

ProjectStartUp1_LeastSquares-Classifer-Copy1

December 2, 2020

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[1]: 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))

#Single threshold for classification
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thresh = 3000
for i in range(len(X)):
    if(y[i] <= thresh):
        y[i] = -1
    if(y[i] > thresh):
        y[i] = 1

print(np.mean(y))

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

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        [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, 3, lambdaCount)

#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:

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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))

        #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

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#y_riid1 = XTest1@WRID
errorTallyLasso = np.zeros((lambdaCount,1))
#errorTallyRid = np.zeros((lambdaCount,1))
for lam in range(lambdaCount):
    for index in range(len(XTest1)):
        if (yTest1[index] > 0 and y_lasso1[index,lam] < 0) or
→(yTest1[index] < 0 and y_lasso1[index,lam] > 0 or y_lasso1[index,lam] == 0):
            errorTallyLasso[lam] = errorTallyLasso[lam] + 1
        #if (max(y_lasso1[:,lam]) < 1e-6):
        #    print(max(y_lasso1[:,lam]))
        #print(errorTallyLasso[lam])

#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)):
    if (yTest1[index] > 0 and yTestOrig[index] < 0) or
→(yTest1[index] < 0 and yTestOrig[index] > 0):
        errorOrigTemp = errorOrigTemp + 1
    if (yTest1[index] > 0 and yTestLASSO[index] < 0) or
→(yTest1[index] < 0 and yTestLASSO[index] > 0):
        errorLASSOTemp = errorLASSOTemp + 1

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

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        #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])
    print("Mean Error for LASSO, X subset ",(index+1)," =␣
↪",GlobalMeanLASSOError[index])

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-0.5496922611240036
X subset = 0 , i = 0 , j = 1
Mean error from standard least squares: 0.2993895671476138
Mean error from LASSO: 0.22280799112097668
X subset = 0 , i = 0 , j = 2
Mean error from standard least squares: 0.38152053274139847
Mean error from LASSO: 0.22280799112097668
X subset = 0 , i = 0 , j = 3
Mean error from standard least squares: 0.45366259711431745
Mean error from LASSO: 0.22280799112097668
X subset = 0 , i = 0 , j = 4
Mean error from standard least squares: 0.3190899001109878
Mean error from LASSO: 0.22280799112097668
X subset = 0 , i = 0 , j = 5
Mean error from standard least squares: 0.3423973362930078
Mean error from LASSO: 0.22280799112097668
X subset = 0 , i = 0 , j = 6
Mean error from standard least squares: 0.3879023307436182
Mean error from LASSO: 0.22280799112097668
X subset = 0 , i = 0 , j = 7
Mean error from standard least squares: 0.2358490566037736
Mean error from LASSO: 0.22280799112097668
X subset = 0 , i = 0 , j = 8
Mean error from standard least squares: 0.5280244173140954
Mean error from LASSO: 0.22280799112097668
X subset = 0 , i = 0 , j = 9
Mean error from standard least squares: 0.2910654827968923
Mean error from LASSO: 0.22280799112097668
X subset = 0 , i = 0 , j = 10
Mean error from standard least squares: 0.2516648168701443
Mean error from LASSO: 0.22280799112097668
X subset = 0 , i = 1 , j = 0

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Mean error from standard least squares: 0.3118756936736959
 Mean error from LASSO: 0.2502774694783574
 X subset = 0 , i = 1 , j = 2
 Mean error from standard least squares: 0.3276914539400666
 Mean error from LASSO: 0.2502774694783574
 X subset = 0 , i = 1 , j = 3
 Mean error from standard least squares: 0.46503884572697
 Mean error from LASSO: 0.2502774694783574
 X subset = 0 , i = 1 , j = 4
 Mean error from standard least squares: 0.45199778024417314
 Mean error from LASSO: 0.2502774694783574
 X subset = 0 , i = 1 , j = 5
 Mean error from standard least squares: 0.5310765815760267
 Mean error from LASSO: 0.2502774694783574
 X subset = 0 , i = 1 , j = 6
 Mean error from standard least squares: 0.4655937846836848
 Mean error from LASSO: 0.2502774694783574
 X subset = 0 , i = 1 , j = 7
 Mean error from standard least squares: 0.2771920088790233
 Mean error from LASSO: 0.2502774694783574
 X subset = 0 , i = 1 , j = 8
 Mean error from standard least squares: 0.35294117647058826
 Mean error from LASSO: 0.2502774694783574
 X subset = 0 , i = 1 , j = 9
 Mean error from standard least squares: 0.3620976692563818
 Mean error from LASSO: 0.2502774694783574
 X subset = 0 , i = 1 , j = 10
 Mean error from standard least squares: 0.2974472807991121
 Mean error from LASSO: 0.2502774694783574
 X subset = 0 , i = 2 , j = 0
 Mean error from standard least squares: 0.38845726970033295
 Mean error from LASSO: 0.21365149833518313
 X subset = 0 , i = 2 , j = 1
 Mean error from standard least squares: 0.30965593784683687
 Mean error from LASSO: 0.21365149833518313
 X subset = 0 , i = 2 , j = 3
 Mean error from standard least squares: 0.5166481687014428
 Mean error from LASSO: 0.21365149833518313
 X subset = 0 , i = 2 , j = 4
 Mean error from standard least squares: 0.45366259711431745
 Mean error from LASSO: 0.21365149833518313
 X subset = 0 , i = 2 , j = 5
 Mean error from standard least squares: 0.451165371809101
 Mean error from LASSO: 0.21365149833518313
 X subset = 0 , i = 2 , j = 6
 Mean error from standard least squares: 0.2974472807991121
 Mean error from LASSO: 0.21365149833518313
 X subset = 0 , i = 2 , j = 7

Mean error from standard least squares: 0.41037735849056606
Mean error from LASSO: 0.21365149833518313
X subset = 0 , i = 2 , j = 8
Mean error from standard least squares: 0.31104328523862373
Mean error from LASSO: 0.21365149833518313
X subset = 0 , i = 2 , j = 9
Mean error from standard least squares: 0.3909544950055494
Mean error from LASSO: 0.21365149833518313
X subset = 0 , i = 2 , j = 10
Mean error from standard least squares: 0.3490566037735849
Mean error from LASSO: 0.21365149833518313
X subset = 0 , i = 3 , j = 0
Mean error from standard least squares: 0.4470033296337403
Mean error from LASSO: 0.22336293007769145
X subset = 0 , i = 3 , j = 1
Mean error from standard least squares: 0.48057713651498335
Mean error from LASSO: 0.22336293007769145
X subset = 0 , i = 3 , j = 2
Mean error from standard least squares: 0.5027746947835738
Mean error from LASSO: 0.22336293007769145
X subset = 0 , i = 3 , j = 4
Mean error from standard least squares: 0.4037180910099889
Mean error from LASSO: 0.22336293007769145
X subset = 0 , i = 3 , j = 5
Mean error from standard least squares: 0.3507214206437292
Mean error from LASSO: 0.22336293007769145
X subset = 0 , i = 3 , j = 6
Mean error from standard least squares: 0.28995560488346284
Mean error from LASSO: 0.22336293007769145
X subset = 0 , i = 3 , j = 7
Mean error from standard least squares: 0.3876248612652608
Mean error from LASSO: 0.22336293007769145
X subset = 0 , i = 3 , j = 8
Mean error from standard least squares: 0.40066592674805773
Mean error from LASSO: 0.22336293007769145
X subset = 0 , i = 3 , j = 9
Mean error from standard least squares: 0.341842397336293
Mean error from LASSO: 0.22336293007769145
X subset = 0 , i = 3 , j = 10
Mean error from standard least squares: 0.3074361820199778
Mean error from LASSO: 0.22336293007769145
X subset = 0 , i = 4 , j = 0
Mean error from standard least squares: 0.30244173140954494
Mean error from LASSO: 0.24472807991120976
X subset = 0 , i = 4 , j = 1
Mean error from standard least squares: 0.4408990011098779
Mean error from LASSO: 0.24472807991120976
X subset = 0 , i = 4 , j = 2

Mean error from standard least squares: 0.44617092119866814
 Mean error from LASSO: 0.24472807991120976
 X subset = 0 , i = 4 , j = 3
 Mean error from standard least squares: 0.40871254162042175
 Mean error from LASSO: 0.24472807991120976
 X subset = 0 , i = 4 , j = 5
 Mean error from standard least squares: 0.33074361820199777
 Mean error from LASSO: 0.24472807991120976
 X subset = 0 , i = 4 , j = 6
 Mean error from standard least squares: 0.4470033296337403
 Mean error from LASSO: 0.24472807991120976
 X subset = 0 , i = 4 , j = 7
 Mean error from standard least squares: 0.35294117647058826
 Mean error from LASSO: 0.24472807991120976
 X subset = 0 , i = 4 , j = 8
 Mean error from standard least squares: 0.304661487236404
 Mean error from LASSO: 0.24472807991120976
 X subset = 0 , i = 4 , j = 9
 Mean error from standard least squares: 0.37014428412874584
 Mean error from LASSO: 0.24472807991120976
 X subset = 0 , i = 4 , j = 10
 Mean error from standard least squares: 0.3978912319644839
 Mean error from LASSO: 0.24472807991120976
 X subset = 0 , i = 5 , j = 0
 Mean error from standard least squares: 0.41037735849056606
 Mean error from LASSO: 0.2705327413984462
 X subset = 0 , i = 5 , j = 1
 Mean error from standard least squares: 0.5083240843507214
 Mean error from LASSO: 0.2705327413984462
 X subset = 0 , i = 5 , j = 2
 Mean error from standard least squares: 0.4811320754716981
 Mean error from LASSO: 0.2705327413984462
 X subset = 0 , i = 5 , j = 3
 Mean error from standard least squares: 0.3951165371809101
 Mean error from LASSO: 0.2705327413984462
 X subset = 0 , i = 5 , j = 4
 Mean error from standard least squares: 0.34711431742508325
 Mean error from LASSO: 0.2705327413984462
 X subset = 0 , i = 5 , j = 6
 Mean error from standard least squares: 0.3154827968923418
 Mean error from LASSO: 0.2705327413984462
 X subset = 0 , i = 5 , j = 7
 Mean error from standard least squares: 0.4239733629300777
 Mean error from LASSO: 0.2705327413984462
 X subset = 0 , i = 5 , j = 8
 Mean error from standard least squares: 0.4483906770255272
 Mean error from LASSO: 0.2705327413984462
 X subset = 0 , i = 5 , j = 9

Mean error from standard least squares: 0.5016648168701443
 Mean error from LASSO: 0.2705327413984462
 X subset = 0 , i = 5 , j = 10
 Mean error from standard least squares: 0.3690344062153163
 Mean error from LASSO: 0.2705327413984462
 X subset = 0 , i = 6 , j = 0
 Mean error from standard least squares: 0.416204217536071
 Mean error from LASSO: 0.24944506104328523
 X subset = 0 , i = 6 , j = 1
 Mean error from standard least squares: 0.4370144284128746
 Mean error from LASSO: 0.24944506104328523
 X subset = 0 , i = 6 , j = 2
 Mean error from standard least squares: 0.3035516093229745
 Mean error from LASSO: 0.24944506104328523
 X subset = 0 , i = 6 , j = 3
 Mean error from standard least squares: 0.31437291897891234
 Mean error from LASSO: 0.24944506104328523
 X subset = 0 , i = 6 , j = 4
 Mean error from standard least squares: 0.46337402885682577
 Mean error from LASSO: 0.24944506104328523
 X subset = 0 , i = 6 , j = 5
 Mean error from standard least squares: 0.30965593784683687
 Mean error from LASSO: 0.24944506104328523
 X subset = 0 , i = 6 , j = 7
 Mean error from standard least squares: 0.4586570477247503
 Mean error from LASSO: 0.24944506104328523
 X subset = 0 , i = 6 , j = 8
 Mean error from standard least squares: 0.34544950055493895
 Mean error from LASSO: 0.24944506104328523
 X subset = 0 , i = 6 , j = 9
 Mean error from standard least squares: 0.36015538290788013
 Mean error from LASSO: 0.24944506104328523
 X subset = 0 , i = 6 , j = 10
 Mean error from standard least squares: 0.3665371809100999
 Mean error from LASSO: 0.24944506104328523
 X subset = 0 , i = 7 , j = 0
 Mean error from standard least squares: 0.22752497225305215
 Mean error from LASSO: 0.21476137624861266
 X subset = 0 , i = 7 , j = 1
 Mean error from standard least squares: 0.2455604883462819
 Mean error from LASSO: 0.21476137624861266
 X subset = 0 , i = 7 , j = 2
 Mean error from standard least squares: 0.37014428412874584
 Mean error from LASSO: 0.21476137624861266
 X subset = 0 , i = 7 , j = 3
 Mean error from standard least squares: 0.4361820199778024
 Mean error from LASSO: 0.21476137624861266
 X subset = 0 , i = 7 , j = 4

Mean error from standard least squares: 0.3626526082130966
 Mean error from LASSO: 0.21476137624861266
 X subset = 0 , i = 7 , j = 5
 Mean error from standard least squares: 0.3951165371809101
 Mean error from LASSO: 0.21476137624861266
 X subset = 0 , i = 7 , j = 6
 Mean error from standard least squares: 0.4556048834628191
 Mean error from LASSO: 0.21476137624861266
 X subset = 0 , i = 7 , j = 8
 Mean error from standard least squares: 0.5044395116537181
 Mean error from LASSO: 0.21476137624861266
 X subset = 0 , i = 7 , j = 9
 Mean error from standard least squares: 0.32519422863485015
 Mean error from LASSO: 0.21476137624861266
 X subset = 0 , i = 7 , j = 10
 Mean error from standard least squares: 0.26082130965593786
 Mean error from LASSO: 0.21476137624861266
 X subset = 0 , i = 8 , j = 0
 Mean error from standard least squares: 0.5099889012208657
 Mean error from LASSO: 0.20643729189789123
 X subset = 0 , i = 8 , j = 1
 Mean error from standard least squares: 0.3238068812430633
 Mean error from LASSO: 0.20643729189789123
 X subset = 0 , i = 8 , j = 2
 Mean error from standard least squares: 0.3407325194228635
 Mean error from LASSO: 0.20643729189789123
 X subset = 0 , i = 8 , j = 3
 Mean error from standard least squares: 0.433684794672586
 Mean error from LASSO: 0.20643729189789123
 X subset = 0 , i = 8 , j = 4
 Mean error from standard least squares: 0.2802441731409545
 Mean error from LASSO: 0.20643729189789123
 X subset = 0 , i = 8 , j = 5
 Mean error from standard least squares: 0.43479467258601556
 Mean error from LASSO: 0.20643729189789123
 X subset = 0 , i = 8 , j = 6
 Mean error from standard least squares: 0.3362930077691454
 Mean error from LASSO: 0.20643729189789123
 X subset = 0 , i = 8 , j = 7
 Mean error from standard least squares: 0.48640399556048836
 Mean error from LASSO: 0.20643729189789123
 X subset = 0 , i = 8 , j = 9
 Mean error from standard least squares: 0.4894561598224195
 Mean error from LASSO: 0.20643729189789123
 X subset = 0 , i = 8 , j = 10
 Mean error from standard least squares: 0.3443396226415094
 Mean error from LASSO: 0.20643729189789123
 X subset = 0 , i = 9 , j = 0

Mean error from standard least squares: 0.30993340732519425
 Mean error from LASSO: 0.19644839067702552
 X subset = 0 , i = 9 , j = 1
 Mean error from standard least squares: 0.3831853496115427
 Mean error from LASSO: 0.19644839067702552
 X subset = 0 , i = 9 , j = 2
 Mean error from standard least squares: 0.40843507214206437
 Mean error from LASSO: 0.19644839067702552
 X subset = 0 , i = 9 , j = 3
 Mean error from standard least squares: 0.3501664816870144
 Mean error from LASSO: 0.19644839067702552
 X subset = 0 , i = 9 , j = 4
 Mean error from standard least squares: 0.4353496115427303
 Mean error from LASSO: 0.19644839067702552
 X subset = 0 , i = 9 , j = 5
 Mean error from standard least squares: 0.49889012208657046
 Mean error from LASSO: 0.19644839067702552
 X subset = 0 , i = 9 , j = 6
 Mean error from standard least squares: 0.35821309655937844
 Mean error from LASSO: 0.19644839067702552
 X subset = 0 , i = 9 , j = 7
 Mean error from standard least squares: 0.31243063263041065
 Mean error from LASSO: 0.19644839067702552
 X subset = 0 , i = 9 , j = 8
 Mean error from standard least squares: 0.4470033296337403
 Mean error from LASSO: 0.19644839067702552
 X subset = 0 , i = 9 , j = 10
 Mean error from standard least squares: 0.2744173140954495
 Mean error from LASSO: 0.19644839067702552
 X subset = 0 , i = 10 , j = 0
 Mean error from standard least squares: 0.23723640399556048
 Mean error from LASSO: 0.18423973362930077
 X subset = 0 , i = 10 , j = 1
 Mean error from standard least squares: 0.2541620421753607
 Mean error from LASSO: 0.18423973362930077
 X subset = 0 , i = 10 , j = 2
 Mean error from standard least squares: 0.30244173140954494
 Mean error from LASSO: 0.18423973362930077
 X subset = 0 , i = 10 , j = 3
 Mean error from standard least squares: 0.3238068812430633
 Mean error from LASSO: 0.18423973362930077
 X subset = 0 , i = 10 , j = 4
 Mean error from standard least squares: 0.4406215316315205
 Mean error from LASSO: 0.18423973362930077
 X subset = 0 , i = 10 , j = 5
 Mean error from standard least squares: 0.36403995560488345
 Mean error from LASSO: 0.18423973362930077
 X subset = 0 , i = 10 , j = 6

Mean error from standard least squares: 0.33074361820199777
 Mean error from LASSO: 0.18423973362930077
 X subset = 0 , i = 10 , j = 7
 Mean error from standard least squares: 0.258046614872364
 Mean error from LASSO: 0.18423973362930077
 X subset = 0 , i = 10 , j = 8
 Mean error from standard least squares: 0.3102108768035516
 Mean error from LASSO: 0.18423973362930077
 X subset = 0 , i = 10 , j = 9
 Mean error from standard least squares: 0.2544395116537181
 Mean error from LASSO: 0.18423973362930077
 X subset = 1 , i = 0 , j = 1
 Mean error from standard least squares: 0.22280799112097668
 Mean error from LASSO: 0.22280799112097668
 X subset = 1 , i = 0 , j = 2
 Mean error from standard least squares: 0.22280799112097668
 Mean error from LASSO: 0.22280799112097668
 X subset = 1 , i = 0 , j = 3
 Mean error from standard least squares: 0.22308546059933407
 Mean error from LASSO: 0.22280799112097668
 X subset = 1 , i = 0 , j = 4
 Mean error from standard least squares: 0.22280799112097668
 Mean error from LASSO: 0.22280799112097668
 X subset = 1 , i = 0 , j = 5
 Mean error from standard least squares: 0.22308546059933407
 Mean error from LASSO: 0.22280799112097668
 X subset = 1 , i = 0 , j = 6
 Mean error from standard least squares: 0.22364039955604884
 Mean error from LASSO: 0.22280799112097668
 X subset = 1 , i = 0 , j = 7
 Mean error from standard least squares: 0.22280799112097668
 Mean error from LASSO: 0.22280799112097668
 X subset = 1 , i = 0 , j = 8
 Mean error from standard least squares: 0.22308546059933407
 Mean error from LASSO: 0.22280799112097668
 X subset = 1 , i = 0 , j = 9
 Mean error from standard least squares: 0.22280799112097668
 Mean error from LASSO: 0.22280799112097668
 X subset = 1 , i = 0 , j = 10
 Mean error from standard least squares: 0.22280799112097668
 Mean error from LASSO: 0.22280799112097668
 X subset = 1 , i = 1 , j = 0
 Mean error from standard least squares: 0.2502774694783574
 Mean error from LASSO: 0.2502774694783574
 X subset = 1 , i = 1 , j = 2
 Mean error from standard least squares: 0.2502774694783574
 Mean error from LASSO: 0.2502774694783574
 X subset = 1 , i = 1 , j = 3

Mean error from standard least squares: 0.2502774694783574
 Mean error from LASSO: 0.2502774694783574
 X subset = 1 , i = 1 , j = 4
 Mean error from standard least squares: 0.2502774694783574
 Mean error from LASSO: 0.2502774694783574
 X subset = 1 , i = 1 , j = 5
 Mean error from standard least squares: 0.25
 Mean error from LASSO: 0.2502774694783574
 X subset = 1 , i = 1 , j = 6
 Mean error from standard least squares: 0.2516648168701443
 Mean error from LASSO: 0.2502774694783574
 X subset = 1 , i = 1 , j = 7
 Mean error from standard least squares: 0.2502774694783574
 Mean error from LASSO: 0.2502774694783574
 X subset = 1 , i = 1 , j = 8
 Mean error from standard least squares: 0.25055493895671477
 Mean error from LASSO: 0.2502774694783574
 X subset = 1 , i = 1 , j = 9
 Mean error from standard least squares: 0.2502774694783574
 Mean error from LASSO: 0.2502774694783574
 X subset = 1 , i = 1 , j = 10
 Mean error from standard least squares: 0.2502774694783574
 Mean error from LASSO: 0.2502774694783574
 X subset = 1 , i = 2 , j = 0
 Mean error from standard least squares: 0.21365149833518313
 Mean error from LASSO: 0.21365149833518313
 X subset = 1 , i = 2 , j = 1
 Mean error from standard least squares: 0.21365149833518313
 Mean error from LASSO: 0.21365149833518313
 X subset = 1 , i = 2 , j = 3
 Mean error from standard least squares: 0.2139289678135405
 Mean error from LASSO: 0.21365149833518313
 X subset = 1 , i = 2 , j = 4
 Mean error from standard least squares: 0.21365149833518313
 Mean error from LASSO: 0.21365149833518313
 X subset = 1 , i = 2 , j = 5
 Mean error from standard least squares: 0.2139289678135405
 Mean error from LASSO: 0.21365149833518313
 X subset = 1 , i = 2 , j = 6
 Mean error from standard least squares: 0.2139289678135405
 Mean error from LASSO: 0.21365149833518313
 X subset = 1 , i = 2 , j = 7
 Mean error from standard least squares: 0.21365149833518313
 Mean error from LASSO: 0.21365149833518313
 X subset = 1 , i = 2 , j = 8
 Mean error from standard least squares: 0.21337402885682574
 Mean error from LASSO: 0.21365149833518313
 X subset = 1 , i = 2 , j = 9

Mean error from standard least squares: 0.21365149833518313
 Mean error from LASSO: 0.21365149833518313
 X subset = 1 , i = 2 , j = 10
 Mean error from standard least squares: 0.21365149833518313
 Mean error from LASSO: 0.21365149833518313
 X subset = 1 , i = 3 , j = 0
 Mean error from standard least squares: 0.22336293007769145
 Mean error from LASSO: 0.22336293007769145
 X subset = 1 , i = 3 , j = 1
 Mean error from standard least squares: 0.22336293007769145
 Mean error from LASSO: 0.22336293007769145
 X subset = 1 , i = 3 , j = 2
 Mean error from standard least squares: 0.22336293007769145
 Mean error from LASSO: 0.22336293007769145
 X subset = 1 , i = 3 , j = 4
 Mean error from standard least squares: 0.22336293007769145
 Mean error from LASSO: 0.22336293007769145
 X subset = 1 , i = 3 , j = 5
 Mean error from standard least squares: 0.22364039955604884
 Mean error from LASSO: 0.22336293007769145
 X subset = 1 , i = 3 , j = 6
 Mean error from standard least squares: 0.22308546059933407
 Mean error from LASSO: 0.22336293007769145
 X subset = 1 , i = 3 , j = 7
 Mean error from standard least squares: 0.22336293007769145
 Mean error from LASSO: 0.22336293007769145
 X subset = 1 , i = 3 , j = 8
 Mean error from standard least squares: 0.22336293007769145
 Mean error from LASSO: 0.22336293007769145
 X subset = 1 , i = 3 , j = 9
 Mean error from standard least squares: 0.22336293007769145
 Mean error from LASSO: 0.22336293007769145
 X subset = 1 , i = 3 , j = 10
 Mean error from standard least squares: 0.22336293007769145
 Mean error from LASSO: 0.22336293007769145
 X subset = 1 , i = 4 , j = 0
 Mean error from standard least squares: 0.24472807991120976
 Mean error from LASSO: 0.24472807991120976
 X subset = 1 , i = 4 , j = 1
 Mean error from standard least squares: 0.24472807991120976
 Mean error from LASSO: 0.24472807991120976
 X subset = 1 , i = 4 , j = 2
 Mean error from standard least squares: 0.24472807991120976
 Mean error from LASSO: 0.24472807991120976
 X subset = 1 , i = 4 , j = 3
 Mean error from standard least squares: 0.24472807991120976
 Mean error from LASSO: 0.24472807991120976
 X subset = 1 , i = 4 , j = 5

Mean error from standard least squares: 0.24445061043285238
 Mean error from LASSO: 0.24472807991120976
 X subset = 1 , i = 4 , j = 6
 Mean error from standard least squares: 0.2455604883462819
 Mean error from LASSO: 0.24472807991120976
 X subset = 1 , i = 4 , j = 7
 Mean error from standard least squares: 0.24472807991120976
 Mean error from LASSO: 0.24472807991120976
 X subset = 1 , i = 4 , j = 8
 Mean error from standard least squares: 0.24445061043285238
 Mean error from LASSO: 0.24472807991120976
 X subset = 1 , i = 4 , j = 9
 Mean error from standard least squares: 0.24472807991120976
 Mean error from LASSO: 0.24472807991120976
 X subset = 1 , i = 4 , j = 10
 Mean error from standard least squares: 0.24472807991120976
 Mean error from LASSO: 0.24472807991120976
 X subset = 1 , i = 5 , j = 0
 Mean error from standard least squares: 0.2705327413984462
 Mean error from LASSO: 0.2705327413984462
 X subset = 1 , i = 5 , j = 1
 Mean error from standard least squares: 0.2705327413984462
 Mean error from LASSO: 0.2705327413984462
 X subset = 1 , i = 5 , j = 2
 Mean error from standard least squares: 0.2705327413984462
 Mean error from LASSO: 0.2705327413984462
 X subset = 1 , i = 5 , j = 3
 Mean error from standard least squares: 0.2702552719200888
 Mean error from LASSO: 0.2705327413984462
 X subset = 1 , i = 5 , j = 4
 Mean error from standard least squares: 0.2705327413984462
 Mean error from LASSO: 0.2705327413984462
 X subset = 1 , i = 5 , j = 6
 Mean error from standard least squares: 0.27192008879023305
 Mean error from LASSO: 0.2705327413984462
 X subset = 1 , i = 5 , j = 7
 Mean error from standard least squares: 0.2705327413984462
 Mean error from LASSO: 0.2705327413984462
 X subset = 1 , i = 5 , j = 8
 Mean error from standard least squares: 0.27081021087680357
 Mean error from LASSO: 0.2705327413984462
 X subset = 1 , i = 5 , j = 9
 Mean error from standard least squares: 0.2705327413984462
 Mean error from LASSO: 0.2705327413984462
 X subset = 1 , i = 5 , j = 10
 Mean error from standard least squares: 0.2705327413984462
 Mean error from LASSO: 0.2705327413984462
 X subset = 1 , i = 6 , j = 0

Mean error from standard least squares: 0.24944506104328523
 Mean error from LASSO: 0.24944506104328523
 X subset = 1 , i = 6 , j = 1
 Mean error from standard least squares: 0.24944506104328523
 Mean error from LASSO: 0.24944506104328523
 X subset = 1 , i = 6 , j = 2
 Mean error from standard least squares: 0.24944506104328523
 Mean error from LASSO: 0.24944506104328523
 X subset = 1 , i = 6 , j = 3
 Mean error from standard least squares: 0.24972253052164262
 Mean error from LASSO: 0.24944506104328523
 X subset = 1 , i = 6 , j = 4
 Mean error from standard least squares: 0.24944506104328523
 Mean error from LASSO: 0.24944506104328523
 X subset = 1 , i = 6 , j = 5
 Mean error from standard least squares: 0.24972253052164262
 Mean error from LASSO: 0.24944506104328523
 X subset = 1 , i = 6 , j = 7
 Mean error from standard least squares: 0.24944506104328523
 Mean error from LASSO: 0.24944506104328523
 X subset = 1 , i = 6 , j = 8
 Mean error from standard least squares: 0.24972253052164262
 Mean error from LASSO: 0.24944506104328523
 X subset = 1 , i = 6 , j = 9
 Mean error from standard least squares: 0.24944506104328523
 Mean error from LASSO: 0.24944506104328523
 X subset = 1 , i = 6 , j = 10
 Mean error from standard least squares: 0.24944506104328523
 Mean error from LASSO: 0.24944506104328523
 X subset = 1 , i = 7 , j = 0
 Mean error from standard least squares: 0.21476137624861266
 Mean error from LASSO: 0.21476137624861266
 X subset = 1 , i = 7 , j = 1
 Mean error from standard least squares: 0.21476137624861266
 Mean error from LASSO: 0.21476137624861266
 X subset = 1 , i = 7 , j = 2
 Mean error from standard least squares: 0.21476137624861266
 Mean error from LASSO: 0.21476137624861266
 X subset = 1 , i = 7 , j = 3
 Mean error from standard least squares: 0.21448390677025528
 Mean error from LASSO: 0.21476137624861266
 X subset = 1 , i = 7 , j = 4
 Mean error from standard least squares: 0.21503884572697005
 Mean error from LASSO: 0.21476137624861266
 X subset = 1 , i = 7 , j = 5
 Mean error from standard least squares: 0.21476137624861266
 Mean error from LASSO: 0.21476137624861266
 X subset = 1 , i = 7 , j = 6

Mean error from standard least squares: 0.21503884572697005
 Mean error from LASSO: 0.21476137624861266
 X subset = 1 , i = 7 , j = 8
 Mean error from standard least squares: 0.21448390677025528
 Mean error from LASSO: 0.21476137624861266
 X subset = 1 , i = 7 , j = 9
 Mean error from standard least squares: 0.21476137624861266
 Mean error from LASSO: 0.21476137624861266
 X subset = 1 , i = 7 , j = 10
 Mean error from standard least squares: 0.21476137624861266
 Mean error from LASSO: 0.21476137624861266
 X subset = 1 , i = 8 , j = 0
 Mean error from standard least squares: 0.20643729189789123
 Mean error from LASSO: 0.20643729189789123
 X subset = 1 , i = 8 , j = 1
 Mean error from standard least squares: 0.20643729189789123
 Mean error from LASSO: 0.20643729189789123
 X subset = 1 , i = 8 , j = 2
 Mean error from standard least squares: 0.20643729189789123
 Mean error from LASSO: 0.20643729189789123
 X subset = 1 , i = 8 , j = 3
 Mean error from standard least squares: 0.20643729189789123
 Mean error from LASSO: 0.20643729189789123
 X subset = 1 , i = 8 , j = 4
 Mean error from standard least squares: 0.20643729189789123
 Mean error from LASSO: 0.20643729189789123
 X subset = 1 , i = 8 , j = 5
 Mean error from standard least squares: 0.20643729189789123
 Mean error from LASSO: 0.20643729189789123
 X subset = 1 , i = 8 , j = 6
 Mean error from standard least squares: 0.20726970033296338
 Mean error from LASSO: 0.20643729189789123
 X subset = 1 , i = 8 , j = 7
 Mean error from standard least squares: 0.20643729189789123
 Mean error from LASSO: 0.20643729189789123
 X subset = 1 , i = 8 , j = 9
 Mean error from standard least squares: 0.20643729189789123
 Mean error from LASSO: 0.20643729189789123
 X subset = 1 , i = 8 , j = 10
 Mean error from standard least squares: 0.20643729189789123
 Mean error from LASSO: 0.20643729189789123
 X subset = 1 , i = 9 , j = 0
 Mean error from standard least squares: 0.19644839067702552
 Mean error from LASSO: 0.19644839067702552
 X subset = 1 , i = 9 , j = 1
 Mean error from standard least squares: 0.19644839067702552
 Mean error from LASSO: 0.19644839067702552
 X subset = 1 , i = 9 , j = 2

Mean error from standard least squares: 0.19644839067702552
 Mean error from LASSO: 0.19644839067702552
 X subset = 1 , i = 9 , j = 3
 Mean error from standard least squares: 0.1967258601553829
 Mean error from LASSO: 0.19644839067702552
 X subset = 1 , i = 9 , j = 4
 Mean error from standard least squares: 0.19644839067702552
 Mean error from LASSO: 0.19644839067702552
 X subset = 1 , i = 9 , j = 5
 Mean error from standard least squares: 0.1970033296337403
 Mean error from LASSO: 0.19644839067702552
 X subset = 1 , i = 9 , j = 6
 Mean error from standard least squares: 0.19783573806881244
 Mean error from LASSO: 0.19644839067702552
 X subset = 1 , i = 9 , j = 7
 Mean error from standard least squares: 0.19644839067702552
 Mean error from LASSO: 0.19644839067702552
 X subset = 1 , i = 9 , j = 8
 Mean error from standard least squares: 0.1967258601553829
 Mean error from LASSO: 0.19644839067702552
 X subset = 1 , i = 9 , j = 10
 Mean error from standard least squares: 0.19644839067702552
 Mean error from LASSO: 0.19644839067702552
 X subset = 1 , i = 10 , j = 0
 Mean error from standard least squares: 0.18423973362930077
 Mean error from LASSO: 0.18423973362930077
 X subset = 1 , i = 10 , j = 1
 Mean error from standard least squares: 0.18423973362930077
 Mean error from LASSO: 0.18423973362930077
 X subset = 1 , i = 10 , j = 2
 Mean error from standard least squares: 0.18423973362930077
 Mean error from LASSO: 0.18423973362930077
 X subset = 1 , i = 10 , j = 3
 Mean error from standard least squares: 0.18396226415094338
 Mean error from LASSO: 0.18423973362930077
 X subset = 1 , i = 10 , j = 4
 Mean error from standard least squares: 0.18423973362930077
 Mean error from LASSO: 0.18423973362930077
 X subset = 1 , i = 10 , j = 5
 Mean error from standard least squares: 0.18423973362930077
 Mean error from LASSO: 0.18423973362930077
 X subset = 1 , i = 10 , j = 6
 Mean error from standard least squares: 0.1856270810210877
 Mean error from LASSO: 0.18423973362930077
 X subset = 1 , i = 10 , j = 7
 Mean error from standard least squares: 0.18423973362930077
 Mean error from LASSO: 0.18423973362930077
 X subset = 1 , i = 10 , j = 8

Mean error from standard least squares: 0.18396226415094338
 Mean error from LASSO: 0.18423973362930077
 X subset = 1 , i = 10 , j = 9
 Mean error from standard least squares: 0.18423973362930077
 Mean error from LASSO: 0.18423973362930077
 X subset = 2 , i = 0 , j = 1
 Mean error from standard least squares: 0.21975582685904552
 Mean error from LASSO: 0.21975582685904552
 X subset = 2 , i = 0 , j = 2
 Mean error from standard least squares: 0.22058823529411764
 Mean error from LASSO: 0.22058823529411764
 X subset = 2 , i = 0 , j = 3
 Mean error from standard least squares: 0.2211431742508324
 Mean error from LASSO: 0.2211431742508324
 X subset = 2 , i = 0 , j = 4
 Mean error from standard least squares: 0.22169811320754718
 Mean error from LASSO: 0.22169811320754718
 X subset = 2 , i = 0 , j = 5
 Mean error from standard least squares: 0.2169811320754717
 Mean error from LASSO: 0.2169811320754717
 X subset = 2 , i = 0 , j = 6
 Mean error from standard least squares: 0.2183684794672586
 Mean error from LASSO: 0.2183684794672586
 X subset = 2 , i = 0 , j = 7
 Mean error from standard least squares: 0.21920088790233075
 Mean error from LASSO: 0.21920088790233075
 X subset = 2 , i = 0 , j = 8
 Mean error from standard least squares: 0.2097669256381798
 Mean error from LASSO: 0.2097669256381798
 X subset = 2 , i = 0 , j = 9
 Mean error from standard least squares: 0.20421753607103219
 Mean error from LASSO: 0.20421753607103219
 X subset = 2 , i = 0 , j = 10
 Mean error from standard least squares: 0.19728079911209767
 Mean error from LASSO: 0.19728079911209767
 X subset = 2 , i = 1 , j = 0
 Mean error from standard least squares: 0.2458379578246393
 Mean error from LASSO: 0.2458379578246393
 X subset = 2 , i = 1 , j = 2
 Mean error from standard least squares: 0.24805771365149834
 Mean error from LASSO: 0.24805771365149834
 X subset = 2 , i = 1 , j = 3
 Mean error from standard least squares: 0.24889012208657046
 Mean error from LASSO: 0.24889012208657046
 X subset = 2 , i = 1 , j = 4
 Mean error from standard least squares: 0.2486126526082131
 Mean error from LASSO: 0.2486126526082131
 X subset = 2 , i = 1 , j = 5

Mean error from standard least squares: 0.2455604883462819
 Mean error from LASSO: 0.2455604883462819
 X subset = 2 , i = 1 , j = 6
 Mean error from standard least squares: 0.24334073251942287
 Mean error from LASSO: 0.24334073251942287
 X subset = 2 , i = 1 , j = 7
 Mean error from standard least squares: 0.24639289678135406
 Mean error from LASSO: 0.24639289678135406
 X subset = 2 , i = 1 , j = 8
 Mean error from standard least squares: 0.2327968923418424
 Mean error from LASSO: 0.2327968923418424
 X subset = 2 , i = 1 , j = 9
 Mean error from standard least squares: 0.23029966703662597
 Mean error from LASSO: 0.23029966703662597
 X subset = 2 , i = 1 , j = 10
 Mean error from standard least squares: 0.22475027746947837
 Mean error from LASSO: 0.22475027746947837
 X subset = 2 , i = 2 , j = 0
 Mean error from standard least squares: 0.21170921198668147
 Mean error from LASSO: 0.21170921198668147
 X subset = 2 , i = 2 , j = 1
 Mean error from standard least squares: 0.21087680355160932
 Mean error from LASSO: 0.21087680355160932
 X subset = 2 , i = 2 , j = 3
 Mean error from standard least squares: 0.21226415094339623
 Mean error from LASSO: 0.21226415094339623
 X subset = 2 , i = 2 , j = 4
 Mean error from standard least squares: 0.21254162042175362
 Mean error from LASSO: 0.21254162042175362
 X subset = 2 , i = 2 , j = 5
 Mean error from standard least squares: 0.2097669256381798
 Mean error from LASSO: 0.2097669256381798
 X subset = 2 , i = 2 , j = 6
 Mean error from standard least squares: 0.20893451720310766
 Mean error from LASSO: 0.20893451720310766
 X subset = 2 , i = 2 , j = 7
 Mean error from standard least squares: 0.21059933407325193
 Mean error from LASSO: 0.21059933407325193
 X subset = 2 , i = 2 , j = 8
 Mean error from standard least squares: 0.20199778024417314
 Mean error from LASSO: 0.20199778024417314
 X subset = 2 , i = 2 , j = 9
 Mean error from standard least squares: 0.19228634850166482
 Mean error from LASSO: 0.19228634850166482
 X subset = 2 , i = 2 , j = 10
 Mean error from standard least squares: 0.1925638179800222
 Mean error from LASSO: 0.1925638179800222
 X subset = 2 , i = 3 , j = 0

Mean error from standard least squares: 0.22086570477247502
 Mean error from LASSO: 0.22086570477247502
 X subset = 2 , i = 3 , j = 1
 Mean error from standard least squares: 0.21975582685904552
 Mean error from LASSO: 0.21975582685904552
 X subset = 2 , i = 3 , j = 2
 Mean error from standard least squares: 0.2211431742508324
 Mean error from LASSO: 0.2211431742508324
 X subset = 2 , i = 3 , j = 4
 Mean error from standard least squares: 0.2225305216426193
 Mean error from LASSO: 0.2225305216426193
 X subset = 2 , i = 3 , j = 5
 Mean error from standard least squares: 0.22003329633740287
 Mean error from LASSO: 0.22003329633740287
 X subset = 2 , i = 3 , j = 6
 Mean error from standard least squares: 0.2172586015538291
 Mean error from LASSO: 0.2172586015538291
 X subset = 2 , i = 3 , j = 7
 Mean error from standard least squares: 0.22003329633740287
 Mean error from LASSO: 0.22003329633740287
 X subset = 2 , i = 3 , j = 8
 Mean error from standard least squares: 0.21226415094339623
 Mean error from LASSO: 0.21226415094339623
 X subset = 2 , i = 3 , j = 9
 Mean error from standard least squares: 0.2008879023307436
 Mean error from LASSO: 0.2008879023307436
 X subset = 2 , i = 3 , j = 10
 Mean error from standard least squares: 0.1997780244173141
 Mean error from LASSO: 0.1997780244173141
 X subset = 2 , i = 4 , j = 0
 Mean error from standard least squares: 0.24084350721420644
 Mean error from LASSO: 0.24084350721420644
 X subset = 2 , i = 4 , j = 1
 Mean error from standard least squares: 0.24112097669256383
 Mean error from LASSO: 0.24112097669256383
 X subset = 2 , i = 4 , j = 2
 Mean error from standard least squares: 0.24167591564927857
 Mean error from LASSO: 0.24167591564927857
 X subset = 2 , i = 4 , j = 3
 Mean error from standard least squares: 0.24306326304106549
 Mean error from LASSO: 0.24306326304106549
 X subset = 2 , i = 4 , j = 5
 Mean error from standard least squares: 0.2400110987791343
 Mean error from LASSO: 0.2400110987791343
 X subset = 2 , i = 4 , j = 6
 Mean error from standard least squares: 0.2413984461709212
 Mean error from LASSO: 0.2413984461709212
 X subset = 2 , i = 4 , j = 7

Mean error from standard least squares: 0.24084350721420644
 Mean error from LASSO: 0.24084350721420644
 X subset = 2 , i = 4 , j = 8
 Mean error from standard least squares: 0.22752497225305215
 Mean error from LASSO: 0.22752497225305215
 X subset = 2 , i = 4 , j = 9
 Mean error from standard least squares: 0.22502774694783573
 Mean error from LASSO: 0.22502774694783573
 X subset = 2 , i = 4 , j = 10
 Mean error from standard least squares: 0.21781354051054383
 Mean error from LASSO: 0.21781354051054383
 X subset = 2 , i = 5 , j = 0
 Mean error from standard least squares: 0.2672031076581576
 Mean error from LASSO: 0.2672031076581576
 X subset = 2 , i = 5 , j = 1
 Mean error from standard least squares: 0.2683129855715871
 Mean error from LASSO: 0.2683129855715871
 X subset = 2 , i = 5 , j = 2
 Mean error from standard least squares: 0.26748057713651496
 Mean error from LASSO: 0.26748057713651496
 X subset = 2 , i = 5 , j = 3
 Mean error from standard least squares: 0.2685904550499445
 Mean error from LASSO: 0.2685904550499445
 X subset = 2 , i = 5 , j = 4
 Mean error from standard least squares: 0.26970033296337403
 Mean error from LASSO: 0.26970033296337403
 X subset = 2 , i = 5 , j = 6
 Mean error from standard least squares: 0.2647058823529412
 Mean error from LASSO: 0.2647058823529412
 X subset = 2 , i = 5 , j = 7
 Mean error from standard least squares: 0.2647058823529412
 Mean error from LASSO: 0.2647058823529412
 X subset = 2 , i = 5 , j = 8
 Mean error from standard least squares: 0.255826859045505
 Mean error from LASSO: 0.255826859045505
 X subset = 2 , i = 5 , j = 9
 Mean error from standard least squares: 0.24334073251942287
 Mean error from LASSO: 0.24334073251942287
 X subset = 2 , i = 5 , j = 10
 Mean error from standard least squares: 0.2427857935627081
 Mean error from LASSO: 0.2427857935627081
 X subset = 2 , i = 6 , j = 0
 Mean error from standard least squares: 0.24639289678135406
 Mean error from LASSO: 0.24639289678135406
 X subset = 2 , i = 6 , j = 1
 Mean error from standard least squares: 0.24639289678135406
 Mean error from LASSO: 0.24639289678135406
 X subset = 2 , i = 6 , j = 2

Mean error from standard least squares: 0.24778024417314096
 Mean error from LASSO: 0.24778024417314096
 X subset = 2 , i = 6 , j = 3
 Mean error from standard least squares: 0.2469478357380688
 Mean error from LASSO: 0.2469478357380688
 X subset = 2 , i = 6 , j = 4
 Mean error from standard least squares: 0.24889012208657046
 Mean error from LASSO: 0.24889012208657046
 X subset = 2 , i = 6 , j = 5
 Mean error from standard least squares: 0.244173140954495
 Mean error from LASSO: 0.244173140954495
 X subset = 2 , i = 6 , j = 7
 Mean error from standard least squares: 0.24778024417314096
 Mean error from LASSO: 0.24778024417314096
 X subset = 2 , i = 6 , j = 8
 Mean error from standard least squares: 0.23196448390677027
 Mean error from LASSO: 0.23196448390677027
 X subset = 2 , i = 6 , j = 9
 Mean error from standard least squares: 0.22586015538290788
 Mean error from LASSO: 0.22586015538290788
 X subset = 2 , i = 6 , j = 10
 Mean error from standard least squares: 0.22225305216426194
 Mean error from LASSO: 0.22225305216426194
 X subset = 2 , i = 7 , j = 0
 Mean error from standard least squares: 0.21143174250832408
 Mean error from LASSO: 0.21143174250832408
 X subset = 2 , i = 7 , j = 1
 Mean error from standard least squares: 0.21309655937846836
 Mean error from LASSO: 0.21309655937846836
 X subset = 2 , i = 7 , j = 2
 Mean error from standard least squares: 0.21226415094339623
 Mean error from LASSO: 0.21226415094339623
 X subset = 2 , i = 7 , j = 3
 Mean error from standard least squares: 0.21254162042175362
 Mean error from LASSO: 0.21254162042175362
 X subset = 2 , i = 7 , j = 4
 Mean error from standard least squares: 0.2142064372918979
 Mean error from LASSO: 0.2142064372918979
 X subset = 2 , i = 7 , j = 5
 Mean error from standard least squares: 0.21059933407325193
 Mean error from LASSO: 0.21059933407325193
 X subset = 2 , i = 7 , j = 6
 Mean error from standard least squares: 0.2111542730299667
 Mean error from LASSO: 0.2111542730299667
 X subset = 2 , i = 7 , j = 8
 Mean error from standard least squares: 0.20366259711431742
 Mean error from LASSO: 0.20366259711431742
 X subset = 2 , i = 7 , j = 9

Mean error from standard least squares: 0.195338512763596
Mean error from LASSO: 0.195338512763596
X subset = 2 , i = 7 , j = 10
Mean error from standard least squares: 0.1897891231964484
Mean error from LASSO: 0.1897891231964484
X subset = 2 , i = 8 , j = 0
Mean error from standard least squares: 0.20421753607103219
Mean error from LASSO: 0.20421753607103219
X subset = 2 , i = 8 , j = 1
Mean error from standard least squares: 0.20338512763596003
Mean error from LASSO: 0.20338512763596003
X subset = 2 , i = 8 , j = 2
Mean error from standard least squares: 0.2028301886792453
Mean error from LASSO: 0.2028301886792453
X subset = 2 , i = 8 , j = 3
Mean error from standard least squares: 0.2039400665926748
Mean error from LASSO: 0.2039400665926748
X subset = 2 , i = 8 , j = 4
Mean error from standard least squares: 0.20560488346281908
Mean error from LASSO: 0.20560488346281908
X subset = 2 , i = 8 , j = 5
Mean error from standard least squares: 0.20310765815760268
Mean error from LASSO: 0.20310765815760268
X subset = 2 , i = 8 , j = 6
Mean error from standard least squares: 0.201165371809101
Mean error from LASSO: 0.201165371809101
X subset = 2 , i = 8 , j = 7
Mean error from standard least squares: 0.20005549389567148
Mean error from LASSO: 0.20005549389567148
X subset = 2 , i = 8 , j = 9
Mean error from standard least squares: 0.18451720310765815
Mean error from LASSO: 0.18451720310765815
X subset = 2 , i = 8 , j = 10
Mean error from standard least squares: 0.18451720310765815
Mean error from LASSO: 0.18451720310765815
X subset = 2 , i = 9 , j = 0
Mean error from standard least squares: 0.19478357380688124
Mean error from LASSO: 0.19478357380688124
X subset = 2 , i = 9 , j = 1
Mean error from standard least squares: 0.19422863485016648
Mean error from LASSO: 0.19422863485016648
X subset = 2 , i = 9 , j = 2
Mean error from standard least squares: 0.19506104328523863
Mean error from LASSO: 0.19506104328523863
X subset = 2 , i = 9 , j = 3
Mean error from standard least squares: 0.19506104328523863
Mean error from LASSO: 0.19506104328523863
X subset = 2 , i = 9 , j = 4

Mean error from standard least squares: 0.195338512763596
 Mean error from LASSO: 0.195338512763596
 X subset = 2 , i = 9 , j = 5
 Mean error from standard least squares: 0.19228634850166482
 Mean error from LASSO: 0.19228634850166482
 X subset = 2 , i = 9 , j = 6
 Mean error from standard least squares: 0.19284128745837958
 Mean error from LASSO: 0.19284128745837958
 X subset = 2 , i = 9 , j = 7
 Mean error from standard least squares: 0.19339622641509435
 Mean error from LASSO: 0.19339622641509435
 X subset = 2 , i = 9 , j = 8
 Mean error from standard least squares: 0.18396226415094338
 Mean error from LASSO: 0.18396226415094338
 X subset = 2 , i = 9 , j = 10
 Mean error from standard least squares: 0.17730299667036625
 Mean error from LASSO: 0.17730299667036625
 X subset = 2 , i = 10 , j = 0
 Mean error from standard least squares: 0.18174250832408434
 Mean error from LASSO: 0.18174250832408434
 X subset = 2 , i = 10 , j = 1
 Mean error from standard least squares: 0.18146503884572698
 Mean error from LASSO: 0.18146503884572698
 X subset = 2 , i = 10 , j = 2
 Mean error from standard least squares: 0.18285238623751388
 Mean error from LASSO: 0.18285238623751388
 X subset = 2 , i = 10 , j = 3
 Mean error from standard least squares: 0.1825749167591565
 Mean error from LASSO: 0.1825749167591565
 X subset = 2 , i = 10 , j = 4
 Mean error from standard least squares: 0.18285238623751388
 Mean error from LASSO: 0.18285238623751388
 X subset = 2 , i = 10 , j = 5
 Mean error from standard least squares: 0.18063263041065483
 Mean error from LASSO: 0.18063263041065483
 X subset = 2 , i = 10 , j = 6
 Mean error from standard least squares: 0.17980022197558268
 Mean error from LASSO: 0.17980022197558268
 X subset = 2 , i = 10 , j = 7
 Mean error from standard least squares: 0.18146503884572698
 Mean error from LASSO: 0.18146503884572698
 X subset = 2 , i = 10 , j = 8
 Mean error from standard least squares: 0.17452830188679244
 Mean error from LASSO: 0.17452830188679244
 X subset = 2 , i = 10 , j = 9
 Mean error from standard least squares: 0.1667591564927858
 Mean error from LASSO: 0.1667591564927858
 X subset = 3 , i = 0 , j = 1

Mean error from standard least squares: 0.20172031076581576
 Mean error from LASSO: 0.20172031076581576
 X subset = 3 , i = 0 , j = 2
 Mean error from standard least squares: 0.19422863485016648
 Mean error from LASSO: 0.19422863485016648
 X subset = 3 , i = 0 , j = 3
 Mean error from standard least squares: 0.20366259711431742
 Mean error from LASSO: 0.20366259711431742
 X subset = 3 , i = 0 , j = 4
 Mean error from standard least squares: 0.2100443951165372
 Mean error from LASSO: 0.2100443951165372
 X subset = 3 , i = 0 , j = 5
 Mean error from standard least squares: 0.21448390677025528
 Mean error from LASSO: 0.21448390677025528
 X subset = 3 , i = 0 , j = 6
 Mean error from standard least squares: 0.2172586015538291
 Mean error from LASSO: 0.2172586015538291
 X subset = 3 , i = 0 , j = 7
 Mean error from standard least squares: 0.2214206437291898
 Mean error from LASSO: 0.2214206437291898
 X subset = 3 , i = 0 , j = 8
 Mean error from standard least squares: 0.22003329633740287
 Mean error from LASSO: 0.22003329633740287
 X subset = 3 , i = 0 , j = 9
 Mean error from standard least squares: 0.21920088790233075
 Mean error from LASSO: 0.21920088790233075
 X subset = 3 , i = 0 , j = 10
 Mean error from standard least squares: 0.21975582685904552
 Mean error from LASSO: 0.21975582685904552
 X subset = 3 , i = 1 , j = 0
 Mean error from standard least squares: 0.224472807991121
 Mean error from LASSO: 0.224472807991121
 X subset = 3 , i = 1 , j = 2
 Mean error from standard least squares: 0.224472807991121
 Mean error from LASSO: 0.224472807991121
 X subset = 3 , i = 1 , j = 3
 Mean error from standard least squares: 0.2314095449500555
 Mean error from LASSO: 0.2314095449500555
 X subset = 3 , i = 1 , j = 4
 Mean error from standard least squares: 0.2355715871254162
 Mean error from LASSO: 0.2355715871254162
 X subset = 3 , i = 1 , j = 5
 Mean error from standard least squares: 0.2400110987791343
 Mean error from LASSO: 0.2400110987791343
 X subset = 3 , i = 1 , j = 6
 Mean error from standard least squares: 0.24528301886792453
 Mean error from LASSO: 0.24528301886792453
 X subset = 3 , i = 1 , j = 7

Mean error from standard least squares: 0.2469478357380688
 Mean error from LASSO: 0.2469478357380688
 X subset = 3 , i = 1 , j = 8
 Mean error from standard least squares: 0.2469478357380688
 Mean error from LASSO: 0.2469478357380688
 X subset = 3 , i = 1 , j = 9
 Mean error from standard least squares: 0.24750277469478357
 Mean error from LASSO: 0.24750277469478357
 X subset = 3 , i = 1 , j = 10
 Mean error from standard least squares: 0.2469478357380688
 Mean error from LASSO: 0.2469478357380688
 X subset = 3 , i = 2 , j = 0
 Mean error from standard least squares: 0.19117647058823528
 Mean error from LASSO: 0.19117647058823528
 X subset = 3 , i = 2 , j = 1
 Mean error from standard least squares: 0.19089900110987792
 Mean error from LASSO: 0.19089900110987792
 X subset = 3 , i = 2 , j = 3
 Mean error from standard least squares: 0.19228634850166482
 Mean error from LASSO: 0.19228634850166482
 X subset = 3 , i = 2 , j = 4
 Mean error from standard least squares: 0.2039400665926748
 Mean error from LASSO: 0.2039400665926748
 X subset = 3 , i = 2 , j = 5
 Mean error from standard least squares: 0.20477247502774695
 Mean error from LASSO: 0.20477247502774695
 X subset = 3 , i = 2 , j = 6
 Mean error from standard least squares: 0.20754716981132076
 Mean error from LASSO: 0.20754716981132076
 X subset = 3 , i = 2 , j = 7
 Mean error from standard least squares: 0.21170921198668147
 Mean error from LASSO: 0.21170921198668147
 X subset = 3 , i = 2 , j = 8
 Mean error from standard least squares: 0.21087680355160932
 Mean error from LASSO: 0.21087680355160932
 X subset = 3 , i = 2 , j = 9
 Mean error from standard least squares: 0.2100443951165372
 Mean error from LASSO: 0.2100443951165372
 X subset = 3 , i = 2 , j = 10
 Mean error from standard least squares: 0.21032186459489458
 Mean error from LASSO: 0.21032186459489458
 X subset = 3 , i = 3 , j = 0
 Mean error from standard least squares: 0.201165371809101
 Mean error from LASSO: 0.201165371809101
 X subset = 3 , i = 3 , j = 1
 Mean error from standard least squares: 0.19922308546059933
 Mean error from LASSO: 0.19922308546059933
 X subset = 3 , i = 3 , j = 2

Mean error from standard least squares: 0.19839067702552718
 Mean error from LASSO: 0.19839067702552718
 X subset = 3 , i = 3 , j = 4
 Mean error from standard least squares: 0.21309655937846836
 Mean error from LASSO: 0.21309655937846836
 X subset = 3 , i = 3 , j = 5
 Mean error from standard least squares: 0.21281908990011097
 Mean error from LASSO: 0.21281908990011097
 X subset = 3 , i = 3 , j = 6
 Mean error from standard least squares: 0.2183684794672586
 Mean error from LASSO: 0.2183684794672586
 X subset = 3 , i = 3 , j = 7
 Mean error from standard least squares: 0.22169811320754718
 Mean error from LASSO: 0.22169811320754718
 X subset = 3 , i = 3 , j = 8
 Mean error from standard least squares: 0.22058823529411764
 Mean error from LASSO: 0.22058823529411764
 X subset = 3 , i = 3 , j = 9
 Mean error from standard least squares: 0.21947835738068813
 Mean error from LASSO: 0.21947835738068813
 X subset = 3 , i = 3 , j = 10
 Mean error from standard least squares: 0.22086570477247502
 Mean error from LASSO: 0.22086570477247502
 X subset = 3 , i = 4 , j = 0
 Mean error from standard least squares: 0.2172586015538291
 Mean error from LASSO: 0.2172586015538291
 X subset = 3 , i = 4 , j = 1
 Mean error from standard least squares: 0.22058823529411764
 Mean error from LASSO: 0.22058823529411764
 X subset = 3 , i = 4 , j = 2
 Mean error from standard least squares: 0.2172586015538291
 Mean error from LASSO: 0.2172586015538291
 X subset = 3 , i = 4 , j = 3
 Mean error from standard least squares: 0.22697003329633741
 Mean error from LASSO: 0.22697003329633741
 X subset = 3 , i = 4 , j = 4
 Mean error from standard least squares: 0.23390677025527193
 Mean error from LASSO: 0.23390677025527193
 X subset = 3 , i = 4 , j = 5
 Mean error from standard least squares: 0.2397336293007769
 Mean error from LASSO: 0.2397336293007769
 X subset = 3 , i = 4 , j = 6
 Mean error from standard least squares: 0.24056603773584906
 Mean error from LASSO: 0.24056603773584906
 X subset = 3 , i = 4 , j = 7
 Mean error from standard least squares: 0.24195338512763595
 Mean error from LASSO: 0.24195338512763595
 X subset = 3 , i = 4 , j = 8
 Mean error from standard least squares: 0.24195338512763595
 Mean error from LASSO: 0.24195338512763595
 X subset = 3 , i = 4 , j = 9

Mean error from standard least squares: 0.2413984461709212
 Mean error from LASSO: 0.2413984461709212
 X subset = 3 , i = 4 , j = 10
 Mean error from standard least squares: 0.24112097669256383
 Mean error from LASSO: 0.24112097669256383
 X subset = 3 , i = 5 , j = 0
 Mean error from standard least squares: 0.24167591564927857
 Mean error from LASSO: 0.24167591564927857
 X subset = 3 , i = 5 , j = 1
 Mean error from standard least squares: 0.24223085460599333
 Mean error from LASSO: 0.24223085460599333
 X subset = 3 , i = 5 , j = 2
 Mean error from standard least squares: 0.2355715871254162
 Mean error from LASSO: 0.2355715871254162
 X subset = 3 , i = 5 , j = 3
 Mean error from standard least squares: 0.2472253052164262
 Mean error from LASSO: 0.2472253052164262
 X subset = 3 , i = 5 , j = 4
 Mean error from standard least squares: 0.2561043285238624
 Mean error from LASSO: 0.2561043285238624
 X subset = 3 , i = 5 , j = 6
 Mean error from standard least squares: 0.2644284128745838
 Mean error from LASSO: 0.2644284128745838
 X subset = 3 , i = 5 , j = 7
 Mean error from standard least squares: 0.26775804661487235
 Mean error from LASSO: 0.26775804661487235
 X subset = 3 , i = 5 , j = 8
 Mean error from standard least squares: 0.26803551609322973
 Mean error from LASSO: 0.26803551609322973
 X subset = 3 , i = 5 , j = 9
 Mean error from standard least squares: 0.2669256381798002
 Mean error from LASSO: 0.2669256381798002
 X subset = 3 , i = 5 , j = 10
 Mean error from standard least squares: 0.2663706992230855
 Mean error from LASSO: 0.2663706992230855
 X subset = 3 , i = 6 , j = 0
 Mean error from standard least squares: 0.22308546059933407
 Mean error from LASSO: 0.22308546059933407
 X subset = 3 , i = 6 , j = 1
 Mean error from standard least squares: 0.22364039955604884
 Mean error from LASSO: 0.22364039955604884
 X subset = 3 , i = 6 , j = 2
 Mean error from standard least squares: 0.2241953385127636
 Mean error from LASSO: 0.2241953385127636
 X subset = 3 , i = 6 , j = 3
 Mean error from standard least squares: 0.2241953385127636
 Mean error from LASSO: 0.2241953385127636
 X subset = 3 , i = 6 , j = 4

Mean error from standard least squares: 0.23362930077691454
 Mean error from LASSO: 0.23362930077691454
 X subset = 3 , i = 6 , j = 5
 Mean error from standard least squares: 0.2386237513873474
 Mean error from LASSO: 0.2386237513873474
 X subset = 3 , i = 6 , j = 7
 Mean error from standard least squares: 0.2469478357380688
 Mean error from LASSO: 0.2469478357380688
 X subset = 3 , i = 6 , j = 8
 Mean error from standard least squares: 0.24778024417314096
 Mean error from LASSO: 0.24778024417314096
 X subset = 3 , i = 6 , j = 9
 Mean error from standard least squares: 0.24639289678135406
 Mean error from LASSO: 0.24639289678135406
 X subset = 3 , i = 6 , j = 10
 Mean error from standard least squares: 0.2472253052164262
 Mean error from LASSO: 0.2472253052164262
 X subset = 3 , i = 7 , j = 0
 Mean error from standard least squares: 0.19228634850166482
 Mean error from LASSO: 0.19228634850166482
 X subset = 3 , i = 7 , j = 1
 Mean error from standard least squares: 0.19228634850166482
 Mean error from LASSO: 0.19228634850166482
 X subset = 3 , i = 7 , j = 2
 Mean error from standard least squares: 0.24944506104328523
 Mean error from LASSO: 0.24944506104328523
 X subset = 4 , i = 6 , j = 3
 Mean error from standard least squares: 0.24944506104328523
 Mean error from LASSO: 0.24944506104328523
 X subset = 4 , i = 6 , j = 4
 Mean error from standard least squares: 0.24944506104328523
 Mean error from LASSO: 0.24944506104328523
 X subset = 4 , i = 6 , j = 5
 Mean error from standard least squares: 0.24944506104328523
 Mean error from LASSO: 0.24944506104328523
 X subset = 4 , i = 6 , j = 7
 Mean error from standard least squares: 0.24944506104328523
 Mean error from LASSO: 0.24944506104328523
 X subset = 4 , i = 6 , j = 8
 Mean error from standard least squares: 0.24944506104328523
 Mean error from LASSO: 0.24944506104328523
 X subset = 4 , i = 6 , j = 9
 Mean error from standard least squares: 0.293007769145394
 Mean error from LASSO: 0.24944506104328523
 X subset = 4 , i = 6 , j = 10
 Mean error from standard least squares: 0.24944506104328523
 Mean error from LASSO: 0.24944506104328523
 X subset = 4 , i = 7 , j = 0

Mean error from standard least squares: 0.21476137624861266
 Mean error from LASSO: 0.21476137624861266
 X subset = 4 , i = 7 , j = 1
 Mean error from standard least squares: 0.21476137624861266
 Mean error from LASSO: 0.21476137624861266
 X subset = 4 , i = 7 , j = 2
 Mean error from standard least squares: 0.21476137624861266
 Mean error from LASSO: 0.21476137624861266
 X subset = 4 , i = 7 , j = 3
 Mean error from standard least squares: 0.21476137624861266
 Mean error from LASSO: 0.21476137624861266
 X subset = 4 , i = 7 , j = 4
 Mean error from standard least squares: 0.21476137624861266
 Mean error from LASSO: 0.21476137624861266
 X subset = 4 , i = 7 , j = 5
 Mean error from standard least squares: 0.21476137624861266
 Mean error from LASSO: 0.21476137624861266
 X subset = 4 , i = 7 , j = 6
 Mean error from standard least squares: 0.21476137624861266
 Mean error from LASSO: 0.21476137624861266
 X subset = 4 , i = 7 , j = 8
 Mean error from standard least squares: 0.21476137624861266
 Mean error from LASSO: 0.21476137624861266
 X subset = 4 , i = 7 , j = 9
 Mean error from standard least squares: 0.21476137624861266
 Mean error from LASSO: 0.21476137624861266
 X subset = 4 , i = 7 , j = 10
 Mean error from standard least squares: 0.21476137624861266
 Mean error from LASSO: 0.21476137624861266
 X subset = 4 , i = 8 , j = 0
 Mean error from standard least squares: 0.20643729189789123
 Mean error from LASSO: 0.20643729189789123
 X subset = 4 , i = 8 , j = 1
 Mean error from standard least squares: 0.21032186459489458
 Mean error from LASSO: 0.20643729189789123
 X subset = 4 , i = 8 , j = 2
 Mean error from standard least squares: 0.2083795782463929
 Mean error from LASSO: 0.20643729189789123
 X subset = 4 , i = 8 , j = 3
 Mean error from standard least squares: 0.20865704772475027
 Mean error from LASSO: 0.20643729189789123
 X subset = 4 , i = 8 , j = 4
 Mean error from standard least squares: 0.20643729189789123
 Mean error from LASSO: 0.20643729189789123
 X subset = 4 , i = 8 , j = 5
 Mean error from standard least squares: 0.20643729189789123
 Mean error from LASSO: 0.20643729189789123
 X subset = 4 , i = 8 , j = 6

Mean error from standard least squares: 0.20643729189789123
Mean error from LASSO: 0.20643729189789123
X subset = 4 , i = 8 , j = 7
Mean error from standard least squares: 0.20643729189789123
Mean error from LASSO: 0.20643729189789123
X subset = 4 , i = 8 , j = 9
Mean error from standard least squares: 0.25332963374028855
Mean error from LASSO: 0.20643729189789123
X subset = 4 , i = 8 , j = 10
Mean error from standard least squares: 0.2647058823529412
Mean error from LASSO: 0.20643729189789123
X subset = 4 , i = 9 , j = 0
Mean error from standard least squares: 0.20172031076581576
Mean error from LASSO: 0.19644839067702552
X subset = 4 , i = 9 , j = 1
Mean error from standard least squares: 0.20144284128745837
Mean error from LASSO: 0.19644839067702552
X subset = 4 , i = 9 , j = 2
Mean error from standard least squares: 0.2028301886792453
Mean error from LASSO: 0.19644839067702552
X subset = 4 , i = 9 , j = 3
Mean error from standard least squares: 0.20033296337402887
Mean error from LASSO: 0.19644839067702552
X subset = 4 , i = 9 , j = 4
Mean error from standard least squares: 0.19866814650388456
Mean error from LASSO: 0.19644839067702552
X subset = 4 , i = 9 , j = 5
Mean error from standard least squares: 0.20754716981132076
Mean error from LASSO: 0.19644839067702552
X subset = 4 , i = 9 , j = 6
Mean error from standard least squares: 0.2097669256381798
Mean error from LASSO: 0.19644839067702552
X subset = 4 , i = 9 , j = 7
Mean error from standard least squares: 0.19644839067702552
Mean error from LASSO: 0.19644839067702552
X subset = 4 , i = 9 , j = 8
Mean error from standard least squares: 0.2255826859045505
Mean error from LASSO: 0.19644839067702552
X subset = 4 , i = 9 , j = 10
Mean error from standard least squares: 0.2602663706992231
Mean error from LASSO: 0.19644839067702552
X subset = 4 , i = 10 , j = 0
Mean error from standard least squares: 0.18423973362930077
Mean error from LASSO: 0.18423973362930077
X subset = 4 , i = 10 , j = 1
Mean error from standard least squares: 0.1881243063263041
Mean error from LASSO: 0.18423973362930077
X subset = 4 , i = 10 , j = 2

Mean error from standard least squares: 0.19006659267480577
 Mean error from LASSO: 0.18423973362930077
 X subset = 4 , i = 10 , j = 3
 Mean error from standard least squares: 0.1881243063263041
 Mean error from LASSO: 0.18423973362930077
 X subset = 4 , i = 10 , j = 4
 Mean error from standard least squares: 0.18423973362930077
 Mean error from LASSO: 0.18423973362930077
 X subset = 4 , i = 10 , j = 5
 Mean error from standard least squares: 0.18423973362930077
 Mean error from LASSO: 0.18423973362930077
 X subset = 4 , i = 10 , j = 6
 Mean error from standard least squares: 0.18423973362930077
 Mean error from LASSO: 0.18423973362930077
 X subset = 4 , i = 10 , j = 7
 Mean error from standard least squares: 0.18423973362930077
 Mean error from LASSO: 0.18423973362930077
 X subset = 4 , i = 10 , j = 8
 Mean error from standard least squares: 0.2172586015538291
 Mean error from LASSO: 0.18423973362930077
 X subset = 4 , i = 10 , j = 9
 Mean error from standard least squares: 0.2400110987791343
 Mean error from LASSO: 0.18423973362930077
 X subset = 5 , i = 0 , j = 1
 Mean error from standard least squares: 0.19117647058823528
 Mean error from LASSO: 0.19117647058823528
 X subset = 5 , i = 0 , j = 2
 Mean error from standard least squares: 0.1853496115427303
 Mean error from LASSO: 0.1853496115427303
 X subset = 5 , i = 0 , j = 3
 Mean error from standard least squares: 0.18423973362930077
 Mean error from LASSO: 0.18423973362930077
 X subset = 5 , i = 0 , j = 4
 Mean error from standard least squares: 0.18368479467258603
 Mean error from LASSO: 0.18368479467258603
 X subset = 5 , i = 0 , j = 5
 Mean error from standard least squares: 0.1864594894561598
 Mean error from LASSO: 0.1864594894561598
 X subset = 5 , i = 0 , j = 6
 Mean error from standard least squares: 0.19422863485016648
 Mean error from LASSO: 0.19422863485016648
 X subset = 5 , i = 0 , j = 7
 Mean error from standard least squares: 0.19200887902330743
 Mean error from LASSO: 0.19200887902330743
 X subset = 5 , i = 0 , j = 8
 Mean error from standard least squares: 0.1956159822419534
 Mean error from LASSO: 0.1956159822419534
 X subset = 5 , i = 0 , j = 9

Mean error from standard least squares: 0.18784683684794673
 Mean error from LASSO: 0.18784683684794673
 X subset = 5 , i = 0 , j = 10
 Mean error from standard least squares: 0.18729189789123196
 Mean error from LASSO: 0.18729189789123196
 X subset = 5 , i = 1 , j = 0
 Mean error from standard least squares: 0.21143174250832408
 Mean error from LASSO: 0.21143174250832408
 X subset = 5 , i = 1 , j = 2
 Mean error from standard least squares: 0.20782463928967815
 Mean error from LASSO: 0.20782463928967815
 X subset = 5 , i = 1 , j = 3
 Mean error from standard least squares: 0.21198668146503885
 Mean error from LASSO: 0.21198668146503885
 X subset = 5 , i = 1 , j = 4
 Mean error from standard least squares: 0.20310765815760268
 Mean error from LASSO: 0.20310765815760268
 X subset = 5 , i = 1 , j = 5
 Mean error from standard least squares: 0.21448390677025528
 Mean error from LASSO: 0.21448390677025528
 X subset = 5 , i = 1 , j = 6
 Mean error from standard least squares: 0.21476137624861266
 Mean error from LASSO: 0.21476137624861266
 X subset = 5 , i = 1 , j = 7
 Mean error from standard least squares: 0.21226415094339623
 Mean error from LASSO: 0.21226415094339623
 X subset = 5 , i = 1 , j = 8
 Mean error from standard least squares: 0.21559378468368479
 Mean error from LASSO: 0.21559378468368479
 X subset = 5 , i = 1 , j = 9
 Mean error from standard least squares: 0.21337402885682574
 Mean error from LASSO: 0.21337402885682574
 X subset = 5 , i = 1 , j = 10
 Mean error from standard least squares: 0.20948945615982242
 Mean error from LASSO: 0.20948945615982242
 X subset = 5 , i = 2 , j = 0
 Mean error from standard least squares: 0.17785793562708102
 Mean error from LASSO: 0.17785793562708102
 X subset = 5 , i = 2 , j = 1
 Mean error from standard least squares: 0.18091009988901222
 Mean error from LASSO: 0.18091009988901222
 X subset = 5 , i = 2 , j = 3
 Mean error from standard least squares: 0.17286348501664817
 Mean error from LASSO: 0.17286348501664817
 X subset = 5 , i = 2 , j = 4
 Mean error from standard least squares: 0.17980022197558268
 Mean error from LASSO: 0.17980022197558268
 X subset = 5 , i = 2 , j = 5

Mean error from standard least squares: 0.18368479467258603
 Mean error from LASSO: 0.18368479467258603
 X subset = 5 , i = 2 , j = 6
 Mean error from standard least squares: 0.18590455049944507
 Mean error from LASSO: 0.18590455049944507
 X subset = 5 , i = 2 , j = 7
 Mean error from standard least squares: 0.18423973362930077
 Mean error from LASSO: 0.18423973362930077
 X subset = 5 , i = 2 , j = 8
 Mean error from standard least squares: 0.18368479467258603
 Mean error from LASSO: 0.18368479467258603
 X subset = 5 , i = 2 , j = 9
 Mean error from standard least squares: 0.17563817980022198
 Mean error from LASSO: 0.17563817980022198
 X subset = 5 , i = 2 , j = 10
 Mean error from standard least squares: 0.1822974472807991
 Mean error from LASSO: 0.1822974472807991
 X subset = 5 , i = 3 , j = 0
 Mean error from standard least squares: 0.18312985571587126
 Mean error from LASSO: 0.18312985571587126
 X subset = 5 , i = 3 , j = 1
 Mean error from standard least squares: 0.18867924528301888
 Mean error from LASSO: 0.18867924528301888
 X subset = 5 , i = 3 , j = 2
 Mean error from standard least squares: 0.18756936736958935
 Mean error from LASSO: 0.18756936736958935
 X subset = 5 , i = 3 , j = 4
 Mean error from standard least squares: 0.18423973362930077
 Mean error from LASSO: 0.18423973362930077
 X subset = 5 , i = 3 , j = 5
 Mean error from standard least squares: 0.19145394006659266
 Mean error from LASSO: 0.19145394006659266
 X subset = 5 , i = 3 , j = 6
 Mean error from standard least squares: 0.19811320754716982
 Mean error from LASSO: 0.19811320754716982
 X subset = 5 , i = 3 , j = 7
 Mean error from standard least squares: 0.19644839067702552
 Mean error from LASSO: 0.19644839067702552
 X subset = 5 , i = 3 , j = 8
 Mean error from standard least squares: 0.19339622641509435
 Mean error from LASSO: 0.19339622641509435
 X subset = 5 , i = 3 , j = 9
 Mean error from standard least squares: 0.1853496115427303
 Mean error from LASSO: 0.1853496115427303
 X subset = 5 , i = 3 , j = 10
 Mean error from standard least squares: 0.18729189789123196
 Mean error from LASSO: 0.18729189789123196
 X subset = 5 , i = 4 , j = 0

Mean error from standard least squares: 0.20560488346281908
Mean error from LASSO: 0.20560488346281908
X subset = 5 , i = 4 , j = 1
Mean error from standard least squares: 0.21226415094339623
Mean error from LASSO: 0.21226415094339623
X subset = 5 , i = 4 , j = 2
Mean error from standard least squares: 0.20366259711431742
Mean error from LASSO: 0.20366259711431742
X subset = 5 , i = 4 , j = 3
Mean error from standard least squares: 0.2067147613762486
Mean error from LASSO: 0.2067147613762486
X subset = 5 , i = 4 , j = 5
Mean error from standard least squares: 0.20726970033296338
Mean error from LASSO: 0.20726970033296338
X subset = 5 , i = 4 , j = 6
Mean error from standard least squares: 0.21476137624861266
Mean error from LASSO: 0.21476137624861266
X subset = 5 , i = 4 , j = 7
Mean error from standard least squares: 0.2097669256381798
Mean error from LASSO: 0.2097669256381798
X subset = 5 , i = 4 , j = 8
Mean error from standard least squares: 0.21170921198668147
Mean error from LASSO: 0.21170921198668147
X subset = 5 , i = 4 , j = 9
Mean error from standard least squares: 0.21503884572697005
Mean error from LASSO: 0.21503884572697005
X subset = 5 , i = 4 , j = 10
Mean error from standard least squares: 0.2067147613762486
Mean error from LASSO: 0.2067147613762486
X subset = 5 , i = 5 , j = 0
Mean error from standard least squares: 0.22364039955604884
Mean error from LASSO: 0.22364039955604884
X subset = 5 , i = 5 , j = 1
Mean error from standard least squares: 0.23196448390677027
Mean error from LASSO: 0.23196448390677027
X subset = 5 , i = 5 , j = 2
Mean error from standard least squares: 0.2241953385127636
Mean error from LASSO: 0.2241953385127636
X subset = 5 , i = 5 , j = 3
Mean error from standard least squares: 0.22280799112097668
Mean error from LASSO: 0.22280799112097668
X subset = 5 , i = 5 , j = 4
Mean error from standard least squares: 0.22031076581576026
Mean error from LASSO: 0.22031076581576026
X subset = 5 , i = 5 , j = 6
Mean error from standard least squares: 0.232519422863485
Mean error from LASSO: 0.232519422863485
X subset = 5 , i = 5 , j = 7

Mean error from standard least squares: 0.23446170921198667
 Mean error from LASSO: 0.23446170921198667
 X subset = 5 , i = 5 , j = 8
 Mean error from standard least squares: 0.23945615982241952
 Mean error from LASSO: 0.23945615982241952
 X subset = 5 , i = 5 , j = 9
 Mean error from standard least squares: 0.22586015538290788
 Mean error from LASSO: 0.22586015538290788
 X subset = 5 , i = 5 , j = 10
 Mean error from standard least squares: 0.2225305216426193
 Mean error from LASSO: 0.2225305216426193
 X subset = 5 , i = 6 , j = 0
 Mean error from standard least squares: 0.20726970033296338
 Mean error from LASSO: 0.20726970033296338
 X subset = 5 , i = 6 , j = 1
 Mean error from standard least squares: 0.21309655937846836
 Mean error from LASSO: 0.21309655937846836
 X subset = 5 , i = 6 , j = 2
 Mean error from standard least squares: 0.2081021087680355
 Mean error from LASSO: 0.2081021087680355
 X subset = 5 , i = 6 , j = 3
 Mean error from standard least squares: 0.21087680355160932
 Mean error from LASSO: 0.21087680355160932
 X subset = 5 , i = 6 , j = 4
 Mean error from standard least squares: 0.2025527192008879
 Mean error from LASSO: 0.2025527192008879
 X subset = 5 , i = 6 , j = 5
 Mean error from standard least squares: 0.21642619311875694
 Mean error from LASSO: 0.21642619311875694
 X subset = 5 , i = 6 , j = 7
 Mean error from standard least squares: 0.21198668146503885
 Mean error from LASSO: 0.21198668146503885
 X subset = 5 , i = 6 , j = 8
 Mean error from standard least squares: 0.21337402885682574
 Mean error from LASSO: 0.21337402885682574
 X subset = 5 , i = 6 , j = 9
 Mean error from standard least squares: 0.20921198668146504
 Mean error from LASSO: 0.20921198668146504
 X subset = 5 , i = 6 , j = 10
 Mean error from standard least squares: 0.21309655937846836
 Mean error from LASSO: 0.21309655937846836
 X subset = 5 , i = 7 , j = 0
 Mean error from standard least squares: 0.17647058823529413
 Mean error from LASSO: 0.17647058823529413
 X subset = 5 , i = 7 , j = 1
 Mean error from standard least squares: 0.18146503884572698
 Mean error from LASSO: 0.18146503884572698
 X subset = 5 , i = 7 , j = 2

Mean error from standard least squares: 0.1811875693673696
 Mean error from LASSO: 0.1811875693673696
 X subset = 5 , i = 7 , j = 3
 Mean error from standard least squares: 0.17758046614872364
 Mean error from LASSO: 0.17758046614872364
 X subset = 5 , i = 7 , j = 4
 Mean error from standard least squares: 0.1739733629300777
 Mean error from LASSO: 0.1739733629300777
 X subset = 5 , i = 7 , j = 5
 Mean error from standard least squares: 0.18423973362930077
 Mean error from LASSO: 0.18423973362930077
 X subset = 5 , i = 7 , j = 6
 Mean error from standard least squares: 0.18174250832408434
 Mean error from LASSO: 0.18174250832408434
 X subset = 5 , i = 7 , j = 8
 Mean error from standard least squares: 0.18451720310765815
 Mean error from LASSO: 0.18451720310765815
 X subset = 5 , i = 7 , j = 9
 Mean error from standard least squares: 0.17785793562708102
 Mean error from LASSO: 0.17785793562708102
 X subset = 5 , i = 7 , j = 10
 Mean error from standard least squares: 0.18063263041065483
 Mean error from LASSO: 0.18063263041065483
 X subset = 5 , i = 8 , j = 0
 Mean error from standard least squares: 0.17175360710321866
 Mean error from LASSO: 0.17175360710321866
 X subset = 5 , i = 8 , j = 1
 Mean error from standard least squares: 0.17064372918978912
 Mean error from LASSO: 0.17064372918978912
 X subset = 5 , i = 8 , j = 2
 Mean error from standard least squares: 0.17341842397336293
 Mean error from LASSO: 0.17341842397336293
 X subset = 5 , i = 8 , j = 3
 Mean error from standard least squares: 0.1695338512763596
 Mean error from LASSO: 0.1695338512763596
 X subset = 5 , i = 8 , j = 4
 Mean error from standard least squares: 0.1670366259711432
 Mean error from LASSO: 0.1670366259711432
 X subset = 5 , i = 8 , j = 5
 Mean error from standard least squares: 0.17591564927857936
 Mean error from LASSO: 0.17591564927857936
 X subset = 5 , i = 8 , j = 6
 Mean error from standard least squares: 0.17896781354051056
 Mean error from LASSO: 0.17896781354051056
 X subset = 5 , i = 8 , j = 7
 Mean error from standard least squares: 0.1792452830188679
 Mean error from LASSO: 0.1792452830188679
 X subset = 5 , i = 8 , j = 9

Mean error from standard least squares: 0.1709211986681465
Mean error from LASSO: 0.1709211986681465
X subset = 5 , i = 8 , j = 10
Mean error from standard least squares: 0.17286348501664817
Mean error from LASSO: 0.17286348501664817
X subset = 5 , i = 9 , j = 0
Mean error from standard least squares: 0.16481687014428412
Mean error from LASSO: 0.16481687014428412
X subset = 5 , i = 9 , j = 1
Mean error from standard least squares: 0.17147613762486127
Mean error from LASSO: 0.17147613762486127
X subset = 5 , i = 9 , j = 2
Mean error from standard least squares: 0.1650943396226415
Mean error from LASSO: 0.1650943396226415
X subset = 5 , i = 9 , j = 3
Mean error from standard least squares: 0.16648168701442842
Mean error from LASSO: 0.16648168701442842
X subset = 5 , i = 9 , j = 4
Mean error from standard least squares: 0.16176470588235295
Mean error from LASSO: 0.16176470588235295
X subset = 5 , i = 9 , j = 5
Mean error from standard least squares: 0.16315205327413984
Mean error from LASSO: 0.16315205327413984
X subset = 5 , i = 9 , j = 6
Mean error from standard least squares: 0.17314095449500555
Mean error from LASSO: 0.17314095449500555
X subset = 5 , i = 9 , j = 7
Mean error from standard least squares: 0.16759156492785793
Mean error from LASSO: 0.16759156492785793
X subset = 5 , i = 9 , j = 8
Mean error from standard least squares: 0.16981132075471697
Mean error from LASSO: 0.16981132075471697
X subset = 5 , i = 9 , j = 10
Mean error from standard least squares: 0.16453940066592676
Mean error from LASSO: 0.16453940066592676
X subset = 5 , i = 10 , j = 0
Mean error from standard least squares: 0.15288568257491675
Mean error from LASSO: 0.15288568257491675
X subset = 5 , i = 10 , j = 1
Mean error from standard least squares: 0.15538290788013318
Mean error from LASSO: 0.15538290788013318
X subset = 5 , i = 10 , j = 2
Mean error from standard least squares: 0.15566037735849056
Mean error from LASSO: 0.15566037735849056
X subset = 5 , i = 10 , j = 3
Mean error from standard least squares: 0.1551054384017758
Mean error from LASSO: 0.1551054384017758
X subset = 5 , i = 10 , j = 4

Mean error from standard least squares: 0.146503884572697
 Mean error from LASSO: 0.146503884572697
 X subset = 5 , i = 10 , j = 5
 Mean error from standard least squares: 0.1537180910099889
 Mean error from LASSO: 0.1537180910099889
 X subset = 5 , i = 10 , j = 6
 Mean error from standard least squares: 0.15760266370699222
 Mean error from LASSO: 0.15760266370699222
 X subset = 5 , i = 10 , j = 7
 Mean error from standard least squares: 0.15871254162042175
 Mean error from LASSO: 0.15871254162042175
 X subset = 5 , i = 10 , j = 8
 Mean error from standard least squares: 0.15899001109877914
 Mean error from LASSO: 0.15899001109877914
 X subset = 5 , i = 10 , j = 9
 Mean error from standard least squares: 0.15177580466148724
 Mean error from LASSO: 0.15177580466148724
 X subset = 6 , i = 0 , j = 1
 Mean error from standard least squares: 0.15704772475027748
 Mean error from LASSO: 0.15704772475027748
 X subset = 6 , i = 0 , j = 2
 Mean error from standard least squares: 0.17314095449500555
 Mean error from LASSO: 0.17314095449500555
 X subset = 6 , i = 0 , j = 3
 Mean error from standard least squares: 0.18312985571587126
 Mean error from LASSO: 0.18312985571587126
 X subset = 6 , i = 0 , j = 4
 Mean error from standard least squares: 0.18507214206437292
 Mean error from LASSO: 0.18507214206437292
 X subset = 6 , i = 0 , j = 5
 Mean error from standard least squares: 0.1970033296337403
 Mean error from LASSO: 0.1970033296337403
 X subset = 6 , i = 0 , j = 6
 Mean error from standard least squares: 0.20005549389567148
 Mean error from LASSO: 0.20005549389567148
 X subset = 6 , i = 0 , j = 7
 Mean error from standard least squares: 0.201165371809101
 Mean error from LASSO: 0.201165371809101
 X subset = 6 , i = 0 , j = 8
 Mean error from standard least squares: 0.18923418423973362
 Mean error from LASSO: 0.18923418423973362
 X subset = 6 , i = 0 , j = 9
 Mean error from standard least squares: 0.1856270810210877
 Mean error from LASSO: 0.1856270810210877
 X subset = 6 , i = 0 , j = 10
 Mean error from standard least squares: 0.17869034406215317
 Mean error from LASSO: 0.17869034406215317
 X subset = 6 , i = 1 , j = 0

Mean error from standard least squares: 0.17203107658157601
 Mean error from LASSO: 0.17203107658157601
 X subset = 6 , i = 1 , j = 2
 Mean error from standard least squares: 0.19450610432852386
 Mean error from LASSO: 0.19450610432852386
 X subset = 6 , i = 1 , j = 3
 Mean error from standard least squares: 0.2097669256381798
 Mean error from LASSO: 0.2097669256381798
 X subset = 6 , i = 1 , j = 4
 Mean error from standard least squares: 0.2083795782463929
 Mean error from LASSO: 0.2083795782463929
 X subset = 6 , i = 1 , j = 5
 Mean error from standard least squares: 0.2180910099889012
 Mean error from LASSO: 0.2180910099889012
 X subset = 6 , i = 1 , j = 6
 Mean error from standard least squares: 0.22003329633740287
 Mean error from LASSO: 0.22003329633740287
 X subset = 6 , i = 1 , j = 7
 Mean error from standard least squares: 0.2255826859045505
 Mean error from LASSO: 0.2255826859045505
 X subset = 6 , i = 1 , j = 8
 Mean error from standard least squares: 0.20948945615982242
 Mean error from LASSO: 0.20948945615982242
 X subset = 6 , i = 1 , j = 9
 Mean error from standard least squares: 0.21198668146503885
 Mean error from LASSO: 0.21198668146503885
 X subset = 6 , i = 1 , j = 10
 Mean error from standard least squares: 0.20477247502774695
 Mean error from LASSO: 0.20477247502774695
 X subset = 6 , i = 2 , j = 0
 Mean error from standard least squares: 0.1434517203107658
 Mean error from LASSO: 0.1434517203107658
 X subset = 6 , i = 2 , j = 1
 Mean error from standard least squares: 0.15455049944506105
 Mean error from LASSO: 0.15455049944506105
 X subset = 6 , i = 2 , j = 3
 Mean error from standard least squares: 0.17314095449500555
 Mean error from LASSO: 0.17314095449500555
 X subset = 6 , i = 2 , j = 4
 Mean error from standard least squares: 0.17980022197558268
 Mean error from LASSO: 0.17980022197558268
 X subset = 6 , i = 2 , j = 5
 Mean error from standard least squares: 0.18895671476137624
 Mean error from LASSO: 0.18895671476137624
 X subset = 6 , i = 2 , j = 6
 Mean error from standard least squares: 0.19145394006659266
 Mean error from LASSO: 0.19145394006659266
 X subset = 6 , i = 2 , j = 7

Mean error from standard least squares: 0.19173140954495005
 Mean error from LASSO: 0.19173140954495005
 X subset = 6 , i = 2 , j = 8
 Mean error from standard least squares: 0.18091009988901222
 Mean error from LASSO: 0.18091009988901222
 X subset = 6 , i = 2 , j = 9
 Mean error from standard least squares: 0.17563817980022198
 Mean error from LASSO: 0.17563817980022198
 X subset = 6 , i = 2 , j = 10
 Mean error from standard least squares: 0.17452830188679244
 Mean error from LASSO: 0.17452830188679244
 X subset = 6 , i = 3 , j = 0
 Mean error from standard least squares: 0.15177580466148724
 Mean error from LASSO: 0.15177580466148724
 X subset = 6 , i = 3 , j = 1
 Mean error from standard least squares: 0.15926748057713652
 Mean error from LASSO: 0.15926748057713652
 X subset = 6 , i = 3 , j = 2
 Mean error from standard least squares: 0.1792452830188679
 Mean error from LASSO: 0.1792452830188679
 X subset = 6 , i = 3 , j = 4
 Mean error from standard least squares: 0.19006659267480577
 Mean error from LASSO: 0.19006659267480577
 X subset = 6 , i = 3 , j = 5
 Mean error from standard least squares: 0.19755826859045506
 Mean error from LASSO: 0.19755826859045506
 X subset = 6 , i = 3 , j = 6
 Mean error from standard least squares: 0.2008879023307436
 Mean error from LASSO: 0.2008879023307436
 X subset = 6 , i = 3 , j = 7
 Mean error from standard least squares: 0.19589345172031078
 Mean error from LASSO: 0.19589345172031078
 X subset = 6 , i = 3 , j = 8
 Mean error from standard least squares: 0.19034406215316316
 Mean error from LASSO: 0.19034406215316316
 X subset = 6 , i = 3 , j = 9
 Mean error from standard least squares: 0.18312985571587126
 Mean error from LASSO: 0.18312985571587126
 X subset = 6 , i = 3 , j = 10
 Mean error from standard least squares: 0.1825749167591565
 Mean error from LASSO: 0.1825749167591565
 X subset = 6 , i = 4 , j = 0
 Mean error from standard least squares: 0.1650943396226415
 Mean error from LASSO: 0.1650943396226415
 X subset = 6 , i = 4 , j = 1
 Mean error from standard least squares: 0.1681465038845727
 Mean error from LASSO: 0.1681465038845727
 X subset = 6 , i = 4 , j = 2

Mean error from standard least squares: 0.189511653718091
 Mean error from LASSO: 0.189511653718091
 X subset = 6 , i = 4 , j = 3
 Mean error from standard least squares: 0.20477247502774695
 Mean error from LASSO: 0.20477247502774695
 X subset = 6 , i = 4 , j = 5
 Mean error from standard least squares: 0.21503884572697005
 Mean error from LASSO: 0.21503884572697005
 X subset = 6 , i = 4 , j = 6
 Mean error from standard least squares: 0.21642619311875694
 Mean error from LASSO: 0.21642619311875694
 X subset = 6 , i = 4 , j = 7
 Mean error from standard least squares: 0.2180910099889012
 Mean error from LASSO: 0.2180910099889012
 X subset = 6 , i = 4 , j = 8
 Mean error from standard least squares: 0.20199778024417314
 Mean error from LASSO: 0.20199778024417314
 X subset = 6 , i = 4 , j = 9
 Mean error from standard least squares: 0.20560488346281908
 Mean error from LASSO: 0.20560488346281908
 X subset = 6 , i = 4 , j = 10
 Mean error from standard least squares: 0.1936736958934517
 Mean error from LASSO: 0.1936736958934517
 X subset = 6 , i = 5 , j = 0
 Mean error from standard least squares: 0.1825749167591565
 Mean error from LASSO: 0.1825749167591565
 X subset = 6 , i = 5 , j = 1
 Mean error from standard least squares: 0.19644839067702552
 Mean error from LASSO: 0.19644839067702552
 X subset = 6 , i = 5 , j = 2
 Mean error from standard least squares: 0.21059933407325193
 Mean error from LASSO: 0.21059933407325193
 X subset = 6 , i = 5 , j = 3
 Mean error from standard least squares: 0.22586015538290788
 Mean error from LASSO: 0.22586015538290788
 X subset = 6 , i = 5 , j = 4
 Mean error from standard least squares: 0.23113207547169812
 Mean error from LASSO: 0.23113207547169812
 X subset = 6 , i = 5 , j = 6
 Mean error from standard least squares: 0.23917869034406217
 Mean error from LASSO: 0.23917869034406217
 X subset = 6 , i = 5 , j = 7
 Mean error from standard least squares: 0.2400110987791343
 Mean error from LASSO: 0.2400110987791343
 X subset = 6 , i = 5 , j = 8
 Mean error from standard least squares: 0.22918978912319646
 Mean error from LASSO: 0.22918978912319646
 X subset = 6 , i = 5 , j = 9

Mean error from standard least squares: 0.224472807991121
 Mean error from LASSO: 0.224472807991121
 X subset = 6 , i = 5 , j = 10
 Mean error from standard least squares: 0.21975582685904552
 Mean error from LASSO: 0.21975582685904552
 X subset = 6 , i = 6 , j = 0
 Mean error from standard least squares: 0.17036625971143174
 Mean error from LASSO: 0.17036625971143174
 X subset = 6 , i = 6 , j = 1
 Mean error from standard least squares: 0.18146503884572698
 Mean error from LASSO: 0.18146503884572698
 X subset = 6 , i = 6 , j = 2
 Mean error from standard least squares: 0.19811320754716982
 Mean error from LASSO: 0.19811320754716982
 X subset = 6 , i = 6 , j = 3
 Mean error from standard least squares: 0.2028301886792453
 Mean error from LASSO: 0.2028301886792453
 X subset = 6 , i = 6 , j = 4
 Mean error from standard least squares: 0.21059933407325193
 Mean error from LASSO: 0.21059933407325193
 X subset = 6 , i = 6 , j = 5
 Mean error from standard least squares: 0.21864594894561598
 Mean error from LASSO: 0.21864594894561598
 X subset = 6 , i = 6 , j = 7
 Mean error from standard least squares: 0.22280799112097668
 Mean error from LASSO: 0.22280799112097668
 X subset = 6 , i = 6 , j = 8
 Mean error from standard least squares: 0.2081021087680355
 Mean error from LASSO: 0.2081021087680355
 X subset = 6 , i = 6 , j = 9
 Mean error from standard least squares: 0.20782463928967815
 Mean error from LASSO: 0.20782463928967815
 X subset = 6 , i = 6 , j = 10
 Mean error from standard least squares: 0.20061043285238625
 Mean error from LASSO: 0.20061043285238625
 X subset = 6 , i = 7 , j = 0
 Mean error from standard least squares: 0.14289678135405107
 Mean error from LASSO: 0.14289678135405107
 X subset = 6 , i = 7 , j = 1
 Mean error from standard least squares: 0.1564927857935627
 Mean error from LASSO: 0.1564927857935627
 X subset = 6 , i = 7 , j = 2
 Mean error from standard least squares: 0.16897891231964485
 Mean error from LASSO: 0.16897891231964485
 X subset = 6 , i = 7 , j = 3
 Mean error from standard least squares: 0.17785793562708102
 Mean error from LASSO: 0.17785793562708102
 X subset = 6 , i = 7 , j = 4

Mean error from standard least squares: 0.1795227524972253
 Mean error from LASSO: 0.1795227524972253
 X subset = 6 , i = 7 , j = 5
 Mean error from standard least squares: 0.18451720310765815
 Mean error from LASSO: 0.18451720310765815
 X subset = 6 , i = 7 , j = 6
 Mean error from standard least squares: 0.19062153163152054
 Mean error from LASSO: 0.19062153163152054
 X subset = 6 , i = 7 , j = 8
 Mean error from standard least squares: 0.18285238623751388
 Mean error from LASSO: 0.18285238623751388
 X subset = 6 , i = 7 , j = 9
 Mean error from standard least squares: 0.1811875693673696
 Mean error from LASSO: 0.1811875693673696
 X subset = 6 , i = 7 , j = 10
 Mean error from standard least squares: 0.17452830188679244
 Mean error from LASSO: 0.17452830188679244
 X subset = 6 , i = 8 , j = 0
 Mean error from standard least squares: 0.14289678135405107
 Mean error from LASSO: 0.14289678135405107
 X subset = 6 , i = 8 , j = 1
 Mean error from standard least squares: 0.14816870144284128
 Mean error from LASSO: 0.14816870144284128
 X subset = 6 , i = 8 , j = 2
 Mean error from standard least squares: 0.1623196448390677
 Mean error from LASSO: 0.1623196448390677
 X subset = 6 , i = 8 , j = 3
 Mean error from standard least squares: 0.17314095449500555
 Mean error from LASSO: 0.17314095449500555
 X subset = 6 , i = 8 , j = 4
 Mean error from standard least squares: 0.17730299667036625
 Mean error from LASSO: 0.17730299667036625
 X subset = 6 , i = 8 , j = 5
 Mean error from standard least squares: 0.1825749167591565
 Mean error from LASSO: 0.1825749167591565
 X subset = 6 , i = 8 , j = 6
 Mean error from standard least squares: 0.18479467258601553
 Mean error from LASSO: 0.18479467258601553
 X subset = 6 , i = 8 , j = 7
 Mean error from standard least squares: 0.17896781354051056
 Mean error from LASSO: 0.17896781354051056
 X subset = 6 , i = 8 , j = 9
 Mean error from standard least squares: 0.16537180910099888
 Mean error from LASSO: 0.16537180910099888
 X subset = 6 , i = 8 , j = 10
 Mean error from standard least squares: 0.1667591564927858
 Mean error from LASSO: 0.1667591564927858
 X subset = 6 , i = 9 , j = 0

Mean error from standard least squares: 0.13318534961154274
 Mean error from LASSO: 0.13318534961154274
 X subset = 6 , i = 9 , j = 1
 Mean error from standard least squares: 0.14428412874583796
 Mean error from LASSO: 0.14428412874583796
 X subset = 6 , i = 9 , j = 2
 Mean error from standard least squares: 0.1537180910099889
 Mean error from LASSO: 0.1537180910099889
 X subset = 6 , i = 9 , j = 3
 Mean error from standard least squares: 0.16426193118756938
 Mean error from LASSO: 0.16426193118756938
 X subset = 6 , i = 9 , j = 4
 Mean error from standard least squares: 0.16564927857935627
 Mean error from LASSO: 0.16564927857935627
 X subset = 6 , i = 9 , j = 5
 Mean error from standard least squares: 0.1711986681465039
 Mean error from LASSO: 0.1711986681465039
 X subset = 6 , i = 9 , j = 6
 Mean error from standard least squares: 0.1750832408435072
 Mean error from LASSO: 0.1750832408435072
 X subset = 6 , i = 9 , j = 7
 Mean error from standard least squares: 0.17730299667036625
 Mean error from LASSO: 0.17730299667036625
 X subset = 6 , i = 9 , j = 8
 Mean error from standard least squares: 0.16981132075471697
 Mean error from LASSO: 0.16981132075471697
 X subset = 6 , i = 9 , j = 10
 Mean error from standard least squares: 0.158157602663707
 Mean error from LASSO: 0.158157602663707
 X subset = 6 , i = 10 , j = 0
 Mean error from standard least squares: 0.12708102108768035
 Mean error from LASSO: 0.12708102108768035
 X subset = 6 , i = 10 , j = 1
 Mean error from standard least squares: 0.13596004439511652
 Mean error from LASSO: 0.13596004439511652
 X subset = 6 , i = 10 , j = 2
 Mean error from standard least squares: 0.14039955604883464
 Mean error from LASSO: 0.14039955604883464
 X subset = 6 , i = 10 , j = 3
 Mean error from standard least squares: 0.15482796892341844
 Mean error from LASSO: 0.15482796892341844
 X subset = 6 , i = 10 , j = 4
 Mean error from standard least squares: 0.15899001109877914
 Mean error from LASSO: 0.15899001109877914
 X subset = 6 , i = 10 , j = 5
 Mean error from standard least squares: 0.1609322974472808
 Mean error from LASSO: 0.1609322974472808
 X subset = 6 , i = 10 , j = 6

Mean error from standard least squares: 0.163984461709212
 Mean error from LASSO: 0.163984461709212
 X subset = 6 , i = 10 , j = 7
 Mean error from standard least squares: 0.16342952275249722
 Mean error from LASSO: 0.16342952275249722
 X subset = 6 , i = 10 , j = 8
 Mean error from standard least squares: 0.15593784683684794
 Mean error from LASSO: 0.15593784683684794
 X subset = 6 , i = 10 , j = 9
 Mean error from standard least squares: 0.1526082130965594
 Mean error from LASSO: 0.1526082130965594
 X subset = 7 , i = 0 , j = 1
 Mean error from standard least squares: 0.20449500554938957
 Mean error from LASSO: 0.20449500554938957
 X subset = 7 , i = 0 , j = 2
 Mean error from standard least squares: 0.20782463928967815
 Mean error from LASSO: 0.20782463928967815
 X subset = 7 , i = 0 , j = 3
 Mean error from standard least squares: 0.21143174250832408
 Mean error from LASSO: 0.21143174250832408
 X subset = 7 , i = 0 , j = 4
 Mean error from standard least squares: 0.20477247502774695
 Mean error from LASSO: 0.20477247502774695
 X subset = 7 , i = 0 , j = 5
 Mean error from standard least squares: 0.206992230854606
 Mean error from LASSO: 0.206992230854606
 X subset = 7 , i = 0 , j = 6
 Mean error from standard least squares: 0.2097669256381798
 Mean error from LASSO: 0.2097669256381798
 X subset = 7 , i = 0 , j = 7
 Mean error from standard least squares: 0.2100443951165372
 Mean error from LASSO: 0.2100443951165372
 X subset = 7 , i = 0 , j = 8
 Mean error from standard least squares: 0.21059933407325193
 Mean error from LASSO: 0.21059933407325193
 X subset = 7 , i = 0 , j = 9
 Mean error from standard least squares: 0.20588235294117646
 Mean error from LASSO: 0.20588235294117646
 X subset = 7 , i = 0 , j = 10
 Mean error from standard least squares: 0.21281908990011097
 Mean error from LASSO: 0.21281908990011097
 X subset = 7 , i = 1 , j = 0
 Mean error from standard least squares: 0.23085460599334073
 Mean error from LASSO: 0.23085460599334073
 X subset = 7 , i = 1 , j = 2
 Mean error from standard least squares: 0.23668146503884574
 Mean error from LASSO: 0.23668146503884574
 X subset = 7 , i = 1 , j = 3

Mean error from standard least squares: 0.23668146503884574
 Mean error from LASSO: 0.23668146503884574
 X subset = 7 , i = 1 , j = 4
 Mean error from standard least squares: 0.22752497225305215
 Mean error from LASSO: 0.22752497225305215
 X subset = 7 , i = 1 , j = 5
 Mean error from standard least squares: 0.22364039955604884
 Mean error from LASSO: 0.22364039955604884
 X subset = 7 , i = 1 , j = 6
 Mean error from standard least squares: 0.23335183129855716
 Mean error from LASSO: 0.23335183129855716
 X subset = 7 , i = 1 , j = 7
 Mean error from standard least squares: 0.23335183129855716
 Mean error from LASSO: 0.23335183129855716
 X subset = 7 , i = 1 , j = 8
 Mean error from standard least squares: 0.23668146503884574
 Mean error from LASSO: 0.23668146503884574
 X subset = 7 , i = 1 , j = 9
 Mean error from standard least squares: 0.23446170921198667
 Mean error from LASSO: 0.23446170921198667
 X subset = 7 , i = 1 , j = 10
 Mean error from standard least squares: 0.2286348501664817
 Mean error from LASSO: 0.2286348501664817
 X subset = 7 , i = 2 , j = 0
 Mean error from standard least squares: 0.19866814650388456
 Mean error from LASSO: 0.19866814650388456
 X subset = 7 , i = 2 , j = 1
 Mean error from standard least squares: 0.20033296337402887
 Mean error from LASSO: 0.20033296337402887
 X subset = 7 , i = 2 , j = 3
 Mean error from standard least squares: 0.20033296337402887
 Mean error from LASSO: 0.20033296337402887
 X subset = 7 , i = 2 , j = 4
 Mean error from standard least squares: 0.19894561598224195
 Mean error from LASSO: 0.19894561598224195
 X subset = 7 , i = 2 , j = 5
 Mean error from standard least squares: 0.19284128745837958
 Mean error from LASSO: 0.19284128745837958
 X subset = 7 , i = 2 , j = 6
 Mean error from standard least squares: 0.2008879023307436
 Mean error from LASSO: 0.2008879023307436
 X subset = 7 , i = 2 , j = 7
 Mean error from standard least squares: 0.201165371809101
 Mean error from LASSO: 0.201165371809101
 X subset = 7 , i = 2 , j = 8
 Mean error from standard least squares: 0.19894561598224195
 Mean error from LASSO: 0.19894561598224195
 X subset = 7 , i = 2 , j = 9

Mean error from standard least squares: 0.20061043285238625
 Mean error from LASSO: 0.20061043285238625
 X subset = 7 , i = 2 , j = 10
 Mean error from standard least squares: 0.19783573806881244
 Mean error from LASSO: 0.19783573806881244
 X subset = 7 , i = 3 , j = 0
 Mean error from standard least squares: 0.20532741398446172
 Mean error from LASSO: 0.20532741398446172
 X subset = 7 , i = 3 , j = 1
 Mean error from standard least squares: 0.20560488346281908
 Mean error from LASSO: 0.20560488346281908
 X subset = 7 , i = 3 , j = 2
 Mean error from standard least squares: 0.21281908990011097
 Mean error from LASSO: 0.21281908990011097
 X subset = 7 , i = 3 , j = 4
 Mean error from standard least squares: 0.20421753607103219
 Mean error from LASSO: 0.20421753607103219
 X subset = 7 , i = 3 , j = 5
 Mean error from standard least squares: 0.20227524972253053
 Mean error from LASSO: 0.20227524972253053
 X subset = 7 , i = 3 , j = 6
 Mean error from standard least squares: 0.20893451720310766
 Mean error from LASSO: 0.20893451720310766
 X subset = 7 , i = 3 , j = 7
 Mean error from standard least squares: 0.21170921198668147
 Mean error from LASSO: 0.21170921198668147
 X subset = 7 , i = 3 , j = 8
 Mean error from standard least squares: 0.20588235294117646
 Mean error from LASSO: 0.20588235294117646
 X subset = 7 , i = 3 , j = 9
 Mean error from standard least squares: 0.2100443951165372
 Mean error from LASSO: 0.2100443951165372
 X subset = 7 , i = 3 , j = 10
 Mean error from standard least squares: 0.21281908990011097
 Mean error from LASSO: 0.21281908990011097
 X subset = 7 , i = 4 , j = 0
 Mean error from standard least squares: 0.2225305216426193
 Mean error from LASSO: 0.2225305216426193
 X subset = 7 , i = 4 , j = 1
 Mean error from standard least squares: 0.224472807991121
 Mean error from LASSO: 0.224472807991121
 X subset = 7 , i = 4 , j = 2
 Mean error from standard least squares: 0.23390677025527193
 Mean error from LASSO: 0.23390677025527193
 X subset = 7 , i = 4 , j = 3
 Mean error from standard least squares: 0.2286348501664817
 Mean error from LASSO: 0.2286348501664817
 X subset = 7 , i = 4 , j = 5

Mean error from standard least squares: 0.21975582685904552
 Mean error from LASSO: 0.21975582685904552
 X subset = 7 , i = 4 , j = 6
 Mean error from standard least squares: 0.23057713651498335
 Mean error from LASSO: 0.23057713651498335
 X subset = 7 , i = 4 , j = 7
 Mean error from standard least squares: 0.22780244173140954
 Mean error from LASSO: 0.22780244173140954
 X subset = 7 , i = 4 , j = 8
 Mean error from standard least squares: 0.22669256381798003
 Mean error from LASSO: 0.22669256381798003
 X subset = 7 , i = 4 , j = 9
 Mean error from standard least squares: 0.2241953385127636
 Mean error from LASSO: 0.2241953385127636
 X subset = 7 , i = 4 , j = 10
 Mean error from standard least squares: 0.22946725860155384
 Mean error from LASSO: 0.22946725860155384
 X subset = 7 , i = 5 , j = 0
 Mean error from standard least squares: 0.25527192008879024
 Mean error from LASSO: 0.25527192008879024
 X subset = 7 , i = 5 , j = 1
 Mean error from standard least squares: 0.2527746947835738
 Mean error from LASSO: 0.2527746947835738
 X subset = 7 , i = 5 , j = 2
 Mean error from standard least squares: 0.25305216426193117
 Mean error from LASSO: 0.25305216426193117
 X subset = 7 , i = 5 , j = 3
 Mean error from standard least squares: 0.2519422863485017
 Mean error from LASSO: 0.2519422863485017
 X subset = 7 , i = 5 , j = 4
 Mean error from standard least squares: 0.25332963374028855
 Mean error from LASSO: 0.25332963374028855
 X subset = 7 , i = 5 , j = 6
 Mean error from standard least squares: 0.2519422863485017
 Mean error from LASSO: 0.2519422863485017
 X subset = 7 , i = 5 , j = 7
 Mean error from standard least squares: 0.25110987791342954
 Mean error from LASSO: 0.25110987791342954
 X subset = 7 , i = 5 , j = 8
 Mean error from standard least squares: 0.2524972253052164
 Mean error from LASSO: 0.2524972253052164
 X subset = 7 , i = 5 , j = 9
 Mean error from standard least squares: 0.2527746947835738
 Mean error from LASSO: 0.2527746947835738
 X subset = 7 , i = 5 , j = 10
 Mean error from standard least squares: 0.25527192008879024
 Mean error from LASSO: 0.25527192008879024
 X subset = 7 , i = 6 , j = 0

Mean error from standard least squares: 0.2327968923418424
 Mean error from LASSO: 0.2327968923418424
 X subset = 7 , i = 6 , j = 1
 Mean error from standard least squares: 0.2327968923418424
 Mean error from LASSO: 0.2327968923418424
 X subset = 7 , i = 6 , j = 2
 Mean error from standard least squares: 0.23640399556048836
 Mean error from LASSO: 0.23640399556048836
 X subset = 7 , i = 6 , j = 3
 Mean error from standard least squares: 0.2314095449500555
 Mean error from LASSO: 0.2314095449500555
 X subset = 7 , i = 6 , j = 4
 Mean error from standard least squares: 0.23029966703662597
 Mean error from LASSO: 0.23029966703662597
 X subset = 7 , i = 6 , j = 5
 Mean error from standard least squares: 0.22669256381798003
 Mean error from LASSO: 0.22669256381798003
 X subset = 7 , i = 6 , j = 7
 Mean error from standard least squares: 0.232519422863485
 Mean error from LASSO: 0.232519422863485
 X subset = 7 , i = 6 , j = 8
 Mean error from standard least squares: 0.2355715871254162
 Mean error from LASSO: 0.2355715871254162
 X subset = 7 , i = 6 , j = 9
 Mean error from standard least squares: 0.2314095449500555
 Mean error from LASSO: 0.2314095449500555
 X subset = 7 , i = 6 , j = 10
 Mean error from standard least squares: 0.22780244173140954
 Mean error from LASSO: 0.22780244173140954
 X subset = 7 , i = 7 , j = 0
 Mean error from standard least squares: 0.1967258601553829
 Mean error from LASSO: 0.1967258601553829
 X subset = 7 , i = 7 , j = 1
 Mean error from standard least squares: 0.1997780244173141
 Mean error from LASSO: 0.1997780244173141
 X subset = 7 , i = 7 , j = 2
 Mean error from standard least squares: 0.20061043285238625
 Mean error from LASSO: 0.20061043285238625
 X subset = 7 , i = 7 , j = 3
 Mean error from standard least squares: 0.20061043285238625
 Mean error from LASSO: 0.20061043285238625
 X subset = 7 , i = 7 , j = 4
 Mean error from standard least squares: 0.1956159822419534
 Mean error from LASSO: 0.1956159822419534
 X subset = 7 , i = 7 , j = 5
 Mean error from standard least squares: 0.19644839067702552
 Mean error from LASSO: 0.19644839067702552
 X subset = 7 , i = 7 , j = 6

Mean error from standard least squares: 0.20560488346281908
 Mean error from LASSO: 0.20560488346281908
 X subset = 7 , i = 7 , j = 8
 Mean error from standard least squares: 0.2028301886792453
 Mean error from LASSO: 0.2028301886792453
 X subset = 7 , i = 7 , j = 9
 Mean error from standard least squares: 0.20338512763596003
 Mean error from LASSO: 0.20338512763596003
 X subset = 7 , i = 7 , j = 10
 Mean error from standard least squares: 0.19311875693673697
 Mean error from LASSO: 0.19311875693673697
 X subset = 7 , i = 8 , j = 0
 Mean error from standard least squares: 0.1897891231964484
 Mean error from LASSO: 0.1897891231964484
 X subset = 7 , i = 8 , j = 1
 Mean error from standard least squares: 0.19228634850166482
 Mean error from LASSO: 0.19228634850166482
 X subset = 7 , i = 8 , j = 2
 Mean error from standard least squares: 0.19422863485016648
 Mean error from LASSO: 0.19422863485016648
 X subset = 7 , i = 8 , j = 3
 Mean error from standard least squares: 0.19145394006659266
 Mean error from LASSO: 0.19145394006659266
 X subset = 7 , i = 8 , j = 4
 Mean error from standard least squares: 0.19006659267480577
 Mean error from LASSO: 0.19006659267480577
 X subset = 7 , i = 8 , j = 5
 Mean error from standard least squares: 0.1881243063263041
 Mean error from LASSO: 0.1881243063263041
 X subset = 7 , i = 8 , j = 6
 Mean error from standard least squares: 0.1939511653718091
 Mean error from LASSO: 0.1939511653718091
 X subset = 7 , i = 8 , j = 7
 Mean error from standard least squares: 0.1897891231964484
 Mean error from LASSO: 0.1897891231964484
 X subset = 7 , i = 8 , j = 9
 Mean error from standard least squares: 0.19006659267480577
 Mean error from LASSO: 0.19006659267480577
 X subset = 7 , i = 8 , j = 10
 Mean error from standard least squares: 0.1897891231964484
 Mean error from LASSO: 0.1897891231964484
 X subset = 7 , i = 9 , j = 0
 Mean error from standard least squares: 0.18063263041065483
 Mean error from LASSO: 0.18063263041065483
 X subset = 7 , i = 9 , j = 1
 Mean error from standard least squares: 0.1825749167591565
 Mean error from LASSO: 0.1825749167591565
 X subset = 7 , i = 9 , j = 2

Mean error from standard least squares: 0.18479467258601553
 Mean error from LASSO: 0.18479467258601553
 X subset = 7 , i = 9 , j = 3
 Mean error from standard least squares: 0.18479467258601553
 Mean error from LASSO: 0.18479467258601553
 X subset = 7 , i = 9 , j = 4
 Mean error from standard least squares: 0.18063263041065483
 Mean error from LASSO: 0.18063263041065483
 X subset = 7 , i = 9 , j = 5
 Mean error from standard least squares: 0.18007769145394006
 Mean error from LASSO: 0.18007769145394006
 X subset = 7 , i = 9 , j = 6
 Mean error from standard least squares: 0.18729189789123196
 Mean error from LASSO: 0.18729189789123196
 X subset = 7 , i = 9 , j = 7
 Mean error from standard least squares: 0.18285238623751388
 Mean error from LASSO: 0.18285238623751388
 X subset = 7 , i = 9 , j = 8
 Mean error from standard least squares: 0.1856270810210877
 Mean error from LASSO: 0.1856270810210877
 X subset = 7 , i = 9 , j = 10
 Mean error from standard least squares: 0.18451720310765815
 Mean error from LASSO: 0.18451720310765815
 X subset = 7 , i = 10 , j = 0
 Mean error from standard least squares: 0.16897891231964485
 Mean error from LASSO: 0.16897891231964485
 X subset = 7 , i = 10 , j = 1
 Mean error from standard least squares: 0.16731409544950054
 Mean error from LASSO: 0.16731409544950054
 X subset = 7 , i = 10 , j = 2
 Mean error from standard least squares: 0.1739733629300777
 Mean error from LASSO: 0.1739733629300777
 X subset = 7 , i = 10 , j = 3
 Mean error from standard least squares: 0.1711986681465039
 Mean error from LASSO: 0.1711986681465039
 X subset = 7 , i = 10 , j = 4
 Mean error from standard least squares: 0.1667591564927858
 Mean error from LASSO: 0.1667591564927858
 X subset = 7 , i = 10 , j = 5
 Mean error from standard least squares: 0.1670366259711432
 Mean error from LASSO: 0.1670366259711432
 X subset = 7 , i = 10 , j = 6
 Mean error from standard least squares: 0.1709211986681465
 Mean error from LASSO: 0.1709211986681465
 X subset = 7 , i = 10 , j = 7
 Mean error from standard least squares: 0.17175360710321866
 Mean error from LASSO: 0.17175360710321866
 X subset = 7 , i = 10 , j = 8

Mean error from standard least squares: 0.17258601553829078
 Mean error from LASSO: 0.17258601553829078
 X subset = 7 , i = 10 , j = 9
 Mean error from standard least squares: 0.17425083240843509
 Mean error from LASSO: 0.17425083240843509
 X subset = 8 , i = 0 , j = 1
 Mean error from standard least squares: 0.22280799112097668
 Mean error from LASSO: 0.22280799112097668
 X subset = 8 , i = 0 , j = 2
 Mean error from standard least squares: 0.22280799112097668
 Mean error from LASSO: 0.22280799112097668
 X subset = 8 , i = 0 , j = 3
 Mean error from standard least squares: 0.22280799112097668
 Mean error from LASSO: 0.22280799112097668
 X subset = 8 , i = 0 , j = 4
 Mean error from standard least squares: 0.22280799112097668
 Mean error from LASSO: 0.22280799112097668
 X subset = 8 , i = 0 , j = 5
 Mean error from standard least squares: 0.22280799112097668
 Mean error from LASSO: 0.22280799112097668
 X subset = 8 , i = 0 , j = 6
 Mean error from standard least squares: 0.22280799112097668
 Mean error from LASSO: 0.22280799112097668
 X subset = 8 , i = 0 , j = 7
 Mean error from standard least squares: 0.22280799112097668
 Mean error from LASSO: 0.22280799112097668
 X subset = 8 , i = 0 , j = 8
 Mean error from standard least squares: 0.22280799112097668
 Mean error from LASSO: 0.22280799112097668
 X subset = 8 , i = 0 , j = 9
 Mean error from standard least squares: 0.22280799112097668
 Mean error from LASSO: 0.22280799112097668
 X subset = 8 , i = 0 , j = 10
 Mean error from standard least squares: 0.22280799112097668
 Mean error from LASSO: 0.22280799112097668
 X subset = 8 , i = 1 , j = 0
 Mean error from standard least squares: 0.2502774694783574
 Mean error from LASSO: 0.2502774694783574
 X subset = 8 , i = 1 , j = 2
 Mean error from standard least squares: 0.2502774694783574
 Mean error from LASSO: 0.2502774694783574
 X subset = 8 , i = 1 , j = 3
 Mean error from standard least squares: 0.2502774694783574
 Mean error from LASSO: 0.2502774694783574
 X subset = 8 , i = 1 , j = 4
 Mean error from standard least squares: 0.2502774694783574
 Mean error from LASSO: 0.2502774694783574
 X subset = 8 , i = 1 , j = 5

Mean error from standard least squares: 0.2502774694783574
 Mean error from LASSO: 0.2502774694783574
 X subset = 8 , i = 1 , j = 6
 Mean error from standard least squares: 0.2502774694783574
 Mean error from LASSO: 0.2502774694783574
 X subset = 8 , i = 1 , j = 7
 Mean error from standard least squares: 0.2502774694783574
 Mean error from LASSO: 0.2502774694783574
 X subset = 8 , i = 1 , j = 8
 Mean error from standard least squares: 0.2502774694783574
 Mean error from LASSO: 0.2502774694783574
 X subset = 8 , i = 1 , j = 9
 Mean error from standard least squares: 0.2502774694783574
 Mean error from LASSO: 0.2502774694783574
 X subset = 8 , i = 1 , j = 10
 Mean error from standard least squares: 0.2502774694783574
 Mean error from LASSO: 0.2502774694783574
 X subset = 8 , i = 2 , j = 0
 Mean error from standard least squares: 0.21365149833518313
 Mean error from LASSO: 0.21365149833518313
 X subset = 8 , i = 2 , j = 1
 Mean error from standard least squares: 0.21365149833518313
 Mean error from LASSO: 0.21365149833518313
 X subset = 8 , i = 2 , j = 3
 Mean error from standard least squares: 0.21365149833518313
 Mean error from LASSO: 0.21365149833518313
 X subset = 8 , i = 2 , j = 4
 Mean error from standard least squares: 0.21365149833518313
 Mean error from LASSO: 0.21365149833518313
 X subset = 8 , i = 2 , j = 5
 Mean error from standard least squares: 0.21365149833518313
 Mean error from LASSO: 0.21365149833518313
 X subset = 8 , i = 2 , j = 6
 Mean error from standard least squares: 0.21365149833518313
 Mean error from LASSO: 0.21365149833518313
 X subset = 8 , i = 2 , j = 7
 Mean error from standard least squares: 0.21365149833518313
 Mean error from LASSO: 0.21365149833518313
 X subset = 8 , i = 2 , j = 8
 Mean error from standard least squares: 0.21365149833518313
 Mean error from LASSO: 0.21365149833518313
 X subset = 8 , i = 2 , j = 9
 Mean error from standard least squares: 0.21365149833518313
 Mean error from LASSO: 0.21365149833518313
 X subset = 8 , i = 2 , j = 10
 Mean error from standard least squares: 0.21365149833518313
 Mean error from LASSO: 0.21365149833518313
 X subset = 8 , i = 3 , j = 0

Mean error from standard least squares: 0.22336293007769145
 Mean error from LASSO: 0.22336293007769145
 X subset = 8 , i = 3 , j = 1
 Mean error from standard least squares: 0.22336293007769145
 Mean error from LASSO: 0.22336293007769145
 X subset = 8 , i = 3 , j = 2
 Mean error from standard least squares: 0.22336293007769145
 Mean error from LASSO: 0.22336293007769145
 X subset = 8 , i = 3 , j = 4
 Mean error from standard least squares: 0.22336293007769145
 Mean error from LASSO: 0.22336293007769145
 X subset = 8 , i = 3 , j = 5
 Mean error from standard least squares: 0.22336293007769145
 Mean error from LASSO: 0.22336293007769145
 X subset = 8 , i = 3 , j = 6
 Mean error from standard least squares: 0.22336293007769145
 Mean error from LASSO: 0.22336293007769145
 X subset = 8 , i = 3 , j = 7
 Mean error from standard least squares: 0.22336293007769145
 Mean error from LASSO: 0.22336293007769145
 X subset = 8 , i = 3 , j = 8
 Mean error from standard least squares: 0.22336293007769145
 Mean error from LASSO: 0.22336293007769145
 X subset = 8 , i = 3 , j = 9
 Mean error from standard least squares: 0.22336293007769145
 Mean error from LASSO: 0.22336293007769145
 X subset = 8 , i = 3 , j = 10
 Mean error from standard least squares: 0.22336293007769145
 Mean error from LASSO: 0.22336293007769145
 X subset = 8 , i = 4 , j = 0
 Mean error from standard least squares: 0.24472807991120976
 Mean error from LASSO: 0.24472807991120976
 X subset = 8 , i = 4 , j = 1
 Mean error from standard least squares: 0.24472807991120976
 Mean error from LASSO: 0.24472807991120976
 X subset = 8 , i = 4 , j = 2
 Mean error from standard least squares: 0.24472807991120976
 Mean error from LASSO: 0.24472807991120976
 X subset = 8 , i = 4 , j = 3
 Mean error from standard least squares: 0.24472807991120976
 Mean error from LASSO: 0.24472807991120976
 X subset = 8 , i = 4 , j = 5
 Mean error from standard least squares: 0.24472807991120976
 Mean error from LASSO: 0.24472807991120976
 X subset = 8 , i = 4 , j = 6
 Mean error from standard least squares: 0.24472807991120976
 Mean error from LASSO: 0.24472807991120976
 X subset = 8 , i = 4 , j = 7

Mean error from standard least squares: 0.24472807991120976
 Mean error from LASSO: 0.24472807991120976
 X subset = 8 , i = 4 , j = 8
 Mean error from standard least squares: 0.24472807991120976
 Mean error from LASSO: 0.24472807991120976
 X subset = 8 , i = 4 , j = 9
 Mean error from standard least squares: 0.24472807991120976
 Mean error from LASSO: 0.24472807991120976
 X subset = 8 , i = 4 , j = 10
 Mean error from standard least squares: 0.24472807991120976
 Mean error from LASSO: 0.24472807991120976
 X subset = 8 , i = 5 , j = 0
 Mean error from standard least squares: 0.2705327413984462
 Mean error from LASSO: 0.2705327413984462
 X subset = 8 , i = 5 , j = 1
 Mean error from standard least squares: 0.2705327413984462
 Mean error from LASSO: 0.2705327413984462
 X subset = 8 , i = 5 , j = 2
 Mean error from standard least squares: 0.2705327413984462
 Mean error from LASSO: 0.2705327413984462
 X subset = 8 , i = 5 , j = 3
 Mean error from standard least squares: 0.2705327413984462
 Mean error from LASSO: 0.2705327413984462
 X subset = 8 , i = 5 , j = 4
 Mean error from standard least squares: 0.2705327413984462
 Mean error from LASSO: 0.2705327413984462
 X subset = 8 , i = 5 , j = 6
 Mean error from standard least squares: 0.2705327413984462
 Mean error from LASSO: 0.2705327413984462
 X subset = 8 , i = 5 , j = 7
 Mean error from standard least squares: 0.2705327413984462
 Mean error from LASSO: 0.2705327413984462
 X subset = 8 , i = 5 , j = 8
 Mean error from standard least squares: 0.2705327413984462
 Mean error from LASSO: 0.2705327413984462
 X subset = 8 , i = 5 , j = 9
 Mean error from standard least squares: 0.2705327413984462
 Mean error from LASSO: 0.2705327413984462
 X subset = 8 , i = 5 , j = 10
 Mean error from standard least squares: 0.2705327413984462
 Mean error from LASSO: 0.2705327413984462
 X subset = 8 , i = 6 , j = 0
 Mean error from standard least squares: 0.24944506104328523
 Mean error from LASSO: 0.24944506104328523
 X subset = 8 , i = 6 , j = 1
 Mean error from standard least squares: 0.24944506104328523
 Mean error from LASSO: 0.24944506104328523
 X subset = 8 , i = 6 , j = 2

Mean error from standard least squares: 0.24944506104328523
 Mean error from LASSO: 0.24944506104328523
 X subset = 8 , i = 6 , j = 3
 Mean error from standard least squares: 0.24944506104328523
 Mean error from LASSO: 0.24944506104328523
 X subset = 8 , i = 6 , j = 4
 Mean error from standard least squares: 0.24944506104328523
 Mean error from LASSO: 0.24944506104328523
 X subset = 8 , i = 6 , j = 5
 Mean error from standard least squares: 0.24944506104328523
 Mean error from LASSO: 0.24944506104328523
 X subset = 8 , i = 6 , j = 7
 Mean error from standard least squares: 0.24944506104328523
 Mean error from LASSO: 0.24944506104328523
 X subset = 8 , i = 6 , j = 8
 Mean error from standard least squares: 0.24944506104328523
 Mean error from LASSO: 0.24944506104328523
 X subset = 8 , i = 6 , j = 9
 Mean error from standard least squares: 0.24944506104328523
 Mean error from LASSO: 0.24944506104328523
 X subset = 8 , i = 6 , j = 10
 Mean error from standard least squares: 0.24944506104328523
 Mean error from LASSO: 0.24944506104328523
 X subset = 8 , i = 7 , j = 0
 Mean error from standard least squares: 0.21476137624861266
 Mean error from LASSO: 0.21476137624861266
 X subset = 8 , i = 7 , j = 1
 Mean error from standard least squares: 0.21476137624861266
 Mean error from LASSO: 0.21476137624861266
 X subset = 8 , i = 7 , j = 2
 Mean error from standard least squares: 0.21476137624861266
 Mean error from LASSO: 0.21476137624861266
 X subset = 8 , i = 7 , j = 3
 Mean error from standard least squares: 0.21476137624861266
 Mean error from LASSO: 0.21476137624861266
 X subset = 8 , i = 7 , j = 4
 Mean error from standard least squares: 0.21476137624861266
 Mean error from LASSO: 0.21476137624861266
 X subset = 8 , i = 7 , j = 5
 Mean error from standard least squares: 0.21476137624861266
 Mean error from LASSO: 0.21476137624861266
 X subset = 8 , i = 7 , j = 6
 Mean error from standard least squares: 0.21476137624861266
 Mean error from LASSO: 0.21476137624861266
 X subset = 8 , i = 7 , j = 8
 Mean error from standard least squares: 0.21476137624861266
 Mean error from LASSO: 0.21476137624861266
 X subset = 8 , i = 7 , j = 9

Mean error from standard least squares: 0.21476137624861266
 Mean error from LASSO: 0.21476137624861266
 X subset = 8 , i = 7 , j = 10
 Mean error from standard least squares: 0.21476137624861266
 Mean error from LASSO: 0.21476137624861266
 X subset = 8 , i = 8 , j = 0
 Mean error from standard least squares: 0.20643729189789123
 Mean error from LASSO: 0.20643729189789123
 X subset = 8 , i = 8 , j = 1
 Mean error from standard least squares: 0.20643729189789123
 Mean error from LASSO: 0.20643729189789123
 X subset = 8 , i = 8 , j = 2
 Mean error from standard least squares: 0.20643729189789123
 Mean error from LASSO: 0.20643729189789123
 X subset = 8 , i = 8 , j = 3
 Mean error from standard least squares: 0.20643729189789123
 Mean error from LASSO: 0.20643729189789123
 X subset = 8 , i = 8 , j = 4
 Mean error from standard least squares: 0.20643729189789123
 Mean error from LASSO: 0.20643729189789123
 X subset = 8 , i = 8 , j = 5
 Mean error from standard least squares: 0.20643729189789123
 Mean error from LASSO: 0.20643729189789123
 X subset = 8 , i = 8 , j = 6
 Mean error from standard least squares: 0.20643729189789123
 Mean error from LASSO: 0.20643729189789123
 X subset = 8 , i = 8 , j = 7
 Mean error from standard least squares: 0.20643729189789123
 Mean error from LASSO: 0.20643729189789123
 X subset = 8 , i = 8 , j = 9
 Mean error from standard least squares: 0.20643729189789123
 Mean error from LASSO: 0.20643729189789123
 X subset = 8 , i = 8 , j = 10
 Mean error from standard least squares: 0.20643729189789123
 Mean error from LASSO: 0.20643729189789123
 X subset = 8 , i = 9 , j = 0
 Mean error from standard least squares: 0.19644839067702552
 Mean error from LASSO: 0.19644839067702552
 X subset = 8 , i = 9 , j = 1
 Mean error from standard least squares: 0.19644839067702552
 Mean error from LASSO: 0.19644839067702552
 X subset = 8 , i = 9 , j = 2
 Mean error from standard least squares: 0.19644839067702552
 Mean error from LASSO: 0.19644839067702552
 X subset = 8 , i = 9 , j = 3
 Mean error from standard least squares: 0.19644839067702552
 Mean error from LASSO: 0.19644839067702552
 X subset = 8 , i = 9 , j = 4

Mean error from standard least squares: 0.19644839067702552
 Mean error from LASSO: 0.19644839067702552
 X subset = 8 , i = 9 , j = 5
 Mean error from standard least squares: 0.19644839067702552
 Mean error from LASSO: 0.19644839067702552
 X subset = 8 , i = 9 , j = 6
 Mean error from standard least squares: 0.19644839067702552
 Mean error from LASSO: 0.19644839067702552
 X subset = 8 , i = 9 , j = 7
 Mean error from standard least squares: 0.19644839067702552
 Mean error from LASSO: 0.19644839067702552
 X subset = 8 , i = 9 , j = 8
 Mean error from standard least squares: 0.19617092119866814
 Mean error from LASSO: 0.19617092119866814
 X subset = 8 , i = 9 , j = 10
 Mean error from standard least squares: 0.19644839067702552
 Mean error from LASSO: 0.19644839067702552
 X subset = 8 , i = 10 , j = 0
 Mean error from standard least squares: 0.18423973362930077
 Mean error from LASSO: 0.18423973362930077
 X subset = 8 , i = 10 , j = 1
 Mean error from standard least squares: 0.18423973362930077
 Mean error from LASSO: 0.18423973362930077
 X subset = 8 , i = 10 , j = 2
 Mean error from standard least squares: 0.18423973362930077
 Mean error from LASSO: 0.18423973362930077
 X subset = 8 , i = 10 , j = 3
 Mean error from standard least squares: 0.18423973362930077
 Mean error from LASSO: 0.18423973362930077
 X subset = 8 , i = 10 , j = 4
 Mean error from standard least squares: 0.18423973362930077
 Mean error from LASSO: 0.18423973362930077
 X subset = 8 , i = 10 , j = 5
 Mean error from standard least squares: 0.18423973362930077
 Mean error from LASSO: 0.18423973362930077
 X subset = 8 , i = 10 , j = 6
 Mean error from standard least squares: 0.18423973362930077
 Mean error from LASSO: 0.18423973362930077
 X subset = 8 , i = 10 , j = 7
 Mean error from standard least squares: 0.18423973362930077
 Mean error from LASSO: 0.18423973362930077
 X subset = 8 , i = 10 , j = 8
 Mean error from standard least squares: 0.18396226415094338
 Mean error from LASSO: 0.18396226415094338
 X subset = 8 , i = 10 , j = 9
 Mean error from standard least squares: 0.18423973362930077
 Mean error from LASSO: 0.18423973362930077
 X subset = 9 , i = 0 , j = 1

Mean error from standard least squares: 0.22031076581576026
 Mean error from LASSO: 0.22031076581576026
 X subset = 9 , i = 0 , j = 2
 Mean error from standard least squares: 0.22086570477247502
 Mean error from LASSO: 0.22086570477247502
 X subset = 9 , i = 0 , j = 3
 Mean error from standard least squares: 0.2214206437291898
 Mean error from LASSO: 0.2214206437291898
 X subset = 9 , i = 0 , j = 4
 Mean error from standard least squares: 0.22169811320754718
 Mean error from LASSO: 0.22169811320754718
 X subset = 9 , i = 0 , j = 5
 Mean error from standard least squares: 0.21753607103218647
 Mean error from LASSO: 0.21753607103218647
 X subset = 9 , i = 0 , j = 6
 Mean error from standard least squares: 0.21975582685904552
 Mean error from LASSO: 0.21975582685904552
 X subset = 9 , i = 0 , j = 7
 Mean error from standard least squares: 0.22003329633740287
 Mean error from LASSO: 0.22003329633740287
 X subset = 9 , i = 0 , j = 8
 Mean error from standard least squares: 0.21087680355160932
 Mean error from LASSO: 0.21087680355160932
 X subset = 9 , i = 0 , j = 9
 Mean error from standard least squares: 0.20477247502774695
 Mean error from LASSO: 0.20477247502774695
 X subset = 9 , i = 0 , j = 10
 Mean error from standard least squares: 0.19866814650388456
 Mean error from LASSO: 0.19866814650388456
 X subset = 9 , i = 1 , j = 0
 Mean error from standard least squares: 0.2469478357380688
 Mean error from LASSO: 0.2469478357380688
 X subset = 9 , i = 1 , j = 2
 Mean error from standard least squares: 0.24833518312985572
 Mean error from LASSO: 0.24833518312985572
 X subset = 9 , i = 1 , j = 3
 Mean error from standard least squares: 0.24916759156492785
 Mean error from LASSO: 0.24916759156492785
 X subset = 9 , i = 1 , j = 4
 Mean error from standard least squares: 0.24889012208657046
 Mean error from LASSO: 0.24889012208657046
 X subset = 9 , i = 1 , j = 5
 Mean error from standard least squares: 0.2458379578246393
 Mean error from LASSO: 0.2458379578246393
 X subset = 9 , i = 1 , j = 6
 Mean error from standard least squares: 0.244173140954495
 Mean error from LASSO: 0.244173140954495
 X subset = 9 , i = 1 , j = 7

Mean error from standard least squares: 0.2472253052164262
 Mean error from LASSO: 0.2472253052164262
 X subset = 9 , i = 1 , j = 8
 Mean error from standard least squares: 0.2341842397336293
 Mean error from LASSO: 0.2341842397336293
 X subset = 9 , i = 1 , j = 9
 Mean error from standard least squares: 0.23168701442841289
 Mean error from LASSO: 0.23168701442841289
 X subset = 9 , i = 1 , j = 10
 Mean error from standard least squares: 0.2255826859045505
 Mean error from LASSO: 0.2255826859045505
 X subset = 9 , i = 2 , j = 0
 Mean error from standard least squares: 0.21226415094339623
 Mean error from LASSO: 0.21226415094339623
 X subset = 9 , i = 2 , j = 1
 Mean error from standard least squares: 0.21198668146503885
 Mean error from LASSO: 0.21198668146503885
 X subset = 9 , i = 2 , j = 3
 Mean error from standard least squares: 0.21226415094339623
 Mean error from LASSO: 0.21226415094339623
 X subset = 9 , i = 2 , j = 4
 Mean error from standard least squares: 0.21281908990011097
 Mean error from LASSO: 0.21281908990011097
 X subset = 9 , i = 2 , j = 5
 Mean error from standard least squares: 0.21032186459489458
 Mean error from LASSO: 0.21032186459489458
 X subset = 9 , i = 2 , j = 6
 Mean error from standard least squares: 0.20948945615982242
 Mean error from LASSO: 0.20948945615982242
 X subset = 9 , i = 2 , j = 7
 Mean error from standard least squares: 0.21087680355160932
 Mean error from LASSO: 0.21087680355160932
 X subset = 9 , i = 2 , j = 8
 Mean error from standard least squares: 0.20310765815760268
 Mean error from LASSO: 0.20310765815760268
 X subset = 9 , i = 2 , j = 9
 Mean error from standard least squares: 0.19339622641509435
 Mean error from LASSO: 0.19339622641509435
 X subset = 9 , i = 2 , j = 10
 Mean error from standard least squares: 0.19311875693673697
 Mean error from LASSO: 0.19311875693673697
 X subset = 9 , i = 3 , j = 0
 Mean error from standard least squares: 0.22169811320754718
 Mean error from LASSO: 0.22169811320754718
 X subset = 9 , i = 3 , j = 1
 Mean error from standard least squares: 0.2214206437291898
 Mean error from LASSO: 0.2214206437291898
 X subset = 9 , i = 3 , j = 2

Mean error from standard least squares: 0.22197558268590456
 Mean error from LASSO: 0.22197558268590456
 X subset = 9 , i = 3 , j = 4
 Mean error from standard least squares: 0.2225305216426193
 Mean error from LASSO: 0.2225305216426193
 X subset = 9 , i = 3 , j = 5
 Mean error from standard least squares: 0.22031076581576026
 Mean error from LASSO: 0.22031076581576026
 X subset = 9 , i = 3 , j = 6
 Mean error from standard least squares: 0.2180910099889012
 Mean error from LASSO: 0.2180910099889012
 X subset = 9 , i = 3 , j = 7
 Mean error from standard least squares: 0.22086570477247502
 Mean error from LASSO: 0.22086570477247502
 X subset = 9 , i = 3 , j = 8
 Mean error from standard least squares: 0.21337402885682574
 Mean error from LASSO: 0.21337402885682574
 X subset = 9 , i = 3 , j = 9
 Mean error from standard least squares: 0.20172031076581576
 Mean error from LASSO: 0.20172031076581576
 X subset = 9 , i = 3 , j = 10
 Mean error from standard least squares: 0.20061043285238625
 Mean error from LASSO: 0.20061043285238625
 X subset = 9 , i = 4 , j = 0
 Mean error from standard least squares: 0.24195338512763595
 Mean error from LASSO: 0.24195338512763595
 X subset = 9 , i = 4 , j = 1
 Mean error from standard least squares: 0.2427857935627081
 Mean error from LASSO: 0.2427857935627081
 X subset = 9 , i = 4 , j = 2
 Mean error from standard least squares: 0.24223085460599333
 Mean error from LASSO: 0.24223085460599333
 X subset = 9 , i = 4 , j = 3
 Mean error from standard least squares: 0.24361820199778025
 Mean error from LASSO: 0.24361820199778025
 X subset = 9 , i = 4 , j = 4
 Mean error from standard least squares: 0.24056603773584906
 Mean error from LASSO: 0.24056603773584906
 X subset = 9 , i = 4 , j = 5
 Mean error from standard least squares: 0.24167591564927857
 Mean error from LASSO: 0.24167591564927857
 X subset = 9 , i = 4 , j = 6
 Mean error from standard least squares: 0.24112097669256383
 Mean error from LASSO: 0.24112097669256383
 X subset = 9 , i = 4 , j = 7
 Mean error from standard least squares: 0.2286348501664817
 Mean error from LASSO: 0.2286348501664817
 X subset = 9 , i = 4 , j = 8
 Mean error from standard least squares: 0.2286348501664817
 Mean error from LASSO: 0.2286348501664817
 X subset = 9 , i = 4 , j = 9

Mean error from standard least squares: 0.22586015538290788
 Mean error from LASSO: 0.22586015538290788
 X subset = 9 , i = 4 , j = 10
 Mean error from standard least squares: 0.21892341842397336
 Mean error from LASSO: 0.21892341842397336
 X subset = 9 , i = 5 , j = 0
 Mean error from standard least squares: 0.2683129855715871
 Mean error from LASSO: 0.2683129855715871
 X subset = 9 , i = 5 , j = 1
 Mean error from standard least squares: 0.26914539400665927
 Mean error from LASSO: 0.26914539400665927
 X subset = 9 , i = 5 , j = 2
 Mean error from standard least squares: 0.26775804661487235
 Mean error from LASSO: 0.26775804661487235
 X subset = 9 , i = 5 , j = 3
 Mean error from standard least squares: 0.26914539400665927
 Mean error from LASSO: 0.26914539400665927
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 Mean error from standard least squares: 0.26970033296337403
 Mean error from LASSO: 0.26970033296337403
 X subset = 9 , i = 5 , j = 6
 Mean error from standard least squares: 0.26498335183129856
 Mean error from LASSO: 0.26498335183129856
 X subset = 9 , i = 5 , j = 7
 Mean error from standard least squares: 0.2658157602663707
 Mean error from LASSO: 0.2658157602663707
 X subset = 9 , i = 5 , j = 8
 Mean error from standard least squares: 0.2561043285238624
 Mean error from LASSO: 0.2561043285238624
 X subset = 9 , i = 5 , j = 9
 Mean error from standard least squares: 0.24445061043285238
 Mean error from LASSO: 0.24445061043285238
 X subset = 9 , i = 5 , j = 10
 Mean error from standard least squares: 0.24389567147613764
 Mean error from LASSO: 0.24389567147613764
 X subset = 9 , i = 6 , j = 0
 Mean error from standard least squares: 0.24750277469478357
 Mean error from LASSO: 0.24750277469478357
 X subset = 9 , i = 6 , j = 1
 Mean error from standard least squares: 0.24750277469478357
 Mean error from LASSO: 0.24750277469478357
 X subset = 9 , i = 6 , j = 2
 Mean error from standard least squares: 0.24833518312985572
 Mean error from LASSO: 0.24833518312985572
 X subset = 9 , i = 6 , j = 3
 Mean error from standard least squares: 0.2472253052164262
 Mean error from LASSO: 0.2472253052164262
 X subset = 9 , i = 6 , j = 4

Mean error from standard least squares: 0.24889012208657046
 Mean error from LASSO: 0.24889012208657046
 X subset = 9 , i = 6 , j = 5
 Mean error from standard least squares: 0.244173140954495
 Mean error from LASSO: 0.244173140954495
 X subset = 9 , i = 6 , j = 7
 Mean error from standard least squares: 0.24750277469478357
 Mean error from LASSO: 0.24750277469478357
 X subset = 9 , i = 6 , j = 8
 Mean error from standard least squares: 0.23307436182019978
 Mean error from LASSO: 0.23307436182019978
 X subset = 9 , i = 6 , j = 9
 Mean error from standard least squares: 0.22669256381798003
 Mean error from LASSO: 0.22669256381798003
 X subset = 9 , i = 6 , j = 10
 Mean error from standard least squares: 0.22280799112097668
 Mean error from LASSO: 0.22280799112097668
 X subset = 9 , i = 7 , j = 0
 Mean error from standard least squares: 0.21309655937846836
 Mean error from LASSO: 0.21309655937846836
 X subset = 9 , i = 7 , j = 1
 Mean error from standard least squares: 0.2139289678135405
 Mean error from LASSO: 0.2139289678135405
 X subset = 9 , i = 7 , j = 2
 Mean error from standard least squares: 0.21309655937846836
 Mean error from LASSO: 0.21309655937846836
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 Mean error from standard least squares: 0.21254162042175362
 Mean error from LASSO: 0.21254162042175362
 X subset = 9 , i = 7 , j = 4
 Mean error from standard least squares: 0.2142064372918979
 Mean error from LASSO: 0.2142064372918979
 X subset = 9 , i = 7 , j = 5
 Mean error from standard least squares: 0.21059933407325193
 Mean error from LASSO: 0.21059933407325193
 X subset = 9 , i = 7 , j = 6
 Mean error from standard least squares: 0.21170921198668147
 Mean error from LASSO: 0.21170921198668147
 X subset = 9 , i = 7 , j = 8
 Mean error from standard least squares: 0.20449500554938957
 Mean error from LASSO: 0.20449500554938957
 X subset = 9 , i = 7 , j = 9
 Mean error from standard least squares: 0.19589345172031078
 Mean error from LASSO: 0.19589345172031078
 X subset = 9 , i = 7 , j = 10
 Mean error from standard least squares: 0.19034406215316316
 Mean error from LASSO: 0.19034406215316316
 X subset = 9 , i = 8 , j = 0

Mean error from standard least squares: 0.20560488346281908
 Mean error from LASSO: 0.20560488346281908
 X subset = 9 , i = 8 , j = 1
 Mean error from standard least squares: 0.20477247502774695
 Mean error from LASSO: 0.20477247502774695
 X subset = 9 , i = 8 , j = 2
 Mean error from standard least squares: 0.20338512763596003
 Mean error from LASSO: 0.20338512763596003
 X subset = 9 , i = 8 , j = 3
 Mean error from standard least squares: 0.20421753607103219
 Mean error from LASSO: 0.20421753607103219
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 Mean error from standard least squares: 0.20560488346281908
 Mean error from LASSO: 0.20560488346281908
 X subset = 9 , i = 8 , j = 5
 Mean error from standard least squares: 0.20338512763596003
 Mean error from LASSO: 0.20338512763596003
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 Mean error from standard least squares: 0.20199778024417314
 Mean error from LASSO: 0.20199778024417314
 X subset = 9 , i = 8 , j = 7
 Mean error from standard least squares: 0.2008879023307436
 Mean error from LASSO: 0.2008879023307436
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 Mean error from standard least squares: 0.1853496115427303
 Mean error from LASSO: 0.1853496115427303
 X subset = 9 , i = 8 , j = 10
 Mean error from standard least squares: 0.18507214206437292
 Mean error from LASSO: 0.18507214206437292
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 Mean error from standard least squares: 0.19506104328523863
 Mean error from LASSO: 0.19506104328523863
 X subset = 9 , i = 9 , j = 1
 Mean error from standard least squares: 0.195338512763596
 Mean error from LASSO: 0.195338512763596
 X subset = 9 , i = 9 , j = 2
 Mean error from standard least squares: 0.1956159822419534
 Mean error from LASSO: 0.1956159822419534
 X subset = 9 , i = 9 , j = 3
 Mean error from standard least squares: 0.19506104328523863
 Mean error from LASSO: 0.19506104328523863
 X subset = 9 , i = 9 , j = 4
 Mean error from standard least squares: 0.195338512763596
 Mean error from LASSO: 0.195338512763596
 X subset = 9 , i = 9 , j = 5
 Mean error from standard least squares: 0.19311875693673697
 Mean error from LASSO: 0.19311875693673697
 X subset = 9 , i = 9 , j = 6

Mean error from standard least squares: 0.19339622641509435
 Mean error from LASSO: 0.19339622641509435
 X subset = 9 , i = 9 , j = 7
 Mean error from standard least squares: 0.19450610432852386
 Mean error from LASSO: 0.19450610432852386
 X subset = 9 , i = 9 , j = 8
 Mean error from standard least squares: 0.18479467258601553
 Mean error from LASSO: 0.18479467258601553
 X subset = 9 , i = 9 , j = 10
 Mean error from standard least squares: 0.17758046614872364
 Mean error from LASSO: 0.17758046614872364
 X subset = 9 , i = 10 , j = 0
 Mean error from standard least squares: 0.18285238623751388
 Mean error from LASSO: 0.18285238623751388
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 Mean error from standard least squares: 0.1825749167591565
 Mean error from LASSO: 0.1825749167591565
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 Mean error from standard least squares: 0.18312985571587126
 Mean error from LASSO: 0.18312985571587126
 X subset = 9 , i = 10 , j = 3
 Mean error from standard least squares: 0.18285238623751388
 Mean error from LASSO: 0.18285238623751388
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 Mean error from LASSO: 0.18312985571587126
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 Mean error from standard least squares: 0.18091009988901222
 Mean error from LASSO: 0.18091009988901222
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 Mean error from standard least squares: 0.18035516093229745
 Mean error from LASSO: 0.18035516093229745
 X subset = 9 , i = 10 , j = 7
 Mean error from standard least squares: 0.18174250832408434
 Mean error from LASSO: 0.18174250832408434
 X subset = 9 , i = 10 , j = 8
 Mean error from standard least squares: 0.17452830188679244
 Mean error from LASSO: 0.17452830188679244
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 Mean error from standard least squares: 0.16759156492785793
 Mean error from LASSO: 0.16759156492785793
 X subset = 10 , i = 0 , j = 1
 Mean error from standard least squares: 0.22031076581576026
 Mean error from LASSO: 0.22031076581576026
 X subset = 10 , i = 0 , j = 2
 Mean error from standard least squares: 0.22058823529411764
 Mean error from LASSO: 0.22058823529411764
 X subset = 10 , i = 0 , j = 3

Mean error from standard least squares: 0.2214206437291898
 Mean error from LASSO: 0.2214206437291898
 X subset = 10 , i = 0 , j = 4
 Mean error from standard least squares: 0.22169811320754718
 Mean error from LASSO: 0.22169811320754718
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 Mean error from standard least squares: 0.21753607103218647
 Mean error from LASSO: 0.21753607103218647
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 Mean error from standard least squares: 0.21975582685904552
 Mean error from LASSO: 0.21975582685904552
 X subset = 10 , i = 0 , j = 7
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 Mean error from LASSO: 0.24833518312985572
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 Mean error from LASSO: 0.24916759156492785
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 Mean error from LASSO: 0.24889012208657046
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 Mean error from LASSO: 0.2458379578246393
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 Mean error from standard least squares: 0.244173140954495
 Mean error from LASSO: 0.244173140954495
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 Mean error from standard least squares: 0.2472253052164262
 Mean error from LASSO: 0.2472253052164262
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 Mean error from LASSO: 0.2341842397336293
 X subset = 10 , i = 1 , j = 9

Mean error from standard least squares: 0.23168701442841289
 Mean error from LASSO: 0.23168701442841289
 X subset = 10 , i = 1 , j = 10
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 Mean error from LASSO: 0.2255826859045505
 X subset = 10 , i = 2 , j = 0
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 Mean error from LASSO: 0.21226415094339623
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 Mean error from LASSO: 0.21198668146503885
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 Mean error from standard least squares: 0.21226415094339623
 Mean error from LASSO: 0.21226415094339623
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 Mean error from standard least squares: 0.21281908990011097
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 Mean error from LASSO: 0.22169811320754718
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 Mean error from standard least squares: 0.2214206437291898
 Mean error from LASSO: 0.2214206437291898
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 Mean error from standard least squares: 0.22197558268590456
 Mean error from LASSO: 0.22197558268590456
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 Mean error from standard least squares: 0.2225305216426193
 Mean error from LASSO: 0.2225305216426193
 X subset = 10 , i = 3 , j = 5

Mean error from standard least squares: 0.22031076581576026
 Mean error from LASSO: 0.22031076581576026
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 Mean error from standard least squares: 0.2180910099889012
 Mean error from LASSO: 0.2180910099889012
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 Mean error from standard least squares: 0.22086570477247502
 Mean error from LASSO: 0.22086570477247502
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 Mean error from standard least squares: 0.21337402885682574
 Mean error from LASSO: 0.21337402885682574
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 Mean error from LASSO: 0.20172031076581576
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 Mean error from standard least squares: 0.20061043285238625
 Mean error from LASSO: 0.20061043285238625
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 Mean error from standard least squares: 0.24195338512763595
 Mean error from LASSO: 0.24195338512763595
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 Mean error from LASSO: 0.2427857935627081
 X subset = 10 , i = 4 , j = 2
 Mean error from standard least squares: 0.24195338512763595
 Mean error from LASSO: 0.24195338512763595
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 Mean error from standard least squares: 0.24361820199778025
 Mean error from LASSO: 0.24361820199778025
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 Mean error from standard least squares: 0.24056603773584906
 Mean error from LASSO: 0.24056603773584906
 X subset = 10 , i = 4 , j = 6
 Mean error from standard least squares: 0.24167591564927857
 Mean error from LASSO: 0.24167591564927857
 X subset = 10 , i = 4 , j = 7
 Mean error from standard least squares: 0.24112097669256383
 Mean error from LASSO: 0.24112097669256383
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 Mean error from standard least squares: 0.22586015538290788
 Mean error from LASSO: 0.22586015538290788
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 Mean error from standard least squares: 0.21892341842397336
 Mean error from LASSO: 0.21892341842397336
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Mean error from standard least squares: 0.2683129855715871
Mean error from LASSO: 0.2683129855715871
X subset = 10 , i = 5 , j = 1
Mean error from standard least squares: 0.2688679245283019
Mean error from LASSO: 0.2688679245283019
X subset = 10 , i = 5 , j = 2
Mean error from standard least squares: 0.26775804661487235
Mean error from LASSO: 0.26775804661487235
X subset = 10 , i = 5 , j = 3
Mean error from standard least squares: 0.26914539400665927
Mean error from LASSO: 0.26914539400665927
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Mean error from standard least squares: 0.26970033296337403
Mean error from LASSO: 0.26970033296337403
X subset = 10 , i = 5 , j = 6
Mean error from standard least squares: 0.26498335183129856
Mean error from LASSO: 0.26498335183129856
X subset = 10 , i = 5 , j = 7
Mean error from standard least squares: 0.2658157602663707
Mean error from LASSO: 0.2658157602663707
X subset = 10 , i = 5 , j = 8
Mean error from standard least squares: 0.2561043285238624
Mean error from LASSO: 0.2561043285238624
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Mean error from standard least squares: 0.24445061043285238
Mean error from LASSO: 0.24445061043285238
X subset = 10 , i = 5 , j = 10
Mean error from standard least squares: 0.24389567147613764
Mean error from LASSO: 0.24389567147613764
X subset = 10 , i = 6 , j = 0
Mean error from standard least squares: 0.24750277469478357
Mean error from LASSO: 0.24750277469478357
X subset = 10 , i = 6 , j = 1
Mean error from standard least squares: 0.24750277469478357
Mean error from LASSO: 0.24750277469478357
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Mean error from standard least squares: 0.24805771365149834
Mean error from LASSO: 0.24805771365149834
X subset = 10 , i = 6 , j = 3
Mean error from standard least squares: 0.2472253052164262
Mean error from LASSO: 0.2472253052164262
X subset = 10 , i = 6 , j = 4
Mean error from standard least squares: 0.24889012208657046
Mean error from LASSO: 0.24889012208657046
X subset = 10 , i = 6 , j = 5
Mean error from standard least squares: 0.244173140954495
Mean error from LASSO: 0.244173140954495
X subset = 10 , i = 6 , j = 7

Mean error from standard least squares: 0.24750277469478357
 Mean error from LASSO: 0.24750277469478357
 X subset = 10 , i = 6 , j = 8
 Mean error from standard least squares: 0.23307436182019978
 Mean error from LASSO: 0.23307436182019978
 X subset = 10 , i = 6 , j = 9
 Mean error from standard least squares: 0.22669256381798003
 Mean error from LASSO: 0.22669256381798003
 X subset = 10 , i = 6 , j = 10
 Mean error from standard least squares: 0.22280799112097668
 Mean error from LASSO: 0.22280799112097668
 X subset = 10 , i = 7 , j = 0
 Mean error from standard least squares: 0.21309655937846836
 Mean error from LASSO: 0.21309655937846836
 X subset = 10 , i = 7 , j = 1
 Mean error from standard least squares: 0.21365149833518313
 Mean error from LASSO: 0.21365149833518313
 X subset = 10 , i = 7 , j = 2
 Mean error from standard least squares: 0.21309655937846836
 Mean error from LASSO: 0.21309655937846836
 X subset = 10 , i = 7 , j = 3
 Mean error from standard least squares: 0.21254162042175362
 Mean error from LASSO: 0.21254162042175362
 X subset = 10 , i = 7 , j = 4
 Mean error from standard least squares: 0.2142064372918979
 Mean error from LASSO: 0.2142064372918979
 X subset = 10 , i = 7 , j = 5
 Mean error from standard least squares: 0.21059933407325193
 Mean error from LASSO: 0.21059933407325193
 X subset = 10 , i = 7 , j = 6
 Mean error from standard least squares: 0.21170921198668147
 Mean error from LASSO: 0.21170921198668147
 X subset = 10 , i = 7 , j = 8
 Mean error from standard least squares: 0.20449500554938957
 Mean error from LASSO: 0.20449500554938957
 X subset = 10 , i = 7 , j = 9
 Mean error from standard least squares: 0.19589345172031078
 Mean error from LASSO: 0.19589345172031078
 X subset = 10 , i = 7 , j = 10
 Mean error from standard least squares: 0.19034406215316316
 Mean error from LASSO: 0.19034406215316316
 X subset = 10 , i = 8 , j = 0
 Mean error from standard least squares: 0.20560488346281908
 Mean error from LASSO: 0.20560488346281908
 X subset = 10 , i = 8 , j = 1
 Mean error from standard least squares: 0.20477247502774695
 Mean error from LASSO: 0.20477247502774695
 X subset = 10 , i = 8 , j = 2

Mean error from standard least squares: 0.20310765815760268
 Mean error from LASSO: 0.20310765815760268
 X subset = 10 , i = 8 , j = 3
 Mean error from standard least squares: 0.20421753607103219
 Mean error from LASSO: 0.20421753607103219
 X subset = 10 , i = 8 , j = 4
 Mean error from standard least squares: 0.20560488346281908
 Mean error from LASSO: 0.20560488346281908
 X subset = 10 , i = 8 , j = 5
 Mean error from standard least squares: 0.20338512763596003
 Mean error from LASSO: 0.20338512763596003
 X subset = 10 , i = 8 , j = 6
 Mean error from standard least squares: 0.20199778024417314
 Mean error from LASSO: 0.20199778024417314
 X subset = 10 , i = 8 , j = 7
 Mean error from standard least squares: 0.2008879023307436
 Mean error from LASSO: 0.2008879023307436
 X subset = 10 , i = 8 , j = 9
 Mean error from standard least squares: 0.1853496115427303
 Mean error from LASSO: 0.1853496115427303
 X subset = 10 , i = 8 , j = 10
 Mean error from standard least squares: 0.18507214206437292
 Mean error from LASSO: 0.18507214206437292
 X subset = 10 , i = 9 , j = 0
 Mean error from standard least squares: 0.19506104328523863
 Mean error from LASSO: 0.19506104328523863
 X subset = 10 , i = 9 , j = 1
 Mean error from standard least squares: 0.195338512763596
 Mean error from LASSO: 0.195338512763596
 X subset = 10 , i = 9 , j = 2
 Mean error from standard least squares: 0.1956159822419534
 Mean error from LASSO: 0.1956159822419534
 X subset = 10 , i = 9 , j = 3
 Mean error from standard least squares: 0.19506104328523863
 Mean error from LASSO: 0.19506104328523863
 X subset = 10 , i = 9 , j = 4
 Mean error from standard least squares: 0.195338512763596
 Mean error from LASSO: 0.195338512763596
 X subset = 10 , i = 9 , j = 5
 Mean error from standard least squares: 0.19311875693673697
 Mean error from LASSO: 0.19311875693673697
 X subset = 10 , i = 9 , j = 6
 Mean error from standard least squares: 0.19339622641509435
 Mean error from LASSO: 0.19339622641509435
 X subset = 10 , i = 9 , j = 7
 Mean error from standard least squares: 0.19450610432852386
 Mean error from LASSO: 0.19450610432852386
 X subset = 10 , i = 9 , j = 8

Mean error from standard least squares: 0.18479467258601553
 Mean error from LASSO: 0.18479467258601553
 X subset = 10 , i = 9 , j = 10
 Mean error from standard least squares: 0.17758046614872364
 Mean error from LASSO: 0.17758046614872364
 X subset = 10 , i = 10 , j = 0
 Mean error from standard least squares: 0.18285238623751388
 Mean error from LASSO: 0.18285238623751388
 X subset = 10 , i = 10 , j = 1
 Mean error from standard least squares: 0.1822974472807991
 Mean error from LASSO: 0.1822974472807991
 X subset = 10 , i = 10 , j = 2
 Mean error from standard least squares: 0.18312985571587126
 Mean error from LASSO: 0.18312985571587126
 X subset = 10 , i = 10 , j = 3
 Mean error from standard least squares: 0.18285238623751388
 Mean error from LASSO: 0.18285238623751388
 X subset = 10 , i = 10 , j = 4
 Mean error from standard least squares: 0.18312985571587126
 Mean error from LASSO: 0.18312985571587126
 X subset = 10 , i = 10 , j = 5
 Mean error from standard least squares: 0.18091009988901222
 Mean error from LASSO: 0.18091009988901222
 X subset = 10 , i = 10 , j = 6
 Mean error from standard least squares: 0.18035516093229745
 Mean error from LASSO: 0.18035516093229745
 X subset = 10 , i = 10 , j = 7
 Mean error from standard least squares: 0.18174250832408434
 Mean error from LASSO: 0.18174250832408434
 X subset = 10 , i = 10 , j = 8
 Mean error from standard least squares: 0.17452830188679244
 Mean error from LASSO: 0.17452830188679244
 X subset = 10 , i = 10 , j = 9
 Mean error from standard least squares: 0.16759156492785793
 Mean error from LASSO: 0.16759156492785793
 X subset = 11 , i = 0 , j = 1
 Mean error from standard least squares: 0.22280799112097668
 Mean error from LASSO: 0.22280799112097668
 X subset = 11 , i = 0 , j = 2
 Mean error from standard least squares: 0.22280799112097668
 Mean error from LASSO: 0.22280799112097668
 X subset = 11 , i = 0 , j = 3
 Mean error from standard least squares: 0.22280799112097668
 Mean error from LASSO: 0.22280799112097668
 X subset = 11 , i = 0 , j = 4
 Mean error from standard least squares: 0.22280799112097668
 Mean error from LASSO: 0.22280799112097668
 X subset = 11 , i = 0 , j = 5

Mean error from standard least squares: 0.22280799112097668
 Mean error from LASSO: 0.22280799112097668
 X subset = 11 , i = 0 , j = 6
 Mean error from standard least squares: 0.22280799112097668
 Mean error from LASSO: 0.22280799112097668
 X subset = 11 , i = 0 , j = 7
 Mean error from standard least squares: 0.22280799112097668
 Mean error from LASSO: 0.22280799112097668
 X subset = 11 , i = 0 , j = 8
 Mean error from standard least squares: 0.22280799112097668
 Mean error from LASSO: 0.22280799112097668
 X subset = 11 , i = 0 , j = 9
 Mean error from standard least squares: 0.22280799112097668
 Mean error from LASSO: 0.22280799112097668
 X subset = 11 , i = 0 , j = 10
 Mean error from standard least squares: 0.22280799112097668
 Mean error from LASSO: 0.22280799112097668
 X subset = 11 , i = 1 , j = 0
 Mean error from standard least squares: 0.2502774694783574
 Mean error from LASSO: 0.2502774694783574
 X subset = 11 , i = 1 , j = 2
 Mean error from standard least squares: 0.2502774694783574
 Mean error from LASSO: 0.2502774694783574
 X subset = 11 , i = 1 , j = 3
 Mean error from standard least squares: 0.2502774694783574
 Mean error from LASSO: 0.2502774694783574
 X subset = 11 , i = 1 , j = 4
 Mean error from standard least squares: 0.2502774694783574
 Mean error from LASSO: 0.2502774694783574
 X subset = 11 , i = 1 , j = 5
 Mean error from standard least squares: 0.2502774694783574
 Mean error from LASSO: 0.2502774694783574
 X subset = 11 , i = 1 , j = 6
 Mean error from standard least squares: 0.2502774694783574
 Mean error from LASSO: 0.2502774694783574
 X subset = 11 , i = 1 , j = 7
 Mean error from standard least squares: 0.2502774694783574
 Mean error from LASSO: 0.2502774694783574
 X subset = 11 , i = 1 , j = 8
 Mean error from standard least squares: 0.2502774694783574
 Mean error from LASSO: 0.2502774694783574
 X subset = 11 , i = 1 , j = 9
 Mean error from standard least squares: 0.2502774694783574
 Mean error from LASSO: 0.2502774694783574
 X subset = 11 , i = 1 , j = 10
 Mean error from standard least squares: 0.2502774694783574
 Mean error from LASSO: 0.2502774694783574
 X subset = 11 , i = 2 , j = 0

Mean error from standard least squares: 0.21365149833518313
 Mean error from LASSO: 0.21365149833518313
 X subset = 11 , i = 2 , j = 1
 Mean error from standard least squares: 0.21365149833518313
 Mean error from LASSO: 0.21365149833518313
 X subset = 11 , i = 2 , j = 3
 Mean error from standard least squares: 0.21365149833518313
 Mean error from LASSO: 0.21365149833518313
 X subset = 11 , i = 2 , j = 4
 Mean error from standard least squares: 0.21365149833518313
 Mean error from LASSO: 0.21365149833518313
 X subset = 11 , i = 2 , j = 5
 Mean error from standard least squares: 0.21365149833518313
 Mean error from LASSO: 0.21365149833518313
 X subset = 11 , i = 2 , j = 6
 Mean error from standard least squares: 0.21365149833518313
 Mean error from LASSO: 0.21365149833518313
 X subset = 11 , i = 2 , j = 7
 Mean error from standard least squares: 0.21365149833518313
 Mean error from LASSO: 0.21365149833518313
 X subset = 11 , i = 2 , j = 8
 Mean error from standard least squares: 0.21365149833518313
 Mean error from LASSO: 0.21365149833518313
 X subset = 11 , i = 2 , j = 9
 Mean error from standard least squares: 0.21365149833518313
 Mean error from LASSO: 0.21365149833518313
 X subset = 11 , i = 2 , j = 10
 Mean error from standard least squares: 0.21365149833518313
 Mean error from LASSO: 0.21365149833518313
 X subset = 11 , i = 3 , j = 0
 Mean error from standard least squares: 0.22336293007769145
 Mean error from LASSO: 0.22336293007769145
 X subset = 11 , i = 3 , j = 1
 Mean error from standard least squares: 0.22336293007769145
 Mean error from LASSO: 0.22336293007769145
 X subset = 11 , i = 3 , j = 2
 Mean error from standard least squares: 0.22336293007769145
 Mean error from LASSO: 0.22336293007769145
 X subset = 11 , i = 3 , j = 4
 Mean error from standard least squares: 0.22336293007769145
 Mean error from LASSO: 0.22336293007769145
 X subset = 11 , i = 3 , j = 5
 Mean error from standard least squares: 0.22336293007769145
 Mean error from LASSO: 0.22336293007769145
 X subset = 11 , i = 3 , j = 6
 Mean error from standard least squares: 0.22336293007769145
 Mean error from LASSO: 0.22336293007769145
 X subset = 11 , i = 3 , j = 7

Mean error from standard least squares: 0.22336293007769145
Mean error from LASSO: 0.22336293007769145
X subset = 11 , i = 3 , j = 8
Mean error from standard least squares: 0.22336293007769145
Mean error from LASSO: 0.22336293007769145
X subset = 11 , i = 3 , j = 9
Mean error from standard least squares: 0.22336293007769145
Mean error from LASSO: 0.22336293007769145
X subset = 11 , i = 3 , j = 10
Mean error from standard least squares: 0.22336293007769145
Mean error from LASSO: 0.22336293007769145
X subset = 11 , i = 4 , j = 0
Mean error from standard least squares: 0.24472807991120976
Mean error from LASSO: 0.24472807991120976
X subset = 11 , i = 4 , j = 1
Mean error from standard least squares: 0.24472807991120976
Mean error from LASSO: 0.24472807991120976
X subset = 11 , i = 4 , j = 2
Mean error from standard least squares: 0.24472807991120976
Mean error from LASSO: 0.24472807991120976
X subset = 11 , i = 4 , j = 3
Mean error from standard least squares: 0.24472807991120976
Mean error from LASSO: 0.24472807991120976
X subset = 11 , i = 4 , j = 5
Mean error from standard least squares: 0.24472807991120976
Mean error from LASSO: 0.24472807991120976
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Mean error from LASSO: 0.24472807991120976
X subset = 11 , i = 4 , j = 7
Mean error from standard least squares: 0.24472807991120976
Mean error from LASSO: 0.24472807991120976
X subset = 11 , i = 4 , j = 8
Mean error from standard least squares: 0.24472807991120976
Mean error from LASSO: 0.24472807991120976
X subset = 11 , i = 4 , j = 9
Mean error from standard least squares: 0.24472807991120976
Mean error from LASSO: 0.24472807991120976
X subset = 11 , i = 4 , j = 10
Mean error from standard least squares: 0.24472807991120976
Mean error from LASSO: 0.24472807991120976
X subset = 11 , i = 5 , j = 0
Mean error from standard least squares: 0.2705327413984462
Mean error from LASSO: 0.2705327413984462
X subset = 11 , i = 5 , j = 1
Mean error from standard least squares: 0.2705327413984462
Mean error from LASSO: 0.2705327413984462
X subset = 11 , i = 5 , j = 2

Mean error from standard least squares: 0.2705327413984462
 Mean error from LASSO: 0.2705327413984462
 X subset = 11 , i = 5 , j = 3
 Mean error from standard least squares: 0.2705327413984462
 Mean error from LASSO: 0.2705327413984462
 X subset = 11 , i = 5 , j = 4
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 Mean error from LASSO: 0.2705327413984462
 X subset = 11 , i = 5 , j = 7
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 Mean error from LASSO: 0.2705327413984462
 X subset = 11 , i = 5 , j = 8
 Mean error from standard least squares: 0.2705327413984462
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 X subset = 11 , i = 5 , j = 9
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 X subset = 11 , i = 5 , j = 10
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 X subset = 11 , i = 6 , j = 0
 Mean error from standard least squares: 0.24944506104328523
 Mean error from LASSO: 0.24944506104328523
 X subset = 11 , i = 6 , j = 1
 Mean error from standard least squares: 0.24944506104328523
 Mean error from LASSO: 0.24944506104328523
 X subset = 11 , i = 6 , j = 2
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 X subset = 11 , i = 6 , j = 3
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 Mean error from LASSO: 0.24944506104328523
 X subset = 11 , i = 6 , j = 4
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 Mean error from standard least squares: 0.24944506104328523
 Mean error from LASSO: 0.24944506104328523
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Mean error from standard least squares: 0.24944506104328523
Mean error from LASSO: 0.24944506104328523
X subset = 11 , i = 6 , j = 10
Mean error from standard least squares: 0.24944506104328523
Mean error from LASSO: 0.24944506104328523
X subset = 11 , i = 7 , j = 0
Mean error from standard least squares: 0.21476137624861266
Mean error from LASSO: 0.21476137624861266
X subset = 11 , i = 7 , j = 1
Mean error from standard least squares: 0.21476137624861266
Mean error from LASSO: 0.21476137624861266
X subset = 11 , i = 7 , j = 2
Mean error from standard least squares: 0.21476137624861266
Mean error from LASSO: 0.21476137624861266
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Mean error from LASSO: 0.21476137624861266
X subset = 11 , i = 7 , j = 4
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Mean error from LASSO: 0.21476137624861266
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Mean error from LASSO: 0.21476137624861266
X subset = 11 , i = 7 , j = 9
Mean error from standard least squares: 0.21476137624861266
Mean error from LASSO: 0.21476137624861266
X subset = 11 , i = 7 , j = 10
Mean error from standard least squares: 0.21476137624861266
Mean error from LASSO: 0.21476137624861266
X subset = 11 , i = 8 , j = 0
Mean error from standard least squares: 0.20643729189789123
Mean error from LASSO: 0.20643729189789123
X subset = 11 , i = 8 , j = 1
Mean error from standard least squares: 0.20643729189789123
Mean error from LASSO: 0.20643729189789123
X subset = 11 , i = 8 , j = 2
Mean error from standard least squares: 0.20643729189789123
Mean error from LASSO: 0.20643729189789123
X subset = 11 , i = 8 , j = 3
Mean error from standard least squares: 0.20643729189789123
Mean error from LASSO: 0.20643729189789123
X subset = 11 , i = 8 , j = 4

Mean error from standard least squares: 0.20643729189789123
 Mean error from LASSO: 0.20643729189789123
 X subset = 11 , i = 8 , j = 5
 Mean error from standard least squares: 0.20643729189789123
 Mean error from LASSO: 0.20643729189789123
 X subset = 11 , i = 8 , j = 6
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 Mean error from LASSO: 0.20643729189789123
 X subset = 11 , i = 8 , j = 7
 Mean error from standard least squares: 0.20643729189789123
 Mean error from LASSO: 0.20643729189789123
 X subset = 11 , i = 8 , j = 9
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 Mean error from LASSO: 0.20643729189789123
 X subset = 11 , i = 8 , j = 10
 Mean error from standard least squares: 0.20643729189789123
 Mean error from LASSO: 0.20643729189789123
 X subset = 11 , i = 9 , j = 0
 Mean error from standard least squares: 0.19644839067702552
 Mean error from LASSO: 0.19644839067702552
 X subset = 11 , i = 9 , j = 1
 Mean error from standard least squares: 0.19644839067702552
 Mean error from LASSO: 0.19644839067702552
 X subset = 11 , i = 9 , j = 2
 Mean error from standard least squares: 0.19644839067702552
 Mean error from LASSO: 0.19644839067702552
 X subset = 11 , i = 9 , j = 3
 Mean error from standard least squares: 0.19644839067702552
 Mean error from LASSO: 0.19644839067702552
 X subset = 11 , i = 9 , j = 4
 Mean error from standard least squares: 0.19644839067702552
 Mean error from LASSO: 0.19644839067702552
 X subset = 11 , i = 9 , j = 5
 Mean error from standard least squares: 0.19644839067702552
 Mean error from LASSO: 0.19644839067702552
 X subset = 11 , i = 9 , j = 6
 Mean error from standard least squares: 0.19644839067702552
 Mean error from LASSO: 0.19644839067702552
 X subset = 11 , i = 9 , j = 7
 Mean error from standard least squares: 0.19644839067702552
 Mean error from LASSO: 0.19644839067702552
 X subset = 11 , i = 9 , j = 8
 Mean error from standard least squares: 0.19617092119866814
 Mean error from LASSO: 0.19617092119866814
 X subset = 11 , i = 9 , j = 10
 Mean error from standard least squares: 0.19644839067702552
 Mean error from LASSO: 0.19644839067702552
 X subset = 11 , i = 10 , j = 0

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Mean error from standard least squares: 0.18423973362930077
Mean error from LASSO: 0.18423973362930077
X subset = 11 , i = 10 , j = 1
Mean error from standard least squares: 0.18423973362930077
Mean error from LASSO: 0.18423973362930077
X subset = 11 , i = 10 , j = 2
Mean error from standard least squares: 0.18423973362930077
Mean error from LASSO: 0.18423973362930077
X subset = 11 , i = 10 , j = 3
Mean error from standard least squares: 0.18423973362930077
Mean error from LASSO: 0.18423973362930077
X subset = 11 , i = 10 , j = 4
Mean error from standard least squares: 0.18423973362930077
Mean error from LASSO: 0.18423973362930077
X subset = 11 , i = 10 , j = 5
Mean error from standard least squares: 0.18423973362930077
Mean error from LASSO: 0.18423973362930077
X subset = 11 , i = 10 , j = 6
Mean error from standard least squares: 0.18423973362930077
Mean error from LASSO: 0.18423973362930077
X subset = 11 , i = 10 , j = 7
Mean error from standard least squares: 0.18423973362930077
Mean error from LASSO: 0.18423973362930077
X subset = 11 , i = 10 , j = 8
Mean error from standard least squares: 0.18396226415094338
Mean error from LASSO: 0.18396226415094338
X subset = 11 , i = 10 , j = 9
Mean error from standard least squares: 0.18423973362930077
Mean error from LASSO: 0.18423973362930077
Mean Error for pure least squares, X subset 1 = [0.37562052]
Mean Error for LASSO, X subset 1 = [0.22515387]
Mean Error for pure least squares, X subset 2 = [0.2252472]
Mean Error for LASSO, X subset 2 = [0.22515387]
Mean Error for pure least squares, X subset 3 = [0.21762183]
Mean Error for LASSO, X subset 3 = [0.21762183]
Mean Error for pure least squares, X subset 4 = [0.21333619]
Mean Error for LASSO, X subset 4 = [0.21333619]
Mean Error for pure least squares, X subset 5 = [0.23396226]
Mean Error for LASSO, X subset 5 = [0.22515387]
Mean Error for pure least squares, X subset 6 = [0.19023812]
Mean Error for LASSO, X subset 6 = [0.19023812]
Mean Error for pure least squares, X subset 7 = [0.18415649]
Mean Error for LASSO, X subset 7 = [0.18415649]
Mean Error for pure least squares, X subset 8 = [0.20941126]
Mean Error for LASSO, X subset 8 = [0.20941126]
Mean Error for pure least squares, X subset 9 = [0.22514882]
Mean Error for LASSO, X subset 9 = [0.22514882]
Mean Error for pure least squares, X subset 10 = [0.21827515]

```

```
Mean Error for LASSO, X subset 10 = [0.21827515]  
Mean Error for pure least squares, X subset 11 = [0.21825749]  
Mean Error for LASSO, X subset 11 = [0.21825749]
```

```
[ ]:
```