset = 2 , i = 0 , j = 4  
Mean error from standard least squares: [1.25769721]  
Mean error from LASSO: [0.89860269]  
X subset = 2 , i = 0 , j = 5  
Mean error from standard least squares: [1.26490741]  
Mean error from LASSO: [0.86372194]  
X subset = 2 , i = 0 , j = 6  
Mean error from standard least squares: [1.1471517]  
Mean error from LASSO: [0.87092598]  
X subset = 2 , i = 0 , j = 7  
Mean error from standard least squares: [1.16434422]  
Mean error from LASSO: [0.91069695]  
X subset = 2 , i = 0 , j = 8  
Mean error from standard least squares: [1.06609106]

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Mean error from LASSO: [0.87131545]
X subset = 2 , i = 0 , j = 9
Mean error from standard least squares: [1.05142119]
Mean error from LASSO: [0.86053838]
X subset = 2 , i = 0 , j = 10
Mean error from standard least squares: [1.23542507]
Mean error from LASSO: [0.99516483]
X subset = 2 , i = 1 , j = 0
Mean error from standard least squares: [0.88070925]
Mean error from LASSO: [0.7579064]
X subset = 2 , i = 1 , j = 2
Mean error from standard least squares: [0.92336726]
Mean error from LASSO: [0.75082951]
X subset = 2 , i = 1 , j = 3
Mean error from standard least squares: [1.18921354]
Mean error from LASSO: [0.90734934]
X subset = 2 , i = 1 , j = 4
Mean error from standard least squares: [1.03575209]
Mean error from LASSO: [0.78807917]
X subset = 2 , i = 1 , j = 5
Mean error from standard least squares: [1.12245572]
Mean error from LASSO: [0.82066417]
X subset = 2 , i = 1 , j = 6
Mean error from standard least squares: [1.04613909]
Mean error from LASSO: [0.85848406]
X subset = 2 , i = 1 , j = 7
Mean error from standard least squares: [1.00343598]
Mean error from LASSO: [0.83488238]
X subset = 2 , i = 1 , j = 8
Mean error from standard least squares: [1.20279445]
Mean error from LASSO: [1.01089781]
X subset = 2 , i = 1 , j = 9
Mean error from standard least squares: [0.92832849]
Mean error from LASSO: [0.8039673]
X subset = 2 , i = 1 , j = 10
Mean error from standard least squares: [1.09170543]
Mean error from LASSO: [0.91000567]
X subset = 2 , i = 2 , j = 0
Mean error from standard least squares: [1.74639111]
Mean error from LASSO: [1.]
X subset = 2 , i = 2 , j = 1
Mean error from standard least squares: [1.74368201]
Mean error from LASSO: [1.]
X subset = 2 , i = 2 , j = 3
Mean error from standard least squares: [2.17674622]
Mean error from LASSO: [1.]
X subset = 2 , i = 2 , j = 4
Mean error from standard least squares: [2.21579669]

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Mean error from LASSO: [1.]
X subset = 2 , i = 2 , j = 5
Mean error from standard least squares: [2.32427193]
Mean error from LASSO: [1.]
X subset = 2 , i = 2 , j = 6
Mean error from standard least squares: [1.89099465]
Mean error from LASSO: [1.]
X subset = 2 , i = 2 , j = 7
Mean error from standard least squares: [1.95279452]
Mean error from LASSO: [1.]
X subset = 2 , i = 2 , j = 8
Mean error from standard least squares: [1.73971531]
Mean error from LASSO: [1.]
X subset = 2 , i = 2 , j = 9
Mean error from standard least squares: [1.78719633]
Mean error from LASSO: [1.]
X subset = 2 , i = 2 , j = 10
Mean error from standard least squares: [1.94071633]
Mean error from LASSO: [1.]
X subset = 2 , i = 3 , j = 0
Mean error from standard least squares: [1.10171141]
Mean error from LASSO: [0.82569516]
X subset = 2 , i = 3 , j = 1
Mean error from standard least squares: [1.15054609]
Mean error from LASSO: [0.86512565]
X subset = 2 , i = 3 , j = 2
Mean error from standard least squares: [1.24925282]
Mean error from LASSO: [0.89125326]
X subset = 2 , i = 3 , j = 4
Mean error from standard least squares: [1.38742408]
Mean error from LASSO: [0.95289678]
X subset = 2 , i = 3 , j = 5
Mean error from standard least squares: [1.40181546]
Mean error from LASSO: [0.91103404]
X subset = 2 , i = 3 , j = 6
Mean error from standard least squares: [1.27626611]
Mean error from LASSO: [0.93565508]
X subset = 2 , i = 3 , j = 7
Mean error from standard least squares: [1.25502283]
Mean error from LASSO: [0.94003707]
X subset = 2 , i = 3 , j = 8
Mean error from standard least squares: [1.1619937]
Mean error from LASSO: [0.90107226]
X subset = 2 , i = 3 , j = 9
Mean error from standard least squares: [1.10888033]
Mean error from LASSO: [0.88591459]
X subset = 2 , i = 3 , j = 10
Mean error from standard least squares: [1.31694442]

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Mean error from LASSO: [1.02346568]
X subset = 2 , i = 4 , j = 0
Mean error from standard least squares: [1.26900076]
Mean error from LASSO: [1.]
X subset = 2 , i = 4 , j = 1
Mean error from standard least squares: [1.63518874]
Mean error from LASSO: [1.]
X subset = 2 , i = 4 , j = 2
Mean error from standard least squares: [1.31036936]
Mean error from LASSO: [1.]
X subset = 2 , i = 4 , j = 3
Mean error from standard least squares: [1.70742911]
Mean error from LASSO: [1.]
X subset = 2 , i = 4 , j = 5
Mean error from standard least squares: [1.87776695]
Mean error from LASSO: [1.]
X subset = 2 , i = 4 , j = 6
Mean error from standard least squares: [1.57932311]
Mean error from LASSO: [1.]
X subset = 2 , i = 4 , j = 7
Mean error from standard least squares: [1.78906949]
Mean error from LASSO: [1.]
X subset = 2 , i = 4 , j = 8
Mean error from standard least squares: [1.87389611]
Mean error from LASSO: [1.]
X subset = 2 , i = 4 , j = 9
Mean error from standard least squares: [1.27804597]
Mean error from LASSO: [1.]
X subset = 2 , i = 4 , j = 10
Mean error from standard least squares: [1.40755356]
Mean error from LASSO: [1.]
X subset = 2 , i = 5 , j = 0
Mean error from standard least squares: [0.93195404]
Mean error from LASSO: [0.75531002]
X subset = 2 , i = 5 , j = 1
Mean error from standard least squares: [0.95933298]
Mean error from LASSO: [0.77956491]
X subset = 2 , i = 5 , j = 2
Mean error from standard least squares: [1.04641935]
Mean error from LASSO: [0.78170979]
X subset = 2 , i = 5 , j = 3
Mean error from standard least squares: [1.08749775]
Mean error from LASSO: [0.80915212]
X subset = 2 , i = 5 , j = 4
Mean error from standard least squares: [1.13775028]
Mean error from LASSO: [0.82364808]
X subset = 2 , i = 5 , j = 6
Mean error from standard least squares: [1.04977952]

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Mean error from LASSO: [0.82195656]  
X subset = 2 , i = 5 , j = 7  
Mean error from standard least squares: [1.169228]  
Mean error from LASSO: [0.91068316]  
X subset = 2 , i = 5 , j = 8  
Mean error from standard least squares: [1.03844744]  
Mean error from LASSO: [0.85122956]  
X subset = 2 , i = 5 , j = 9  
Mean error from standard least squares: [0.96078635]  
Mean error from LASSO: [0.81449242]  
X subset = 2 , i = 5 , j = 10  
Mean error from standard least squares: [1.08743895]  
Mean error from LASSO: [0.87727038]  
X subset = 2 , i = 6 , j = 0  
Mean error from standard least squares: [0.91075179]  
Mean error from LASSO: [0.75230167]  
X subset = 2 , i = 6 , j = 1  
Mean error from standard least squares: [0.90814537]  
Mean error from LASSO: [0.75588472]  
X subset = 2 , i = 6 , j = 2  
Mean error from standard least squares: [0.98570009]  
Mean error from LASSO: [0.77474251]  
X subset = 2 , i = 6 , j = 3  
Mean error from standard least squares: [1.04434525]  
Mean error from LASSO: [0.79589492]  
X subset = 2 , i = 6 , j = 4  
Mean error from standard least squares: [1.1102701]  
Mean error from LASSO: [0.82520455]  
X subset = 2 , i = 6 , j = 5  
Mean error from standard least squares: [1.10041145]  
Mean error from LASSO: [0.79038819]  
X subset = 2 , i = 6 , j = 7  
Mean error from standard least squares: [1.03729927]  
Mean error from LASSO: [0.84355665]  
X subset = 2 , i = 6 , j = 8  
Mean error from standard least squares: [0.92752602]  
Mean error from LASSO: [0.77848763]  
X subset = 2 , i = 6 , j = 9  
Mean error from standard least squares: [0.9396268]  
Mean error from LASSO: [0.79749826]  
X subset = 2 , i = 6 , j = 10  
Mean error from standard least squares: [1.07776549]  
Mean error from LASSO: [0.88147154]  
X subset = 2 , i = 7 , j = 0  
Mean error from standard least squares: [0.95246569]  
Mean error from LASSO: [0.76958862]  
X subset = 2 , i = 7 , j = 1  
Mean error from standard least squares: [1.01055962]

Mean error from LASSO: [0.81567382]  
X subset = 2 , i = 7 , j = 2  
Mean error from standard least squares: [1.09716899]  
Mean error from LASSO: [0.82427814]  
X subset = 2 , i = 7 , j = 3  
Mean error from standard least squares: [1.16955786]  
Mean error from LASSO: [0.86228318]  
X subset = 2 , i = 7 , j = 4  
Mean error from standard least squares: [1.21268725]  
Mean error from LASSO: [0.88471336]  
X subset = 2 , i = 7 , j = 5  
Mean error from standard least squares: [1.24183573]  
Mean error from LASSO: [0.86220096]  
X subset = 2 , i = 7 , j = 6  
Mean error from standard least squares: [1.08303076]  
Mean error from LASSO: [0.83888922]  
X subset = 2 , i = 7 , j = 8  
Mean error from standard least squares: [1.0521503]  
Mean error from LASSO: [0.85357267]  
X subset = 2 , i = 7 , j = 9  
Mean error from standard least squares: [1.04894585]  
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X subset = 2 , i = 7 , j = 10  
Mean error from standard least squares: [1.1708771]  
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X subset = 2 , i = 8 , j = 0  
Mean error from standard least squares: [1.00230384]  
Mean error from LASSO: [0.79377821]  
X subset = 2 , i = 8 , j = 1  
Mean error from standard least squares: [1.10080481]  
Mean error from LASSO: [0.85446644]  
X subset = 2 , i = 8 , j = 2  
Mean error from standard least squares: [1.20965651]  
Mean error from LASSO: [0.89181497]  
X subset = 2 , i = 8 , j = 3  
Mean error from standard least squares: [1.2203262]  
Mean error from LASSO: [0.8942019]  
X subset = 2 , i = 8 , j = 4  
Mean error from standard least squares: [1.32312164]  
Mean error from LASSO: [0.92951086]  
X subset = 2 , i = 8 , j = 5  
Mean error from standard least squares: [1.308706]  
Mean error from LASSO: [0.8916138]  
X subset = 2 , i = 8 , j = 6  
Mean error from standard least squares: [1.18499626]  
Mean error from LASSO: [0.90375045]  
X subset = 2 , i = 8 , j = 7  
Mean error from standard least squares: [1.2577787]



Mean error from LASSO: [0.98858444]  
X subset = 2 , i = 8 , j = 9  
Mean error from standard least squares: [1.0611375]  
Mean error from LASSO: [0.86555561]  
X subset = 2 , i = 8 , j = 10  
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Mean error from LASSO: [0.97891595]  
X subset = 2 , i = 9 , j = 0  
Mean error from standard least squares: [1.13409124]  
Mean error from LASSO: [0.85495016]  
X subset = 2 , i = 9 , j = 1  
Mean error from standard least squares: [1.32813922]  
Mean error from LASSO: [0.99275183]  
X subset = 2 , i = 9 , j = 2  
Mean error from standard least squares: [1.36446973]  
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Mean error from standard least squares: [1.36869294]  
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X subset = 2 , i = 9 , j = 4  
Mean error from standard least squares: [1.53221188]  
Mean error from LASSO: [1.0622052]  
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X subset = 2 , i = 9 , j = 6  
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Mean error from standard least squares: [1.27380791]  
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Mean error from LASSO: [1.04138942]  
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X subset = 2 , i = 10 , j = 1  
Mean error from standard least squares: [1.26145102]  
Mean error from LASSO: [0.97235798]  
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Mean error from standard least squares: [1.32135068]  
Mean error from LASSO: [0.94642571]  
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Mean error from standard least squares: [1.50997663]

Mean error from LASSO: [1.03699066]  
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Mean error from standard least squares: [1.42849922]  
Mean error from LASSO: [1.04556558]  
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Mean error from LASSO: [0.95799044]  
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Mean error from LASSO: [1.0079536]  
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Mean error from LASSO: [0.87330601]  
X subset = 3 , i = 0 , j = 4  
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Mean error from LASSO: [0.86737031]  
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Mean error from LASSO: [0.85288467]  
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Mean error from LASSO: [0.85863353]  
X subset = 3 , i = 0 , j = 7  
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Mean error from LASSO: [0.84967194]  
X subset = 3 , i = 0 , j = 8  
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Mean error from LASSO: [0.87281995]  
X subset = 3 , i = 0 , j = 9  
Mean error from standard least squares: [1.01466549]  
Mean error from LASSO: [0.88763432]  
X subset = 3 , i = 0 , j = 10  
Mean error from standard least squares: [0.95601092]

Mean error from LASSO: [0.86807364]  
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Mean error from standard least squares: [1.16283468]  
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Mean error from standard least squares: [0.99301196]  
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X subset = 3 , i = 1 , j = 10  
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Mean error from LASSO: [0.94061911]  
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X subset = 3 , i = 3 , j = 0  
Mean error from standard least squares: [1.1779748]  
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Mean error from standard least squares: [0.95832781]

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Mean error from standard least squares: [1.22906235]  
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Mean error from LASSO: [0.89477646]  
X subset = 3 , i = 10 , j = 5  
Mean error from standard least squares: [1.4241253]



Mean error from LASSO: [0.86031511]  
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Mean error from standard least squares: [1.28460346]  
Mean error from LASSO: [0.89304378]  
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Mean error from standard least squares: [1.20418563]  
Mean error from LASSO: [0.84923458]  
X subset = 3 , i = 10 , j = 8  
Mean error from standard least squares: [1.20939155]  
Mean error from LASSO: [0.90926955]  
X subset = 3 , i = 10 , j = 9  
Mean error from standard least squares: [1.13562902]  
Mean error from LASSO: [0.91273956]  
X subset = 4 , i = 0 , j = 1  
Mean error from standard least squares: [1.6829637]  
Mean error from LASSO: [0.70488741]  
X subset = 4 , i = 0 , j = 2  
Mean error from standard least squares: [1.79716532]  
Mean error from LASSO: [0.74805494]  
X subset = 4 , i = 0 , j = 3  
Mean error from standard least squares: [1.88905057]  
Mean error from LASSO: [0.78674065]  
X subset = 4 , i = 0 , j = 4  
Mean error from standard least squares: [1.7987495]  
Mean error from LASSO: [0.71942949]  
X subset = 4 , i = 0 , j = 5  
Mean error from standard least squares: [1.75491939]  
Mean error from LASSO: [0.71371078]  
X subset = 4 , i = 0 , j = 6  
Mean error from standard least squares: [1.75914401]  
Mean error from LASSO: [0.72824983]  
X subset = 4 , i = 0 , j = 7  
Mean error from standard least squares: [1.7706863]  
Mean error from LASSO: [0.74310029]  
X subset = 4 , i = 0 , j = 8  
Mean error from standard least squares: [1.71563301]  
Mean error from LASSO: [0.722357]  
X subset = 4 , i = 0 , j = 9  
Mean error from standard least squares: [1.65706903]  
Mean error from LASSO: [0.72036151]  
X subset = 4 , i = 0 , j = 10  
Mean error from standard least squares: [1.69763384]  
Mean error from LASSO: [0.72605709]  
X subset = 4 , i = 1 , j = 0  
Mean error from standard least squares: [1.52565014]  
Mean error from LASSO: [0.66497549]  
X subset = 4 , i = 1 , j = 2  
Mean error from standard least squares: [1.55530107]

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Mean error from LASSO: [0.66964526]
X subset = 4 , i = 1 , j = 3
Mean error from standard least squares: [1.68267213]
Mean error from LASSO: [0.72961096]
X subset = 4 , i = 1 , j = 4
Mean error from standard least squares: [1.55010539]
Mean error from LASSO: [0.64350304]
X subset = 4 , i = 1 , j = 5
Mean error from standard least squares: [1.4643806]
Mean error from LASSO: [0.60864571]
X subset = 4 , i = 1 , j = 6
Mean error from standard least squares: [1.5477934]
Mean error from LASSO: [0.67511676]
X subset = 4 , i = 1 , j = 7
Mean error from standard least squares: [1.60923554]
Mean error from LASSO: [0.71847654]
X subset = 4 , i = 1 , j = 8
Mean error from standard least squares: [1.5793734]
Mean error from LASSO: [0.70709583]
X subset = 4 , i = 1 , j = 9
Mean error from standard least squares: [1.42882514]
Mean error from LASSO: [0.64608722]
X subset = 4 , i = 1 , j = 10
Mean error from standard least squares: [1.50461376]
Mean error from LASSO: [0.68099523]
X subset = 4 , i = 2 , j = 0
Mean error from standard least squares: [3.22650178]
Mean error from LASSO: [1.]
X subset = 4 , i = 2 , j = 1
Mean error from standard least squares: [3.09778097]
Mean error from LASSO: [1.]
X subset = 4 , i = 2 , j = 3
Mean error from standard least squares: [3.41586624]
Mean error from LASSO: [1.]
X subset = 4 , i = 2 , j = 4
Mean error from standard least squares: [3.30621009]
Mean error from LASSO: [1.]
X subset = 4 , i = 2 , j = 5
Mean error from standard least squares: [3.24711671]
Mean error from LASSO: [1.]
X subset = 4 , i = 2 , j = 6
Mean error from standard least squares: [3.21820181]
Mean error from LASSO: [1.]
X subset = 4 , i = 2 , j = 7
Mean error from standard least squares: [3.24138055]
Mean error from LASSO: [1.]
X subset = 4 , i = 2 , j = 8
Mean error from standard least squares: [3.17467176]

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Mean error from LASSO: [1.]
X subset = 4 , i = 2 , j = 9
Mean error from standard least squares: [3.04642244]
Mean error from LASSO: [1.]
X subset = 4 , i = 2 , j = 10
Mean error from standard least squares: [3.13151808]
Mean error from LASSO: [1.]
X subset = 4 , i = 3 , j = 0
Mean error from standard least squares: [1.97980066]
Mean error from LASSO: [0.81224601]
X subset = 4 , i = 3 , j = 1
Mean error from standard least squares: [1.88622815]
Mean error from LASSO: [0.7567015]
X subset = 4 , i = 3 , j = 2
Mean error from standard least squares: [2.02732183]
Mean error from LASSO: [0.82544127]
X subset = 4 , i = 3 , j = 4
Mean error from standard least squares: [2.02417314]
Mean error from LASSO: [0.78195096]
X subset = 4 , i = 3 , j = 5
Mean error from standard least squares: [1.97026175]
Mean error from LASSO: [0.77172453]
X subset = 4 , i = 3 , j = 6
Mean error from standard least squares: [1.9769117]
Mean error from LASSO: [0.78514964]
X subset = 4 , i = 3 , j = 7
Mean error from standard least squares: [1.96817905]
Mean error from LASSO: [0.79127048]
X subset = 4 , i = 3 , j = 8
Mean error from standard least squares: [1.92435257]
Mean error from LASSO: [0.78531747]
X subset = 4 , i = 3 , j = 9
Mean error from standard least squares: [1.87238263]
Mean error from LASSO: [0.77722943]
X subset = 4 , i = 3 , j = 10
Mean error from standard least squares: [1.89664401]
Mean error from LASSO: [0.79048257]
X subset = 4 , i = 4 , j = 0
Mean error from standard least squares: [2.60288693]
Mean error from LASSO: [1.]
X subset = 4 , i = 4 , j = 1
Mean error from standard least squares: [2.36611285]
Mean error from LASSO: [1.]
X subset = 4 , i = 4 , j = 2
Mean error from standard least squares: [2.68842292]
Mean error from LASSO: [1.]
X subset = 4 , i = 4 , j = 3
Mean error from standard least squares: [2.66825691]

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Mean error from LASSO: [1.]
X subset = 4 , i = 4 , j = 5
Mean error from standard least squares: [2.82940534]
Mean error from LASSO: [1.]
X subset = 4 , i = 4 , j = 6
Mean error from standard least squares: [2.45001653]
Mean error from LASSO: [1.]
X subset = 4 , i = 4 , j = 7
Mean error from standard least squares: [2.40168009]
Mean error from LASSO: [1.]
X subset = 4 , i = 4 , j = 8
Mean error from standard least squares: [2.46675977]
Mean error from LASSO: [1.]
X subset = 4 , i = 4 , j = 9
Mean error from standard least squares: [2.15226192]
Mean error from LASSO: [1.]
X subset = 4 , i = 4 , j = 10
Mean error from standard least squares: [2.34092908]
Mean error from LASSO: [1.]
X subset = 4 , i = 5 , j = 0
Mean error from standard least squares: [1.54085976]
Mean error from LASSO: [0.64226386]
X subset = 4 , i = 5 , j = 1
Mean error from standard least squares: [1.46605929]
Mean error from LASSO: [0.61884502]
X subset = 4 , i = 5 , j = 2
Mean error from standard least squares: [1.57259356]
Mean error from LASSO: [0.65447524]
X subset = 4 , i = 5 , j = 3
Mean error from standard least squares: [1.64878343]
Mean error from LASSO: [0.68300087]
X subset = 4 , i = 5 , j = 4
Mean error from standard least squares: [1.5649332]
Mean error from LASSO: [0.62543782]
X subset = 4 , i = 5 , j = 6
Mean error from standard least squares: [1.52526128]
Mean error from LASSO: [0.6276995]
X subset = 4 , i = 5 , j = 7
Mean error from standard least squares: [1.53377543]
Mean error from LASSO: [0.63570525]
X subset = 4 , i = 5 , j = 8
Mean error from standard least squares: [1.50127062]
Mean error from LASSO: [0.63341677]
X subset = 4 , i = 5 , j = 9
Mean error from standard least squares: [1.4231155]
Mean error from LASSO: [0.6224735]
X subset = 4 , i = 5 , j = 10
Mean error from standard least squares: [1.4754251]

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Mean error from LASSO: [0.63646159]  
X subset = 4 , i = 6 , j = 0  
Mean error from standard least squares: [1.50862302]  
Mean error from LASSO: [0.62294543]  
X subset = 4 , i = 6 , j = 1  
Mean error from standard least squares: [1.43033789]  
Mean error from LASSO: [0.59010252]  
X subset = 4 , i = 6 , j = 2  
Mean error from standard least squares: [1.54181518]  
Mean error from LASSO: [0.64118117]  
X subset = 4 , i = 6 , j = 3  
Mean error from standard least squares: [1.59937167]  
Mean error from LASSO: [0.64525386]  
X subset = 4 , i = 6 , j = 4  
Mean error from standard least squares: [1.53596106]  
Mean error from LASSO: [0.60586868]  
X subset = 4 , i = 6 , j = 5  
Mean error from standard least squares: [1.50181967]  
Mean error from LASSO: [0.60348721]  
X subset = 4 , i = 6 , j = 7  
Mean error from standard least squares: [1.49910505]  
Mean error from LASSO: [0.61631041]  
X subset = 4 , i = 6 , j = 8  
Mean error from standard least squares: [1.45059005]  
Mean error from LASSO: [0.59686686]  
X subset = 4 , i = 6 , j = 9  
Mean error from standard least squares: [1.39959295]  
Mean error from LASSO: [0.59365554]  
X subset = 4 , i = 6 , j = 10  
Mean error from standard least squares: [1.44615646]  
Mean error from LASSO: [0.60591393]  
X subset = 4 , i = 7 , j = 0  
Mean error from standard least squares: [1.71465276]  
Mean error from LASSO: [0.69249283]  
X subset = 4 , i = 7 , j = 1  
Mean error from standard least squares: [1.60502884]  
Mean error from LASSO: [0.64090222]  
X subset = 4 , i = 7 , j = 2  
Mean error from standard least squares: [1.75863888]  
Mean error from LASSO: [0.71254805]  
X subset = 4 , i = 7 , j = 3  
Mean error from standard least squares: [1.83384934]  
Mean error from LASSO: [0.73684758]  
X subset = 4 , i = 7 , j = 4  
Mean error from standard least squares: [1.75965195]  
Mean error from LASSO: [0.68578624]  
X subset = 4 , i = 7 , j = 5  
Mean error from standard least squares: [1.7302984]

Mean error from LASSO: [0.68057805]  
X subset = 4 , i = 7 , j = 6  
Mean error from standard least squares: [1.68856362]  
Mean error from LASSO: [0.65918605]  
X subset = 4 , i = 7 , j = 8  
Mean error from standard least squares: [1.65921917]  
Mean error from LASSO: [0.67389391]  
X subset = 4 , i = 7 , j = 9  
Mean error from standard least squares: [1.5860491]  
Mean error from LASSO: [0.65447308]  
X subset = 4 , i = 7 , j = 10  
Mean error from standard least squares: [1.63848814]  
Mean error from LASSO: [0.67253607]  
X subset = 4 , i = 8 , j = 0  
Mean error from standard least squares: [1.87515238]  
Mean error from LASSO: [0.76891231]  
X subset = 4 , i = 8 , j = 1  
Mean error from standard least squares: [1.74859899]  
Mean error from LASSO: [0.69215269]  
X subset = 4 , i = 8 , j = 2  
Mean error from standard least squares: [1.89880597]  
Mean error from LASSO: [0.76572669]  
X subset = 4 , i = 8 , j = 3  
Mean error from standard least squares: [1.98221653]  
Mean error from LASSO: [0.80899693]  
X subset = 4 , i = 8 , j = 4  
Mean error from standard least squares: [1.90373456]  
Mean error from LASSO: [0.74400667]  
X subset = 4 , i = 8 , j = 5  
Mean error from standard least squares: [1.86377995]  
Mean error from LASSO: [0.73772841]  
X subset = 4 , i = 8 , j = 6  
Mean error from standard least squares: [1.85797524]  
Mean error from LASSO: [0.73751703]  
X subset = 4 , i = 8 , j = 7  
Mean error from standard least squares: [1.87142037]  
Mean error from LASSO: [0.75218117]  
X subset = 4 , i = 8 , j = 9  
Mean error from standard least squares: [1.75063525]  
Mean error from LASSO: [0.7258129]  
X subset = 4 , i = 8 , j = 10  
Mean error from standard least squares: [1.78617885]  
Mean error from LASSO: [0.73650149]  
X subset = 4 , i = 9 , j = 0  
Mean error from standard least squares: [2.18870391]  
Mean error from LASSO: [0.90999428]  
X subset = 4 , i = 9 , j = 1  
Mean error from standard least squares: [2.10095984]

Mean error from LASSO: [0.8517703]  
X subset = 4 , i = 9 , j = 2  
Mean error from standard least squares: [2.23238411]  
Mean error from LASSO: [0.91152598]  
X subset = 4 , i = 9 , j = 3  
Mean error from standard least squares: [2.31272476]  
Mean error from LASSO: [0.95170713]  
X subset = 4 , i = 9 , j = 4  
Mean error from standard least squares: [2.23270848]  
Mean error from LASSO: [0.88049669]  
X subset = 4 , i = 9 , j = 5  
Mean error from standard least squares: [2.19307306]  
Mean error from LASSO: [0.88285192]  
X subset = 4 , i = 9 , j = 6  
Mean error from standard least squares: [2.15554494]  
Mean error from LASSO: [0.85377523]  
X subset = 4 , i = 9 , j = 7  
Mean error from standard least squares: [2.18889067]  
Mean error from LASSO: [0.89067943]  
X subset = 4 , i = 9 , j = 8  
Mean error from standard least squares: [2.14044426]  
Mean error from LASSO: [0.87848972]  
X subset = 4 , i = 9 , j = 10  
Mean error from standard least squares: [2.08547646]  
Mean error from LASSO: [0.87582477]  
X subset = 4 , i = 10 , j = 0  
Mean error from standard least squares: [2.24532042]  
Mean error from LASSO: [0.87884248]  
X subset = 4 , i = 10 , j = 1  
Mean error from standard least squares: [2.18988274]  
Mean error from LASSO: [0.86817494]  
X subset = 4 , i = 10 , j = 2  
Mean error from standard least squares: [2.30117909]  
Mean error from LASSO: [0.91974774]  
X subset = 4 , i = 10 , j = 3  
Mean error from standard least squares: [2.42542105]  
Mean error from LASSO: [1.01685496]  
X subset = 4 , i = 10 , j = 4  
Mean error from standard least squares: [2.26644045]  
Mean error from LASSO: [0.87835451]  
X subset = 4 , i = 10 , j = 5  
Mean error from standard least squares: [2.28215988]  
Mean error from LASSO: [0.91171898]  
X subset = 4 , i = 10 , j = 6  
Mean error from standard least squares: [2.26629627]  
Mean error from LASSO: [0.90601412]  
X subset = 4 , i = 10 , j = 7  
Mean error from standard least squares: [2.26697828]

Mean error from LASSO: [0.90152317]  
X subset = 4 , i = 10 , j = 8  
Mean error from standard least squares: [2.21128267]  
Mean error from LASSO: [0.88067412]  
X subset = 4 , i = 10 , j = 9  
Mean error from standard least squares: [2.13971613]  
Mean error from LASSO: [0.90003568]  
X subset = 5 , i = 0 , j = 1  
Mean error from standard least squares: [1.47134942]  
Mean error from LASSO: [0.85672319]  
X subset = 5 , i = 0 , j = 2  
Mean error from standard least squares: [1.48295419]  
Mean error from LASSO: [0.90860832]  
X subset = 5 , i = 0 , j = 3  
Mean error from standard least squares: [1.48190501]  
Mean error from LASSO: [0.8912431]  
X subset = 5 , i = 0 , j = 4  
Mean error from standard least squares: [1.37649114]  
Mean error from LASSO: [0.84599598]  
X subset = 5 , i = 0 , j = 5  
Mean error from standard least squares: [1.36881687]  
Mean error from LASSO: [0.82496322]  
X subset = 5 , i = 0 , j = 6  
Mean error from standard least squares: [1.39327213]  
Mean error from LASSO: [0.83922908]  
X subset = 5 , i = 0 , j = 7  
Mean error from standard least squares: [1.41835402]  
Mean error from LASSO: [0.863166]  
X subset = 5 , i = 0 , j = 8  
Mean error from standard least squares: [1.39647828]  
Mean error from LASSO: [0.84573839]  
X subset = 5 , i = 0 , j = 9  
Mean error from standard least squares: [1.33386914]  
Mean error from LASSO: [0.8443969]  
X subset = 5 , i = 0 , j = 10  
Mean error from standard least squares: [1.33912212]  
Mean error from LASSO: [0.85946058]  
X subset = 5 , i = 1 , j = 0  
Mean error from standard least squares: [1.40187589]  
Mean error from LASSO: [0.73621539]  
X subset = 5 , i = 1 , j = 2  
Mean error from standard least squares: [1.3451488]  
Mean error from LASSO: [0.86594672]  
X subset = 5 , i = 1 , j = 3  
Mean error from standard least squares: [1.33222184]  
Mean error from LASSO: [0.85618357]  
X subset = 5 , i = 1 , j = 4  
Mean error from standard least squares: [1.25700823]



Mean error from LASSO: [0.79383687]  
X subset = 5 , i = 1 , j = 5  
Mean error from standard least squares: [1.2245302]  
Mean error from LASSO: [0.76766802]  
X subset = 5 , i = 1 , j = 6  
Mean error from standard least squares: [1.30616327]  
Mean error from LASSO: [0.68460429]  
X subset = 5 , i = 1 , j = 7  
Mean error from standard least squares: [1.08569227]  
Mean error from LASSO: [0.67050702]  
X subset = 5 , i = 1 , j = 8  
Mean error from standard least squares: [1.32805917]  
Mean error from LASSO: [0.71452846]  
X subset = 5 , i = 1 , j = 9  
Mean error from standard least squares: [1.02254326]  
Mean error from LASSO: [0.66474414]  
X subset = 5 , i = 1 , j = 10  
Mean error from standard least squares: [1.18379359]  
Mean error from LASSO: [0.76133135]  
X subset = 5 , i = 2 , j = 0  
Mean error from standard least squares: [2.56255098]  
Mean error from LASSO: [1.]  
X subset = 5 , i = 2 , j = 1  
Mean error from standard least squares: [2.62767073]  
Mean error from LASSO: [1.]  
X subset = 5 , i = 2 , j = 3  
Mean error from standard least squares: [2.64009282]  
Mean error from LASSO: [1.]  
X subset = 5 , i = 2 , j = 4  
Mean error from standard least squares: [2.36698458]  
Mean error from LASSO: [1.]  
X subset = 5 , i = 2 , j = 5  
Mean error from standard least squares: [2.31454761]  
Mean error from LASSO: [1.]  
X subset = 5 , i = 2 , j = 6  
Mean error from standard least squares: [2.50840918]  
Mean error from LASSO: [1.]  
X subset = 5 , i = 2 , j = 7  
Mean error from standard least squares: [2.57041538]  
Mean error from LASSO: [1.]  
X subset = 5 , i = 2 , j = 8  
Mean error from standard least squares: [2.55405382]  
Mean error from LASSO: [1.]  
X subset = 5 , i = 2 , j = 9  
Mean error from standard least squares: [2.42745653]  
Mean error from LASSO: [1.]  
X subset = 5 , i = 2 , j = 10  
Mean error from standard least squares: [2.36713762]

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Mean error from LASSO: [1.]
X subset = 5 , i = 3 , j = 0
Mean error from standard least squares: [1.63367311]
Mean error from LASSO: [1.]
X subset = 5 , i = 3 , j = 1
Mean error from standard least squares: [1.62648527]
Mean error from LASSO: [0.91693524]
X subset = 5 , i = 3 , j = 2
Mean error from standard least squares: [1.65712065]
Mean error from LASSO: [1.]
X subset = 5 , i = 3 , j = 4
Mean error from standard least squares: [1.54572863]
Mean error from LASSO: [0.90220824]
X subset = 5 , i = 3 , j = 5
Mean error from standard least squares: [1.54649448]
Mean error from LASSO: [0.90915412]
X subset = 5 , i = 3 , j = 6
Mean error from standard least squares: [1.54346873]
Mean error from LASSO: [0.89280304]
X subset = 5 , i = 3 , j = 7
Mean error from standard least squares: [1.59439248]
Mean error from LASSO: [1.]
X subset = 5 , i = 3 , j = 8
Mean error from standard least squares: [1.54967341]
Mean error from LASSO: [0.93052555]
X subset = 5 , i = 3 , j = 9
Mean error from standard least squares: [1.49945085]
Mean error from LASSO: [0.92562227]
X subset = 5 , i = 3 , j = 10
Mean error from standard least squares: [1.50576444]
Mean error from LASSO: [1.]
X subset = 5 , i = 4 , j = 0
Mean error from standard least squares: [2.04119937]
Mean error from LASSO: [1.]
X subset = 5 , i = 4 , j = 1
Mean error from standard least squares: [1.40941881]
Mean error from LASSO: [1.]
X subset = 5 , i = 4 , j = 2
Mean error from standard least squares: [2.24464361]
Mean error from LASSO: [1.]
X subset = 5 , i = 4 , j = 3
Mean error from standard least squares: [2.2776006]
Mean error from LASSO: [1.]
X subset = 5 , i = 4 , j = 5
Mean error from standard least squares: [2.1720676]
Mean error from LASSO: [1.]
X subset = 5 , i = 4 , j = 6
Mean error from standard least squares: [2.13674545]

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Mean error from LASSO: [1.]
X subset = 5 , i = 4 , j = 7
Mean error from standard least squares: [2.20924828]
Mean error from LASSO: [1.]
X subset = 5 , i = 4 , j = 8
Mean error from standard least squares: [1.34539832]
Mean error from LASSO: [1.]
X subset = 5 , i = 4 , j = 9
Mean error from standard least squares: [2.06787571]
Mean error from LASSO: [1.]
X subset = 5 , i = 4 , j = 10
Mean error from standard least squares: [2.13890661]
Mean error from LASSO: [1.]
X subset = 5 , i = 5 , j = 0
Mean error from standard least squares: [1.30334257]
Mean error from LASSO: [0.79694012]
X subset = 5 , i = 5 , j = 1
Mean error from standard least squares: [1.27950986]
Mean error from LASSO: [0.77610911]
X subset = 5 , i = 5 , j = 2
Mean error from standard least squares: [1.3095766]
Mean error from LASSO: [0.81765303]
X subset = 5 , i = 5 , j = 3
Mean error from standard least squares: [1.26876982]
Mean error from LASSO: [0.77825088]
X subset = 5 , i = 5 , j = 4
Mean error from standard least squares: [1.19513821]
Mean error from LASSO: [0.73615406]
X subset = 5 , i = 5 , j = 6
Mean error from standard least squares: [1.18054078]
Mean error from LASSO: [0.72063338]
X subset = 5 , i = 5 , j = 7
Mean error from standard least squares: [1.2649437]
Mean error from LASSO: [0.77561316]
X subset = 5 , i = 5 , j = 8
Mean error from standard least squares: [1.22729573]
Mean error from LASSO: [0.75972253]
X subset = 5 , i = 5 , j = 9
Mean error from standard least squares: [1.17203432]
Mean error from LASSO: [0.75295907]
X subset = 5 , i = 5 , j = 10
Mean error from standard least squares: [1.21335518]
Mean error from LASSO: [0.76547985]
X subset = 5 , i = 6 , j = 0
Mean error from standard least squares: [1.28126144]
Mean error from LASSO: [0.76452927]
X subset = 5 , i = 6 , j = 1
Mean error from standard least squares: [1.2587478]

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Mean error from LASSO: [0.73962878]  
X subset = 5 , i = 6 , j = 2  
Mean error from standard least squares: [1.27899207]  
Mean error from LASSO: [0.77756238]  
X subset = 5 , i = 6 , j = 3  
Mean error from standard least squares: [1.26386642]  
Mean error from LASSO: [0.75536013]  
X subset = 5 , i = 6 , j = 4  
Mean error from standard least squares: [1.20034886]  
Mean error from LASSO: [0.73377936]  
X subset = 5 , i = 6 , j = 5  
Mean error from standard least squares: [1.15733072]  
Mean error from LASSO: [0.70217064]  
X subset = 5 , i = 6 , j = 7  
Mean error from standard least squares: [1.22330736]  
Mean error from LASSO: [0.74042276]  
X subset = 5 , i = 6 , j = 8  
Mean error from standard least squares: [1.17735336]  
Mean error from LASSO: [0.71431793]  
X subset = 5 , i = 6 , j = 9  
Mean error from standard least squares: [1.15168921]  
Mean error from LASSO: [0.72473926]  
X subset = 5 , i = 6 , j = 10  
Mean error from standard least squares: [1.17212563]  
Mean error from LASSO: [0.73706139]  
X subset = 5 , i = 7 , j = 0  
Mean error from standard least squares: [1.42364243]  
Mean error from LASSO: [0.84258436]  
X subset = 5 , i = 7 , j = 1  
Mean error from standard least squares: [1.39863192]  
Mean error from LASSO: [0.77596]  
X subset = 5 , i = 7 , j = 2  
Mean error from standard least squares: [1.45199108]  
Mean error from LASSO: [0.88402148]  
X subset = 5 , i = 7 , j = 3  
Mean error from standard least squares: [1.43188652]  
Mean error from LASSO: [0.86500287]  
X subset = 5 , i = 7 , j = 4  
Mean error from standard least squares: [1.36210554]  
Mean error from LASSO: [0.81314419]  
X subset = 5 , i = 7 , j = 5  
Mean error from standard least squares: [1.31922679]  
Mean error from LASSO: [0.79456512]  
X subset = 5 , i = 7 , j = 6  
Mean error from standard least squares: [1.3486759]  
Mean error from LASSO: [0.78660512]  
X subset = 5 , i = 7 , j = 8  
Mean error from standard least squares: [1.36016105]

Mean error from LASSO: [0.81325424]  
X subset = 5 , i = 7 , j = 9  
Mean error from standard least squares: [1.31752015]  
Mean error from LASSO: [0.81088612]  
X subset = 5 , i = 7 , j = 10  
Mean error from standard least squares: [1.29262431]  
Mean error from LASSO: [0.79752606]  
X subset = 5 , i = 8 , j = 0  
Mean error from standard least squares: [1.54958124]  
Mean error from LASSO: [0.90569106]  
X subset = 5 , i = 8 , j = 1  
Mean error from standard least squares: [1.52305988]  
Mean error from LASSO: [0.8598161]  
X subset = 5 , i = 8 , j = 2  
Mean error from standard least squares: [1.506728]  
Mean error from LASSO: [0.88241035]  
X subset = 5 , i = 8 , j = 3  
Mean error from standard least squares: [1.54162776]  
Mean error from LASSO: [0.92004969]  
X subset = 5 , i = 8 , j = 4  
Mean error from standard least squares: [1.43873138]  
Mean error from LASSO: [0.84692499]  
X subset = 5 , i = 8 , j = 5  
Mean error from standard least squares: [1.43516387]  
Mean error from LASSO: [0.84696217]  
X subset = 5 , i = 8 , j = 6  
Mean error from standard least squares: [1.43061076]  
Mean error from LASSO: [0.81802573]  
X subset = 5 , i = 8 , j = 7  
Mean error from standard least squares: [1.48810068]  
Mean error from LASSO: [0.87629351]  
X subset = 5 , i = 8 , j = 9  
Mean error from standard least squares: [1.40363739]  
Mean error from LASSO: [0.86410523]  
X subset = 5 , i = 8 , j = 10  
Mean error from standard least squares: [1.43405242]  
Mean error from LASSO: [0.85844559]  
X subset = 5 , i = 9 , j = 0  
Mean error from standard least squares: [1.80641689]  
Mean error from LASSO: [1.]  
X subset = 5 , i = 9 , j = 1  
Mean error from standard least squares: [1.71361371]  
Mean error from LASSO: [0.93842444]  
X subset = 5 , i = 9 , j = 2  
Mean error from standard least squares: [1.8151744]  
Mean error from LASSO: [1.]  
X subset = 5 , i = 9 , j = 3  
Mean error from standard least squares: [1.79455251]

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Mean error from LASSO: [1.]
X subset = 5 , i = 9 , j = 4
Mean error from standard least squares: [1.68639967]
Mean error from LASSO: [0.96657332]
X subset = 5 , i = 9 , j = 5
Mean error from standard least squares: [1.67465231]
Mean error from LASSO: [0.96978902]
X subset = 5 , i = 9 , j = 6
Mean error from standard least squares: [1.67039553]
Mean error from LASSO: [0.97744553]
X subset = 5 , i = 9 , j = 7
Mean error from standard least squares: [1.75946825]
Mean error from LASSO: [1.]
X subset = 5 , i = 9 , j = 8
Mean error from standard least squares: [1.69631457]
Mean error from LASSO: [1.01388863]
X subset = 5 , i = 9 , j = 10
Mean error from standard least squares: [1.64496562]
Mean error from LASSO: [1.]
X subset = 5 , i = 10 , j = 0
Mean error from standard least squares: [1.83043529]
Mean error from LASSO: [1.06043205]
X subset = 5 , i = 10 , j = 1
Mean error from standard least squares: [1.83492698]
Mean error from LASSO: [1.03069481]
X subset = 5 , i = 10 , j = 2
Mean error from standard least squares: [1.85662358]
Mean error from LASSO: [1.]
X subset = 5 , i = 10 , j = 3
Mean error from standard least squares: [1.89977715]
Mean error from LASSO: [1.]
X subset = 5 , i = 10 , j = 4
Mean error from standard least squares: [1.72694355]
Mean error from LASSO: [1.00112491]
X subset = 5 , i = 10 , j = 5
Mean error from standard least squares: [1.58648973]
Mean error from LASSO: [0.9335997]
X subset = 5 , i = 10 , j = 6
Mean error from standard least squares: [1.77493961]
Mean error from LASSO: [0.96793069]
X subset = 5 , i = 10 , j = 7
Mean error from standard least squares: [1.84201148]
Mean error from LASSO: [1.]
X subset = 5 , i = 10 , j = 8
Mean error from standard least squares: [1.78694719]
Mean error from LASSO: [1.0729853]
X subset = 5 , i = 10 , j = 9
Mean error from standard least squares: [1.70614616]

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Mean error from LASSO: [1.05063509]  
X subset = 6 , i = 0 , j = 1  
Mean error from standard least squares: [0.95468465]  
Mean error from LASSO: [0.95473843]  
X subset = 6 , i = 0 , j = 2  
Mean error from standard least squares: [0.9232166]  
Mean error from LASSO: [0.92307265]  
X subset = 6 , i = 0 , j = 3  
Mean error from standard least squares: [0.88609237]  
Mean error from LASSO: [0.88566997]  
X subset = 6 , i = 0 , j = 4  
Mean error from standard least squares: [0.93298303]  
Mean error from LASSO: [0.93228038]  
X subset = 6 , i = 0 , j = 5  
Mean error from standard least squares: [0.8989899]  
Mean error from LASSO: [0.89812698]  
X subset = 6 , i = 0 , j = 6  
Mean error from standard least squares: [1.00068527]  
Mean error from LASSO: [1.00148792]  
X subset = 6 , i = 0 , j = 7  
Mean error from standard least squares: [0.97618887]  
Mean error from LASSO: [0.97426865]  
X subset = 6 , i = 0 , j = 8  
Mean error from standard least squares: [0.90662219]  
Mean error from LASSO: [0.90580281]  
X subset = 6 , i = 0 , j = 9  
Mean error from standard least squares: [0.92093967]  
Mean error from LASSO: [0.91960663]  
X subset = 6 , i = 0 , j = 10  
Mean error from standard least squares: [0.92343651]  
Mean error from LASSO: [0.92086107]  
X subset = 6 , i = 1 , j = 0  
Mean error from standard least squares: [0.9093213]  
Mean error from LASSO: [0.90954532]  
X subset = 6 , i = 1 , j = 2  
Mean error from standard least squares: [0.93759225]  
Mean error from LASSO: [0.93710471]  
X subset = 6 , i = 1 , j = 3  
Mean error from standard least squares: [0.9576274]  
Mean error from LASSO: [0.95689496]  
X subset = 6 , i = 1 , j = 4  
Mean error from standard least squares: [0.95712384]  
Mean error from LASSO: [0.95782054]  
X subset = 6 , i = 1 , j = 5  
Mean error from standard least squares: [0.98502803]  
Mean error from LASSO: [0.98226625]  
X subset = 6 , i = 1 , j = 6  
Mean error from standard least squares: [1.02886492]

Mean error from LASSO: [1.02294127]  
X subset = 6 , i = 1 , j = 7  
Mean error from standard least squares: [0.94241645]  
Mean error from LASSO: [0.92721572]  
X subset = 6 , i = 1 , j = 8  
Mean error from standard least squares: [0.92916237]  
Mean error from LASSO: [0.92766869]  
X subset = 6 , i = 1 , j = 9  
Mean error from standard least squares: [0.89956376]  
Mean error from LASSO: [0.90007805]  
X subset = 6 , i = 1 , j = 10  
Mean error from standard least squares: [0.9117795]  
Mean error from LASSO: [0.91253712]  
X subset = 6 , i = 2 , j = 0  
Mean error from standard least squares: [0.92411408]  
Mean error from LASSO: [0.92307721]  
X subset = 6 , i = 2 , j = 1  
Mean error from standard least squares: [1.07972189]  
Mean error from LASSO: [1.04245761]  
X subset = 6 , i = 2 , j = 3  
Mean error from standard least squares: [0.93529679]  
Mean error from LASSO: [0.93174055]  
X subset = 6 , i = 2 , j = 4  
Mean error from standard least squares: [1.05487789]  
Mean error from LASSO: [1.05412539]  
X subset = 6 , i = 2 , j = 5  
Mean error from standard least squares: [1.02793907]  
Mean error from LASSO: [1.02054784]  
X subset = 6 , i = 2 , j = 6  
Mean error from standard least squares: [1.11895248]  
Mean error from LASSO: [1.06242101]  
X subset = 6 , i = 2 , j = 7  
Mean error from standard least squares: [1.19288734]  
Mean error from LASSO: [1.11103973]  
X subset = 6 , i = 2 , j = 8  
Mean error from standard least squares: [0.99171996]  
Mean error from LASSO: [0.9652137]  
X subset = 6 , i = 2 , j = 9  
Mean error from standard least squares: [0.95248549]  
Mean error from LASSO: [0.94922559]  
X subset = 6 , i = 2 , j = 10  
Mean error from standard least squares: [0.95118984]  
Mean error from LASSO: [0.94907915]  
X subset = 6 , i = 3 , j = 0  
Mean error from standard least squares: [0.91585099]  
Mean error from LASSO: [0.91554174]  
X subset = 6 , i = 3 , j = 1  
Mean error from standard least squares: [0.96333003]



Mean error from LASSO: [0.96378462]  
X subset = 6 , i = 3 , j = 2  
Mean error from standard least squares: [0.92743927]  
Mean error from LASSO: [0.92725021]  
X subset = 6 , i = 3 , j = 4  
Mean error from standard least squares: [0.94785735]  
Mean error from LASSO: [0.94673908]  
X subset = 6 , i = 3 , j = 5  
Mean error from standard least squares: [0.90792541]  
Mean error from LASSO: [0.90798312]  
X subset = 6 , i = 3 , j = 6  
Mean error from standard least squares: [0.98643976]  
Mean error from LASSO: [0.98663873]  
X subset = 6 , i = 3 , j = 7  
Mean error from standard least squares: [0.98519765]  
Mean error from LASSO: [0.98484497]  
X subset = 6 , i = 3 , j = 8  
Mean error from standard least squares: [0.93202492]  
Mean error from LASSO: [0.93076007]  
X subset = 6 , i = 3 , j = 9  
Mean error from standard least squares: [0.90045819]  
Mean error from LASSO: [0.89951928]  
X subset = 6 , i = 3 , j = 10  
Mean error from standard least squares: [0.91090464]  
Mean error from LASSO: [0.90831863]  
X subset = 6 , i = 4 , j = 0  
Mean error from standard least squares: [1.00518555]  
Mean error from LASSO: [0.98717417]  
X subset = 6 , i = 4 , j = 1  
Mean error from standard least squares: [0.98783543]  
Mean error from LASSO: [0.98199659]  
X subset = 6 , i = 4 , j = 2  
Mean error from standard least squares: [0.93027551]  
Mean error from LASSO: [0.93650023]  
X subset = 6 , i = 4 , j = 3  
Mean error from standard least squares: [0.94950445]  
Mean error from LASSO: [0.94072077]  
X subset = 6 , i = 4 , j = 5  
Mean error from standard least squares: [0.92049391]  
Mean error from LASSO: [0.91971955]  
X subset = 6 , i = 4 , j = 6  
Mean error from standard least squares: [1.50888528]  
Mean error from LASSO: [1.41729123]  
X subset = 6 , i = 4 , j = 7  
Mean error from standard least squares: [0.95507973]  
Mean error from LASSO: [0.94446104]  
X subset = 6 , i = 4 , j = 8  
Mean error from standard least squares: [0.92791095]

Mean error from LASSO: [0.92532056]  
X subset = 6 , i = 4 , j = 9  
Mean error from standard least squares: [0.95548857]  
Mean error from LASSO: [0.9572537]  
X subset = 6 , i = 4 , j = 10  
Mean error from standard least squares: [0.91118621]  
Mean error from LASSO: [0.92500651]  
X subset = 6 , i = 5 , j = 0  
Mean error from standard least squares: [0.92167036]  
Mean error from LASSO: [0.92141966]  
X subset = 6 , i = 5 , j = 1  
Mean error from standard least squares: [0.97859302]  
Mean error from LASSO: [0.97882241]  
X subset = 6 , i = 5 , j = 2  
Mean error from standard least squares: [0.93559717]  
Mean error from LASSO: [0.93476793]  
X subset = 6 , i = 5 , j = 3  
Mean error from standard least squares: [0.88264419]  
Mean error from LASSO: [0.88242821]  
X subset = 6 , i = 5 , j = 4  
Mean error from standard least squares: [0.95871808]  
Mean error from LASSO: [0.95701449]  
X subset = 6 , i = 5 , j = 6  
Mean error from standard least squares: [0.97433618]  
Mean error from LASSO: [0.9750677]  
X subset = 6 , i = 5 , j = 7  
Mean error from standard least squares: [0.9601181]  
Mean error from LASSO: [0.95838542]  
X subset = 6 , i = 5 , j = 8  
Mean error from standard least squares: [0.90205291]  
Mean error from LASSO: [0.9010902]  
X subset = 6 , i = 5 , j = 9  
Mean error from standard least squares: [0.91705657]  
Mean error from LASSO: [0.91593612]  
X subset = 6 , i = 5 , j = 10  
Mean error from standard least squares: [0.90261455]  
Mean error from LASSO: [0.90089422]  
X subset = 6 , i = 6 , j = 0  
Mean error from standard least squares: [0.9058223]  
Mean error from LASSO: [0.91707317]  
X subset = 6 , i = 6 , j = 1  
Mean error from standard least squares: [0.96965847]  
Mean error from LASSO: [0.96046438]  
X subset = 6 , i = 6 , j = 2  
Mean error from standard least squares: [0.91715706]  
Mean error from LASSO: [0.91821436]  
X subset = 6 , i = 6 , j = 3  
Mean error from standard least squares: [0.87808073]

Mean error from LASSO: [0.87818737]  
X subset = 6 , i = 6 , j = 4  
Mean error from standard least squares: [0.95031102]  
Mean error from LASSO: [0.94828173]  
X subset = 6 , i = 6 , j = 5  
Mean error from standard least squares: [0.88906457]  
Mean error from LASSO: [0.88857917]  
X subset = 6 , i = 6 , j = 7  
Mean error from standard least squares: [0.94673221]  
Mean error from LASSO: [0.93208576]  
X subset = 6 , i = 6 , j = 8  
Mean error from standard least squares: [0.89326383]  
Mean error from LASSO: [0.89192414]  
X subset = 6 , i = 6 , j = 9  
Mean error from standard least squares: [0.90521336]  
Mean error from LASSO: [0.90879966]  
X subset = 6 , i = 6 , j = 10  
Mean error from standard least squares: [0.91062644]  
Mean error from LASSO: [0.91651705]  
X subset = 6 , i = 7 , j = 0  
Mean error from standard least squares: [0.91627712]  
Mean error from LASSO: [0.92387133]  
X subset = 6 , i = 7 , j = 1  
Mean error from standard least squares: [0.99650634]  
Mean error from LASSO: [0.98206119]  
X subset = 6 , i = 7 , j = 2  
Mean error from standard least squares: [0.95598756]  
Mean error from LASSO: [0.94801369]  
X subset = 6 , i = 7 , j = 3  
Mean error from standard least squares: [0.87344028]  
Mean error from LASSO: [0.87655927]  
X subset = 6 , i = 7 , j = 4  
Mean error from standard least squares: [0.94290325]  
Mean error from LASSO: [0.94058901]  
X subset = 6 , i = 7 , j = 5  
Mean error from standard least squares: [0.88672318]  
Mean error from LASSO: [0.88833799]  
X subset = 6 , i = 7 , j = 6  
Mean error from standard least squares: [1.06039995]  
Mean error from LASSO: [1.03780454]  
X subset = 6 , i = 7 , j = 8  
Mean error from standard least squares: [0.93090407]  
Mean error from LASSO: [0.92005688]  
X subset = 6 , i = 7 , j = 9  
Mean error from standard least squares: [0.90110271]  
Mean error from LASSO: [0.90431248]  
X subset = 6 , i = 7 , j = 10  
Mean error from standard least squares: [0.89710898]

Mean error from LASSO: [0.9044654]  
X subset = 6 , i = 8 , j = 0  
Mean error from standard least squares: [0.91406504]  
Mean error from LASSO: [0.91424884]  
X subset = 6 , i = 8 , j = 1  
Mean error from standard least squares: [0.96185977]  
Mean error from LASSO: [0.96126918]  
X subset = 6 , i = 8 , j = 2  
Mean error from standard least squares: [0.93852387]  
Mean error from LASSO: [0.93718102]  
X subset = 6 , i = 8 , j = 3  
Mean error from standard least squares: [0.87563402]  
Mean error from LASSO: [0.87445334]  
X subset = 6 , i = 8 , j = 4  
Mean error from standard least squares: [0.93238205]  
Mean error from LASSO: [0.93097804]  
X subset = 6 , i = 8 , j = 5  
Mean error from standard least squares: [0.90205345]  
Mean error from LASSO: [0.90292569]  
X subset = 6 , i = 8 , j = 6  
Mean error from standard least squares: [0.98180044]  
Mean error from LASSO: [0.98771351]  
X subset = 6 , i = 8 , j = 7  
Mean error from standard least squares: [0.9787256]  
Mean error from LASSO: [0.97458142]  
X subset = 6 , i = 8 , j = 9  
Mean error from standard least squares: [0.91147193]  
Mean error from LASSO: [0.90795117]  
X subset = 6 , i = 8 , j = 10  
Mean error from standard least squares: [0.89694377]  
Mean error from LASSO: [0.89678872]  
X subset = 6 , i = 9 , j = 0  
Mean error from standard least squares: [0.94539228]  
Mean error from LASSO: [0.94333485]  
X subset = 6 , i = 9 , j = 1  
Mean error from standard least squares: [0.95952092]  
Mean error from LASSO: [0.96009574]  
X subset = 6 , i = 9 , j = 2  
Mean error from standard least squares: [0.92420544]  
Mean error from LASSO: [0.92251732]  
X subset = 6 , i = 9 , j = 3  
Mean error from standard least squares: [0.87709415]  
Mean error from LASSO: [0.87656093]  
X subset = 6 , i = 9 , j = 4  
Mean error from standard least squares: [0.96153213]  
Mean error from LASSO: [0.95914472]  
X subset = 6 , i = 9 , j = 5  
Mean error from standard least squares: [0.8986607]

Mean error from LASSO: [0.89798174]  
X subset = 6 , i = 9 , j = 6  
Mean error from standard least squares: [1.13198216]  
Mean error from LASSO: [1.14176965]  
X subset = 6 , i = 9 , j = 7  
Mean error from standard least squares: [0.97964808]  
Mean error from LASSO: [0.97379111]  
X subset = 6 , i = 9 , j = 8  
Mean error from standard least squares: [0.96059205]  
Mean error from LASSO: [0.95524541]  
X subset = 6 , i = 9 , j = 10  
Mean error from standard least squares: [0.89992541]  
Mean error from LASSO: [0.89908837]  
X subset = 6 , i = 10 , j = 0  
Mean error from standard least squares: [0.90623146]  
Mean error from LASSO: [0.90609773]  
X subset = 6 , i = 10 , j = 1  
Mean error from standard least squares: [0.96383923]  
Mean error from LASSO: [0.96385523]  
X subset = 6 , i = 10 , j = 2  
Mean error from standard least squares: [1.08217172]  
Mean error from LASSO: [1.07979424]  
X subset = 6 , i = 10 , j = 3  
Mean error from standard least squares: [0.89235192]  
Mean error from LASSO: [0.89168647]  
X subset = 6 , i = 10 , j = 4  
Mean error from standard least squares: [0.96847763]  
Mean error from LASSO: [0.96616921]  
X subset = 6 , i = 10 , j = 5  
Mean error from standard least squares: [0.91209878]  
Mean error from LASSO: [0.91105953]  
X subset = 6 , i = 10 , j = 6  
Mean error from standard least squares: [1.14431971]  
Mean error from LASSO: [1.14549043]  
X subset = 6 , i = 10 , j = 7  
Mean error from standard least squares: [1.0137607]  
Mean error from LASSO: [1.01224774]  
X subset = 6 , i = 10 , j = 8  
Mean error from standard least squares: [0.9695535]  
Mean error from LASSO: [0.96967498]  
X subset = 6 , i = 10 , j = 9  
Mean error from standard least squares: [0.90602342]  
Mean error from LASSO: [0.9050624]  
X subset = 7 , i = 0 , j = 1  
Mean error from standard least squares: [1.74008328]  
Mean error from LASSO: [1.]  
X subset = 7 , i = 0 , j = 2  
Mean error from standard least squares: [1.760639]

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Mean error from LASSO: [1.]
X subset = 7 , i = 0 , j = 3
Mean error from standard least squares: [1.73537806]
Mean error from LASSO: [1.]
X subset = 7 , i = 0 , j = 4
Mean error from standard least squares: [1.66885852]
Mean error from LASSO: [1.]
X subset = 7 , i = 0 , j = 5
Mean error from standard least squares: [1.66586195]
Mean error from LASSO: [1.]
X subset = 7 , i = 0 , j = 6
Mean error from standard least squares: [1.72351684]
Mean error from LASSO: [1.]
X subset = 7 , i = 0 , j = 7
Mean error from standard least squares: [1.75338127]
Mean error from LASSO: [1.]
X subset = 7 , i = 0 , j = 8
Mean error from standard least squares: [1.75948879]
Mean error from LASSO: [1.]
X subset = 7 , i = 0 , j = 9
Mean error from standard least squares: [1.78257373]
Mean error from LASSO: [1.]
X subset = 7 , i = 0 , j = 10
Mean error from standard least squares: [1.78041552]
Mean error from LASSO: [1.]
X subset = 7 , i = 1 , j = 0
Mean error from standard least squares: [1.54608225]
Mean error from LASSO: [1.]
X subset = 7 , i = 1 , j = 2
Mean error from standard least squares: [1.55545956]
Mean error from LASSO: [1.]
X subset = 7 , i = 1 , j = 3
Mean error from standard least squares: [1.52811743]
Mean error from LASSO: [1.]
X subset = 7 , i = 1 , j = 4
Mean error from standard least squares: [1.48128946]
Mean error from LASSO: [0.92042766]
X subset = 7 , i = 1 , j = 5
Mean error from standard least squares: [1.48264126]
Mean error from LASSO: [0.93999766]
X subset = 7 , i = 1 , j = 6
Mean error from standard least squares: [1.51850945]
Mean error from LASSO: [1.]
X subset = 7 , i = 1 , j = 7
Mean error from standard least squares: [1.55495407]
Mean error from LASSO: [1.]
X subset = 7 , i = 1 , j = 8
Mean error from standard least squares: [1.56251017]

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Mean error from LASSO: [1.]
X subset = 7 , i = 1 , j = 9
Mean error from standard least squares: [1.62016227]
Mean error from LASSO: [1.]
X subset = 7 , i = 1 , j = 10
Mean error from standard least squares: [1.58788446]
Mean error from LASSO: [1.]
X subset = 7 , i = 2 , j = 0
Mean error from standard least squares: [3.04084975]
Mean error from LASSO: [1.]
X subset = 7 , i = 2 , j = 1
Mean error from standard least squares: [3.11028905]
Mean error from LASSO: [1.]
X subset = 7 , i = 2 , j = 3
Mean error from standard least squares: [3.13391301]
Mean error from LASSO: [1.]
X subset = 7 , i = 2 , j = 4
Mean error from standard least squares: [2.96093627]
Mean error from LASSO: [1.]
X subset = 7 , i = 2 , j = 5
Mean error from standard least squares: [3.00154006]
Mean error from LASSO: [1.]
X subset = 7 , i = 2 , j = 6
Mean error from standard least squares: [3.14862839]
Mean error from LASSO: [1.]
X subset = 7 , i = 2 , j = 7
Mean error from standard least squares: [3.12861775]
Mean error from LASSO: [1.]
X subset = 7 , i = 2 , j = 8
Mean error from standard least squares: [3.18344165]
Mean error from LASSO: [1.]
X subset = 7 , i = 2 , j = 9
Mean error from standard least squares: [3.16548138]
Mean error from LASSO: [1.]
X subset = 7 , i = 2 , j = 10
Mean error from standard least squares: [3.17651355]
Mean error from LASSO: [1.]
X subset = 7 , i = 3 , j = 0
Mean error from standard least squares: [1.93037545]
Mean error from LASSO: [1.]
X subset = 7 , i = 3 , j = 1
Mean error from standard least squares: [1.8956844]
Mean error from LASSO: [1.]
X subset = 7 , i = 3 , j = 2
Mean error from standard least squares: [1.95372953]
Mean error from LASSO: [1.]
X subset = 7 , i = 3 , j = 4
Mean error from standard least squares: [1.84211824]

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Mean error from LASSO: [1.]
X subset = 7 , i = 3 , j = 5
Mean error from standard least squares: [1.84298913]
Mean error from LASSO: [1.]
X subset = 7 , i = 3 , j = 6
Mean error from standard least squares: [1.92644625]
Mean error from LASSO: [1.]
X subset = 7 , i = 3 , j = 7
Mean error from standard least squares: [1.94030643]
Mean error from LASSO: [1.]
X subset = 7 , i = 3 , j = 8
Mean error from standard least squares: [1.96932085]
Mean error from LASSO: [1.]
X subset = 7 , i = 3 , j = 9
Mean error from standard least squares: [1.93917997]
Mean error from LASSO: [1.]
X subset = 7 , i = 3 , j = 10
Mean error from standard least squares: [1.96242689]
Mean error from LASSO: [1.]
X subset = 7 , i = 4 , j = 0
Mean error from standard least squares: [2.65824227]
Mean error from LASSO: [1.]
X subset = 7 , i = 4 , j = 1
Mean error from standard least squares: [2.58988783]
Mean error from LASSO: [1.]
X subset = 7 , i = 4 , j = 2
Mean error from standard least squares: [2.55522947]
Mean error from LASSO: [1.]
X subset = 7 , i = 4 , j = 3
Mean error from standard least squares: [2.53696362]
Mean error from LASSO: [1.]
X subset = 7 , i = 4 , j = 5
Mean error from standard least squares: [2.71716212]
Mean error from LASSO: [1.]
X subset = 7 , i = 4 , j = 6
Mean error from standard least squares: [2.49509499]
Mean error from LASSO: [1.]
X subset = 7 , i = 4 , j = 7
Mean error from standard least squares: [2.54413785]
Mean error from LASSO: [1.]
X subset = 7 , i = 4 , j = 8
Mean error from standard least squares: [2.54155663]
Mean error from LASSO: [1.]
X subset = 7 , i = 4 , j = 9
Mean error from standard least squares: [2.55067567]
Mean error from LASSO: [1.]
X subset = 7 , i = 4 , j = 10
Mean error from standard least squares: [2.55430771]

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Mean error from LASSO: [1.]
X subset = 7 , i = 5 , j = 0
Mean error from standard least squares: [1.52571355]
Mean error from LASSO: [1.]
X subset = 7 , i = 5 , j = 1
Mean error from standard least squares: [1.49704487]
Mean error from LASSO: [0.94939947]
X subset = 7 , i = 5 , j = 2
Mean error from standard least squares: [1.55084623]
Mean error from LASSO: [0.96777829]
X subset = 7 , i = 5 , j = 3
Mean error from standard least squares: [1.53598875]
Mean error from LASSO: [0.96681402]
X subset = 7 , i = 5 , j = 4
Mean error from standard least squares: [1.46355108]
Mean error from LASSO: [0.90222568]
X subset = 7 , i = 5 , j = 6
Mean error from standard least squares: [1.51495557]
Mean error from LASSO: [0.951287]
X subset = 7 , i = 5 , j = 7
Mean error from standard least squares: [1.50801295]
Mean error from LASSO: [0.95415916]
X subset = 7 , i = 5 , j = 8
Mean error from standard least squares: [1.5494379]
Mean error from LASSO: [0.97519753]
X subset = 7 , i = 5 , j = 9
Mean error from standard least squares: [1.55402318]
Mean error from LASSO: [0.99166338]
X subset = 7 , i = 5 , j = 10
Mean error from standard least squares: [1.54644111]
Mean error from LASSO: [1.]
X subset = 7 , i = 6 , j = 0
Mean error from standard least squares: [1.48004039]
Mean error from LASSO: [1.]
X subset = 7 , i = 6 , j = 1
Mean error from standard least squares: [1.46195493]
Mean error from LASSO: [0.91378238]
X subset = 7 , i = 6 , j = 2
Mean error from standard least squares: [1.50174249]
Mean error from LASSO: [0.93552808]
X subset = 7 , i = 6 , j = 3
Mean error from standard least squares: [1.51126612]
Mean error from LASSO: [0.941547]
X subset = 7 , i = 6 , j = 4
Mean error from standard least squares: [1.42480607]
Mean error from LASSO: [0.87372283]
X subset = 7 , i = 6 , j = 5
Mean error from standard least squares: [1.42299904]

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Mean error from LASSO: [0.88200449]
X subset = 7 , i = 6 , j = 7
Mean error from standard least squares: [1.51797902]
Mean error from LASSO: [0.95166751]
X subset = 7 , i = 6 , j = 8
Mean error from standard least squares: [1.48898639]
Mean error from LASSO: [0.92907036]
X subset = 7 , i = 6 , j = 9
Mean error from standard least squares: [1.51742393]
Mean error from LASSO: [0.9518975]
X subset = 7 , i = 6 , j = 10
Mean error from standard least squares: [1.53990268]
Mean error from LASSO: [1.]
X subset = 7 , i = 7 , j = 0
Mean error from standard least squares: [1.71476752]
Mean error from LASSO: [1.]
X subset = 7 , i = 7 , j = 1
Mean error from standard least squares: [1.65404935]
Mean error from LASSO: [1.]
X subset = 7 , i = 7 , j = 2
Mean error from standard least squares: [1.73170766]
Mean error from LASSO: [1.]
X subset = 7 , i = 7 , j = 3
Mean error from standard least squares: [1.72367056]
Mean error from LASSO: [1.]
X subset = 7 , i = 7 , j = 4
Mean error from standard least squares: [1.62094545]
Mean error from LASSO: [1.]
X subset = 7 , i = 7 , j = 5
Mean error from standard least squares: [1.63037738]
Mean error from LASSO: [1.]
X subset = 7 , i = 7 , j = 6
Mean error from standard least squares: [1.67407624]
Mean error from LASSO: [1.]
X subset = 7 , i = 7 , j = 8
Mean error from standard least squares: [1.72727273]
Mean error from LASSO: [1.]
X subset = 7 , i = 7 , j = 9
Mean error from standard least squares: [1.7325471]
Mean error from LASSO: [1.]
X subset = 7 , i = 7 , j = 10
Mean error from standard least squares: [1.72609506]
Mean error from LASSO: [1.]
X subset = 7 , i = 8 , j = 0
Mean error from standard least squares: [1.83342701]
Mean error from LASSO: [1.]
X subset = 7 , i = 8 , j = 1
Mean error from standard least squares: [1.81785249]

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Mean error from LASSO: [1.]
X subset = 7 , i = 8 , j = 2
Mean error from standard least squares: [1.85325668]
Mean error from LASSO: [1.]
X subset = 7 , i = 8 , j = 3
Mean error from standard least squares: [1.83817271]
Mean error from LASSO: [1.]
X subset = 7 , i = 8 , j = 4
Mean error from standard least squares: [1.76332684]
Mean error from LASSO: [1.]
X subset = 7 , i = 8 , j = 5
Mean error from standard least squares: [1.77305959]
Mean error from LASSO: [1.]
X subset = 7 , i = 8 , j = 6
Mean error from standard least squares: [1.79837083]
Mean error from LASSO: [1.]
X subset = 7 , i = 8 , j = 7
Mean error from standard least squares: [1.85188582]
Mean error from LASSO: [1.]
X subset = 7 , i = 8 , j = 9
Mean error from standard least squares: [1.86738537]
Mean error from LASSO: [1.]
X subset = 7 , i = 8 , j = 10
Mean error from standard least squares: [1.88726565]
Mean error from LASSO: [1.]
X subset = 7 , i = 9 , j = 0
Mean error from standard least squares: [2.11973795]
Mean error from LASSO: [1.]
X subset = 7 , i = 9 , j = 1
Mean error from standard least squares: [2.1337278]
Mean error from LASSO: [1.]
X subset = 7 , i = 9 , j = 2
Mean error from standard least squares: [2.18125726]
Mean error from LASSO: [1.]
X subset = 7 , i = 9 , j = 3
Mean error from standard least squares: [2.16653577]
Mean error from LASSO: [1.]
X subset = 7 , i = 9 , j = 4
Mean error from standard least squares: [2.08332837]
Mean error from LASSO: [1.]
X subset = 7 , i = 9 , j = 5
Mean error from standard least squares: [2.07336256]
Mean error from LASSO: [1.]
X subset = 7 , i = 9 , j = 6
Mean error from standard least squares: [2.11136246]
Mean error from LASSO: [1.]
X subset = 7 , i = 9 , j = 7
Mean error from standard least squares: [2.17053405]

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Mean error from LASSO: [1.]
X subset = 7 , i = 9 , j = 8
Mean error from standard least squares: [2.17437705]
Mean error from LASSO: [1.]
X subset = 7 , i = 9 , j = 10
Mean error from standard least squares: [2.22896893]
Mean error from LASSO: [1.]
X subset = 7 , i = 10 , j = 0
Mean error from standard least squares: [2.23632395]
Mean error from LASSO: [1.]
X subset = 7 , i = 10 , j = 1
Mean error from standard least squares: [2.21544938]
Mean error from LASSO: [1.]
X subset = 7 , i = 10 , j = 2
Mean error from standard least squares: [2.21128012]
Mean error from LASSO: [1.]
X subset = 7 , i = 10 , j = 3
Mean error from standard least squares: [2.01223877]
Mean error from LASSO: [1.]
X subset = 7 , i = 10 , j = 4
Mean error from standard least squares: [2.15263387]
Mean error from LASSO: [1.]
X subset = 7 , i = 10 , j = 5
Mean error from standard least squares: [2.12716268]
Mean error from LASSO: [1.]
X subset = 7 , i = 10 , j = 6
Mean error from standard least squares: [2.0104638]
Mean error from LASSO: [1.]
X subset = 7 , i = 10 , j = 7
Mean error from standard least squares: [2.23016546]
Mean error from LASSO: [1.]
X subset = 7 , i = 10 , j = 8
Mean error from standard least squares: [2.23940566]
Mean error from LASSO: [1.]
X subset = 7 , i = 10 , j = 9
Mean error from standard least squares: [2.23793074]
Mean error from LASSO: [1.]
X subset = 8 , i = 0 , j = 1
Mean error from standard least squares: [1.8005904]
Mean error from LASSO: [1.]
X subset = 8 , i = 0 , j = 2
Mean error from standard least squares: [1.8506075]
Mean error from LASSO: [1.]
X subset = 8 , i = 0 , j = 3
Mean error from standard least squares: [1.89361707]
Mean error from LASSO: [1.]
X subset = 8 , i = 0 , j = 4
Mean error from standard least squares: [1.82801408]

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Mean error from LASSO: [1.]
X subset = 8 , i = 0 , j = 5
Mean error from standard least squares: [1.84240767]
Mean error from LASSO: [1.]
X subset = 8 , i = 0 , j = 6
Mean error from standard least squares: [1.75959688]
Mean error from LASSO: [1.]
X subset = 8 , i = 0 , j = 7
Mean error from standard least squares: [1.7564545]
Mean error from LASSO: [1.]
X subset = 8 , i = 0 , j = 8
Mean error from standard least squares: [1.85936321]
Mean error from LASSO: [1.]
X subset = 8 , i = 0 , j = 9
Mean error from standard least squares: [1.82680648]
Mean error from LASSO: [1.]
X subset = 8 , i = 0 , j = 10
Mean error from standard least squares: [1.82938099]
Mean error from LASSO: [1.]
X subset = 8 , i = 1 , j = 0
Mean error from standard least squares: [1.64596414]
Mean error from LASSO: [1.]
X subset = 8 , i = 1 , j = 2
Mean error from standard least squares: [1.63677878]
Mean error from LASSO: [1.]
X subset = 8 , i = 1 , j = 3
Mean error from standard least squares: [1.69045548]
Mean error from LASSO: [1.]
X subset = 8 , i = 1 , j = 4
Mean error from standard least squares: [1.55980728]
Mean error from LASSO: [1.]
X subset = 8 , i = 1 , j = 5
Mean error from standard least squares: [1.58762911]
Mean error from LASSO: [1.]
X subset = 8 , i = 1 , j = 6
Mean error from standard least squares: [1.56981925]
Mean error from LASSO: [1.]
X subset = 8 , i = 1 , j = 7
Mean error from standard least squares: [1.66830227]
Mean error from LASSO: [1.]
X subset = 8 , i = 1 , j = 8
Mean error from standard least squares: [1.72055944]
Mean error from LASSO: [1.]
X subset = 8 , i = 1 , j = 9
Mean error from standard least squares: [1.58716323]
Mean error from LASSO: [1.]
X subset = 8 , i = 1 , j = 10
Mean error from standard least squares: [1.59858258]

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Mean error from LASSO: [1.]
X subset = 8 , i = 2 , j = 0
Mean error from standard least squares: [3.4125428]
Mean error from LASSO: [1.]
X subset = 8 , i = 2 , j = 1
Mean error from standard least squares: [3.33137438]
Mean error from LASSO: [1.]
X subset = 8 , i = 2 , j = 3
Mean error from standard least squares: [3.32347114]
Mean error from LASSO: [1.]
X subset = 8 , i = 2 , j = 4
Mean error from standard least squares: [3.33298027]
Mean error from LASSO: [1.]
X subset = 8 , i = 2 , j = 5
Mean error from standard least squares: [3.44618627]
Mean error from LASSO: [1.]
X subset = 8 , i = 2 , j = 6
Mean error from standard least squares: [3.11335059]
Mean error from LASSO: [1.]
X subset = 8 , i = 2 , j = 7
Mean error from standard least squares: [3.19601067]
Mean error from LASSO: [1.]
X subset = 8 , i = 2 , j = 8
Mean error from standard least squares: [3.32773341]
Mean error from LASSO: [1.]
X subset = 8 , i = 2 , j = 9
Mean error from standard least squares: [3.19633385]
Mean error from LASSO: [1.]
X subset = 8 , i = 2 , j = 10
Mean error from standard least squares: [3.37699066]
Mean error from LASSO: [1.]
X subset = 8 , i = 3 , j = 0
Mean error from standard least squares: [2.09436902]
Mean error from LASSO: [1.]
X subset = 8 , i = 3 , j = 1
Mean error from standard least squares: [2.03767074]
Mean error from LASSO: [1.]
X subset = 8 , i = 3 , j = 2
Mean error from standard least squares: [2.05208774]
Mean error from LASSO: [1.]
X subset = 8 , i = 3 , j = 4
Mean error from standard least squares: [2.00672179]
Mean error from LASSO: [1.]
X subset = 8 , i = 3 , j = 5
Mean error from standard least squares: [2.04962631]
Mean error from LASSO: [1.]
X subset = 8 , i = 3 , j = 6
Mean error from standard least squares: [1.95810831]

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Mean error from LASSO: [1.]
X subset = 8 , i = 3 , j = 7
Mean error from standard least squares: [1.97765996]
Mean error from LASSO: [1.]
X subset = 8 , i = 3 , j = 8
Mean error from standard least squares: [2.04112016]
Mean error from LASSO: [1.]
X subset = 8 , i = 3 , j = 9
Mean error from standard least squares: [2.04141432]
Mean error from LASSO: [1.]
X subset = 8 , i = 3 , j = 10
Mean error from standard least squares: [2.03565056]
Mean error from LASSO: [1.]
X subset = 8 , i = 4 , j = 0
Mean error from standard least squares: [2.32317585]
Mean error from LASSO: [1.]
X subset = 8 , i = 4 , j = 1
Mean error from standard least squares: [3.07862728]
Mean error from LASSO: [1.]
X subset = 8 , i = 4 , j = 2
Mean error from standard least squares: [3.1241096]
Mean error from LASSO: [1.]
X subset = 8 , i = 4 , j = 3
Mean error from standard least squares: [2.66761859]
Mean error from LASSO: [1.]
X subset = 8 , i = 4 , j = 5
Mean error from standard least squares: [2.57537085]
Mean error from LASSO: [1.]
X subset = 8 , i = 4 , j = 6
Mean error from standard least squares: [2.44770902]
Mean error from LASSO: [1.]
X subset = 8 , i = 4 , j = 7
Mean error from standard least squares: [2.79960314]
Mean error from LASSO: [1.]
X subset = 8 , i = 4 , j = 8
Mean error from standard least squares: [3.11548309]
Mean error from LASSO: [1.]
X subset = 8 , i = 4 , j = 9
Mean error from standard least squares: [2.63708268]
Mean error from LASSO: [1.]
X subset = 8 , i = 4 , j = 10
Mean error from standard least squares: [2.57418636]
Mean error from LASSO: [1.]
X subset = 8 , i = 5 , j = 0
Mean error from standard least squares: [1.6413981]
Mean error from LASSO: [1.]
X subset = 8 , i = 5 , j = 1
Mean error from standard least squares: [1.57407446]

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Mean error from LASSO: [1.]
X subset = 8 , i = 5 , j = 2
Mean error from standard least squares: [1.61479077]
Mean error from LASSO: [1.]
X subset = 8 , i = 5 , j = 3
Mean error from standard least squares: [1.66278466]
Mean error from LASSO: [1.]
X subset = 8 , i = 5 , j = 4
Mean error from standard least squares: [1.60047966]
Mean error from LASSO: [1.]
X subset = 8 , i = 5 , j = 6
Mean error from standard least squares: [1.54934357]
Mean error from LASSO: [1.]
X subset = 8 , i = 5 , j = 7
Mean error from standard least squares: [1.55596916]
Mean error from LASSO: [1.]
X subset = 8 , i = 5 , j = 8
Mean error from standard least squares: [1.60092132]
Mean error from LASSO: [1.]
X subset = 8 , i = 5 , j = 9
Mean error from standard least squares: [1.56766329]
Mean error from LASSO: [1.]
X subset = 8 , i = 5 , j = 10
Mean error from standard least squares: [1.58683313]
Mean error from LASSO: [1.]
X subset = 8 , i = 6 , j = 0
Mean error from standard least squares: [1.61005824]
Mean error from LASSO: [1.16383776]
X subset = 8 , i = 6 , j = 1
Mean error from standard least squares: [1.53895681]
Mean error from LASSO: [1.08707355]
X subset = 8 , i = 6 , j = 2
Mean error from standard least squares: [1.57549944]
Mean error from LASSO: [1.13061028]
X subset = 8 , i = 6 , j = 3
Mean error from standard least squares: [1.61431675]
Mean error from LASSO: [1.17332562]
X subset = 8 , i = 6 , j = 4
Mean error from standard least squares: [1.53679191]
Mean error from LASSO: [1.0955972]
X subset = 8 , i = 6 , j = 5
Mean error from standard least squares: [1.58181055]
Mean error from LASSO: [1.14132791]
X subset = 8 , i = 6 , j = 7
Mean error from standard least squares: [1.49694436]
Mean error from LASSO: [1.05611065]
X subset = 8 , i = 6 , j = 8
Mean error from standard least squares: [1.56944332]

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Mean error from LASSO: [1.13768128]
X subset = 8 , i = 6 , j = 9
Mean error from standard least squares: [1.55681418]
Mean error from LASSO: [1.12806049]
X subset = 8 , i = 6 , j = 10
Mean error from standard least squares: [1.57551146]
Mean error from LASSO: [1.1478416]
X subset = 8 , i = 7 , j = 0
Mean error from standard least squares: [1.84836999]
Mean error from LASSO: [1.]
X subset = 8 , i = 7 , j = 1
Mean error from standard least squares: [1.78479628]
Mean error from LASSO: [1.]
X subset = 8 , i = 7 , j = 2
Mean error from standard least squares: [1.78645874]
Mean error from LASSO: [1.]
X subset = 8 , i = 7 , j = 3
Mean error from standard least squares: [1.83481582]
Mean error from LASSO: [1.]
X subset = 8 , i = 7 , j = 4
Mean error from standard least squares: [1.72809468]
Mean error from LASSO: [1.20701465]
X subset = 8 , i = 7 , j = 5
Mean error from standard least squares: [1.79498325]
Mean error from LASSO: [1.29735879]
X subset = 8 , i = 7 , j = 6
Mean error from standard least squares: [1.68056581]
Mean error from LASSO: [1.]
X subset = 8 , i = 7 , j = 8
Mean error from standard least squares: [1.7661832]
Mean error from LASSO: [1.]
X subset = 8 , i = 7 , j = 9
Mean error from standard least squares: [1.7655791]
Mean error from LASSO: [1.]
X subset = 8 , i = 7 , j = 10
Mean error from standard least squares: [1.76721495]
Mean error from LASSO: [1.]
X subset = 8 , i = 8 , j = 0
Mean error from standard least squares: [1.99613539]
Mean error from LASSO: [1.]
X subset = 8 , i = 8 , j = 1
Mean error from standard least squares: [1.93608145]
Mean error from LASSO: [1.]
X subset = 8 , i = 8 , j = 2
Mean error from standard least squares: [1.97582714]
Mean error from LASSO: [1.]
X subset = 8 , i = 8 , j = 3
Mean error from standard least squares: [1.99419322]

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Mean error from LASSO: [1.]
X subset = 8 , i = 8 , j = 4
Mean error from standard least squares: [1.89279602]
Mean error from LASSO: [1.]
X subset = 8 , i = 8 , j = 5
Mean error from standard least squares: [1.93526946]
Mean error from LASSO: [1.]
X subset = 8 , i = 8 , j = 6
Mean error from standard least squares: [1.84771926]
Mean error from LASSO: [1.]
X subset = 8 , i = 8 , j = 7
Mean error from standard least squares: [1.89626661]
Mean error from LASSO: [1.]
X subset = 8 , i = 8 , j = 9
Mean error from standard least squares: [1.93455331]
Mean error from LASSO: [1.]
X subset = 8 , i = 8 , j = 10
Mean error from standard least squares: [1.94883756]
Mean error from LASSO: [1.]
X subset = 8 , i = 9 , j = 0
Mean error from standard least squares: [2.31135124]
Mean error from LASSO: [1.]
X subset = 8 , i = 9 , j = 1
Mean error from standard least squares: [2.27139284]
Mean error from LASSO: [1.]
X subset = 8 , i = 9 , j = 2
Mean error from standard least squares: [2.2558996]
Mean error from LASSO: [1.]
X subset = 8 , i = 9 , j = 3
Mean error from standard least squares: [2.28630651]
Mean error from LASSO: [1.]
X subset = 8 , i = 9 , j = 4
Mean error from standard least squares: [2.23506013]
Mean error from LASSO: [1.]
X subset = 8 , i = 9 , j = 5
Mean error from standard least squares: [2.25554753]
Mean error from LASSO: [1.]
X subset = 8 , i = 9 , j = 6
Mean error from standard least squares: [2.18179473]
Mean error from LASSO: [1.]
X subset = 8 , i = 9 , j = 7
Mean error from standard least squares: [2.1658104]
Mean error from LASSO: [1.]
X subset = 8 , i = 9 , j = 8
Mean error from standard least squares: [2.28360857]
Mean error from LASSO: [1.]
X subset = 8 , i = 9 , j = 10
Mean error from standard least squares: [2.24182072]

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Mean error from LASSO: [1.]
X subset = 8 , i = 10 , j = 0
Mean error from standard least squares: [2.36232348]
Mean error from LASSO: [1.]
X subset = 8 , i = 10 , j = 1
Mean error from standard least squares: [2.29518749]
Mean error from LASSO: [1.]
X subset = 8 , i = 10 , j = 2
Mean error from standard least squares: [2.35673049]
Mean error from LASSO: [1.]
X subset = 8 , i = 10 , j = 3
Mean error from standard least squares: [2.36135004]
Mean error from LASSO: [1.]
X subset = 8 , i = 10 , j = 4
Mean error from standard least squares: [2.2960748]
Mean error from LASSO: [1.]
X subset = 8 , i = 10 , j = 5
Mean error from standard least squares: [2.34616264]
Mean error from LASSO: [1.]
X subset = 8 , i = 10 , j = 6
Mean error from standard least squares: [2.16001953]
Mean error from LASSO: [1.]
X subset = 8 , i = 10 , j = 7
Mean error from standard least squares: [2.25163794]
Mean error from LASSO: [1.]
X subset = 8 , i = 10 , j = 8
Mean error from standard least squares: [2.30710273]
Mean error from LASSO: [1.]
X subset = 8 , i = 10 , j = 9
Mean error from standard least squares: [2.41609081]
Mean error from LASSO: [1.]
X subset = 9 , i = 0 , j = 1
Mean error from standard least squares: [1.77716287]
Mean error from LASSO: [0.77260473]
X subset = 9 , i = 0 , j = 2
Mean error from standard least squares: [1.7882774]
Mean error from LASSO: [0.74510238]
X subset = 9 , i = 0 , j = 3
Mean error from standard least squares: [1.81843917]
Mean error from LASSO: [0.7558343]
X subset = 9 , i = 0 , j = 4
Mean error from standard least squares: [1.77382546]
Mean error from LASSO: [0.86070469]
X subset = 9 , i = 0 , j = 5
Mean error from standard least squares: [1.72021281]
Mean error from LASSO: [0.82775776]
X subset = 9 , i = 0 , j = 6
Mean error from standard least squares: [1.77092796]

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Mean error from LASSO: [0.78646749]  
X subset = 9 , i = 0 , j = 7  
Mean error from standard least squares: [1.80658835]  
Mean error from LASSO: [0.74517313]  
X subset = 9 , i = 0 , j = 8  
Mean error from standard least squares: [1.7970367]  
Mean error from LASSO: [0.73488765]  
X subset = 9 , i = 0 , j = 9  
Mean error from standard least squares: [1.71847716]  
Mean error from LASSO: [0.74064583]  
X subset = 9 , i = 0 , j = 10  
Mean error from standard least squares: [1.76804941]  
Mean error from LASSO: [0.71189012]  
X subset = 9 , i = 1 , j = 0  
Mean error from standard least squares: [1.58295739]  
Mean error from LASSO: [0.8351445]  
X subset = 9 , i = 1 , j = 2  
Mean error from standard least squares: [1.64528579]  
Mean error from LASSO: [0.84463332]  
X subset = 9 , i = 1 , j = 3  
Mean error from standard least squares: [1.65077303]  
Mean error from LASSO: [0.85249442]  
X subset = 9 , i = 1 , j = 4  
Mean error from standard least squares: [1.43009728]  
Mean error from LASSO: [0.92303385]  
X subset = 9 , i = 1 , j = 5  
Mean error from standard least squares: [1.52502808]  
Mean error from LASSO: [0.90260588]  
X subset = 9 , i = 1 , j = 6  
Mean error from standard least squares: [1.58983183]  
Mean error from LASSO: [0.87337873]  
X subset = 9 , i = 1 , j = 7  
Mean error from standard least squares: [1.61972383]  
Mean error from LASSO: [0.8420068]  
X subset = 9 , i = 1 , j = 8  
Mean error from standard least squares: [1.74155333]  
Mean error from LASSO: [0.84227898]  
X subset = 9 , i = 1 , j = 9  
Mean error from standard least squares: [1.58658717]  
Mean error from LASSO: [0.83930395]  
X subset = 9 , i = 1 , j = 10  
Mean error from standard least squares: [1.52308643]  
Mean error from LASSO: [0.80597071]  
X subset = 9 , i = 2 , j = 0  
Mean error from standard least squares: [3.20007007]  
Mean error from LASSO: [0.77433511]  
X subset = 9 , i = 2 , j = 1  
Mean error from standard least squares: [3.20039291]

Mean error from LASSO: [0.78737321]  
X subset = 9 , i = 2 , j = 3  
Mean error from standard least squares: [3.24173951]  
Mean error from LASSO: [0.77819439]  
X subset = 9 , i = 2 , j = 4  
Mean error from standard least squares: [3.15087744]  
Mean error from LASSO: [0.84610714]  
X subset = 9 , i = 2 , j = 5  
Mean error from standard least squares: [3.17588839]  
Mean error from LASSO: [0.82622275]  
X subset = 9 , i = 2 , j = 6  
Mean error from standard least squares: [3.16192557]  
Mean error from LASSO: [0.79601704]  
X subset = 9 , i = 2 , j = 7  
Mean error from standard least squares: [3.29875485]  
Mean error from LASSO: [0.77858516]  
X subset = 9 , i = 2 , j = 8  
Mean error from standard least squares: [3.20255161]  
Mean error from LASSO: [0.77904033]  
X subset = 9 , i = 2 , j = 9  
Mean error from standard least squares: [3.0264063]  
Mean error from LASSO: [0.77472231]  
X subset = 9 , i = 2 , j = 10  
Mean error from standard least squares: [3.2026045]  
Mean error from LASSO: [0.78099512]  
X subset = 9 , i = 3 , j = 0  
Mean error from standard least squares: [1.95630339]  
Mean error from LASSO: [0.74830985]  
X subset = 9 , i = 3 , j = 1  
Mean error from standard least squares: [1.97839773]  
Mean error from LASSO: [0.78293617]  
X subset = 9 , i = 3 , j = 2  
Mean error from standard least squares: [1.98593092]  
Mean error from LASSO: [0.75213901]  
X subset = 9 , i = 3 , j = 4  
Mean error from standard least squares: [1.97408442]  
Mean error from LASSO: [0.87794517]  
X subset = 9 , i = 3 , j = 5  
Mean error from standard least squares: [1.92183514]  
Mean error from LASSO: [0.84092259]  
X subset = 9 , i = 3 , j = 6  
Mean error from standard least squares: [1.95493873]  
Mean error from LASSO: [0.79779896]  
X subset = 9 , i = 3 , j = 7  
Mean error from standard least squares: [1.99906635]  
Mean error from LASSO: [0.75166177]  
X subset = 9 , i = 3 , j = 8  
Mean error from standard least squares: [1.96462792]

Mean error from LASSO: [0.73969856]  
X subset = 9 , i = 3 , j = 9  
Mean error from standard least squares: [1.90113789]  
Mean error from LASSO: [0.74124717]  
X subset = 9 , i = 3 , j = 10  
Mean error from standard least squares: [1.90917423]  
Mean error from LASSO: [0.70944953]  
X subset = 9 , i = 4 , j = 0  
Mean error from standard least squares: [2.65310305]  
Mean error from LASSO: [0.91770662]  
X subset = 9 , i = 4 , j = 1  
Mean error from standard least squares: [2.7950909]  
Mean error from LASSO: [0.94734909]  
X subset = 9 , i = 4 , j = 2  
Mean error from standard least squares: [2.55955709]  
Mean error from LASSO: [0.91700048]  
X subset = 9 , i = 4 , j = 3  
Mean error from standard least squares: [2.83211361]  
Mean error from LASSO: [0.94100212]  
X subset = 9 , i = 4 , j = 5  
Mean error from standard least squares: [2.47532842]  
Mean error from LASSO: [0.97278062]  
X subset = 9 , i = 4 , j = 6  
Mean error from standard least squares: [2.65164827]  
Mean error from LASSO: [0.95092433]  
X subset = 9 , i = 4 , j = 7  
Mean error from standard least squares: [2.73904484]  
Mean error from LASSO: [0.9275749]  
X subset = 9 , i = 4 , j = 8  
Mean error from standard least squares: [3.04089945]  
Mean error from LASSO: [0.93539938]  
X subset = 9 , i = 4 , j = 9  
Mean error from standard least squares: [2.25618605]  
Mean error from LASSO: [0.89780728]  
X subset = 9 , i = 4 , j = 10  
Mean error from standard least squares: [2.43585266]  
Mean error from LASSO: [0.88177667]  
X subset = 9 , i = 5 , j = 0  
Mean error from standard least squares: [1.56090264]  
Mean error from LASSO: [0.84851613]  
X subset = 9 , i = 5 , j = 1  
Mean error from standard least squares: [1.54827646]  
Mean error from LASSO: [0.8795365]  
X subset = 9 , i = 5 , j = 2  
Mean error from standard least squares: [1.55584331]  
Mean error from LASSO: [0.8541848]  
X subset = 9 , i = 5 , j = 3  
Mean error from standard least squares: [1.57718227]

Mean error from LASSO: [0.86600914]  
X subset = 9 , i = 5 , j = 4  
Mean error from standard least squares: [1.53098786]  
Mean error from LASSO: [0.96062855]  
X subset = 9 , i = 5 , j = 6  
Mean error from standard least squares: [1.54614584]  
Mean error from LASSO: [0.89229006]  
X subset = 9 , i = 5 , j = 7  
Mean error from standard least squares: [1.58149506]  
Mean error from LASSO: [0.85230981]  
X subset = 9 , i = 5 , j = 8  
Mean error from standard least squares: [1.53685635]  
Mean error from LASSO: [0.84007209]  
X subset = 9 , i = 5 , j = 9  
Mean error from standard least squares: [1.4643557]  
Mean error from LASSO: [0.83857863]  
X subset = 9 , i = 5 , j = 10  
Mean error from standard least squares: [1.5148156]  
Mean error from LASSO: [0.81033183]  
X subset = 9 , i = 6 , j = 0  
Mean error from standard least squares: [1.52047749]  
Mean error from LASSO: [0.80965902]  
X subset = 9 , i = 6 , j = 1  
Mean error from standard least squares: [1.51298036]  
Mean error from LASSO: [0.84059371]  
X subset = 9 , i = 6 , j = 2  
Mean error from standard least squares: [1.52701176]  
Mean error from LASSO: [0.81542656]  
X subset = 9 , i = 6 , j = 3  
Mean error from standard least squares: [1.54708169]  
Mean error from LASSO: [0.82584281]  
X subset = 9 , i = 6 , j = 4  
Mean error from standard least squares: [1.50215377]  
Mean error from LASSO: [0.92084731]  
X subset = 9 , i = 6 , j = 5  
Mean error from standard least squares: [1.46762354]  
Mean error from LASSO: [0.88933363]  
X subset = 9 , i = 6 , j = 7  
Mean error from standard least squares: [1.5282457]  
Mean error from LASSO: [0.8149944]  
X subset = 9 , i = 6 , j = 8  
Mean error from standard least squares: [1.49625942]  
Mean error from LASSO: [0.80259266]  
X subset = 9 , i = 6 , j = 9  
Mean error from standard least squares: [1.4759204]  
Mean error from LASSO: [0.8071167]  
X subset = 9 , i = 6 , j = 10  
Mean error from standard least squares: [1.51772563]

Mean error from LASSO: [0.77351185]  
X subset = 9 , i = 7 , j = 0  
Mean error from standard least squares: [1.75233767]  
Mean error from LASSO: [0.77141717]  
X subset = 9 , i = 7 , j = 1  
Mean error from standard least squares: [1.75046759]  
Mean error from LASSO: [0.80139389]  
X subset = 9 , i = 7 , j = 2  
Mean error from standard least squares: [1.7236185]  
Mean error from LASSO: [0.77243892]  
X subset = 9 , i = 7 , j = 3  
Mean error from standard least squares: [1.77784948]  
Mean error from LASSO: [0.78514764]  
X subset = 9 , i = 7 , j = 4  
Mean error from standard least squares: [1.71531265]  
Mean error from LASSO: [0.87703341]  
X subset = 9 , i = 7 , j = 5  
Mean error from standard least squares: [1.68056521]  
Mean error from LASSO: [0.84793134]  
X subset = 9 , i = 7 , j = 6  
Mean error from standard least squares: [1.69857468]  
Mean error from LASSO: [0.81367997]  
X subset = 9 , i = 7 , j = 8  
Mean error from standard least squares: [1.71060925]  
Mean error from LASSO: [0.76670665]  
X subset = 9 , i = 7 , j = 9  
Mean error from standard least squares: [1.67762256]  
Mean error from LASSO: [0.77221884]  
X subset = 9 , i = 7 , j = 10  
Mean error from standard least squares: [1.68475295]  
Mean error from LASSO: [0.73688237]  
X subset = 9 , i = 8 , j = 0  
Mean error from standard least squares: [1.87574925]  
Mean error from LASSO: [0.73204167]  
X subset = 9 , i = 8 , j = 1  
Mean error from standard least squares: [1.88732855]  
Mean error from LASSO: [0.76091652]  
X subset = 9 , i = 8 , j = 2  
Mean error from standard least squares: [1.91175833]  
Mean error from LASSO: [0.73663519]  
X subset = 9 , i = 8 , j = 3  
Mean error from standard least squares: [1.91058768]  
Mean error from LASSO: [0.74786264]  
X subset = 9 , i = 8 , j = 4  
Mean error from standard least squares: [1.85892433]  
Mean error from LASSO: [0.84408574]  
X subset = 9 , i = 8 , j = 5  
Mean error from standard least squares: [1.84126648]



Mean error from LASSO: [0.81325574]  
X subset = 9 , i = 8 , j = 6  
Mean error from standard least squares: [1.88311909]  
Mean error from LASSO: [0.77575011]  
X subset = 9 , i = 8 , j = 7  
Mean error from standard least squares: [1.93388074]  
Mean error from LASSO: [0.73509167]  
X subset = 9 , i = 8 , j = 9  
Mean error from standard least squares: [1.81949393]  
Mean error from LASSO: [0.73316938]  
X subset = 9 , i = 8 , j = 10  
Mean error from standard least squares: [1.87437791]  
Mean error from LASSO: [0.70637231]  
X subset = 9 , i = 9 , j = 0  
Mean error from standard least squares: [2.15600089]  
Mean error from LASSO: [0.72907825]  
X subset = 9 , i = 9 , j = 1  
Mean error from standard least squares: [2.18564024]  
Mean error from LASSO: [0.75824047]  
X subset = 9 , i = 9 , j = 2  
Mean error from standard least squares: [2.20739119]  
Mean error from LASSO: [0.73316049]  
X subset = 9 , i = 9 , j = 3  
Mean error from standard least squares: [2.24938396]  
Mean error from LASSO: [0.7443343]  
X subset = 9 , i = 9 , j = 4  
Mean error from standard least squares: [2.21945127]  
Mean error from LASSO: [0.83962429]  
X subset = 9 , i = 9 , j = 5  
Mean error from standard least squares: [2.11214098]  
Mean error from LASSO: [0.80920897]  
X subset = 9 , i = 9 , j = 6  
Mean error from standard least squares: [2.17390998]  
Mean error from LASSO: [0.77322644]  
X subset = 9 , i = 9 , j = 7  
Mean error from standard least squares: [2.23526313]  
Mean error from LASSO: [0.73748544]  
X subset = 9 , i = 9 , j = 8  
Mean error from standard least squares: [2.20955438]  
Mean error from LASSO: [0.73132018]  
X subset = 9 , i = 9 , j = 10  
Mean error from standard least squares: [2.1216735]  
Mean error from LASSO: [0.70790653]  
X subset = 9 , i = 10 , j = 0  
Mean error from standard least squares: [2.2034069]  
Mean error from LASSO: [0.69796909]  
X subset = 9 , i = 10 , j = 1  
Mean error from standard least squares: [2.29075428]

Mean error from LASSO: [0.7340845]  
X subset = 9 , i = 10 , j = 2  
Mean error from standard least squares: [2.34260086]  
Mean error from LASSO: [0.71468288]  
X subset = 9 , i = 10 , j = 3  
Mean error from standard least squares: [2.34547065]  
Mean error from LASSO: [0.72290471]  
X subset = 9 , i = 10 , j = 4  
Mean error from standard least squares: [2.30092317]  
Mean error from LASSO: [0.806607]  
X subset = 9 , i = 10 , j = 5  
Mean error from standard least squares: [2.17733401]  
Mean error from LASSO: [0.77729153]  
X subset = 9 , i = 10 , j = 6  
Mean error from standard least squares: [2.29322685]  
Mean error from LASSO: [0.75089468]  
X subset = 9 , i = 10 , j = 7  
Mean error from standard least squares: [2.33510281]  
Mean error from LASSO: [0.71329677]  
X subset = 9 , i = 10 , j = 8  
Mean error from standard least squares: [2.31956912]  
Mean error from LASSO: [0.71284636]  
X subset = 9 , i = 10 , j = 9  
Mean error from standard least squares: [2.17465543]  
Mean error from LASSO: [0.7147984]  
X subset = 10 , i = 0 , j = 1  
Mean error from standard least squares: [1.73999038]  
Mean error from LASSO: [0.65493806]  
X subset = 10 , i = 0 , j = 2  
Mean error from standard least squares: [1.77405747]  
Mean error from LASSO: [0.66673996]  
X subset = 10 , i = 0 , j = 3  
Mean error from standard least squares: [1.82682914]  
Mean error from LASSO: [0.68429628]  
X subset = 10 , i = 0 , j = 4  
Mean error from standard least squares: [1.73943148]  
Mean error from LASSO: [0.6327809]  
X subset = 10 , i = 0 , j = 5  
Mean error from standard least squares: [1.72173834]  
Mean error from LASSO: [0.64364302]  
X subset = 10 , i = 0 , j = 6  
Mean error from standard least squares: [1.74327001]  
Mean error from LASSO: [0.6757167]  
X subset = 10 , i = 0 , j = 7  
Mean error from standard least squares: [1.78016153]  
Mean error from LASSO: [0.68507145]  
X subset = 10 , i = 0 , j = 8  
Mean error from standard least squares: [1.76396552]

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Mean error from LASSO: [0.70114328]
X subset = 10 , i = 0 , j = 9
Mean error from standard least squares: [1.71559225]
Mean error from LASSO: [0.71204611]
X subset = 10 , i = 0 , j = 10
Mean error from standard least squares: [1.78248846]
Mean error from LASSO: [0.74142707]
X subset = 10 , i = 1 , j = 0
Mean error from standard least squares: [1.55681035]
Mean error from LASSO: [0.64070683]
X subset = 10 , i = 1 , j = 2
Mean error from standard least squares: [1.60657318]
Mean error from LASSO: [0.65618038]
X subset = 10 , i = 1 , j = 3
Mean error from standard least squares: [1.60375499]
Mean error from LASSO: [0.65720557]
X subset = 10 , i = 1 , j = 4
Mean error from standard least squares: [1.46601086]
Mean error from LASSO: [0.62149799]
X subset = 10 , i = 1 , j = 5
Mean error from standard least squares: [1.60572846]
Mean error from LASSO: [0.62463451]
X subset = 10 , i = 1 , j = 6
Mean error from standard least squares: [1.47976596]
Mean error from LASSO: [0.60449172]
X subset = 10 , i = 1 , j = 7
Mean error from standard least squares: [1.55524379]
Mean error from LASSO: [0.63888761]
X subset = 10 , i = 1 , j = 8
Mean error from standard least squares: [1.6790282]
Mean error from LASSO: [0.68681767]
X subset = 10 , i = 1 , j = 9
Mean error from standard least squares: [1.56460901]
Mean error from LASSO: [0.66918653]
X subset = 10 , i = 1 , j = 10
Mean error from standard least squares: [1.55705028]
Mean error from LASSO: [0.68355344]
X subset = 10 , i = 2 , j = 0
Mean error from standard least squares: [3.21593782]
Mean error from LASSO: [1.]
X subset = 10 , i = 2 , j = 1
Mean error from standard least squares: [3.19515187]
Mean error from LASSO: [1.]
X subset = 10 , i = 2 , j = 3
Mean error from standard least squares: [3.26501431]
Mean error from LASSO: [1.]
X subset = 10 , i = 2 , j = 4
Mean error from standard least squares: [3.18281333]

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Mean error from LASSO: [1.]
X subset = 10 , i = 2 , j = 5
Mean error from standard least squares: [3.12868618]
Mean error from LASSO: [1.]
X subset = 10 , i = 2 , j = 6
Mean error from standard least squares: [3.11920413]
Mean error from LASSO: [1.]
X subset = 10 , i = 2 , j = 7
Mean error from standard least squares: [3.30618207]
Mean error from LASSO: [1.]
X subset = 10 , i = 2 , j = 8
Mean error from standard least squares: [3.187749]
Mean error from LASSO: [1.]
X subset = 10 , i = 2 , j = 9
Mean error from standard least squares: [3.0723362]
Mean error from LASSO: [1.]
X subset = 10 , i = 2 , j = 10
Mean error from standard least squares: [3.21841144]
Mean error from LASSO: [1.]
X subset = 10 , i = 3 , j = 0
Mean error from standard least squares: [1.97309551]
Mean error from LASSO: [0.71863601]
X subset = 10 , i = 3 , j = 1
Mean error from standard least squares: [1.95294677]
Mean error from LASSO: [0.69227167]
X subset = 10 , i = 3 , j = 2
Mean error from standard least squares: [1.9913899]
Mean error from LASSO: [0.70203076]
X subset = 10 , i = 3 , j = 4
Mean error from standard least squares: [1.95311982]
Mean error from LASSO: [0.66269597]
X subset = 10 , i = 3 , j = 5
Mean error from standard least squares: [1.93541202]
Mean error from LASSO: [0.6755762]
X subset = 10 , i = 3 , j = 6
Mean error from standard least squares: [1.92540706]
Mean error from LASSO: [0.68561928]
X subset = 10 , i = 3 , j = 7
Mean error from standard least squares: [1.99053392]
Mean error from LASSO: [0.72034671]
X subset = 10 , i = 3 , j = 8
Mean error from standard least squares: [1.94171685]
Mean error from LASSO: [0.73189981]
X subset = 10 , i = 3 , j = 9
Mean error from standard least squares: [1.91719423]
Mean error from LASSO: [0.73875095]
X subset = 10 , i = 3 , j = 10
Mean error from standard least squares: [1.95093681]

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Mean error from LASSO: [0.76966012]  
X subset = 10 , i = 4 , j = 0  
Mean error from standard least squares: [2.76347579]  
Mean error from LASSO: [1.]  
X subset = 10 , i = 4 , j = 1  
Mean error from standard least squares: [2.51882195]  
Mean error from LASSO: [1.]  
X subset = 10 , i = 4 , j = 2  
Mean error from standard least squares: [2.45630846]  
Mean error from LASSO: [1.]  
X subset = 10 , i = 4 , j = 3  
Mean error from standard least squares: [2.7094478]  
Mean error from LASSO: [1.]  
X subset = 10 , i = 4 , j = 5  
Mean error from standard least squares: [2.42720363]  
Mean error from LASSO: [1.]  
X subset = 10 , i = 4 , j = 6  
Mean error from standard least squares: [2.36943679]  
Mean error from LASSO: [1.]  
X subset = 10 , i = 4 , j = 7  
Mean error from standard least squares: [2.72039187]  
Mean error from LASSO: [1.]  
X subset = 10 , i = 4 , j = 8  
Mean error from standard least squares: [2.81581093]  
Mean error from LASSO: [1.]  
X subset = 10 , i = 4 , j = 9  
Mean error from standard least squares: [2.48908016]  
Mean error from LASSO: [1.]  
X subset = 10 , i = 4 , j = 10  
Mean error from standard least squares: [2.55170698]  
Mean error from LASSO: [1.]  
X subset = 10 , i = 5 , j = 0  
Mean error from standard least squares: [1.56052839]  
Mean error from LASSO: [0.6073706]  
X subset = 10 , i = 5 , j = 1  
Mean error from standard least squares: [1.52125996]  
Mean error from LASSO: [0.58856071]  
X subset = 10 , i = 5 , j = 2  
Mean error from standard least squares: [1.55613807]  
Mean error from LASSO: [0.59327396]  
X subset = 10 , i = 5 , j = 3  
Mean error from standard least squares: [1.58172995]  
Mean error from LASSO: [0.60296983]  
X subset = 10 , i = 5 , j = 4  
Mean error from standard least squares: [1.50378812]  
Mean error from LASSO: [0.56522029]  
X subset = 10 , i = 5 , j = 6  
Mean error from standard least squares: [1.51105419]

Mean error from LASSO: [0.58544772]  
X subset = 10 , i = 5 , j = 7  
Mean error from standard least squares: [1.55857277]  
Mean error from LASSO: [0.59852562]  
X subset = 10 , i = 5 , j = 8  
Mean error from standard least squares: [1.53062718]  
Mean error from LASSO: [0.61669981]  
X subset = 10 , i = 5 , j = 9  
Mean error from standard least squares: [1.47980938]  
Mean error from LASSO: [0.62165141]  
X subset = 10 , i = 5 , j = 10  
Mean error from standard least squares: [1.55311066]  
Mean error from LASSO: [0.65924362]  
X subset = 10 , i = 6 , j = 0  
Mean error from standard least squares: [1.52084738]  
Mean error from LASSO: [0.59137714]  
X subset = 10 , i = 6 , j = 1  
Mean error from standard least squares: [1.48682313]  
Mean error from LASSO: [0.56109429]  
X subset = 10 , i = 6 , j = 2  
Mean error from standard least squares: [1.52544849]  
Mean error from LASSO: [0.58026346]  
X subset = 10 , i = 6 , j = 3  
Mean error from standard least squares: [1.55578432]  
Mean error from LASSO: [0.58663513]  
X subset = 10 , i = 6 , j = 4  
Mean error from standard least squares: [1.48603856]  
Mean error from LASSO: [0.54970257]  
X subset = 10 , i = 6 , j = 5  
Mean error from standard least squares: [1.47376387]  
Mean error from LASSO: [0.55999853]  
X subset = 10 , i = 6 , j = 6  
Mean error from standard least squares: [1.52367583]  
Mean error from LASSO: [0.58713217]  
X subset = 10 , i = 6 , j = 7  
Mean error from standard least squares: [1.48032946]  
Mean error from LASSO: [0.57831339]  
X subset = 10 , i = 6 , j = 8  
Mean error from standard least squares: [1.4815846]  
Mean error from LASSO: [0.60598079]  
X subset = 10 , i = 6 , j = 9  
Mean error from standard least squares: [1.53568174]  
Mean error from LASSO: [0.62883109]  
X subset = 10 , i = 6 , j = 10  
Mean error from standard least squares: [1.53568174]  
Mean error from LASSO: [0.62883109]  
X subset = 10 , i = 7 , j = 0  
Mean error from standard least squares: [1.73748174]  
Mean error from LASSO: [0.65292734]  
X subset = 10 , i = 7 , j = 1  
Mean error from standard least squares: [1.68722776]

Mean error from LASSO: [0.61711259]  
X subset = 10 , i = 7 , j = 2  
Mean error from standard least squares: [1.72949028]  
Mean error from LASSO: [0.63404318]  
X subset = 10 , i = 7 , j = 3  
Mean error from standard least squares: [1.7854648]  
Mean error from LASSO: [0.64484107]  
X subset = 10 , i = 7 , j = 4  
Mean error from standard least squares: [1.69688786]  
Mean error from LASSO: [0.59243019]  
X subset = 10 , i = 7 , j = 5  
Mean error from standard least squares: [1.68673411]  
Mean error from LASSO: [0.60671333]  
X subset = 10 , i = 7 , j = 6  
Mean error from standard least squares: [1.68635037]  
Mean error from LASSO: [0.61343953]  
X subset = 10 , i = 7 , j = 8  
Mean error from standard least squares: [1.67880975]  
Mean error from LASSO: [0.63614996]  
X subset = 10 , i = 7 , j = 9  
Mean error from standard least squares: [1.70014783]  
Mean error from LASSO: [0.67581162]  
X subset = 10 , i = 7 , j = 10  
Mean error from standard least squares: [1.72603522]  
Mean error from LASSO: [0.69080777]  
X subset = 10 , i = 8 , j = 0  
Mean error from standard least squares: [1.87367114]  
Mean error from LASSO: [0.70370976]  
X subset = 10 , i = 8 , j = 1  
Mean error from standard least squares: [1.8481851]  
Mean error from LASSO: [0.66364618]  
X subset = 10 , i = 8 , j = 2  
Mean error from standard least squares: [1.90025633]  
Mean error from LASSO: [0.70148248]  
X subset = 10 , i = 8 , j = 3  
Mean error from standard least squares: [1.91132745]  
Mean error from LASSO: [0.6843338]  
X subset = 10 , i = 8 , j = 4  
Mean error from standard least squares: [1.84693588]  
Mean error from LASSO: [0.65743346]  
X subset = 10 , i = 8 , j = 5  
Mean error from standard least squares: [1.83853566]  
Mean error from LASSO: [0.65657674]  
X subset = 10 , i = 8 , j = 6  
Mean error from standard least squares: [1.83148733]  
Mean error from LASSO: [0.66095197]  
X subset = 10 , i = 8 , j = 7  
Mean error from standard least squares: [1.91190664]

Mean error from LASSO: [0.71088907]  
X subset = 10 , i = 8 , j = 9  
Mean error from standard least squares: [1.84072132]  
Mean error from LASSO: [0.72647869]  
X subset = 10 , i = 8 , j = 10  
Mean error from standard least squares: [1.88937479]  
Mean error from LASSO: [0.75394978]  
X subset = 10 , i = 9 , j = 0  
Mean error from standard least squares: [2.16470686]  
Mean error from LASSO: [0.80578448]  
X subset = 10 , i = 9 , j = 1  
Mean error from standard least squares: [2.15789275]  
Mean error from LASSO: [0.78076102]  
X subset = 10 , i = 9 , j = 2  
Mean error from standard least squares: [2.18850688]  
Mean error from LASSO: [0.8198812]  
X subset = 10 , i = 9 , j = 3  
Mean error from standard least squares: [2.25322174]  
Mean error from LASSO: [0.81955308]  
X subset = 10 , i = 9 , j = 4  
Mean error from standard least squares: [2.17428769]  
Mean error from LASSO: [0.75623556]  
X subset = 10 , i = 9 , j = 5  
Mean error from standard least squares: [2.11464876]  
Mean error from LASSO: [0.76752163]  
X subset = 10 , i = 9 , j = 6  
Mean error from standard least squares: [2.17093178]  
Mean error from LASSO: [0.78519531]  
X subset = 10 , i = 9 , j = 7  
Mean error from standard least squares: [2.21153563]  
Mean error from LASSO: [0.81725423]  
X subset = 10 , i = 9 , j = 8  
Mean error from standard least squares: [2.18847149]  
Mean error from LASSO: [0.85030535]  
X subset = 10 , i = 9 , j = 10  
Mean error from standard least squares: [2.19185875]  
Mean error from LASSO: [0.85185263]  
X subset = 10 , i = 10 , j = 0  
Mean error from standard least squares: [2.25604406]  
Mean error from LASSO: [0.83462515]  
X subset = 10 , i = 10 , j = 1  
Mean error from standard least squares: [2.27333707]  
Mean error from LASSO: [0.84361609]  
X subset = 10 , i = 10 , j = 2  
Mean error from standard least squares: [2.33228607]  
Mean error from LASSO: [0.88172192]  
X subset = 10 , i = 10 , j = 3  
Mean error from standard least squares: [2.33853045]



Mean error from LASSO: [0.89552893]  
X subset = 10 , i = 10 , j = 4  
Mean error from standard least squares: [2.26461647]  
Mean error from LASSO: [0.82266008]  
X subset = 10 , i = 10 , j = 5  
Mean error from standard least squares: [2.18972175]  
Mean error from LASSO: [0.78060239]  
X subset = 10 , i = 10 , j = 6  
Mean error from standard least squares: [2.24440648]  
Mean error from LASSO: [0.8509532]  
X subset = 10 , i = 10 , j = 7  
Mean error from standard least squares: [2.29105643]  
Mean error from LASSO: [0.83882916]  
X subset = 10 , i = 10 , j = 8  
Mean error from standard least squares: [2.31983216]  
Mean error from LASSO: [0.87019507]  
X subset = 10 , i = 10 , j = 9  
Mean error from standard least squares: [2.15483537]  
Mean error from LASSO: [0.82165558]  
X subset = 11 , i = 0 , j = 1  
Mean error from standard least squares: [1.62632544]  
Mean error from LASSO: [1.]  
X subset = 11 , i = 0 , j = 2  
Mean error from standard least squares: [1.62962056]  
Mean error from LASSO: [1.]  
X subset = 11 , i = 0 , j = 3  
Mean error from standard least squares: [1.58085522]  
Mean error from LASSO: [1.]  
X subset = 11 , i = 0 , j = 4  
Mean error from standard least squares: [1.5713007]  
Mean error from LASSO: [1.]  
X subset = 11 , i = 0 , j = 5  
Mean error from standard least squares: [1.55248933]  
Mean error from LASSO: [1.]  
X subset = 11 , i = 0 , j = 6  
Mean error from standard least squares: [1.58879256]  
Mean error from LASSO: [1.]  
X subset = 11 , i = 0 , j = 7  
Mean error from standard least squares: [1.59780781]  
Mean error from LASSO: [1.]  
X subset = 11 , i = 0 , j = 8  
Mean error from standard least squares: [1.64601896]  
Mean error from LASSO: [1.]  
X subset = 11 , i = 0 , j = 9  
Mean error from standard least squares: [1.66289329]  
Mean error from LASSO: [1.]  
X subset = 11 , i = 0 , j = 10  
Mean error from standard least squares: [1.63258601]

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Mean error from LASSO: [1.]
X subset = 11 , i = 1 , j = 0
Mean error from standard least squares: [1.42234397]
Mean error from LASSO: [1.]
X subset = 11 , i = 1 , j = 2
Mean error from standard least squares: [1.40401506]
Mean error from LASSO: [1.]
X subset = 11 , i = 1 , j = 3
Mean error from standard least squares: [1.39011442]
Mean error from LASSO: [1.]
X subset = 11 , i = 1 , j = 4
Mean error from standard least squares: [1.34362836]
Mean error from LASSO: [1.]
X subset = 11 , i = 1 , j = 5
Mean error from standard least squares: [1.60889551]
Mean error from LASSO: [1.]
X subset = 11 , i = 1 , j = 6
Mean error from standard least squares: [1.39230569]
Mean error from LASSO: [1.]
X subset = 11 , i = 1 , j = 7
Mean error from standard least squares: [1.4101536]
Mean error from LASSO: [1.]
X subset = 11 , i = 1 , j = 8
Mean error from standard least squares: [1.45770429]
Mean error from LASSO: [1.]
X subset = 11 , i = 1 , j = 9
Mean error from standard least squares: [1.53698272]
Mean error from LASSO: [1.]
X subset = 11 , i = 1 , j = 10
Mean error from standard least squares: [1.43601492]
Mean error from LASSO: [1.]
X subset = 11 , i = 2 , j = 0
Mean error from standard least squares: [3.00834832]
Mean error from LASSO: [1.]
X subset = 11 , i = 2 , j = 1
Mean error from standard least squares: [3.0462796]
Mean error from LASSO: [1.]
X subset = 11 , i = 2 , j = 3
Mean error from standard least squares: [2.87748242]
Mean error from LASSO: [1.]
X subset = 11 , i = 2 , j = 4
Mean error from standard least squares: [2.84101747]
Mean error from LASSO: [1.]
X subset = 11 , i = 2 , j = 5
Mean error from standard least squares: [2.82781386]
Mean error from LASSO: [1.]
X subset = 11 , i = 2 , j = 6
Mean error from standard least squares: [2.87549412]

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Mean error from LASSO: [1.]
X subset = 11 , i = 2 , j = 7
Mean error from standard least squares: [2.96385931]
Mean error from LASSO: [1.]
X subset = 11 , i = 2 , j = 8
Mean error from standard least squares: [2.95395708]
Mean error from LASSO: [1.]
X subset = 11 , i = 2 , j = 9
Mean error from standard least squares: [3.04739926]
Mean error from LASSO: [1.]
X subset = 11 , i = 2 , j = 10
Mean error from standard least squares: [3.13845604]
Mean error from LASSO: [1.]
X subset = 11 , i = 3 , j = 0
Mean error from standard least squares: [1.82167898]
Mean error from LASSO: [1.]
X subset = 11 , i = 3 , j = 1
Mean error from standard least squares: [1.81860489]
Mean error from LASSO: [1.]
X subset = 11 , i = 3 , j = 2
Mean error from standard least squares: [1.80450567]
Mean error from LASSO: [1.]
X subset = 11 , i = 3 , j = 4
Mean error from standard least squares: [1.74398732]
Mean error from LASSO: [1.]
X subset = 11 , i = 3 , j = 5
Mean error from standard least squares: [1.74308062]
Mean error from LASSO: [1.]
X subset = 11 , i = 3 , j = 6
Mean error from standard least squares: [1.75855996]
Mean error from LASSO: [1.]
X subset = 11 , i = 3 , j = 7
Mean error from standard least squares: [1.77774593]
Mean error from LASSO: [1.]
X subset = 11 , i = 3 , j = 8
Mean error from standard least squares: [1.79708345]
Mean error from LASSO: [1.]
X subset = 11 , i = 3 , j = 9
Mean error from standard least squares: [1.83486157]
Mean error from LASSO: [1.]
X subset = 11 , i = 3 , j = 10
Mean error from standard least squares: [1.83444634]
Mean error from LASSO: [1.]
X subset = 11 , i = 4 , j = 0
Mean error from standard least squares: [3.31202114]
Mean error from LASSO: [1.]
X subset = 11 , i = 4 , j = 1
Mean error from standard least squares: [2.32902525]

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Mean error from LASSO: [1.]
X subset = 11 , i = 4 , j = 2
Mean error from standard least squares: [2.22031787]
Mean error from LASSO: [1.]
X subset = 11 , i = 4 , j = 3
Mean error from standard least squares: [2.17814742]
Mean error from LASSO: [1.]
X subset = 11 , i = 4 , j = 5
Mean error from standard least squares: [1.83196838]
Mean error from LASSO: [1.]
X subset = 11 , i = 4 , j = 6
Mean error from standard least squares: [2.34511527]
Mean error from LASSO: [1.]
X subset = 11 , i = 4 , j = 7
Mean error from standard least squares: [2.2710881]
Mean error from LASSO: [1.]
X subset = 11 , i = 4 , j = 8
Mean error from standard least squares: [3.12143107]
Mean error from LASSO: [1.]
X subset = 11 , i = 4 , j = 9
Mean error from standard least squares: [2.34608374]
Mean error from LASSO: [1.]
X subset = 11 , i = 4 , j = 10
Mean error from standard least squares: [2.39843264]
Mean error from LASSO: [1.]
X subset = 11 , i = 5 , j = 0
Mean error from standard least squares: [1.43651362]
Mean error from LASSO: [1.]
X subset = 11 , i = 5 , j = 1
Mean error from standard least squares: [1.42332425]
Mean error from LASSO: [1.]
X subset = 11 , i = 5 , j = 2
Mean error from standard least squares: [1.42047385]
Mean error from LASSO: [1.]
X subset = 11 , i = 5 , j = 3
Mean error from standard least squares: [1.39839171]
Mean error from LASSO: [1.]
X subset = 11 , i = 5 , j = 4
Mean error from standard least squares: [1.36759255]
Mean error from LASSO: [1.]
X subset = 11 , i = 5 , j = 6
Mean error from standard least squares: [1.4248317]
Mean error from LASSO: [1.]
X subset = 11 , i = 5 , j = 7
Mean error from standard least squares: [1.41076242]
Mean error from LASSO: [1.]
X subset = 11 , i = 5 , j = 8
Mean error from standard least squares: [1.4472086]

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Mean error from LASSO: [1.]
X subset = 11 , i = 5 , j = 9
Mean error from standard least squares: [1.46119594]
Mean error from LASSO: [1.]
X subset = 11 , i = 5 , j = 10
Mean error from standard least squares: [1.46078588]
Mean error from LASSO: [1.]
X subset = 11 , i = 6 , j = 0
Mean error from standard least squares: [1.41615415]
Mean error from LASSO: [1.]
X subset = 11 , i = 6 , j = 1
Mean error from standard least squares: [1.37509948]
Mean error from LASSO: [1.]
X subset = 11 , i = 6 , j = 2
Mean error from standard least squares: [1.40452546]
Mean error from LASSO: [1.]
X subset = 11 , i = 6 , j = 3
Mean error from standard least squares: [1.35795774]
Mean error from LASSO: [1.]
X subset = 11 , i = 6 , j = 4
Mean error from standard least squares: [1.34694026]
Mean error from LASSO: [1.]
X subset = 11 , i = 6 , j = 5
Mean error from standard least squares: [1.34822754]
Mean error from LASSO: [1.]
X subset = 11 , i = 6 , j = 7
Mean error from standard least squares: [1.35794445]
Mean error from LASSO: [1.]
X subset = 11 , i = 6 , j = 8
Mean error from standard least squares: [1.39595729]
Mean error from LASSO: [1.]
X subset = 11 , i = 6 , j = 9
Mean error from standard least squares: [1.45612127]
Mean error from LASSO: [1.]
X subset = 11 , i = 6 , j = 10
Mean error from standard least squares: [1.4363458]
Mean error from LASSO: [1.]
X subset = 11 , i = 7 , j = 0
Mean error from standard least squares: [1.58828061]
Mean error from LASSO: [1.]
X subset = 11 , i = 7 , j = 1
Mean error from standard least squares: [1.51872769]
Mean error from LASSO: [1.]
X subset = 11 , i = 7 , j = 2
Mean error from standard least squares: [1.58021967]
Mean error from LASSO: [1.]
X subset = 11 , i = 7 , j = 3
Mean error from standard least squares: [1.54455058]

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Mean error from LASSO: [1.]
X subset = 11 , i = 7 , j = 4
Mean error from standard least squares: [1.51237337]
Mean error from LASSO: [1.]
X subset = 11 , i = 7 , j = 5
Mean error from standard least squares: [1.52716392]
Mean error from LASSO: [1.]
X subset = 11 , i = 7 , j = 6
Mean error from standard least squares: [1.54594559]
Mean error from LASSO: [1.]
X subset = 11 , i = 7 , j = 8
Mean error from standard least squares: [1.57593313]
Mean error from LASSO: [1.]
X subset = 11 , i = 7 , j = 9
Mean error from standard least squares: [1.60776182]
Mean error from LASSO: [1.]
X subset = 11 , i = 7 , j = 10
Mean error from standard least squares: [1.62247423]
Mean error from LASSO: [1.]
X subset = 11 , i = 8 , j = 0
Mean error from standard least squares: [1.75614092]
Mean error from LASSO: [1.]
X subset = 11 , i = 8 , j = 1
Mean error from standard least squares: [1.70268139]
Mean error from LASSO: [1.]
X subset = 11 , i = 8 , j = 2
Mean error from standard least squares: [1.72251221]
Mean error from LASSO: [1.]
X subset = 11 , i = 8 , j = 3
Mean error from standard least squares: [1.64645724]
Mean error from LASSO: [1.]
X subset = 11 , i = 8 , j = 4
Mean error from standard least squares: [1.64620342]
Mean error from LASSO: [1.]
X subset = 11 , i = 8 , j = 5
Mean error from standard least squares: [1.66213318]
Mean error from LASSO: [1.]
X subset = 11 , i = 8 , j = 6
Mean error from standard least squares: [1.6915917]
Mean error from LASSO: [1.]
X subset = 11 , i = 8 , j = 7
Mean error from standard least squares: [1.69307446]
Mean error from LASSO: [1.]
X subset = 11 , i = 8 , j = 9
Mean error from standard least squares: [1.72813774]
Mean error from LASSO: [1.]
X subset = 11 , i = 8 , j = 10
Mean error from standard least squares: [1.76090106]

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Mean error from LASSO: [1.]
X subset = 11 , i = 9 , j = 0
Mean error from standard least squares: [1.99688596]
Mean error from LASSO: [1.]
X subset = 11 , i = 9 , j = 1
Mean error from standard least squares: [2.00813021]
Mean error from LASSO: [1.]
X subset = 11 , i = 9 , j = 2
Mean error from standard least squares: [2.02801776]
Mean error from LASSO: [1.]
X subset = 11 , i = 9 , j = 3
Mean error from standard least squares: [1.98428899]
Mean error from LASSO: [1.]
X subset = 11 , i = 9 , j = 4
Mean error from standard least squares: [2.01181273]
Mean error from LASSO: [1.]
X subset = 11 , i = 9 , j = 5
Mean error from standard least squares: [1.91430031]
Mean error from LASSO: [1.]
X subset = 11 , i = 9 , j = 6
Mean error from standard least squares: [1.98166688]
Mean error from LASSO: [1.]
X subset = 11 , i = 9 , j = 7
Mean error from standard least squares: [2.00585112]
Mean error from LASSO: [1.]
X subset = 11 , i = 9 , j = 8
Mean error from standard least squares: [2.00177138]
Mean error from LASSO: [1.]
X subset = 11 , i = 9 , j = 10
Mean error from standard least squares: [2.06562826]
Mean error from LASSO: [1.]
X subset = 11 , i = 10 , j = 0
Mean error from standard least squares: [2.10007413]
Mean error from LASSO: [1.]
X subset = 11 , i = 10 , j = 1
Mean error from standard least squares: [1.96541757]
Mean error from LASSO: [1.]
X subset = 11 , i = 10 , j = 2
Mean error from standard least squares: [2.07014728]
Mean error from LASSO: [1.]
X subset = 11 , i = 10 , j = 3
Mean error from standard least squares: [1.96209138]
Mean error from LASSO: [1.]
X subset = 11 , i = 10 , j = 4
Mean error from standard least squares: [1.98905638]
Mean error from LASSO: [1.]
X subset = 11 , i = 10 , j = 5
Mean error from standard least squares: [1.97256942]

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Mean error from LASSO: [1.]
X subset = 11 , i = 10 , j = 6
Mean error from standard least squares: [2.05521729]
Mean error from LASSO: [1.]
X subset = 11 , i = 10 , j = 7
Mean error from standard least squares: [2.06548739]
Mean error from LASSO: [1.]
X subset = 11 , i = 10 , j = 8
Mean error from standard least squares: [2.07375957]
Mean error from LASSO: [1.]
X subset = 11 , i = 10 , j = 9
Mean error from standard least squares: [2.12617431]
Mean error from LASSO: [1.]
Mean Error for pure least squares, X subset 1 = [24.05021885]
Mean Error for LASSO, X subset 1 = [0.94561236]
Mean Error for pure least squares, X subset 2 = [2.02307743]
Mean Error for LASSO, X subset 2 = [0.77668997]
Mean Error for pure least squares, X subset 3 = [1.277423]
Mean Error for LASSO, X subset 3 = [0.91052588]
Mean Error for pure least squares, X subset 4 = [1.20375862]
Mean Error for LASSO, X subset 4 = [0.89815037]
Mean Error for pure least squares, X subset 5 = [1.99703272]
Mean Error for LASSO, X subset 5 = [0.78785288]
Mean Error for pure least squares, X subset 6 = [1.59435279]
Mean Error for LASSO, X subset 6 = [0.88624749]
Mean Error for pure least squares, X subset 7 = [0.95356639]
Mean Error for LASSO, X subset 7 = [0.94951386]
Mean Error for pure least squares, X subset 8 = [1.9750248]
Mean Error for LASSO, X subset 8 = [0.98998336]
Mean Error for pure least squares, X subset 9 = [2.08702444]
Mean Error for LASSO, X subset 9 = [1.01605309]
Mean Error for pure least squares, X subset 10 = [2.02375859]
Mean Error for LASSO, X subset 10 = [0.80523919]
Mean Error for pure least squares, X subset 11 = [2.01110345]
Mean Error for LASSO, X subset 11 = [0.74568368]

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