

Class of bugs		Contracts
Improper data	Data normalization problem	Precondition: normalization_interval<=2 Postcondition: True
	Incorrect activation and loss function: regression	Precondition: last_layer_output_class=1, activation='linear', loss_func='mse mean_squared_error', Postcondition: True
Structural and logic bugs	Incorrect activation and loss function: binary classification	Precondition: last_layer_output_class=2, activation='sigmoid', loss_func='binary_crossentropy', Postcondition: True
	Incorrect activation and loss function: multiclass classification	Precondition: last_layer_output_class>2, <=10, activation='softmax', loss_func='categorical_crossentropy' Postcondition: True
	Incorrect activation and loss function: multilabel multiclass classification	Precondition: last_layer_output_class>10, activation='sigmoid', loss_func='binary_crossentropy' Postcondition: True
	Incorrect activation in hidden layers	Precondition: in_between_layers, activation !=linear Postcondition: True
	Incorrect hyperparameter	Precondition: learn_rate >0.0000007, <0.01 Postcondition: True
	Overfitting	Precondition: True, Postcondition: diff_val_loss<0, diff_loss<=0
Training problem	High validation accuracy	Postcondition: val_acc_threshold<0.95, diff_val_acc_train_acc<0.05
	High dropout rate	Precondition: dropout_rate>0.5 Postcondition: True
	Dying relu	Precondition: activation!='relu', Postcondition: zero_gradients_percentage < λ
	Vanishing gradient	Precondition: activation!='tanh sigmoid exponential relu', Postcondition: gradients_rate > β_1 , norm_kernel> ζ
	Exploding gradient	Precondition: activation!='tanh sigmoid exponential relu', Postcondition: gradients_rate_EG< β_2 , gradient_value!=nan
	Oscillating loss	Precondition: True, Postcondition: , accuracy_fluctuation_rate<= η , val_acc_diff>= δ
	Slow convergence	Precondition: True, Postcondition: acc_diff >= δ