Lab 1 Gradient Descent Reflection

Learning the machine learning Gradient descent method that is optimization algorithm to find minimum or maximum of a function.

We definied starting points randomly, predict the value using the parameters and compute the cost. Find the smallest cost of function values for the pre-defined iteration.

Initiate parameter and then predict y, then find the error between predict and actual value.

If the error is high then modify the initiate parameter, then predict and then find error again, until then the error nearly to zero.

We will stop the searching, when there is no more error difference and define number of iterations.

Even though the parameter change, the error difference not change, that is the best parameter. We can change the parameter until we get the best solution. Gradient descent iteratively adjusts the model parameters (weights and biases).

အဖြေ တခု ရမယ် လို့ မှန်းပြီး ပြောင်း ထည့်ပြီး တွက် ကြည့် ပေမယ့် ရလဒ် က ကိုယ်မှန်း ထားတာ နဲ့မတူလို့ ကိုယ် နားလည် ထားတာသေချာ ထပ် ပြီးနားလည် ဖို့ လို အပ် လာမယ်

Learning Rate သေးသွားတဲ့ အခါ iterations ပို လိုပြီး progress ကို နှေးသွားစေတယ် ကြီး သွားတဲ့ အခါ ဆိုလဲ minimun cost of function ကို ကျော်သွားတယ်

Reducing cost function, tuning learning rate is important.

alpha,	num_iterations,	value_b,	value_weight,	cost,
0.01,	400,	0.004104,	0.573686,	0.664652
0.05,	400,	0.001812	0.576241	0.664632
0.05,	4000,	0.000687	0.574665	0.664631
0.001,	40000,	0.012786	0.566991	0.664877
0.000099	400	0.169623	0.897899	0.796410
0.00001	400	0.145817	0.308793	0.757055

alpha=0.01,num_iterations=400,cost=14.018275648432713

alpha=0.01,num_iterations=4000,cost=14.020617204800029

alpha=0.01,num_iterations=40000,cost=14.02049956310724

alpha=0.001,num_iterations=300,cost=13.990646842757954

alpha=0.00001,num_iterations=100,cost=0.6658993316666123

alpha=0.00001,num_iterations=50,cost=0.6525359167698648

alpha=0.000001,num_iterations=400,cost=0.6402029949698536

alpha=0.000001,num_iterations=400,cost=0.6394270661193477

alpha=0.0000000001, num_iterations=30,cost=0.6394268011344983

alpha=0.000000000000000002,num_iterations=400,cost=0.6394267984578837

alpha=0.000000099,num_iterations=400,cost=0.6404840463487208

alpha=0.00000001,num_iterations=400,cost=0.6395335949569811