

Quiz 5

Number of participants: 79

1

By checking "I confirm", I do confirm that I am present in the Lecture Zoom meeting at the moment and am doing this quiz individually and without sharing my answers with anyone.

✓ I confirm



100%

79 votes

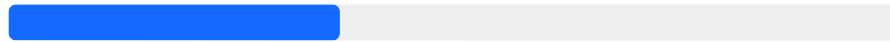
Slide

Quick Instructions

- **Remain muted** in Zoom during the whole quiz time
- If you have a **question**, type it in the Zoom chat
- The time is limited, please **follow the timer** displayed in Zoom
- Each question of the quiz has **exactly one correct answer**
- You must **press the "Submit" button** after answering every question
- **$GRADE = \min(10, \text{number of correct answers})$**

Terms "FORECAST" and "PREDICTION" are in general perfectly inter-changeable

TRUE



37%

29 votes

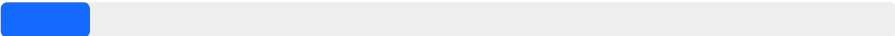
✓ FALSE



63%

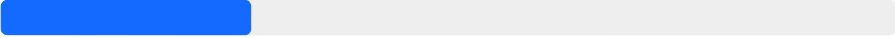
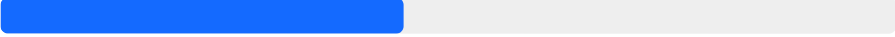
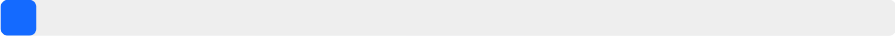
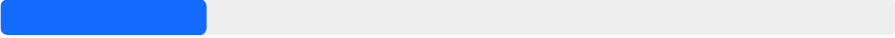
50 votes

The function $L(e) = |e|$ is...

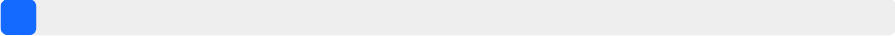
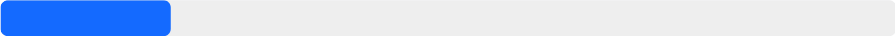

✓ a legit symmetric loss function		86%	68 votes
a legit asymmetric loss function		10%	8 votes
not a loss function		4%	3 votes

What is true about the loss function

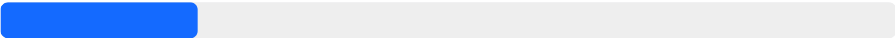



$$L(e) = 1_{\{e < 0\}} - 2 \times 1_{\{e > 0\}}$$

it punishes more for under-prediction		28%	22 votes
it punishes more for over-prediction		45%	35 votes
it is symmetric		4%	3 votes
✓ it is not an appropriate loss function		23%	18 votes

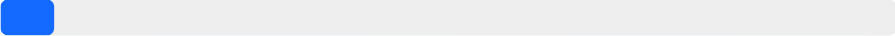
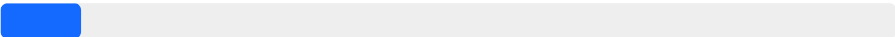
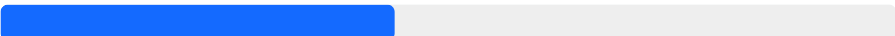
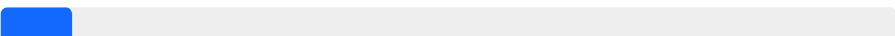
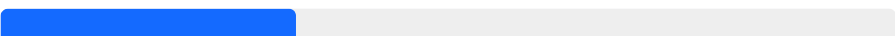
"MSE-optimal forecast" means that...

the forecast error is zero in expectation		4%	3 votes
the expected squared forecast error is minimized		19%	15 votes
✓ both of the above must hold		77%	61 votes

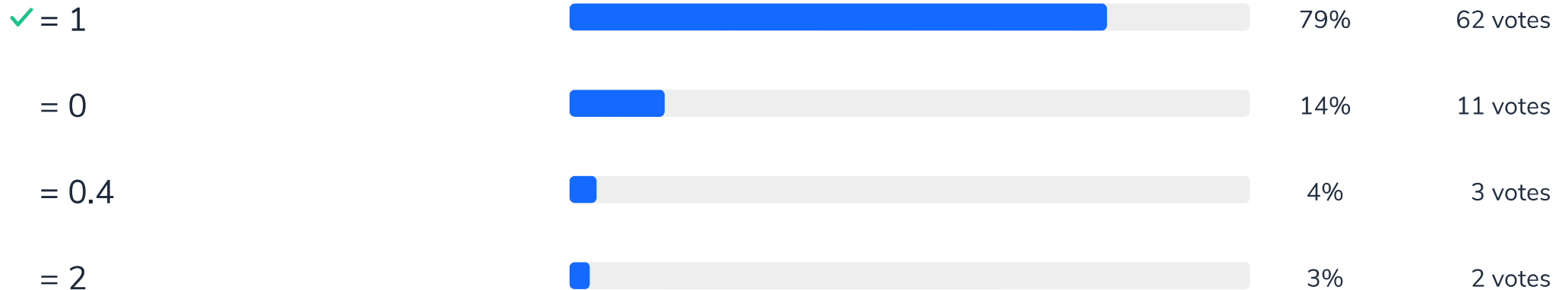
For a TS, the MSE-optimal forecast is the conditional expectation

✓ YES, either the TS is stationary or not		22%	17 votes
YES, but only for stationary TS		61%	48 votes
YES, but only for linear TS		13%	10 votes
NO, it can be something else		5%	4 votes

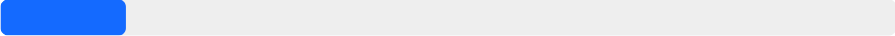
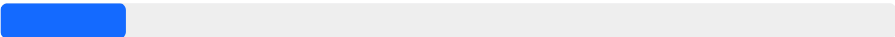
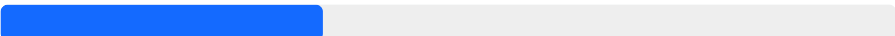
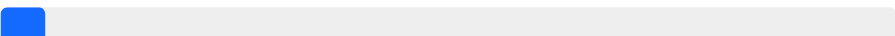
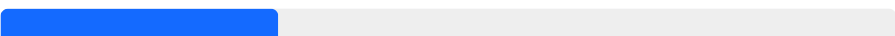
Consider AR(1) process: $X(t) = 0.4 + 0.2X(t-1) + e(t)$, $e(t)$ is WWN. The long-run MSE-optimal forecast ...

can't be found		6%	5 votes
= 0.4		9%	7 votes
✓ = 0.5		44%	35 votes
= 0.6		8%	6 votes
not enough data		33%	26 votes

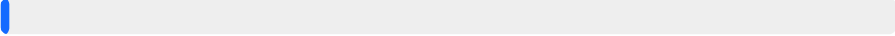
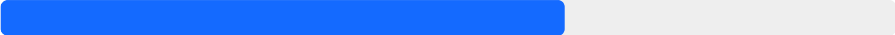
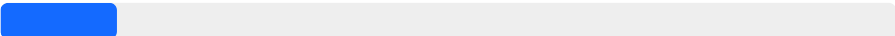
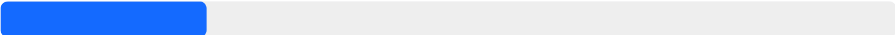
Consider MA(2) process: $X(t) = 1 + e(t) + 0.5e(t-1) - 0.9e(t-2)$. The long-run MSE-optimal forecast ...




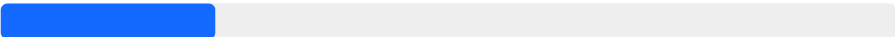
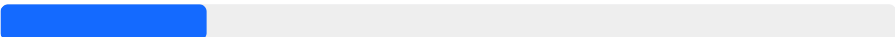
Consider ARMA(1,1) process: $X(t) = 1.5 + e(t) + 0.5e(t-1) - 0.5X(t-1)$. The long-run MSE-optimal forecast ...

can't be found		14%	11 votes
= 0		14%	11 votes
✓ = 1		36%	28 votes
= 2		5%	4 votes
not enough data		31%	24 votes

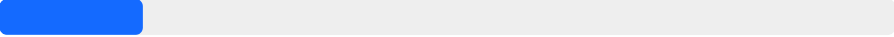
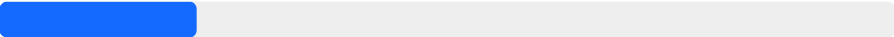
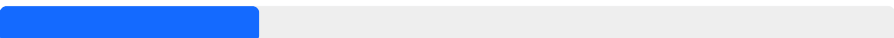
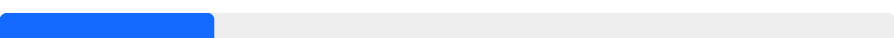
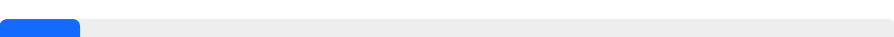
By "MEAN REVERSION" of forecasts we mean that

optimal forecast are some expectations		1%	1 vote
✓ conditional expectations converge to unconditional at the infinite horizon		63%	50 votes
forecast errors are zero in mean		13%	10 votes
long-run forecasts are some constants		23%	18 votes

"Forecast ERROR BANDS are a kind of confidence interval for the prediction"

✓ YES, but not exactly it, as confidence level is unknown		53%	42 votes
YES, it is exactly prediction confidence interval		24%	19 votes
NO, it's for the forecast error, not forecast itself		23%	18 votes

Consider a RW process $X_t = X_{t-1} + e_t$, where e_t is WWN. What is the MSE-optimal h -periods ahead forecast at time point t (for $h < \infty$), given the X_t value is known?

can't be found		16%	13 votes
zero		22%	17 votes
✓ X_t		29%	23 votes
hX_t		24%	19 votes
not enough data		9%	7 votes