

CompTIA DY0-001

CompTIA DataX Certification Exam

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Latest Version: 6.0

Question: 1

SIMULATION

A client has gathered weather data on which regions have high temperatures. The client would like a visualization to gain a better understanding of the data.

INSTRUCTIONS

Part 1

Review the charts provided and use the drop-down menu to select the most appropriate way to standardize the data.

Part 2

Answer the questions to determine how to create one data set.

Part 3

Select the most appropriate visualization based on the data set that represents what the client is looking for.

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****Part 3****Standardize data**

Select table



Table 1

Table 2

Table 1

City	State	Zip code	Region
Orlando	FL	32802	South
New York	NY	10001	North
Denver	CO	80014	West
New Orleans	LA	7003	Central
Richmond	VA	23173	East

Table 2

Region	Zip code	Temperature	Scale
South	32802	50	°F
North	10001	68	°F
West	80014	30	°F
Central	NaN	62	°F
East	23173	50	°C

Part 1**Part 2****Part 3****Standardize data**

Select table



Table 1

**Variable:**

Select variable to standardize

State

City

Zip code

Region

Action:

Select action to take

Remove

Correct

Table 1

City	State	Zip code	Region
Orlando	FL	32802	South
New York	NY	10001	North
Denver	CO	80014	West
New Orleans	LA	7003	Central
Richmond	VA	23173	East

Table 2

Region	Zip code	Temperature	Scale
South	32802	50	°F
North	10001	68	°F
West	80014	30	°F
Central	NaN	62	°F
East	23173	50	°C

Part 1**Part 2****Part 3****Standardize data**Select table +Table 1 (x)**Variable:**State ▼**Action:**Select action to take ▼

Remove

Correct

☐ LA ☐ NY ☐ FL ☐ CO ☐ VA**Table 1**

City	State	Zip code	Region
Orlando	FL	32802	South
New York	NY	10001	North
Denver	CO	80014	West
New Orleans	LA	7003	Central
Richmond	VA	23173	East

Table 2

Region	Zip code	Temperature	Scale
South	32802	50	°F
North	10001	68	°F
West	80014	30	°F
Central	NaN	62	°F
East	23173	50	°C

Part 1**Part 2****Part 3****Standardize data**

Select table



Table 1

**Variable:**

City

Action:

Select action to take

Remove

Correct

☐ Orlando ☐ New York ☐ Denver☐ Richmond ☐ New Orleans**Table 1**

City	State	Zip code	Region
Orlando	FL	32802	South
New York	NY	10001	North
Denver	CO	80014	West
New Orleans	LA	7003	Central
Richmond	VA	23173	East

Table 2

Region	Zip code	Temperature	Scale
South	32802	50	°F
North	10001	68	°F
West	80014	30	°F
Central	NaN	62	°F
East	23173	50	°C

Part 1**Part 2****Part 3****Standardize data**

Select table



Table 1

**Variable:**

Zip code

Action:

Select action to take

Remove

Correct

☐ 32802 ☐ 10001 ☐ 80014 ☐ 23173
☐ 7003

Table 1

City	State	Zip code	Region
Orlando	FL	32802	South
New York	NY	10001	North
Denver	CO	80014	West
New Orleans	LA	7003	Central
Richmond	VA	23173	East

Table 2

Region	Zip code	Temperature	Scale
South	32802	50	°F
North	10001	68	°F
West	80014	30	°F
Central	NaN	62	°F
East	23173	50	°C

Part 1**Part 2****Part 3****Standardize data**

Select table



Table 1

**Variable:**

Region

Action:

Select action to take

Remove

Correct

☐ South ☐ North ☐ West ☐ East
☐ Central

Table 1

City	State	Zip code	Region
Orlando	FL	32802	South
New York	NY	10001	North
Denver	CO	80014	West
New Orleans	LA	7003	Central
Richmond	VA	23173	East

Table 2

Region	Zip code	Temperature	Scale
South	32802	50	°F
North	10001	68	°F
West	80014	30	°F
Central	NaN	62	°F
East	23173	50	°C

Part 1**Part 2****Part 3****Standardize data**Select table +

Table 2

Variable:Select variable to standardize +

Zip code

Region

Temperature/scale

Action:Select action to take +

Remove

Correct

Table 1

City	State	Zip code	Region
Orlando	FL	32802	South
New York	NY	10001	North
Denver	CO	80014	West
New Orleans	LA	7003	Central
Richmond	VA	23173	East

Table 2

Region	Zip code	Temperature	Scale
South	32802	50	°F
North	10001	68	°F
West	80014	30	°F
Central	NaN	62	°F
East	23173	50	°C

Part 1**Part 2****Part 3****Standardize data**Select table +Table 2 (x)**Variable:**Zip code ▼**Action:**Select action to take ▼

Remove

Correct

☐ NaN ☐ 23173 ☐ 32802 ☐ 10001☐ 80014**Table 1**

City	State	Zip code	Region
Orlando	FL	32802	South
New York	NY	10001	North
Denver	CO	80014	West
New Orleans	LA	7003	Central
Richmond	VA	23173	East

Table 2

Region	Zip code	Temperature	Scale
South	32802	50	°F
North	10001	68	°F
West	80014	30	°F
Central	NaN	62	°F
East	23173	50	°C

Part 1**Part 2****Part 3****Standardize data**Select table +Table 2 (x)**Variable:**Region ▼**Action:**Select action to take ▼

Remove

Correct

☐ South ☐ North ☐ West ☐ East☐ Central**Table 1**

City	State	Zip code	Region
Orlando	FL	32802	South
New York	NY	10001	North
Denver	CO	80014	West
New Orleans	LA	7003	Central
Richmond	VA	23173	East

Table 2

Region	Zip code	Temperature	Scale
South	32802	50	°F
North	10001	68	°F
West	80014	30	°F
Central	NaN	62	°F
East	23173	50	°C

Part 1**Part 2****Part 3****Standardize data**Select table +Table 2 (x)**Variable:**Temperature/scale +**Action:**Select action to take +

Remove

Correct

☐ 62°F ☐ 30°F ☐ 50°C ☐ 68°F☐ 50°F**Table 1**

City	State	Zip code	Region
Orlando	FL	32802	South
New York	NY	10001	North
Denver	CO	80014	West
New Orleans	LA	7003	Central
Richmond	VA	23173	East

Table 2

Region	Zip code	Temperature	Scale
South	32802	50	°F
North	10001	68	°F
West	80014	30	°F
Central	NaN	62	°F
East	23173	50	°C

Part 1

Part 2

Part 3

Merge data

Select the **most** appropriate method to use when combining these two tables:

- ☐ Data matching ☐ Filter
☐ Union ☐ Deduplication

Select the **most** appropriate variable to use when joining these sets of data:

- ☐ Region
☐ Zip code

Table 1

City	State	Zip code	Region
Orlando	FL	32802	South
New York	NY	10001	North
Denver	CO	80014	West
New Orleans	LA	7003	Central
Richmond	VA	23173	East

Table 2

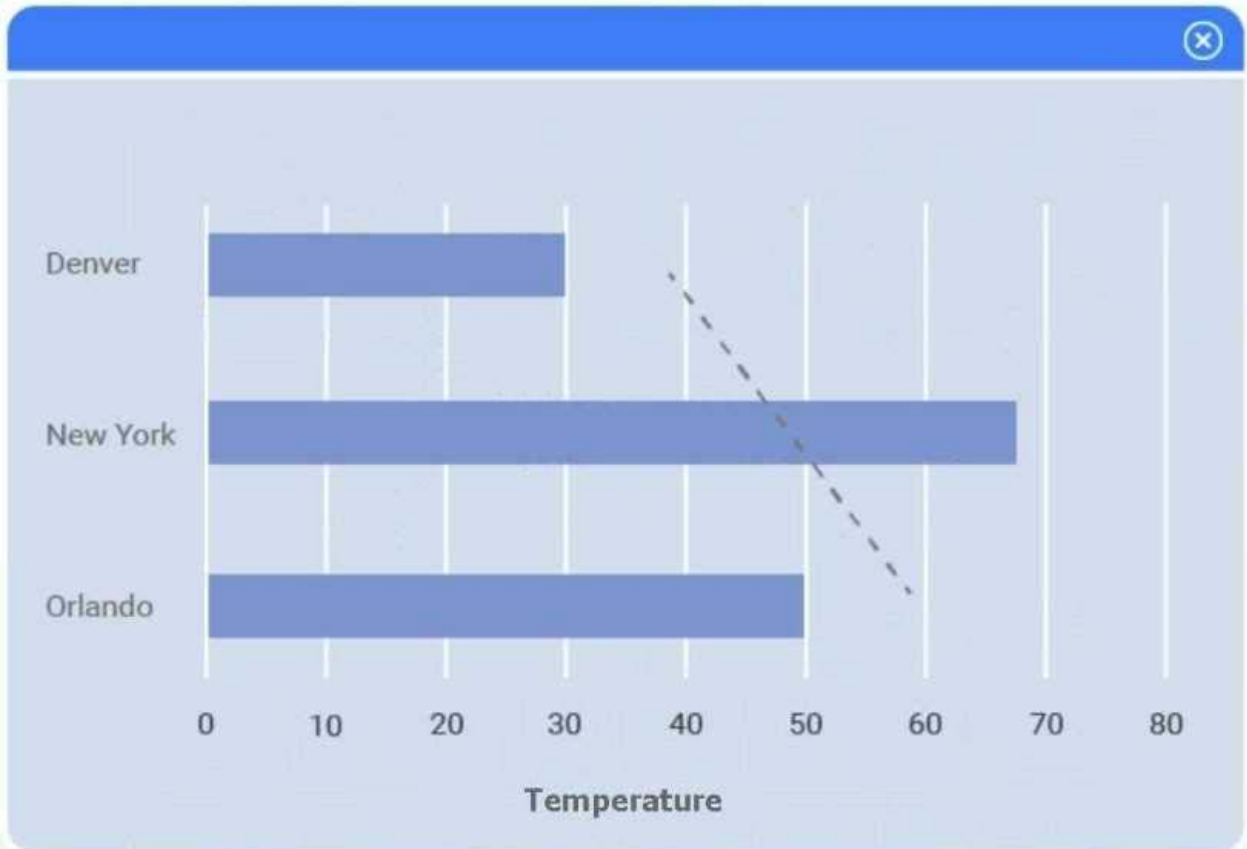
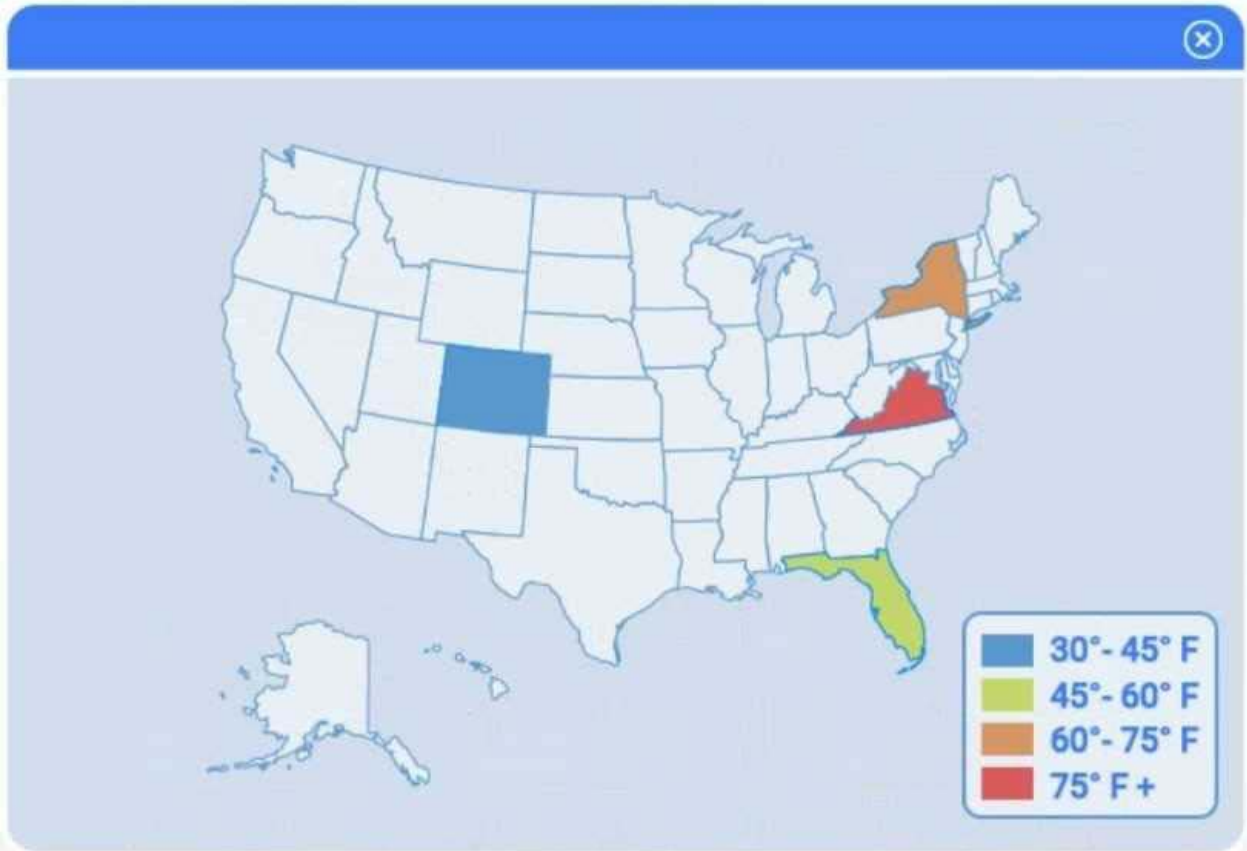
Region	Zip code	Temperature	Scale
South	32802	50	°F
North	10001	68	°F
West	80014	30	°F
Central	NaN	62	°F
East	23173	50	°C

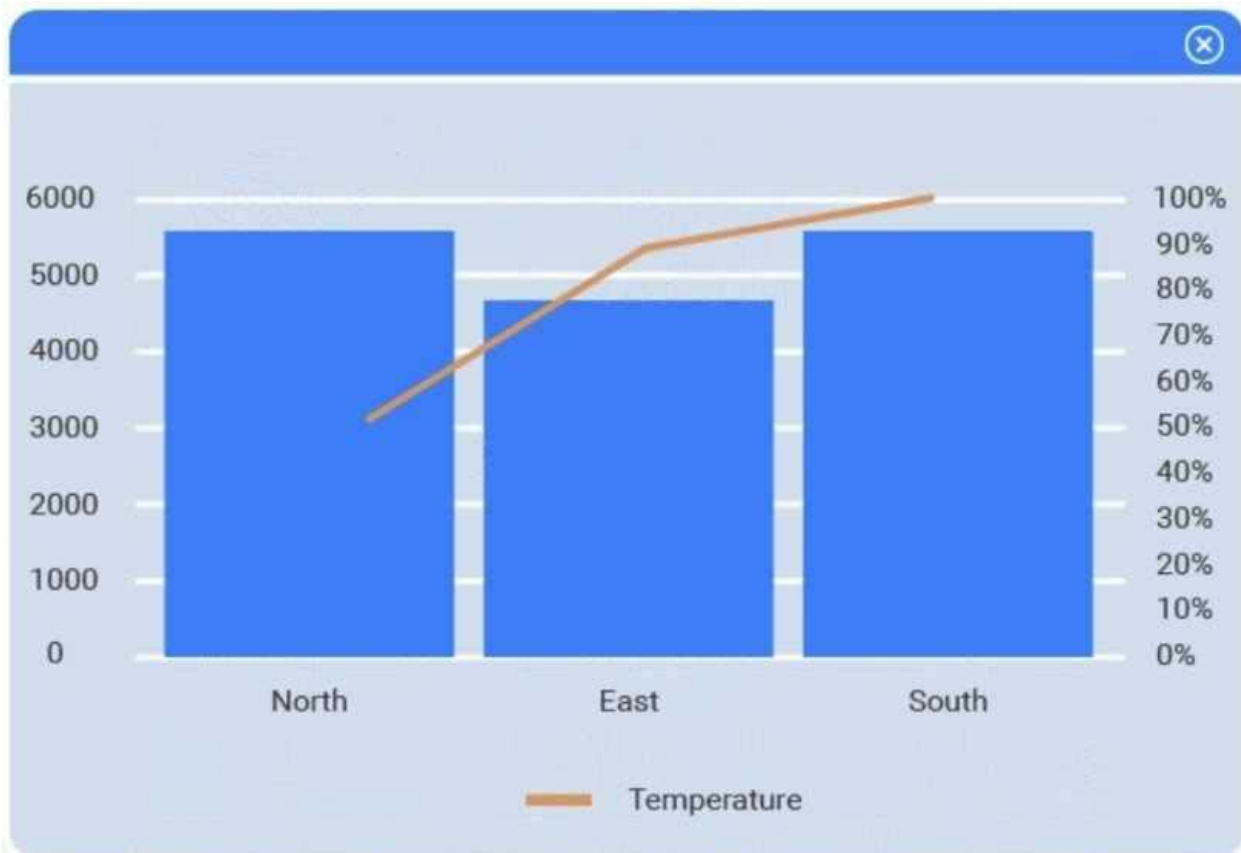
Visualization

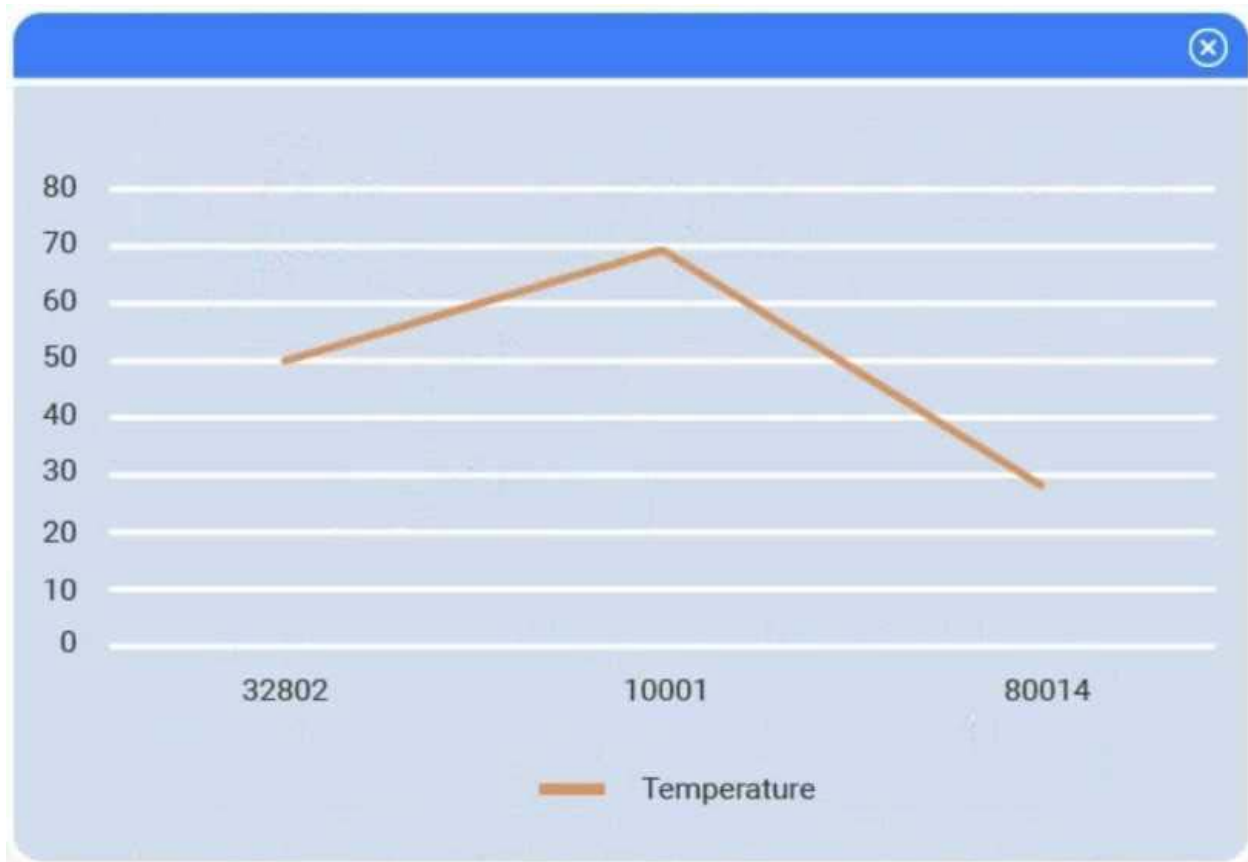
Select the **most** appropriate visualization based on the data set which represents what the client is looking for:



Region	City	State	Zip code	Temperature	Scale
South	Orlando	FL	32802	50	°F
North	New York	NY	10001	68	°F
West	Denver	CO	80014	30	°F
Central	New Orleans	LA	7003		
East	Richmond	VA	23173	50	°C
Central			NaN	62	°F







**Answer: See
explanation below.**

Explanation:

Explanation:

Part 1

Select Table 2. Table 2 contains mixed temperature scales (°F and °C) that must be standardized before visualization.

Variable: Temperature/scale

Action: Correct

Value to correct: 50 °C

Part 1Part 2Part 3

Standardize data

Select table

Table 2

Variable:

Temperature/scale

Action:

Select action to take

Remove

Correct

62°F

30°F

☒ 50°C

68°F

50°F

Table 1

City	State	Zip code	Region
Orlando	FL	32802	South
New York	NY	10001	North
Denver	CO	80014	West
New Orleans	LA	7003	Central
Richmond	VA	23173	East

Table 2

Region	Zip code	Temperature	Scale
South	32802	50	°F
North	10001	68	°F
West	80014	30	°F
Central	NaN	62	°F
East	23173	50	°C

Part 2

Method: Data matching

Join variable: Zip code

You need to merge the two tables by aligning matching records, which is a data-matching (join) operation, and ZIP code is the shared, uniquely identifying field linking each region's weather reading to its city.

Part 1**Part 2****Part 3****Merge data**

Select the **most** appropriate method to use when combining these two tables:

- ☒ Data matching ☐ Filter
☐ Union ☐ Deduplication

Select the **most** appropriate variable to use when joining these sets of data:

- ☐ Region
☒ Zip code

Table 1

City	State	Zip code	Region
Orlando	FL	32802	South
New York	NY	10001	North
Denver	CO	80014	West
New Orleans	LA	7003	Central
Richmond	VA	23173	East

Table 2

Region	Zip code	Temperature	Scale
South	32802	50	°F
North	10001	68	°F
West	80014	30	°F
Central	NaN	62	°F
East	23173	50	°C

Part 3

Choose the choropleth map (the first option).

A choropleth map best shows geographic variation in temperature by coloring each state (or region) according to its recorded value. This lets the client immediately see where the highest and lowest temperatures occur across the U.S. without distracting elements like bubble size or combined chart axes.

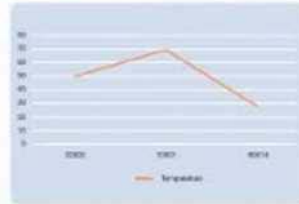
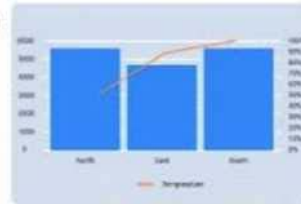
Part 1

Part 2

Part 3

Visualization

Select the **most** appropriate visualization based on the data set which represents what the client is looking for:



Region	City	State	Zip code	Temperature	Scale
South	Orlando	FL	32802	50	°F
North	New York	NY	10001	68	°F
West	Denver	CO	80014	30	°F
Central	New Orleans	LA	7003		
East	Richmond	VA	23173	50	°C
Central			NaN	62	°F

Question: 2

SIMULATION

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

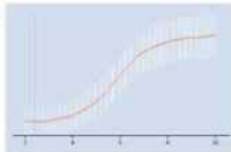
Review the summary output and variable table to determine which variable is statistically significant. If at any time you would like to bring back the initial state of the simulation, please click the Reset All button.

Part 1

Part 2

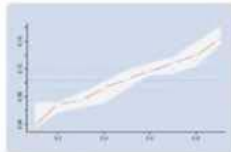
Given the R^2 values, which of the following regression models **best** fits the relationship between the variables?

○



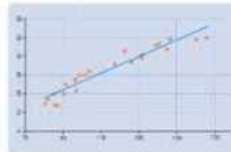
Ridge regression
 R^2 0.5

○



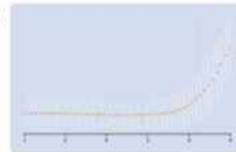
Quantile regression
 R^2 0.6

○



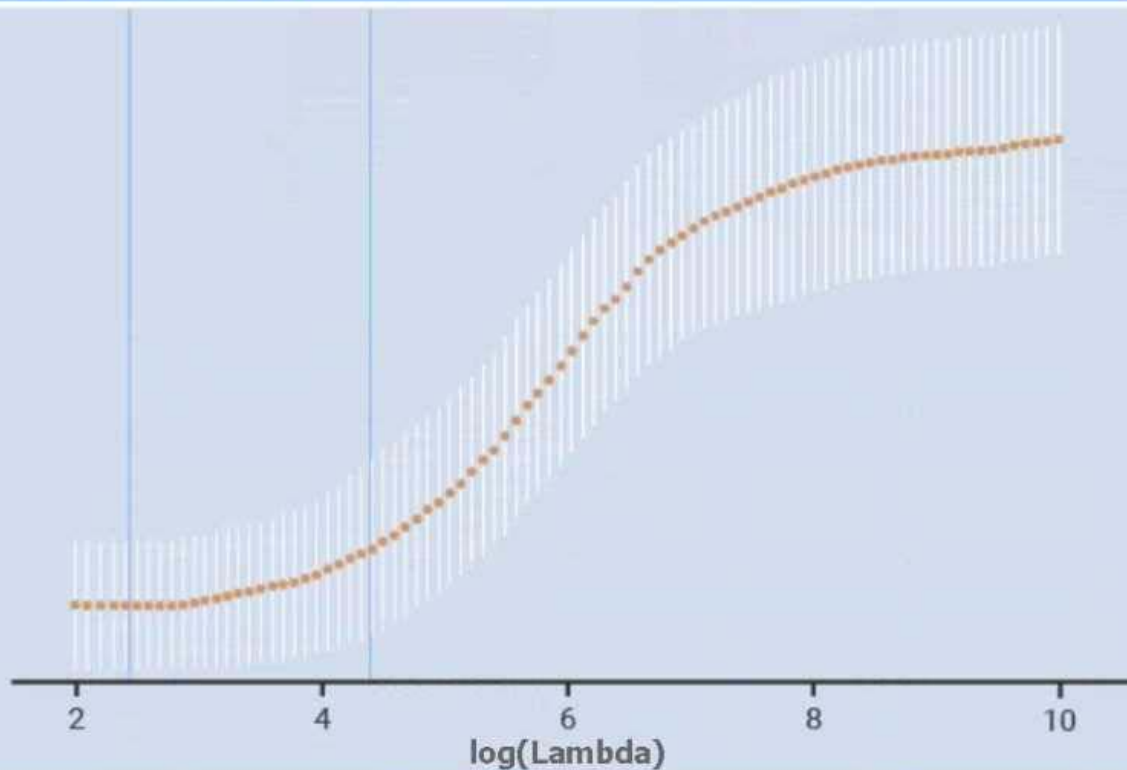
Linear regression
 R^2 0.8

○

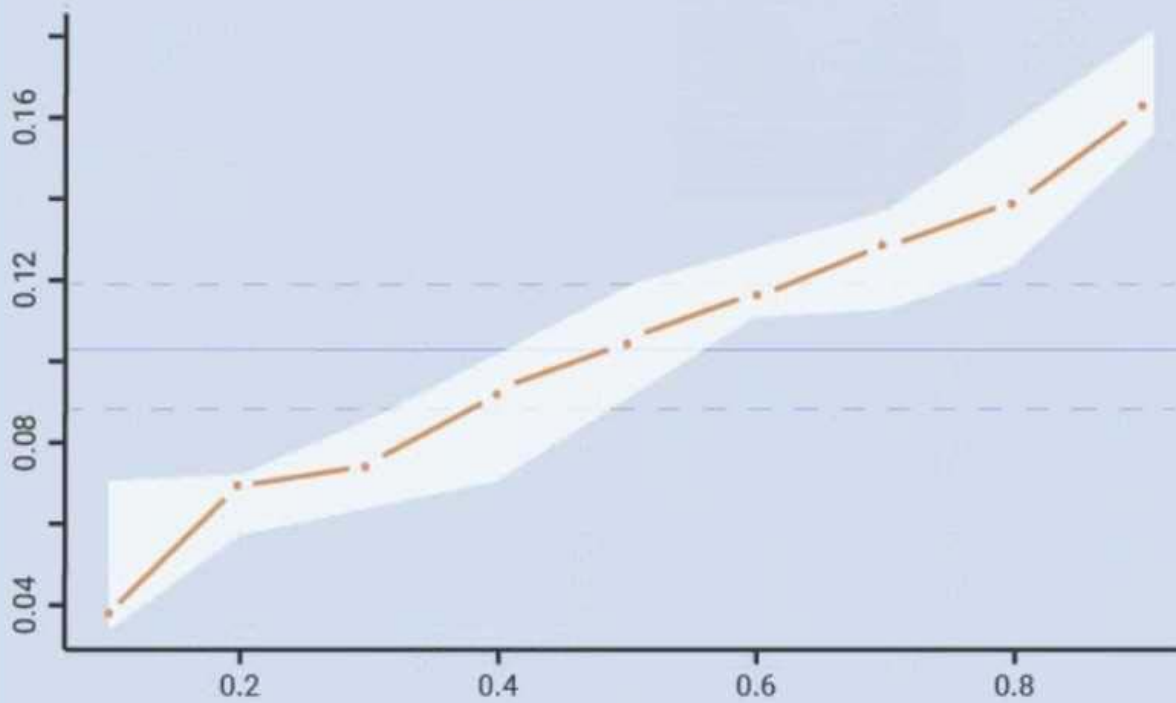


Lasso regression
 R^2 0.62

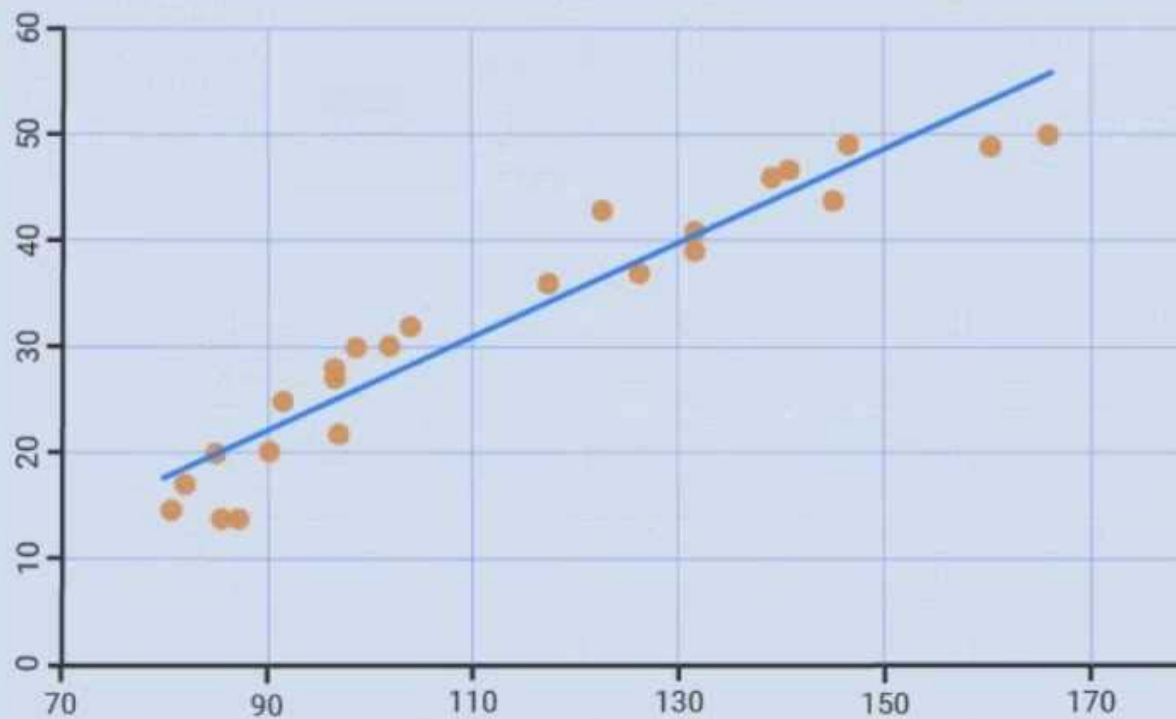
Time	Var 1 Sales (in millions)	Var 2 ROI (% of overall)	R^2 Value
1	3.118026935	6%	
2	4.823728572	11%	
3	7.149131157	18%	
4	2.173859679	5%	
5	3.519662597	9%	
6	5.98246748	12%	
7	8.495414141	14%	
8	3.678906129	7%	
9	3.539605808	6%	

Ridge regression R^2 0.5

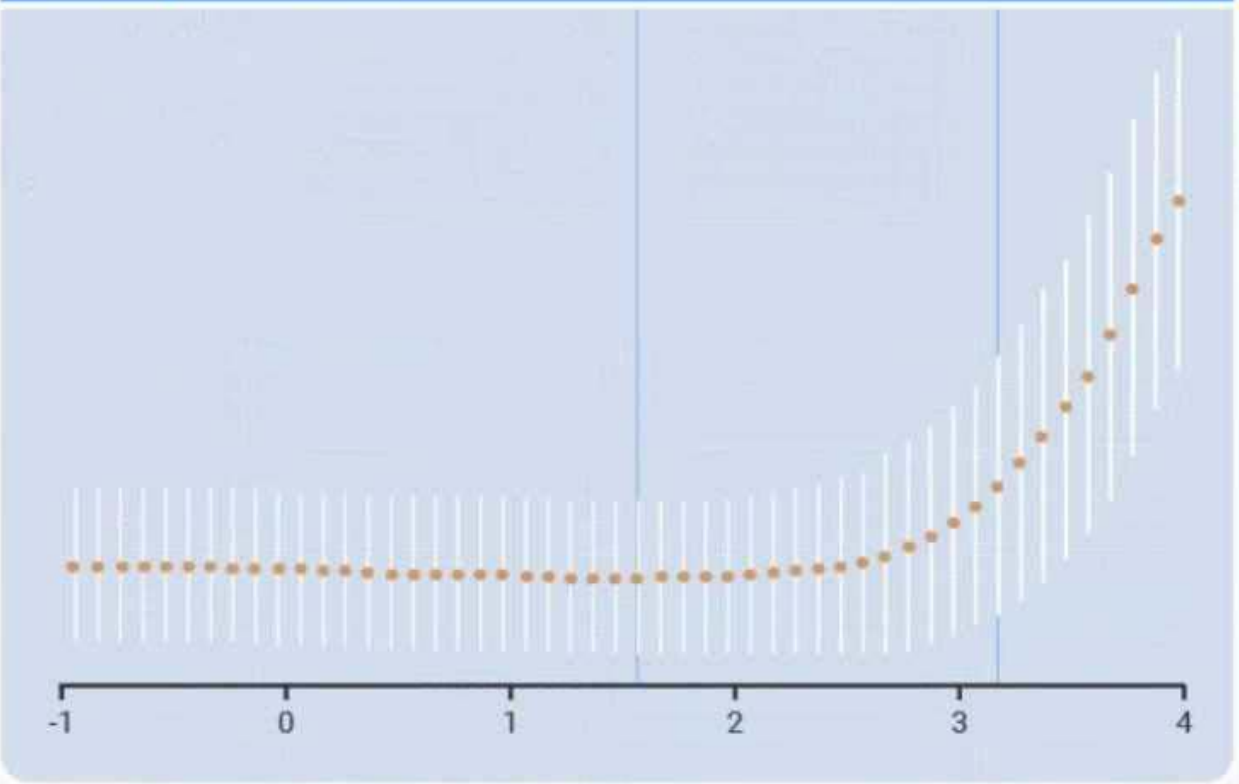
Quantile regression R^2 0.6



Linear regression R^2 0.8



Lasso regression R^2 0.62



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
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

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				

**Answer: See
explanation below.**

Explanation:

Part 1

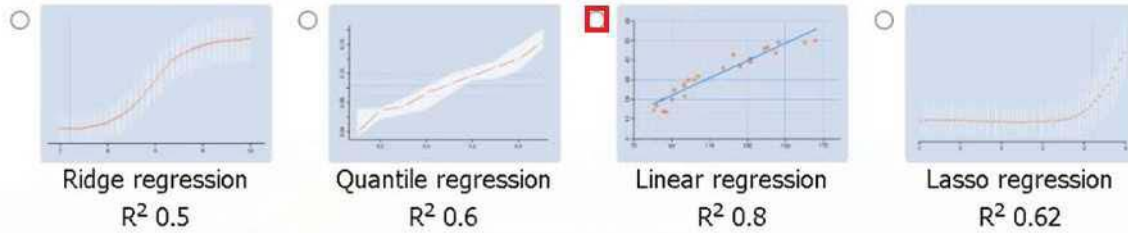
Linear regression.

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?



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%	

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 ($p \approx 0.90$) nor initial investment ($p \approx 0.23$) 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
2	507.9584031	8%	57	50	39
3	232.5685962	5%	53	23	30
4	117.3342091	7%	50	11	35
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7	119.384542	19%	56	11	21
8	372.064584	5%	56	37	29
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
 ☐ None of the variables should be included

Question: 3

A data scientist is building an inferential model with a single predictor variable. A scatter plot of the independent variable against the real-number dependent variable shows a strong relationship between them. The predictor variable is normally distributed with very few outliers. Which of the following algorithms is the best fit for this model, given the data scientist wants the model to be easily interpreted?

- A. A logistic regression
- B. An exponential regression
- C. A linear regression
- D. A probit regression

Answer: C

Question: 4

A data scientist wants to evaluate the performance of various nonlinear models. Which of the following is best suited for this task?

- A. AIC
- B. Chi-squared test
- C. MCC
- D. ANOVA

Answer: A

Question: 5

Which of the following is the layer that is responsible for the depth in deep learning?

- A. Convolution
- B. Dropout
- C. Pooling
- D. Hidden

Answer: D

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