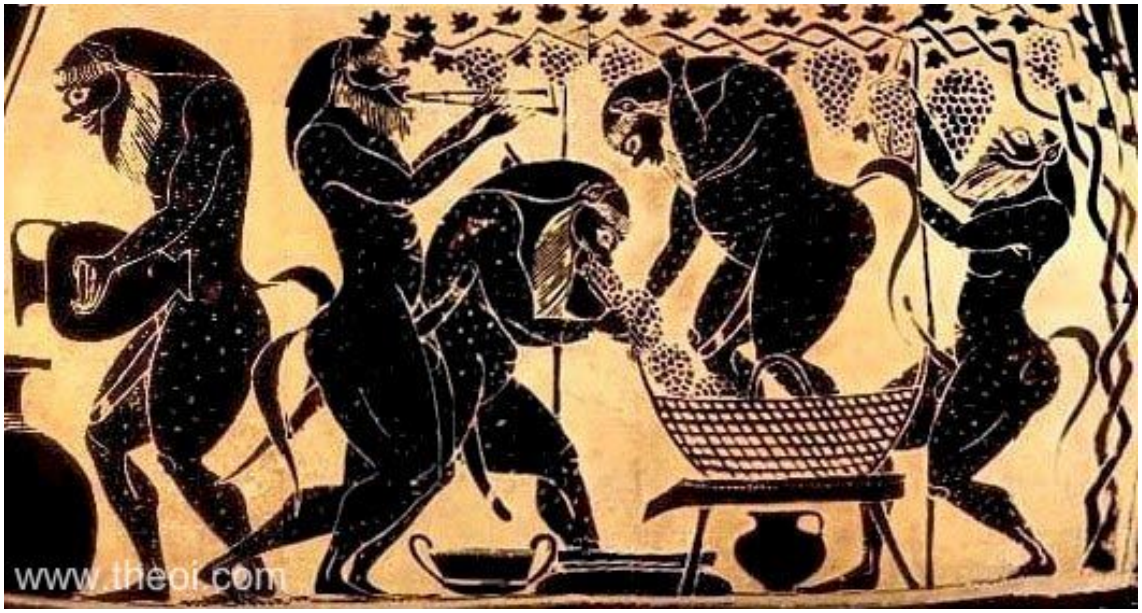
Virtual Wine Taster



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[June 12, 2015]

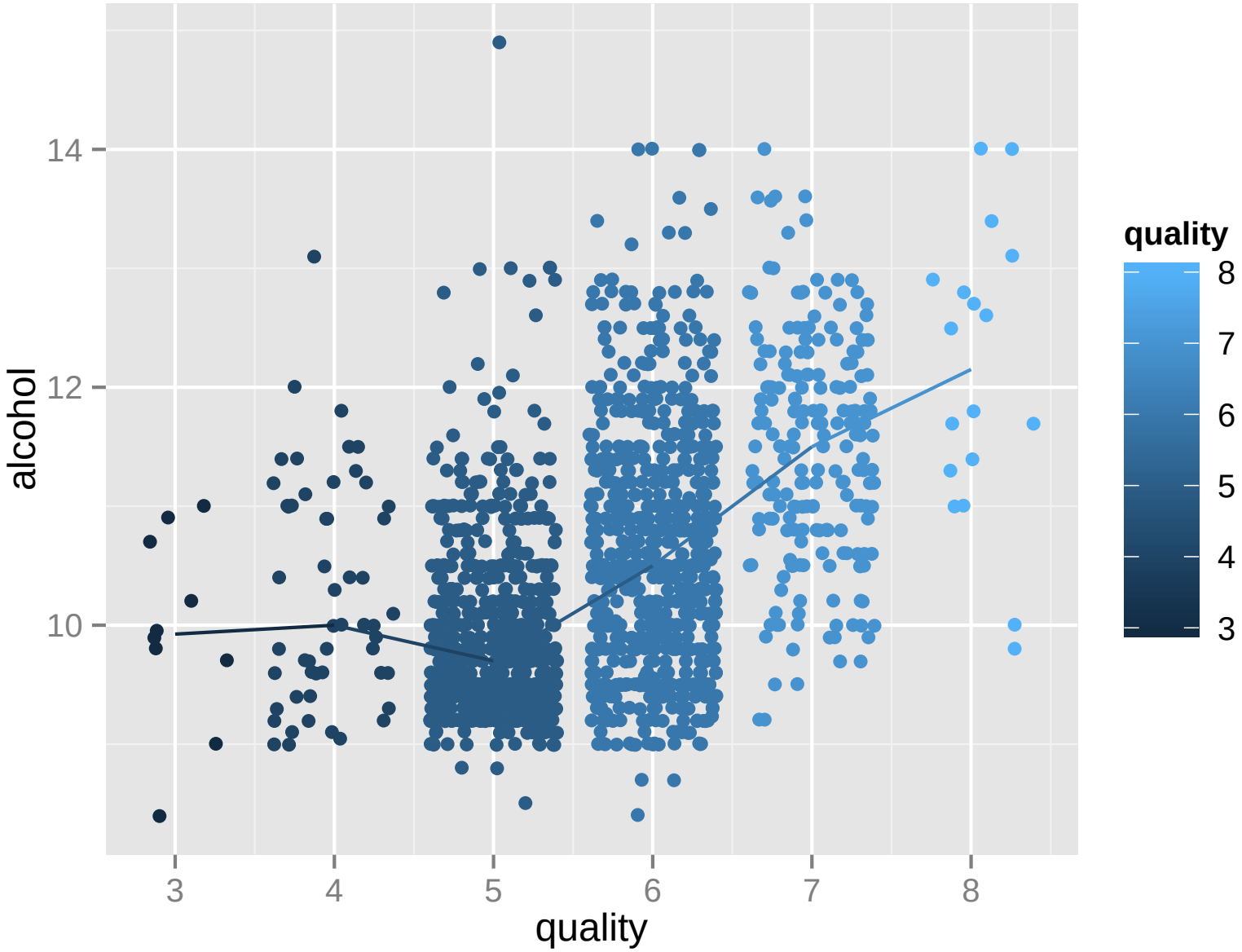
Problem

- Can we predict how people will rate a certain type of wine (from 0 to 10) based on its chemical properties?

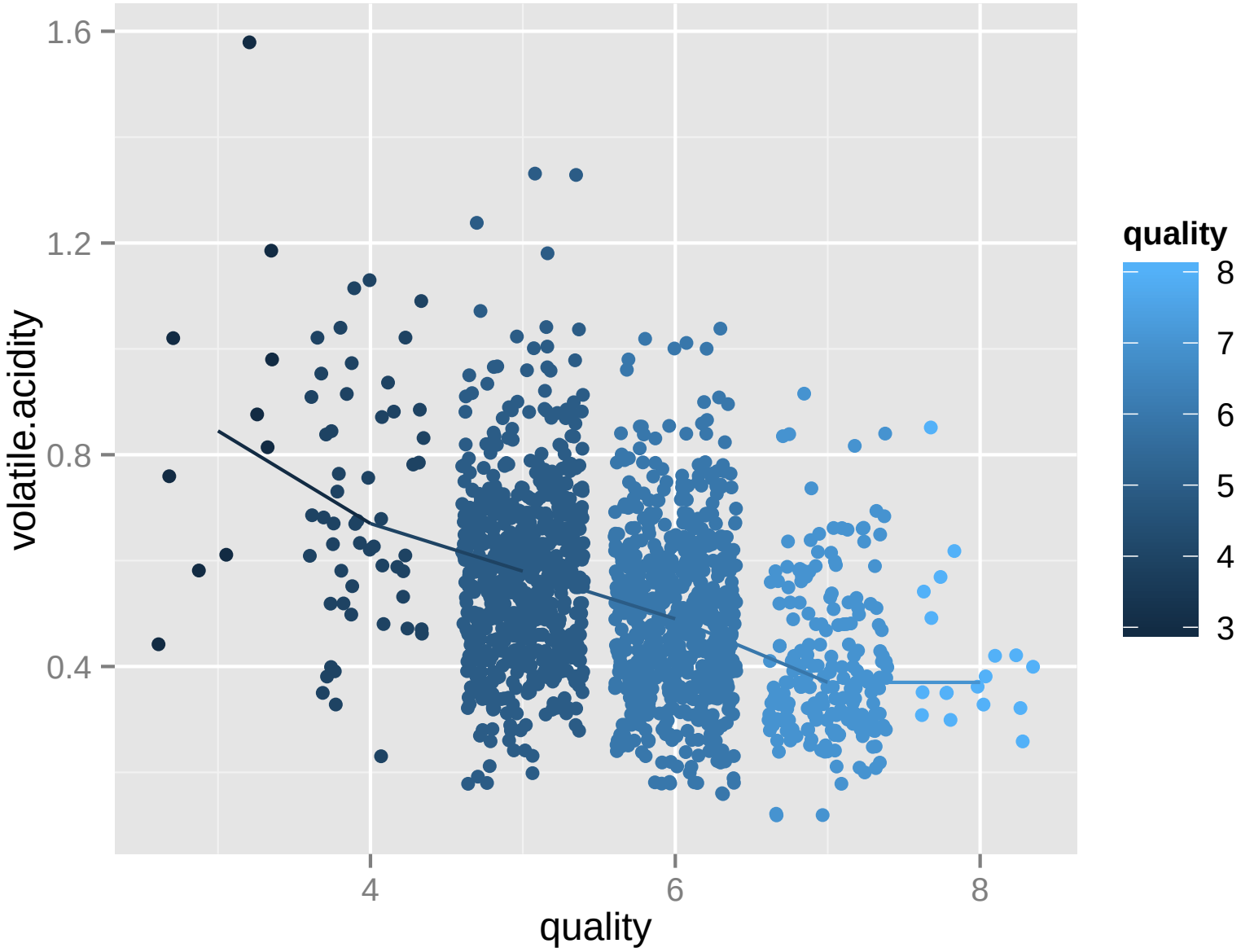
- Useful for producers/sellers of wine. They can improve their product/decide to buy specific wines based on a taste prediction. The model may be able to make a specific recommendation for enhancing the taste of some wines.

- The data base has "blind" assesments of wine taste (0-10) and 11 chemical properties for each wine (alcohol content, sugar content, sulphates, pH, etc.).

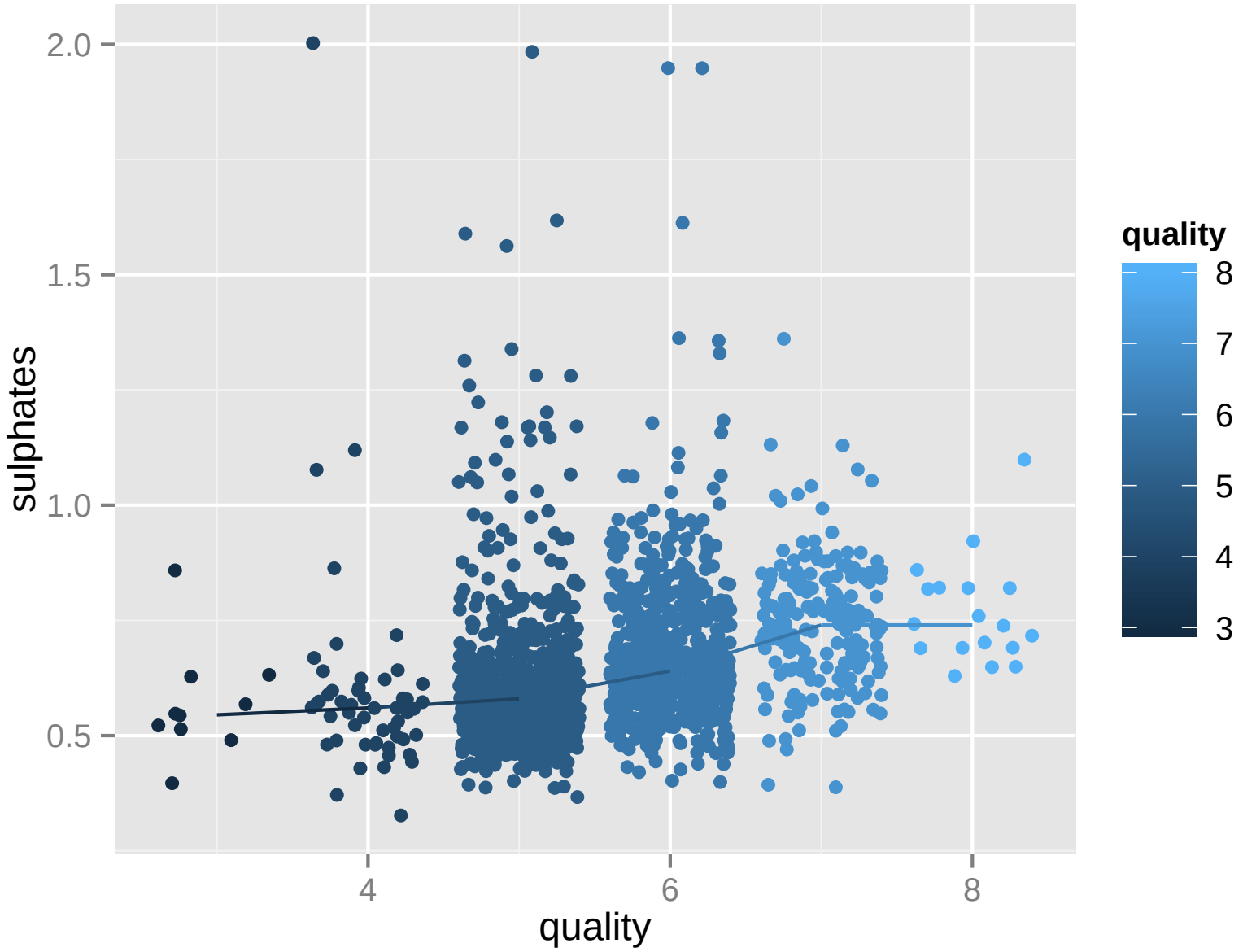
Scatter plot (Red wine)



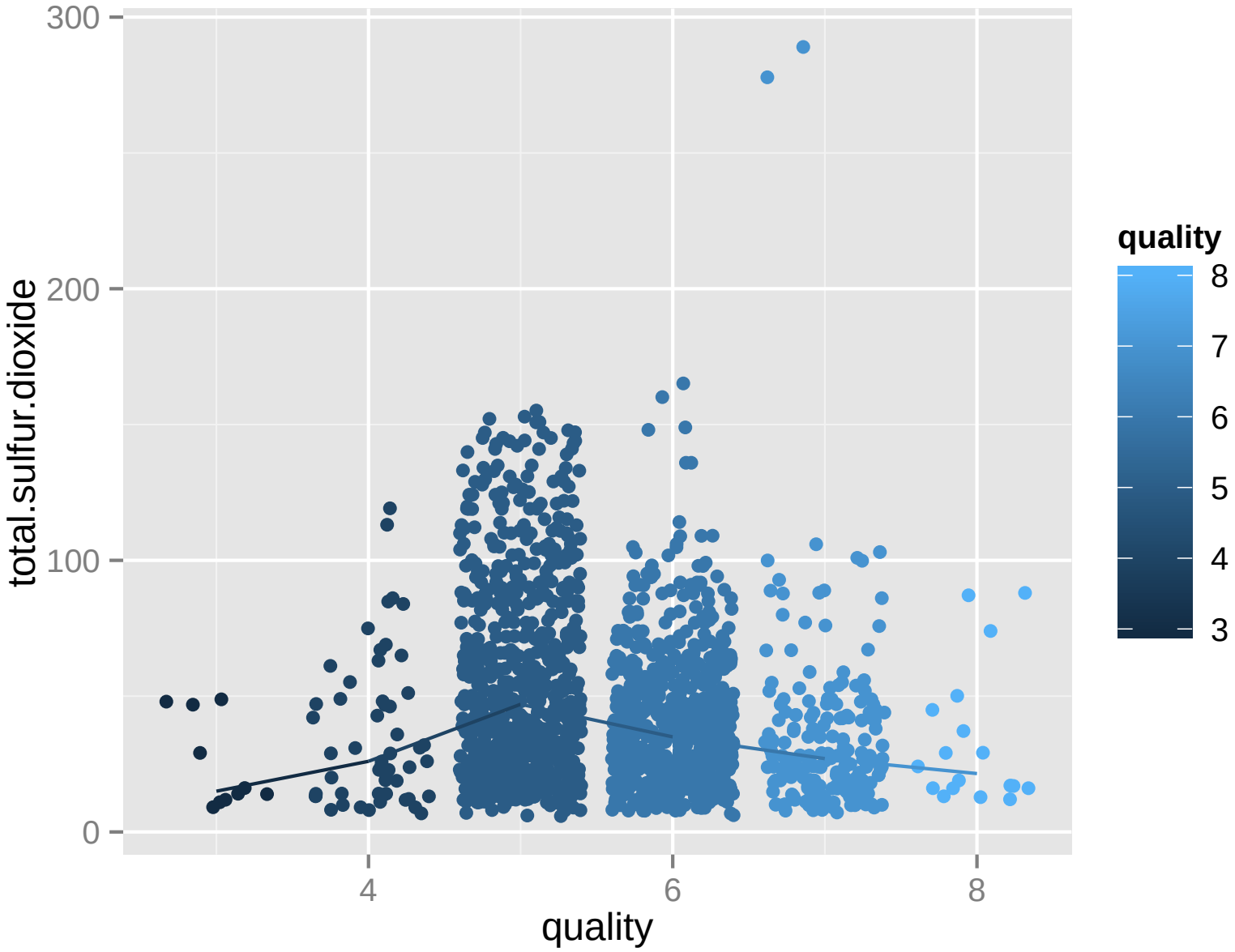
Scatter plot (Red wine)



Scatter plot (Red wine)



Scatter plot (Red wine)



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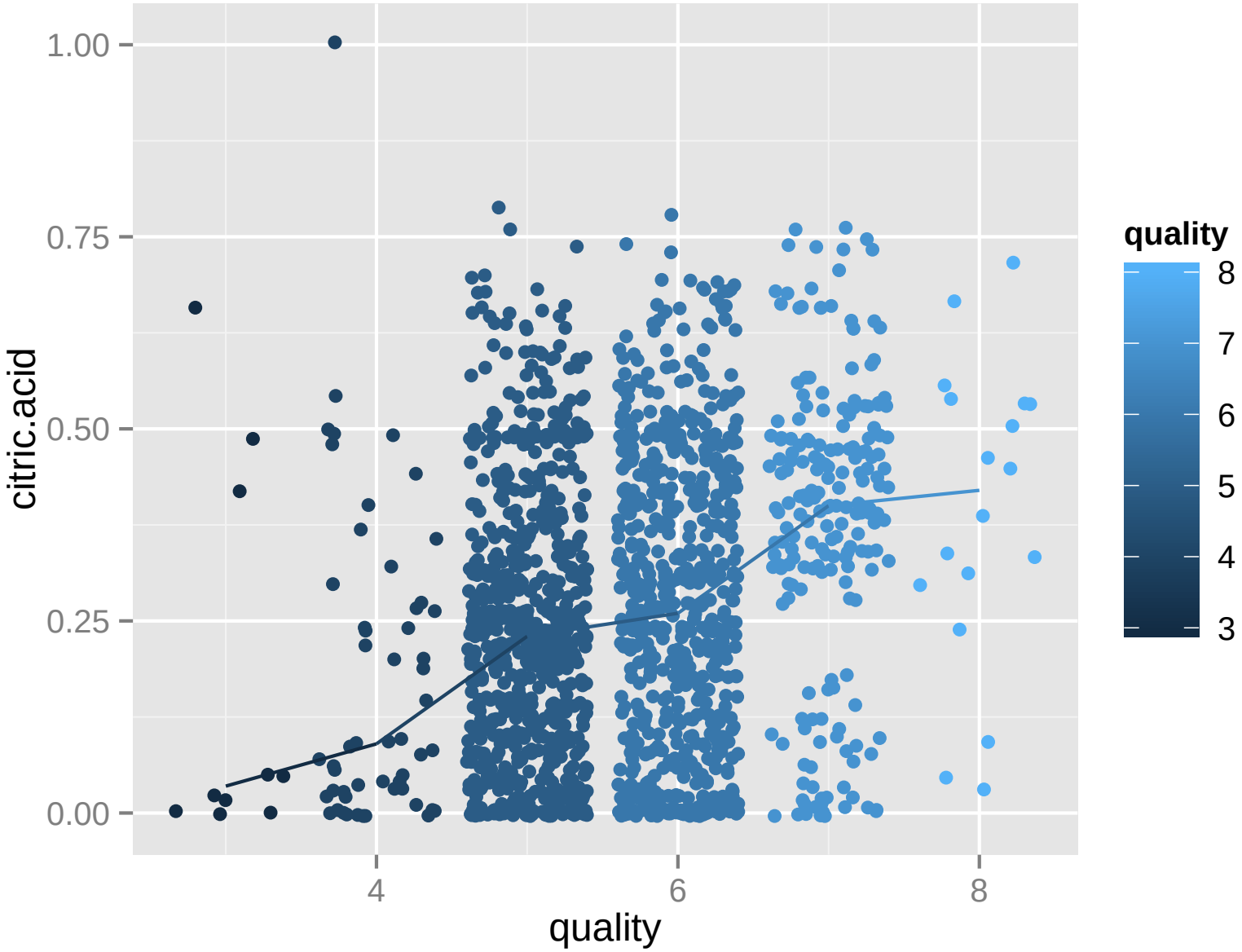

Methods - Supervised Learning

- Multiple regression over the available chemical properties (tried)
- SVM classifier (tried)
- Neural Networks

Multiple Regression

	m1	m2	m3	m4	m5	m6	m7	m8	m9	m10	m11
(Intercept)	5.636***	5.636***	5.636***	5.636***	5.636***	5.636***	5.636***	5.636***	5.636***	5.636***	5.636***
	(0.018)	(0.017)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)
I(alcohol)	0.385***	0.334***	0.330***	0.315***	0.295***	0.301***	0.307***	0.286***	0.312***	0.293***	0.294***
	(0.018)	(0.017)	(0.017)	(0.017)	(0.018)	(0.018)	(0.018)	(0.022)	(0.024)	(0.028)	(0.028)
volatile.acidity		-0.248***	-0.219***	-0.215***	-0.204***	-0.194***	-0.210***	-0.204***	-0.203***	-0.201***	-0.194***
		(0.017)	(0.017)	(0.017)	(0.017)	(0.018)	(0.021)	(0.021)	(0.021)	(0.021)	(0.022)
sulphates			0.115***	0.121***	0.155***	0.150***	0.150***	0.155***	0.152***	0.157***	0.155***
			(0.017)	(0.017)	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)
total.sulfur.dioxide				-0.074***	-0.076***	-0.071***	-0.065***	-0.063***	-0.072***	-0.075***	-0.107***
				(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.018)	(0.018)	(0.024)
chlorides					-0.080***	-0.082***	-0.074***	-0.075***	-0.086***	-0.086***	-0.088***
					(0.018)	(0.018)	(0.019)	(0.019)	(0.020)	(0.020)	(0.020)
fixed.acidity						0.041*	0.064**	0.095**	0.028	0.054	0.044
						(0.017)	(0.024)	(0.030)	(0.041)	(0.045)	(0.045)
citric.acid							-0.040	-0.039	-0.044	-0.045	-0.036
							(0.028)	(0.028)	(0.028)	(0.028)	(0.029)
density								-0.048	-0.008	-0.041	-0.034
								(0.029)	(0.033)	(0.041)	(0.041)
pH									-0.068*	-0.056	-0.064*
									(0.028)	(0.029)	(0.030)
residual.sugar										0.028	0.023
										(0.021)	(0.021)
free.sulfur.dioxide											0.046*
											(0.023)