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Exam Professional Machine Learning Engineer All Questions

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EXAM PROFESSIONAL MACHINE LEARNING ENGINEER TOPIC 1 QUESTION 43 DISCUSSIO..

Actual exam question from Google's Professional Machine Learning Engineer

Question #: 43

Topic #: 1

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You are an ML engineer at a global car manufacture. You need to build an ML model to predict car sales in different cities around the world. Which features or feature crosses should you use to train city-specific relationships between car type and number of sales?

- A. Three individual features: binned latitude, binned longitude, and one-hot encoded car type.
- B. One feature obtained as an element-wise product between latitude, longitude, and car type.
- C. One feature obtained as an element-wise product between binned latitude, binned longitude, and one-hot encoded car type.
- D. Two feature crosses as an element-wise product: the first between binned latitude and one-hot encoded car type, and the second between binned longitude and one-hot encoded car type.

























































Show Suggested Answer

by [ralf_cc](#) at July 9, 2021, 8:55 a.m.

Comments

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-  **Paul_Dirac** Highly Voted  3 years, 2 months ago
C
<https://developers.google.com/machine-learning/crash-course/feature-crosses/check-your-understanding>
   upvoted 22 times
-  **ebinv2** Highly Voted  3 years, 3 months ago
C should be the answer
   upvoted 8 times
-  **baimus** Most Recent  1 month, 2 weeks ago
While i acknowledge the answer is C, It seems wrong to elementwise combine binned lat/lon, as it means there are at least 2 places with the same number in the world, probably more. Not only but by multiplying the binned a values it implies they are ordinal, but they are not ordinal in the same direction, so the relationship on price will be lost (a good example is northern countries tend to be richer, but the east/west relationship isn't defined)
   upvoted 2 times
-  **PhilipKoku** 4 months, 2 weeks ago
Selected Answer: C
C) one feature
   upvoted 1 times
-  **Sum_Sum** 11 months, 1 week ago
C - everything else is madness
   upvoted 2 times
-  **rigori** 3 months, 2 weeks ago
creating this cross feature is madness from explainability standpoint
   upvoted 1 times
-  **M25** 1 year, 5 months ago
Selected Answer: C
Went with C
   upvoted 1 times
-  **Mohamed_Mossad** 2 years, 4 months ago
Selected Answer: C
<https://developers.google.com/machine-learning/crash-course/feature-crosses/video-lecture>
   upvoted 4 times
-  **A4M** 2 years, 9 months ago
C - Answer
when doing feature cross the features need to be binned
   upvoted 4 times
-  **MK_Ahsan** 2 years, 9 months ago
Selected Answer: C
<https://developers.google.com/machine-learning/crash-course/feature-crosses/check-your-understanding>
Answer C: It needs a feature cross to obtain one feature.
   upvoted 3 times
-  **NamitSehgal** 2 years, 9 months ago
I got with C
   upvoted 3 times
-  **ramen_lover** 2 years, 11 months ago
"element-wise product" sounds like we are not using a feature cross but artificially creating a new column whose values is the "element-wise product" of other column values...; i.e., $(1, 2, 3) \Rightarrow 1 * 2 * 3 = 6$.
I am not a native English speaker; thus, I might misunderstand the sentence.
   upvoted 1 times
-  **ralf_cc** 3 years, 3 months ago
D - <https://developers.google.com/machine-learning/crash-course/feature-crosses/video-lecture>
   upvoted 4 times
-  **jk73** 3 years, 1 month ago
Cannot be D, Despite Binning is a good idea because it enables the model to learn nonlinear relationships within a single feature; separate latitude and longitude in different feature crosses is not a good one, this separation will prevent the model from learning city-specific sales. A city is the conjunction of latitude and longitude.

In that order of Ideas Crossing binned latitude with binned longitude enables the model to learn city-specific effects of car type.

I will go for C,

<https://developers.google.com/machine-learning/crash-course/feature-crosses/check-your-understanding>

   upvoted 13 times

  **george_ognyanov** 3 years ago

Damn that was a good explanation. Thank you for writing it out.

   upvoted 2 times

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