366 Programming Assignment2
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Printout for step 3:
Tile indices for input (0.1 , 0.1) are : [0, 121, 242, 363, 484, 605, 726, 859]
Tile indices for input (4.0 , 2.0) are : [39, 160, 281, 403, 524, 645, 777, 898]
Tile indices for input (5.99 , 5.99) are : [108, 241, 362, 483, 604, 725, 846, 967]
Tile indices for input (4.0 , 2.1) are : [39, 160, 281, 403, 535, 656, 777, 898]
Example (0.1 , 0.1 , 3.0):   f before learning: 0.0   f after learning : 0.3
Example (4.0 , 2.0 , -1.0):   f before learning: 0.0   f after learning : -0.1
Example (5.99 , 5.99 , 2.0):   f before learning: 0.0   f after learning : 0.2
Example (4.0 , 2.1 , -1.0):   f before learning: -0.075   f after learning : -0.1675

printout for step 4:
The estimated MSE: 0.252190575702
The estimated MSE: 0.0571171192725
The estimated MSE: 0.0203280944759
The estimated MSE: 0.0145704803135
The estimated MSE: 0.0123877960773
The estimated MSE: 0.0117900801871
The estimated MSE: 0.0116607669623
The estimated MSE: 0.0113663539084
The estimated MSE: 0.0109493847451
The estimated MSE: 0.011418130484
The estimated MSE: 0.0110914549478

Answer for step 3:
From the above on “Printout for step 3” we can see that the input coordinates and targets for the fourth point (4.0 2.1)is similar to the second point (4.0, 2.0). And before the fourth point, the experience of the target -0.1 has already been learned in the second point, and the fourth point get the before value by using the weights updated by the second point. So the before value of the fourth point is non-zero.

Answer for step 4:
When we compute target, we have a normally distributed random number with standard deviation of 0.1 added to the target, this caused the square error to be the square root of 0.1 which is 0.01. And one another thing is the step size is not big enough to converge the MSE to zero, and there will always errors in the estimation, so MSE will not decrease further towards zero.