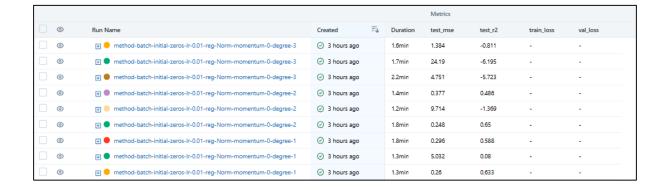
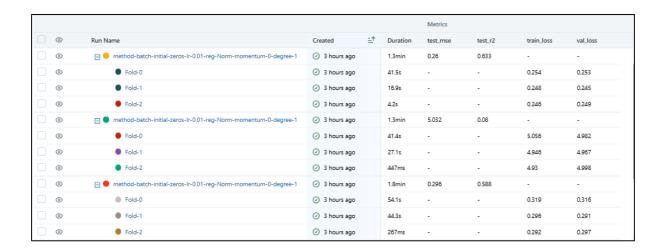
Report for Car pricing prediction system

Degrees and type of regularization

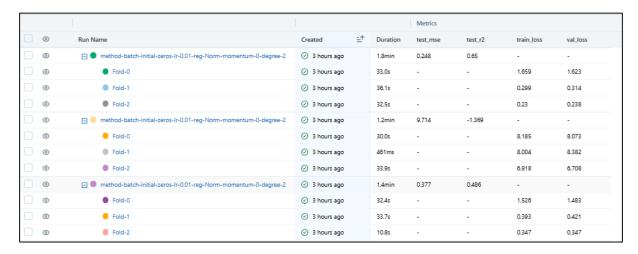
After running model in degree of polynomial regression 1 and 2 and regularization, including to lasso, ridge and normal with epoch 500 epochs, it finds that regression with first degree of polynomial (linear) and without regularization(normal) provides the most accuracy with r-square of 0.588 and MSE from testing with 0.296. Another interesting point is that regression model with second of polynomial (parabola) with ridge regularization performs the least accuracy with r-square of -1.369 and MSE from testing with 9.714.





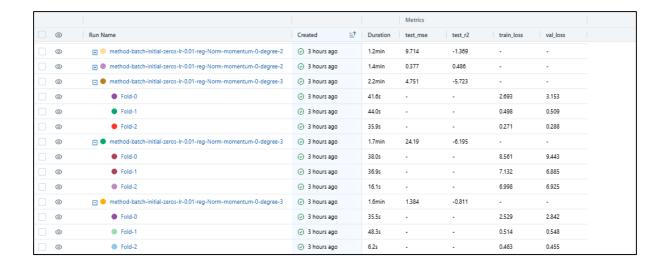
Momentum

After running model with momentum, indicated as 0.025 and without momentum with epoch 500 epochs, it finds that regression without momentum provides accuracy more than with momentum with MSE and R-square at 0.248 and 0.65, respectively.



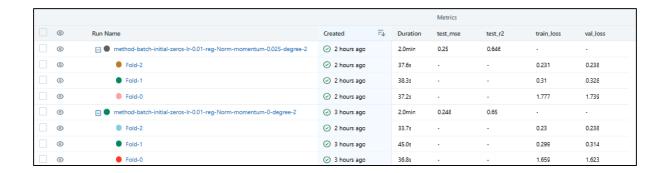
Type of initialization

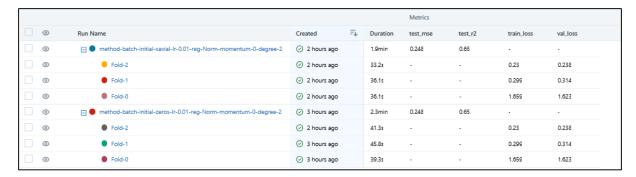
After running model with Zeros initialization and Xavier initialization in 500 epochs, it finds that regression with Xavier initialization provides accuracy close to with Zeros initialization with MSE and R-square at 0.248 and 0.65, respectively.



Regression method

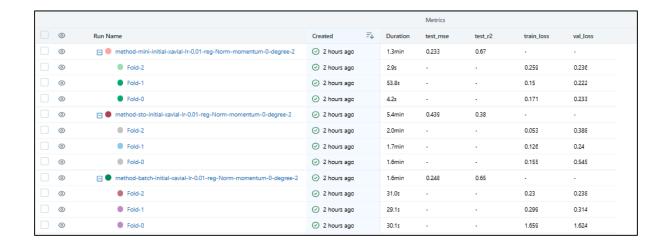
After running the model comparing regression method: batch gradient, stochastic gradient and mini-batch gradient 500 epochs, it finds that regression with mini-batch gradient provides the most accuracy with MSE and R-square at 0.248 and 0.65, respectively.





Learning rate

After running model comparing learning rates, including to 0.01, 0.001, 0.0001, in 500 epochs, it finds that regression with learning rate of 0.01 provides the most accuracy with MSE and R-square at 0.233 and 0.67, respectively. Another interesting point is that increasing the learning rate from 0.01 to 0.0001 makes model predict less accuracy.



					Metrics			
0	Run Name	Created	- ↓	Duration	test_mse	test_r2	train_loss	val_loss
0	method-mini-initial-xavial-Ir-0.0001-reg-Norm-momentum-0-degree-2	② 2 hours ago		2.7min	1.104	-0.375	-	•
0	Fold-2	2 hours ago		50.5s		•	0.529	0.663
0	● Fold-1	 2 hours ago 		51.7s	-	-	3.058	2.362
0	Fold-0	② 2 hours ago		44.0s			6.919	8.73
0	method-mini-initial-xavial-Ir-0.001-reg-Norm-momentum-0-degree-2	2 hours ago		46.5s	0.23€	0.667		•
0	Fold-2	 2 hours ago 		1.4s	-	•	0.215	0.236
0	Fold-1	2 hours ago		3.6s			0.191	0.222
0	● Fold-0	② 2 hours ago		30.8s		•	0.299	0.233
0	☐	② 2 hours ago		1.2min	0.233	0.67		
0	● Fold-2	 2 hours ago 		2.8s	-		0.125	0.236
0	● Fold-1	2 hours ago		52.8s			0.242	0.221
0	● Fold-0	2 hours ago		8.4s	-	-	0.298	0.233

Conclusion

According to result, regression model with parameters second-degree of polynomial without regularization, without momentum, Xavier initialization, method of mini-batch gradient and learning rate of 0.01 performs the most accuracy, indicating a great fit in model with MSE and R-square being 0.233 and 0.67, respectively.