Multi-class Classification with Bi-Encoder Model

Variation of a problem given by Cimulate

# Problem Statement

Given is a training data in the following format

query : a text string

query result : a list of choices; each choice is represented by unique identifier

selection:

choice information:

For each choice we are given a set of features which characterize the choice. Each feature can be either numerical or categorical.

Given a query and a set of alternatives resulting from the query execution we would like to predict which alternative is most likely to be selected for this query.

A common approach involves computing a prediction score for each query-alternative pair:

with the corresponding probabilistic prediction defined as:

choose -th alternative

To train the function f, the cross-entropy loss is typically used:

, represents the score of the actually selected alternative

## Application of Bi-Encoder for the Multi-class classification problem

The simplest architecture for constructing is the Bi-Encoder architecture. Specifically, the prediction score can be constructed as the inner product of the query embedding and the product embedding

# Predicting which Wine the User is most likely to click on

Given a dataset containing clickstream data related to wine purchases. The data includes the user’s search query and the assortment of products presented to them. The objective of this problem is to predict which product the user is most likely to click on.

A screenshot of a computer

AI-generated content may be incorrect.

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