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| Define: | Additional Prompt: |
| Regression problem | Give an example. |
| Classification problem | Give an example. |
| Prediction | Give an example of a scenario where you might be asked to provide a prediction. |
| Inference | Give an example of a scenario where you might be asked to conduct inference. |
| Bayesian statistics | What is a Bayesian interpretation of “50% chance of rain tomor­row?” |
| Frequentist statistics | What is a frequentist interpretation of “50% chance of rain tomor­row?” |
| Supervised learning | Give an example of a situation that uses supervised learning. |
| Unsupervised learning | Using the same example as above, explain how you can apply unsupervised learning to the same situation. |

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| Error due to bias | Give a specific example of a situation where a model might have high error due to bias. |
| Error due to variance | Give a specific example of a situation where a model might have high error due to variance. |
| Bias-variance tradeoff | Explain the bias-variance tradeoff as if your boss were five years old. |
| Regularization | In what circumstances is regularization used? |
| Bayes’ Theorem | One jar has 5 A pills and 5 B pills. The other has 7 A and 3 B. I pull a B pill from a jar. Find the probability that the pill came from the first jar. |
| Regression Evaluation Metrics | Describe how you would evaluate the performance of a regression model. |

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| Confusion Matrix | Generate a confusion matrix with a true positives, b false negatives, c false positives, and d true negatives. |
| Sensitivity | What is the formula for sensitivity using the above confusion matrix? |
| Specificity | What is the formula for specificity using the above confusion matrix? |
| Accuracy | What is the formula for accuracy using the above confusion matrix? |
| Precision | What is the formula for precision using the above confusion matrix? |
| ROC Curve | Explain how the ROC curve is generated. |
| AUC ROC | What is the difference between ROC and AUC ROC? |

Page 4

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| Model | R/C | S/U | What’s Unique? | Explain Method to Client | Pitfalls |
| Linear Regression |  |  |  |  |  |
| Logistic Regression |  |  |  |  |  |
| k-Nearest Neighbors |  |  |  |  |  |
| Decision Trees |  |  |  |  |  |
| SVMs |  |  |  |  |  |
| GLM |  |  |  |  |  |
| k-Means Clustering |  |  |  |  |  |
| Hierarchical Cluster­ing |  |  |  |  |  |
| DBSCAN |  |  |  |  |  |
| Neural Networks |  |  |  |  |  |
| Naive Bayes |  |  |  |  |  |
| ARIMA |  |  |  |  |  |