

CompTIA DY0-001 Quizfragen Und Antworten - DY0-001 Zertifizierungsantworten

CompTIA DY0-001 Exam
CompTIA DataX Certification Exam
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CompTIA DY0-001 Prüfungsplan:

Thema	Einzelheiten
Thema 1	Machine Learning: This section of the exam measures skills of a Machine Learning Engineer and covers foundational ML concepts such as overfitting, feature selection, and ensemble models. It includes supervised learning algorithms, tree-based methods, and regression techniques. The domain introduces deep learning frameworks and architectures like CNNs, RNNs, and transformers, along with optimization methods. It also addresses unsupervised learning, dimensionality reduction, and clustering models, helping candidates understand the wide range of ML applications and techniques used in modern analytics.
Thema 2	Mathematics and Statistics: This section of the exam measures skills of a Data Scientist and covers the application of various statistical techniques used in data science, such as hypothesis testing, regression metrics, and probability functions. It also evaluates understanding of statistical distributions, types of data missingness, and probability models. Candidates are expected to understand essential linear algebra and calculus concepts relevant to data manipulation and analysis, as well as compare time-based models like ARIMA and longitudinal studies used for forecasting and causal inference.

Thema 3	• Operations and Processes: This section of the exam measures skills of an AI • ML Operations Specialist and evaluates understanding of data ingestion methods, pipeline orchestration, data cleaning, and version control in the data science workflow. Candidates are expected to understand infrastructure needs for various data types and formats, manage clean code practices, and follow documentation standards. The section also explores DevOps and MLOps concepts, including continuous deployment, model performance monitoring, and deployment across environments like cloud, containers, and edge systems.
Thema 4	• Specialized Applications of Data Science: This section of the exam measures skills of a Senior Data Analyst and introduces advanced topics like constrained optimization, reinforcement learning, and edge computing. It covers natural language processing fundamentals such as text tokenization, embeddings, sentiment analysis, and LLMs. Candidates also explore computer vision tasks like object detection and segmentation, and are assessed on their understanding of graph theory, anomaly detection, heuristics, and multimodal machine learning, showing how data science extends across multiple domains and applications.
Thema 5	• Modeling, Analysis, and Outcomes: This section of the exam measures skills of a Data Science Consultant and focuses on exploratory data analysis, feature identification, and visualization techniques to interpret object behavior and relationships. It explores data quality issues, data enrichment practices like feature engineering and transformation, and model design processes including iterations and performance assessments. Candidates are also evaluated on their ability to justify model selections through experiment outcomes and communicate insights effectively to diverse business audiences using appropriate visualization tools.

>> CompTIA DY0-001 Quizfragen Und Antworten <<

DY0-001 Aktuelle Prüfung - DY0-001 Prüfungsguide & DY0-001 Praxisprüfung

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CompTIA DataX Certification Exam DY0-001 Prüfungsfragen mit Lösungen (Q20-Q25):

20. Frage

A data scientist trained a model for departments to share. The departments must access the model using HTTP requests. Which of the following approaches is appropriate?

- A. Utilize distributed computing.
- **B. Create an endpoint.**
- C. Deploy containers.
- D. Use the File Transfer Protocol.

Antwort: B

Begründung:

Creating an endpoint allows other systems or departments to access the trained model via HTTP requests.

This typically involves exposing the model as a RESTful API, allowing it to be queried by web-based systems.

Why the other options are incorrect:

- * A: Distributed computing refers to computation, not access over HTTP.
- * B: Containers are useful for deployment, but the endpoint enables access.
- * D: FTP is used for file transfer, not model inference via HTTP.

Official References:

- * CompTIA DataX (DY0-001) Official Study Guide - Section 5.4:"Endpoints are used to expose models to external consumers

over HTTP protocols, often using REST APIs."

* ML Deployment Best Practices, Chapter 3: "RESTful endpoints provide real-time access to model predictions and are key for multi-team collaboration."

21. Frage

Which of the following best describes the minimization of the residual term in a ridge linear regression?

- A. e
- B. $|e|$
- C. e^2
- D. 0

Antwort: C

Begründung:

In ridge regression, the model minimizes the sum of squared residuals (errors), with an added penalty term on the magnitude of coefficients (L2 regularization). The residual component specifically is represented by:

e^2 (squared error)

Thus, ridge regression minimizes:

Minimize: $\sum (y_i - \hat{y}_i)^2 + \lambda \sum (\beta_j^2)$

Why the other options are incorrect:

* A: $|e|$ corresponds to L1 loss (used in Lasso).

* B: e represents the error term itself, not its minimized quantity.

* D: Zero error is ideal but practically unachievable and not the actual loss function being minimized.

Official References:

* CompTIA DataX (DY0-001) Study Guide - Section 1.4: "Ridge regression minimizes the squared error term with an L2 penalty."

* Introduction to Statistical Learning, Chapter 6: "Ridge regression uses squared error loss, which emphasizes larger deviations more heavily than linear loss."

-

22. Frage

A data scientist is attempting to identify sentences that are conceptually similar to each other within a set of text files. Which of the following is the best way to prepare the data set to accomplish this task after data ingestion?

- A. Sampling
- B. One-hot encoding
- C. Embeddings
- D. Extrapolation

Antwort: C

Begründung:

Embeddings (e.g., word2vec, sentence transformers) are vector representations of text that capture semantic similarity. They allow comparison of conceptual meaning between sentences in a high-dimensional space, which is essential for tasks like semantic similarity or clustering.

Why the other options are incorrect:

* B: Extrapolation predicts values beyond a dataset's range - not relevant here.

* C: Sampling reduces data volume but doesn't aid in similarity analysis.

* D: One-hot encoding captures presence of words but lacks semantic understanding.

Official References:

* CompTIA DataX (DY0-001) Study Guide - Section 6.3: "Embeddings transform text into numeric vectors, enabling similarity computation and semantic analysis."

-

23. Frage

A data scientist is working with a data set that has ten predictors and wants to use only the predictors that most influence the results. Which of the following models would be the best for the data scientist to use?

- A. OLS
- B. Ridge
- C. Weighted least squares
- **D. LASSO**

Antwort: D

Begründung:

LASSO (Least Absolute Shrinkage and Selection Operator) regression performs both variable selection and regularization by adding an L1 penalty to the loss function. It shrinks less important feature coefficients to zero, effectively performing feature selection - perfect for identifying the most influential predictors.

Why the other options are incorrect:

- * A: OLS uses all predictors and doesn't perform feature selection.
- * B: Ridge regression applies an L2 penalty, shrinking coefficients but keeping all predictors.
- * C: Weighted least squares adjusts for heteroscedasticity but doesn't reduce variable count.

Official References:

- * CompTIA DataX (DY0-001) Study Guide - Section 3.3: "LASSO performs feature selection by zeroing out coefficients of less significant predictors."
- * Statistical Learning Textbook, Chapter 6: "LASSO regression is ideal when model interpretability and variable reduction are important."

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24. Frage

A data scientist needs to determine whether product sales are impacted by other contributing factors. The client has provided the data scientist with sales and other variables in the data set.

The data scientist decides to test potential models that include other information.

INSTRUCTIONS

Part 1

Use the information provided in the table to select the appropriate regression model.

Part 2

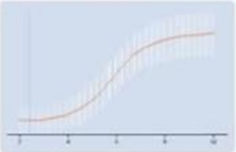
Review the summary output and variable table to determine which variable is statistically significant.

If at any time you would like to bring back the initial state of the simulation, please click the Reset All button.

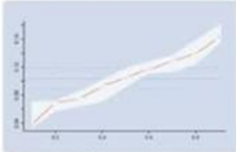
Part 1

Part 2

Given the R^2 values, which of the following regression models **best** fits the relationship between the variables?

☐


Ridge regression
 R^2 0.5

☐


Quantile regression
 R^2 0.6

☐

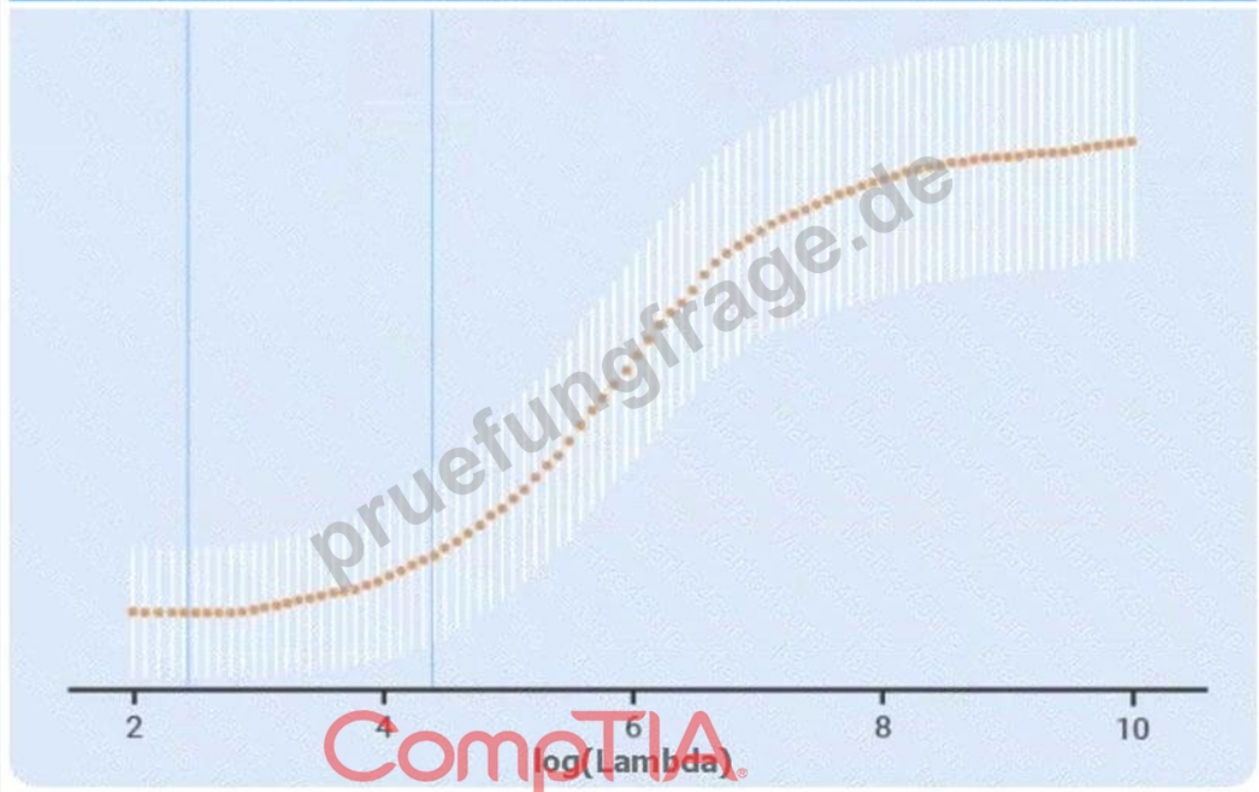

Linear regression
 R^2 0.8

☐

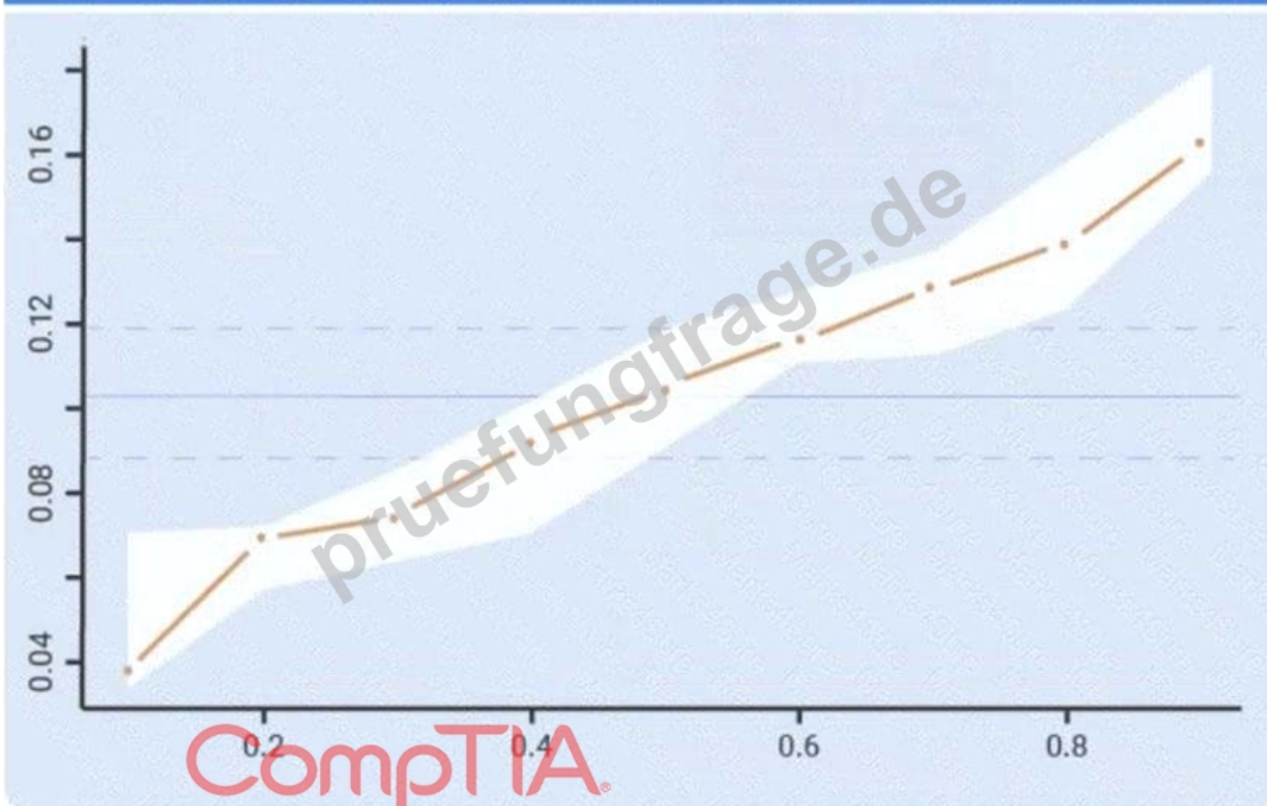

Lasso regression
 R^2 0.62

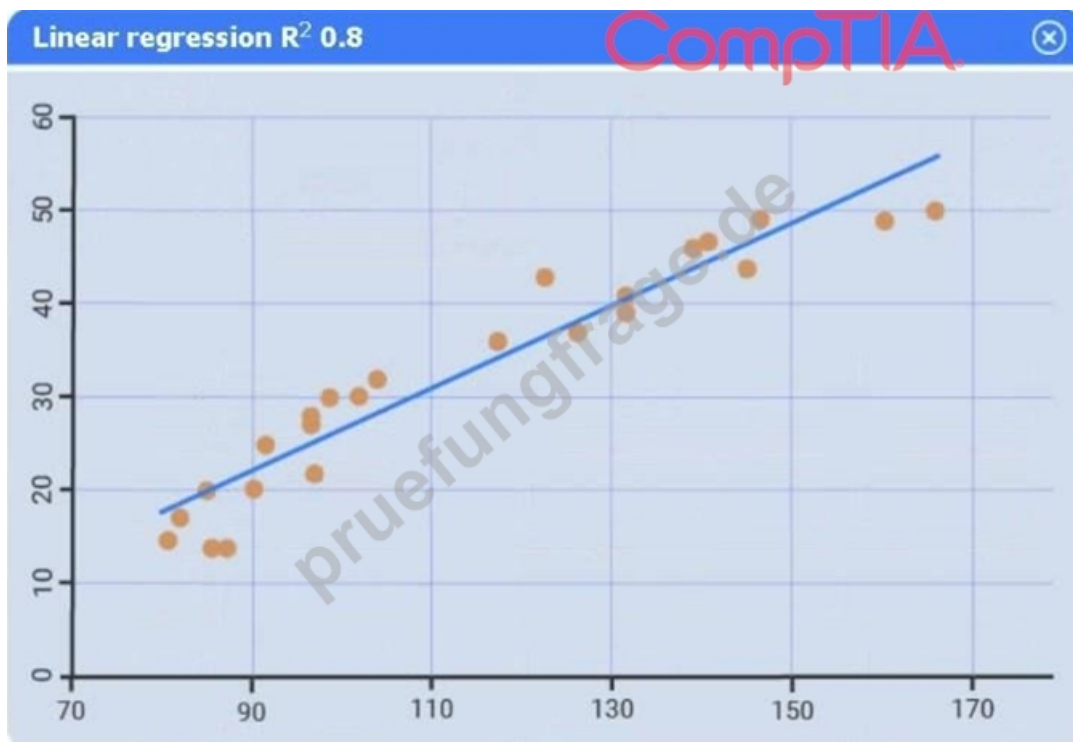
Time	Var 1 Sales (in millions)	Var 2 ROI (% of overall)	R^2 Value
1	3.118026935	6%	
2	4.823728572	11%	
3	7.149131157	18%	
4	2.173859679	5%	
5	3.519662597	9%	
6	5.98246748	12%	
7	8.495414141	14%	
8	3.678906129	7%	
9	3.539605808	6%	

Ridge regression R^2 0.5



Quantile regression R^2 0.6





Time	Var 1 Sales (in millions)	Var 2 ROI (% of overall)	Var 3 Inventory cost	Var 4 Net operations cost	Var 5 Initial investment
1	326.311584	16%	58	32	24
2	507.9584031	8%	57	50	39
3	232.5685962	5%	53	23	30
4	117.3342091	7%	50	11	35
5	242.866515	7%	60	24	23
6	359.6300247	14%	50	35	38
7	119.384542	19%	56	11	21
8	372.064584	5%	56	37	29
9	320.0212452	18%	51	31	34

Regression statistics		Coefficients	Standard error	t-stat	p-value
Multiple R	0.999978259	Intercept	30.24229003	9.306229821	3.249682267
R square	0.999956518	Var 2 ROI (% of overall)	50.72139711	13.14967361	3.857236202
Adjusted R square	0.999913036	Var 3 Inventory cost	-0.315571292	2.013342425	-0.15674
Standard error	1.100286825	Var 4 Net operations cost	9.854244454	0.049842563	197.7074192
Observations	9	Var 5 Initial investment	-0.268287655	0.103591751	-1.7654

View summary output

Which of the following additional variables should the data scientist include in the new model?

- ☐ Var 5 Initial investment
 ☐ Var 4 Net operations cost
☐ Var 3 Inventory cost
 ☐ None of the variables should be included

Summary output

Regression statistics			Coefficients	Standard error	t-stat	p-value
Multiple R	0.999978259	Intercept	30.24229003	9.306229821	3.249682267	0.031385159
R square	0.999956518	Var 2 ROI (% of overall)	50.72139711	13.14967361	3.857236202	0.018190028
Adjusted R square	0.999913036	Var 3 Inventory cost	-0.315571292	2.013342425	-0.15674	0.89873
Standard error	1.100286825	Var 4 Net operations cost	9.854244454	0.049842563	197.7074192	0
Observations	9	Var 5 Initial investment	-0.268287655	0.103591751	-1.7654	0.234464

	df	SS	MS	F	Significance F
Regression	4	111363.9712	27840.9928	22997.0904	5.67185E-09
Residual	4	4.842524393	1.210631098		
Total	8	111368.8137			

Antwort:

Begründung:

See explanation below.

Explanation:

Part 1

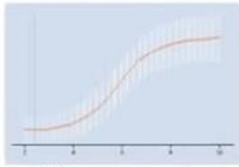
Linear regression.

Of the four models, linear regression has the highest R^2 (0.8), indicating it explains the greatest proportion of variance in sales.

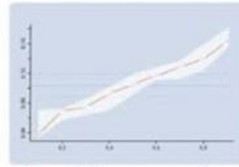
Part 1

Part 2

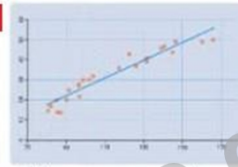
Given the R^2 values, which of the following regression models **best** fits the relationship between the variables?

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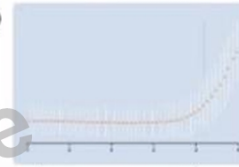
Ridge regression

 R^2 0.5☐

Quantile regression

 R^2 0.6☒

Linear regression

 R^2 0.8☐

Lasso regression

 R^2 0.62

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6	5.98246748	12%	
7	8.495414141	14%	
8	3.678906129	7%	
9	3.539605808	6%	

Part 2

Var 4 - Net operations cost.

Net operations cost has a p-value of essentially 0 (far below 0.05), indicating it is the only additional predictor statistically significant in explaining sales. Neither inventory cost (p#0.90) nor initial investment (p#0.23) reach significance.

Part 1

Part 2

Time	Var 1 Sales (in millions)	Var 2 ROI (% of overall)	Var 3 Inventory cost	Var 4 Net operations cost	Var 5 Initial investment
1	326.311584	16%	58	32	24
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3	232.5685962	5%	53	23	30
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Model	Var 1 Sales (in millions)	Var 2 ROI (% of overall)	Var 3 Inventory cost	Var 4 Net operations cost	Var 5 Initial investment
Model 1	326.311584	16%	58	32	24
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Model 6	359.6300247	14%	50	35	38
Model 7	119.384542	19%	56	11	21
Model 8	372.064584	5%	56	37	29
Model 9	320.0212452	18%	51	31	34

View summary output

Which of the following additional variables should the data scientist include in the new model?

☐ Var 5 Initial investment

☒ Var 4 Net operations cost

☐ Var 3 Inventory cost

☐ None of the variables should be included

25. Frage

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