

BostonHousingDataset

```
the_10_rates = [0.0001, 0.0002, 0.0003, 0.0005, 0.0007, 0.0009, 0.0014, 0.0004,  
0.003, 0.0023]  
num_iters = 7000
```

Run#: 1

```
The seed for random thetas initializing: 5  
Thetas initial vector: [0.22199317 0.87073231 0.20671916 0.91861091 0.48841119  
0.61174386  
0.76590786 0.51841799 0.2968005 0.18772123 0.08074127]  
COST: 4.074819106798181  
Thetas [[ 2.94758921 0.47740887 0.12822511 0.47924059 0.12620676 0.20434078  
0.32351681 0.02086913 -0.247022 0.44989658 -0.02189074]]  
Last 10 costs [4.08184793 4.08106628 4.08028481 4.0795035 4.07872235 4.07794137  
4.07716056 4.07637991 4.07559943 4.07481911]
```

Run#: 2

```
The seed for random thetas initializing: 1  
Thetas initial vector: [4.17022005e-01 7.20324493e-01 1.14374817e-04 3.02332573e-  
01  
1.46755891e-01 9.23385948e-02 1.86260211e-01 3.45560727e-01  
3.96767474e-01 5.38816734e-01 4.19194514e-01]  
COST: 1.100278545791442  
Thetas [[ 4.34921302 0.43543404 -0.13039192 0.09280479 0.01725274 -0.07610241  
-0.01283036 0.02029273 -0.18943681 0.4380277 0.23295806]]  
Last 10 costs [1.10336754 1.10302377 1.10268014 1.10233665 1.10199329 1.10165007  
1.10130698 1.10096404 1.10062122 1.10027855]
```

Run#: 3

```
The seed for random thetas initializing: 3  
Thetas initial vector: [0.5507979 0.70814782 0.29090474 0.51082761 0.89294695  
0.89629309  
0.12558531 0.20724288 0.0514672 0.44080984 0.02987621]  
COST: 0.4537301456858178  
Thetas [[ 5.01350024e+00 4.96717967e-01 -9.76610331e-02 1.77235762e-01  
2.06252746e-01 9.08330746e-02 -3.43581369e-03 -7.26687186e-02  
-4.95927845e-01 3.84260529e-01 8.91615309e-02]]  
Last 10 costs [0.454872 0.45474483 0.45461773 0.45449071 0.45436377 0.4542369  
0.4541101 0.45398337 0.45385672 0.45373015]
```

Run#: 4

```
The seed for random thetas initializing: 6  
Thetas initial vector: [0.89286015 0.33197981 0.82122912 0.04169663 0.10765668  
0.59505206  
0.52981736 0.41880743 0.33540785 0.62251943 0.43814143]  
COST: 0.24006351752727595  
Thetas [[ 5.49291674 0.32361165 -0.10373466 0.13093752 0.08373359 -0.09298851  
0.06122385 -0.1297517 -0.33715177 0.21338871 0.20586962]]  
Last 10 costs [0.24018354 0.24017016 0.24015679 0.24014343 0.24013008 0.24011674  
0.24010342 0.24009011 0.24007681 0.24006352]
```

Run#: 5

```
The seed for random thetas initializing: 3  
Thetas initial vector: [0.5507979 0.70814782 0.29090474 0.51082761 0.89294695  
0.89629309  
0.12558531 0.20724288 0.0514672 0.44080984 0.02987621]
```

COST: 0.2292343014416463
Thetas [[5.59821988 0.46182336 -0.14986917 0.04727865 0.15521146 -0.0465121
0.02000185 -0.08462863 -0.46508465 0.23242054 0.18257929]]
Last 10 costs [0.22926198 0.2292589 0.22925581 0.22925273 0.22924966 0.22924658
0.22924351 0.22924044 0.22923737 0.2292343]

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Run#: 6
The seed for random thetas initializing: 10
Thetas initial vector: [0.77132064 0.02075195 0.63364823 0.74880388 0.49850701
0.22479665
0.19806286 0.76053071 0.16911084 0.08833981 0.68535982]
COST: 0.227971900013937
Thetas [[5.62711474 0.12745193 -0.09851764 0.16748245 0.11011149 -0.16256749
0.03130242 -0.14514471 -0.29246594 0.05686988 0.22449531]]
Last 10 costs [0.22799006 0.22798803 0.22798601 0.22798399 0.22798198 0.22797996
0.22797794 0.22797593 0.22797391 0.2279719]

=====
Run#: 7
The seed for random thetas initializing: 5
Thetas initial vector: [0.22199317 0.87073231 0.20671916 0.91861091 0.48841119
0.61174386
0.76590786 0.51841799 0.2968005 0.18772123 0.08074127]
COST: 0.22297053936042732
Thetas [[5.63572435 0.3247043 -0.15830304 0.0303697 0.13663434 -0.10249724
0.04698128 -0.13171255 -0.37783608 0.11975005 0.21171482]]
Last 10 costs [0.22297261 0.22297238 0.22297215 0.22297192 0.22297169 0.22297146
0.22297123 0.222971 0.22297077 0.22297054]

=====
Run#: 8
The seed for random thetas initializing: 5
Thetas initial vector: [0.22199317 0.87073231 0.20671916 0.91861091 0.48841119
0.61174386
0.76590786 0.51841799 0.2968005 0.18772123 0.08074127]
COST: 0.2994862184644867
Thetas [[5.30697942 0.38390712 -0.06007044 0.23925582 0.09411145 -0.02905457
0.10707541 -0.15440013 -0.41019758 0.29354404 0.12701107]]
Last 10 costs [0.29993724 0.29988698 0.29983676 0.29978657 0.29973642 0.2996863
0.29963623 0.29958619 0.29953618 0.29948622]

=====
Run#: 9
The seed for random thetas initializing: 7
Thetas initial vector: [0.07630829 0.77991879 0.43840923 0.72346518 0.97798951
0.53849587
0.50112046 0.07205113 0.26843898 0.4998825 0.67923]
COST: 0.2226754765491148
Thetas [[5.63602251 0.30970549 -0.17626715 0.00617321 0.13533496 -0.10501419
0.0384663 -0.12583919 -0.36154067 0.10145347 0.21366243]]
Last 10 costs [0.22267554 0.22267554 0.22267553 0.22267552 0.22267551 0.22267551
0.2226755 0.22267549 0.22267548 0.22267548]

=====
Run#: 10
The seed for random thetas initializing: 7
Thetas initial vector: [0.07630829 0.77991879 0.43840923 0.72346518 0.97798951
0.53849587
0.50112046 0.07205113 0.26843898 0.4998825 0.67923]
COST: 0.22270485773076173
Thetas [[5.63602196 0.31761548 -0.17356775 0.00756276 0.13670674 -0.10383723

0.03940719 -0.12571727 -0.36759085 0.1061382 0.21385407]]
Last 10 costs [0.22270512 0.22270509 0.22270506 0.22270504 0.22270501 0.22270498
0.22270495 0.22270492 0.22270489 0.22270486]

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