

Abalone Data Set

<https://archive.ics.uci.edu/ml/datasets/abalone>

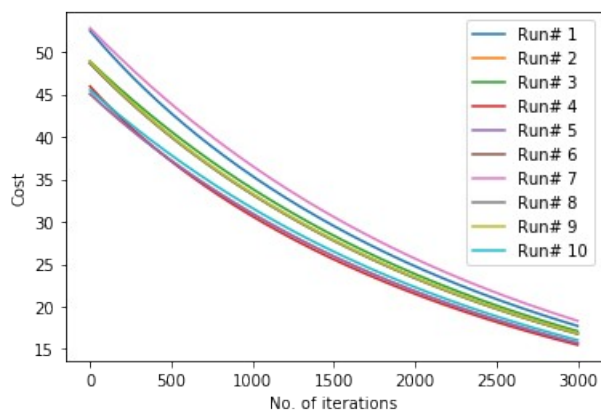
num_iters = 3000, rate = 0.0002

```
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]
COST: 17.719126407297818
Thetas [[ 4.6041151 0.59924085 -0.02593194 0.71028037 0.17622965 0.10937262
0.40272001]]
Last 10 costs [17.77064314 17.76490989 17.75917893 17.75345027 17.7477239 17.74199982
17.73627804 17.73055854 17.72484133 17.71912641]
=====
Run#: 2
The seed for random thetas initializing: 8
Thetas initial vector: [0.8734294 0.96854066 0.86919454 0.53085569 0.23272833 0.0113988
0.43046882]
COST: 15.70875178393636
Thetas [[ 4.96160943 0.77910019 0.71338968 0.45933761 0.07199528 -0.32885008
0.21921728]]
Last 10 costs [15.75351593 15.74853418 15.74355443 15.73857666 15.73360088 15.72862709
15.72365528 15.71868547 15.71371763 15.70875178]
=====
Run#: 3
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]
COST: 17.102513415781612
Thetas [[ 4.71114277 0.81634032 0.13543027 0.47710472 0.23189925 -0.02105772
0.21839999]]
Last 10 costs [17.15193704 17.14643676 17.14093868 17.13544279 17.12994909 17.12445758
17.11896826 17.11348113 17.10799618 17.10251342]
=====
Run#: 4
The seed for random thetas initializing: 4
Thetas initial vector: [0.96702984 0.54723225 0.97268436 0.71481599 0.69772882 0.2160895
0.97627445]
COST: 15.48216197687848
Thetas [[ 5.01297536 0.21562756 0.67126991 0.4886451 0.33819973 -0.31705584
0.55975356]]
Last 10 costs [15.52611284 15.52122157 15.51633227 15.51144492 15.50655953 15.50167611
15.49679464 15.49191513 15.48703757 15.48216198]
=====
Run#: 5
The seed for random thetas initializing: 8
Thetas initial vector: [0.8734294 0.96854066 0.86919454 0.53085569 0.23272833 0.0113988
0.43046882]
COST: 15.70875178393636
Thetas [[ 4.96160943 0.77910019 0.71338968 0.45933761 0.07199528 -0.32885008
0.21921728]]
Last 10 costs [15.75351593 15.74853418 15.74355443 15.73857666 15.73360088 15.72862709
15.72365528 15.71868547 15.71371763 15.70875178]
=====
Run#: 6
The seed for random thetas initializing: 0
Thetas initial vector: [0.5488135 0.71518937 0.60276338 0.54488318 0.4236548 0.64589411
0.43758721]
COST: 16.785215155185963
Thetas [[4.78346714 0.50261264 0.42550358 0.44496482 0.18721405 0.21071596
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0.15885225]]
Last 10 costs [16.83334422 16.827988 16.82263392 16.81728198 16.81193217 16.8065845
16.80123896 16.79589556 16.79055429 16.78521516]
=====
Run#: 7
The seed for random thetas initializing: 9
Thetas initial vector: [0.01037415 0.50187459 0.49577329 0.13382953 0.14211109 0.21855868
0.41850818]
COST: 18.327214237978026
Thetas [[4.48798309 0.51699103 0.54583426 0.27131733 0.14257726 0.02006259
0.36313958]]
Last 10 costs [18.38097585 18.37499281 18.36901216 18.36303389 18.357058 18.35108449
18.34511336 18.33914461 18.33317824 18.32721424]
=====
Run#: 8
The seed for random thetas initializing: 0
Thetas initial vector: [0.5488135 0.71518937 0.60276338 0.54488318 0.4236548 0.64589411
0.43758721]
COST: 16.785215155185963
Thetas [[4.78346714 0.50261264 0.42550358 0.44496482 0.18721405 0.21071596
0.15885225]]
Last 10 costs [16.83334422 16.827988 16.82263392 16.81728198 16.81193217 16.8065845
16.80123896 16.79589556 16.79055429 16.78521516]
=====
Run#: 9
The seed for random thetas initializing: 3
Thetas initial vector: [0.5507979 0.70814782 0.29090474 0.51082761 0.89294695 0.89629309
0.12558531]
COST: 16.87030797231797
Thetas [[ 4.78455614 0.49915703 0.11972986 0.41437939 0.63009982 0.4251455
-0.1641212 ]]
Last 10 costs [16.91849591 16.91313314 16.90777252 16.90241403 16.89705769 16.89170347
16.8863514 16.88100146 16.87565365 16.87030797]
=====
Run#: 10
The seed for random thetas initializing: 10
Thetas initial vector: [0.77132064 0.02075195 0.63364823 0.74880388 0.49850701 0.22479665
0.19806286]
COST: 16.04713528852006
Thetas [[ 4.90557432e+00 -6.76484715e-04 6.39700308e-01 7.52337956e-01
4.42813025e-01 -2.10751701e-02 9.87667944e-02]]
Last 10 costs [16.09293577 16.08783871 16.08274368 16.07765068 16.07255971 16.06747077
16.06238386 16.05729898 16.05221612 16.04713529]
=====

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num_iters = 3000, rate = 0.0002

Run#: 1

The seed for random thetas initializing: 6

Thetas initial vector: [0.89286015 0.33197981 0.82122912 0.04169663 0.10765668
0.59505206
0.52981736]

COST: 11.823504360993976

Thetas [[5.87170525 0.27075015 0.80298146 0.17913229 0.01496868 0.22658226
0.36631498]]

Last 10 costs [11.85358477 11.8502372 11.84689095 11.84354603 11.84020244
11.83686017

11.83351923 11.83017962 11.82684133 11.82350436]

=====
Run#: 2

The seed for random thetas initializing: 9

Thetas initial vector: [0.01037415 0.50187459 0.49577329 0.13382953 0.14211109
0.21855868
0.41850818]

COST: 13.408524942297552

Thetas [[5.47521046 0.52428492 0.56446495 0.31424874 0.14788033 -0.03926071
0.34976765]]

Last 10 costs [13.44463148 13.44061325 13.43659663 13.4325816 13.42856817
13.42455634

13.4205461 13.41653745 13.4125304 13.40852494]

=====
Run#: 3

The seed for random thetas initializing: 4

Thetas initial vector: [0.96702984 0.54723225 0.97268436 0.71481599 0.69772882
0.2160895
0.97627445]

COST: 11.464243396387236

Thetas [[5.90502918 0.21725738 0.68265494 0.51164462 0.33470775 -0.37968128
0.53517403]]

Last 10 costs [11.49372264 11.49044195 11.48716256 11.48388448 11.48060771
11.47733224

11.47405807 11.47078521 11.46751365 11.4642434]

=====
Run#: 4

The seed for random thetas initializing: 7

Thetas initial vector: [0.07630829 0.77991879 0.43840923 0.72346518 0.97798951
0.53849587
0.50112046]

COST: 13.243450896800377

Thetas [[5.50483421 0.48811479 0.19447636 0.54840615 0.63040406 -0.0611948
0.10003987]]

Last 10 costs [13.2790785 13.27511357 13.27115022 13.26718845 13.26322825
13.25926963

13.25531258 13.25135711 13.24740322 13.2434509]

=====
Run#: 5

The seed for random thetas initializing: 4

Thetas initial vector: [0.96702984 0.54723225 0.97268436 0.71481599 0.69772882
0.2160895
0.97627445]

COST: 11.464243396387236

Thetas [[5.90502918 0.21725738 0.68265494 0.51164462 0.33470775 -0.37968128
0.53517403]]

Last 10 costs [11.49372264 11.49044195 11.48716256 11.48388448 11.48060771
11.47733224

11.47405807 11.47078521 11.46751365 11.4642434]

```
=====
Run#: 6
The seed for random thetas initializing: 0
Thetas initial vector: [0.5488135 0.71518937 0.60276338 0.54488318 0.4236548
0.64589411
0.43758721]
COST: 12.382907114065944
Thetas [[5.7171275 0.50608928 0.4404315 0.47512229 0.18655605 0.14371457
0.14256865]]
Last 10 costs [12.41521969 12.41162369 12.40802912 12.40443598 12.40084426
12.39725398
12.39366512 12.39007769 12.38649169 12.38290711]
=====
```

```
Run#: 7
The seed for random thetas initializing: 10
Thetas initial vector: [0.77132064 0.02075195 0.63364823 0.74880388 0.49850701
0.22479665
0.19806286]
COST: 11.857248747546855
Thetas [[ 5.8170984 0.01249094 0.66179773 0.77002511 0.44767132 -0.07862692
0.08859046]]
Last 10 costs [11.88800209 11.88457961 11.88115849 11.87773874 11.87432034
11.8709033
11.86748763 11.86407331 11.86066035 11.85724875]
=====
```

```
Run#: 8
The seed for random thetas initializing: 9
Thetas initial vector: [0.01037415 0.50187459 0.49577329 0.13382953 0.14211109
0.21855868
0.41850818]
COST: 13.408524942297552
Thetas [[ 5.47521046 0.52428492 0.56446495 0.31424874 0.14788033 -0.03926071
0.34976765]]
Last 10 costs [13.44463148 13.44061325 13.43659663 13.4325816 13.42856817
13.42455634
13.4205461 13.41653745 13.4125304 13.40852494]
=====
```

```
Run#: 9
The seed for random thetas initializing: 6
Thetas initial vector: [0.89286015 0.33197981 0.82122912 0.04169663 0.10765668
0.59505206
0.52981736]
COST: 11.823504360993976
Thetas [[5.87170525 0.27075015 0.80298146 0.17913229 0.01496868 0.22658226
0.36631498]]
Last 10 costs [11.85358477 11.8502372 11.84689095 11.84354603 11.84020244
11.83686017
11.83351923 11.83017962 11.82684133 11.82350436]
=====
```

```
Run#: 10
The seed for random thetas initializing: 4
Thetas initial vector: [0.96702984 0.54723225 0.97268436 0.71481599 0.69772882
0.2160895
0.97627445]
COST: 11.464243396387236
Thetas [[ 5.90502918 0.21725738 0.68265494 0.51164462 0.33470775 -0.37968128
0.53517403]]
```

Last 10 costs [11.49372264 11.49044195 11.48716256 11.48388448 11.48060771
11.47733224
11.47405807 11.47078521 11.46751365 11.4642434]

