2. (20 points) Tensorflow vs pytorch on Google Trend. Write a brief summary including four highlights about what you have learned
Answer:

The Google Trends page for the comparison between the search terms “Tensorflow” and “pytorch” gives us some interesting insights into the interest in these search terms over the past 12 months. To denote “pytorch”, the page uses the colour blue, while the page uses the colour red to denote “Tensorflow”.

As seen in the graph of the month(time) vs interest, the interest in the term “pytorch” was much more popular as a search term compared to “Tensorflow”. The interest in “Tensorflow” was never above the interest in “pytorch” for even a single month. “pytorch” also achieved peak popularity in the week of Nov 7-13, 2021. Unlike “pytorch”, “Tensorflow never achieved peak popularity. It’s highest value in interest was the week of Nov 28-Dec 4, 2021, which was 69. Both the terms had the same popularity in the week of Sep 26-Oct 2, 2021. Both the search terms have a topsy-turvy graph. They have constantly shown alternating rise and fall in interest.

We can also see the interest by subregion in the United States on the Google Trend page for both search terms together. From the graph, we can see that 24 states have more interest in “pytorch” compared to “Tensorflow”. These states are highlighted in blue. 21 states have more interest in “Tensorflow” compared to “pytorch”. These states are highlighted in red. The states of Virginia and Texas have both shown equal interest in the search terms. The states of Vermont, West Virginia, North Dakota, Maine and Wyoming are grey because there was not enough interest or data about the interest in either of the terms to be shown on the map. The state of Pennsylvania has the most interest in “pytorch” compared to “Tensorflow” i.e. 68% to 32%. Massachusetts, California, New Mexico, and Oregon round out the top 5 for most interest in “pytorch”, in comparison to “Tensorflow”. On the other hand, the states of Nebraska, Montana, Idaho, Maine, and South Dakota show 100% interest in “Tensorflow” compared to “pytorch”. We can also see the interest by Metro and by city. Columbus, GA has the highest interest in “pytorch” with value 100. Lincoln & Hastings-Kearney,NE has the highest interest in “Tensorflow” with value 100 and 0 value for “pytorch”. The city of Hanover has the highest interest in “pytorch” with 100 interest value and 0 for “Tensorflow”. “Redwood City” has the highest interest in “Tensorflow” with 45 interest value. So we can see that interest by city is low for “Tensorflow”, with the highest interest value for it being less than the one for “pytorch” at the same place.

There is also a graph showing interest by subregion for both “pytorch” and “Tensorflow” individually. For “pytorch”, Massachusetts has the highest value of interest at 100. California is a close second with 97. We can also see the related queries for the terms as well. For “pytorch”, the top 5 rising related queries are “pytorch m1”, “nn.relu”, “torch.norm”, “l1 loss” and “google collab”. Most of these terms are modules and imports related to pytorch. The topmost related query to “pytorch” is “python”. The other top related queries are queries like “torch”, “pytorch tensor”, “pytorch tensor”, “install pytorch” and “github pytorch”.

In the interest by subregion graph for “Tensorflow”, California has the highest interest value of 100. Since Silicon Valley is based in California, many companies work on both “pytorch” and “Tensorflow” and hence the state has high interest in both terms. The state of Washington hasn interest value of 97 for “Tensorflow”. Seattle is a city in Washington state which has many

software companies working with “Tensorflow”. The top 5 rising related queries for “Tensorflow” are “miniforge”, “tensorflow m1”, “xnnpack tensorflow”, “google tensorflow certification” and “tf.reduce_sum”. The word “m1” is there in both “pytorch” and “Tensorflow”. This is because “m1” is one of the models of the Apple Mac laptop. The topmost related query for “Tensorflow” is “tensorflow python”, with 100 value, indicating that this search term is associated the most with “Tensorflow”. The rest of the top 5 top related queries include “python”, “keras”, “tensorflow keras” and “install tensorflow”.

Overall, the average interest in “pytorch” is 70 while the average interest for “Tensorflow” is 54. The interest in “pytorch” is much more compared to “Tensorflow” as it is a more widely used framework. The areas where the IT industry has a bigger presence has more interest for these search terms. We can also download all of this data in the form of CSV files. We can also share the whole webpage on social media sites like Twitter and Facebook. We can also choose to give feedback for this page and include screenshots along with our feedback.