

SSE Homework

Instance	x	y	Output1	Target1	Output2	Target2	Data Set
1	-1	-1	0	1	0.6	1.0	
2	-1	1	1	1	-0.3	0	
3	1	-1	1	0	1.2	0.5	
4	1	1	0	0	0	-0.2	
L1			2		1.6		3.6
SSE			2		0.78		2.78
MSE			0.5		0.195		0.3475
RMSE			0.7071		0.4410		0.5895

- **L1 Error (Output1):** Sum of absolute errors = $|0 - 1| + |1 - 1| + |1 - 0| + |0 - 0| = 2$
- **L1 Error (Output2):** Sum of absolute errors = $|0.6 - 1.0| + |-0.3 - 0| + |1.2 - 0.5| + |0 - (-0.2)| = 1.6$
- **L1 Error (Data Set):** Total L1 error = L1 (Output1) + L1 (Output2) = $2 + 1.6 = 3.6$
- **SSE (Output1):** Sum of squared errors = $(-1)^2 + (0)^2 + (1)^2 + (0)^2 = 2$
- **SSE (Output2):** Sum of squared errors = $(-0.4)^2 + (-0.3)^2 + (0.7)^2 + (0.2)^2 = 0.78$
- **SSE (Data Set):** Total SSE = SSE (Output1) + SSE (Output2) = $2 + 0.78 = 2.78$
- **MSE (Output1):** SSE / Number of instances = $2 / 4 = 0.5$
- **MSE (Output2):** SSE / Number of instances = $0.78 / 4 = 0.195$
- **MSE (Data Set):** Total SSE / Total data points = $2.78 / 8 = 0.3475$
- **RMSE:** Square root of MSE for each case.