

Dymatize



Analyze the *Dymatize* brand
on Protein Powder

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About Dymatize of Protein Powder

- Protein powders are commonly marketed as a dietary supplement
- Founded in 1994, Dymatize is based in Munich, Germany.
- Dymatize is a brand, and a brand owned by Active Nutrition International GmbH.
- Goal: Analyze protein powder's text in order to understand people's feeling and attitude on social media

Report 1:

Protein supplements market will increase 7.59 % from 2020 to 2027. North America is the largest market for protein powder. Most people like to purchase protein powder on website. Therefore, E-commerce industry is the largest distribution channels for Protein supplement.

Report 2:

E-commerce sales market increase 14.6% from 2015 to 2023. Protein powder and protein are the first two keywords. Protein powder and bars account for 25%. The largest brand is Optimum Nutrition (ON).

Report 3:

United States has the highest engagement. The state with the lowest number of comments is Montana because low percentage of Americans.

Report 4:

Wednesday has the most comments because of Hump Day. Most people feeling is neutral for protein powder on Wednesday. The most keyword is “vegan, protein, powder” on Wednesday.

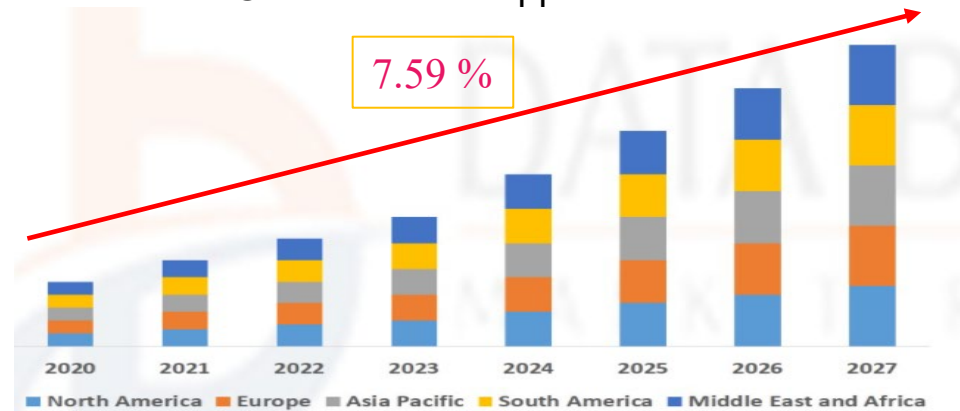
Report 5:

The accuracy is between 0.6422 with 0.6757 for sentiment.



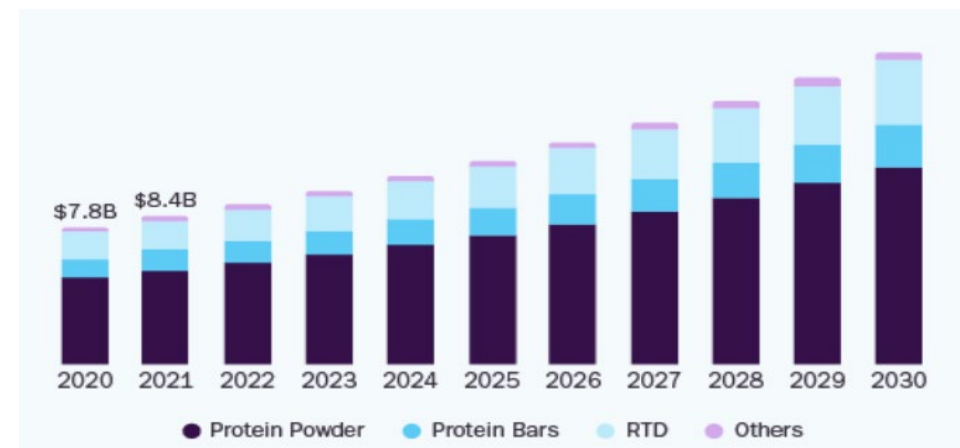
Report 1: Protein supplements market will increase 7.59 % from 2020 to 2027. North America is the largest market for protein powder. Most people like to purchase protein powder on website. Therefore, E-commerce industry is the largest distribution channels for Protein supplement.

Global Protein supplement market



The article source from Data Bridge[1]

The sales of protein products



The article source from Grand View Research [2]

The related comments about Purchase

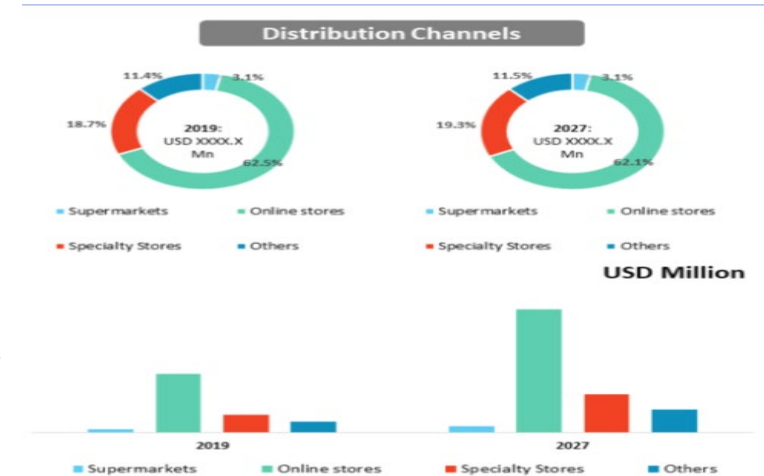
Hit Sentence	Key Phrases
launch vegan sports protein powder based prote...	investor media contact nextfirm website nextfe...
launch vegan sports protein powder based prote...	nextfirm website nextfirm flagship product add...
nutrition new brand aiming first launch vegan ...	nextfirm website nextfirm flagship product add...
launch vegan sports protein powder based prote...	commercial purchase order nextfirm website nex...
launch vegan sports protein powder based prote...	investor media contact nextfirm website nextfe...

- Protein supplements market is expected to reach USD 8.11 billion by 2027 growing at a growth rate of 7.59% in the forecast period 2020 to 2027. Especially, North America is the largest market.

- The U.S. was the largest market in the North American region for protein supplements, with total revenue of USD 8.44 billion in 2021. Especially, Protein Powder has the largest protein products market.

- The most comments shows that people like to purchase on website. Therefore, the rise in e-commerce industry is anticipated to stimulate the consumption of protein products.

Distribution Channels



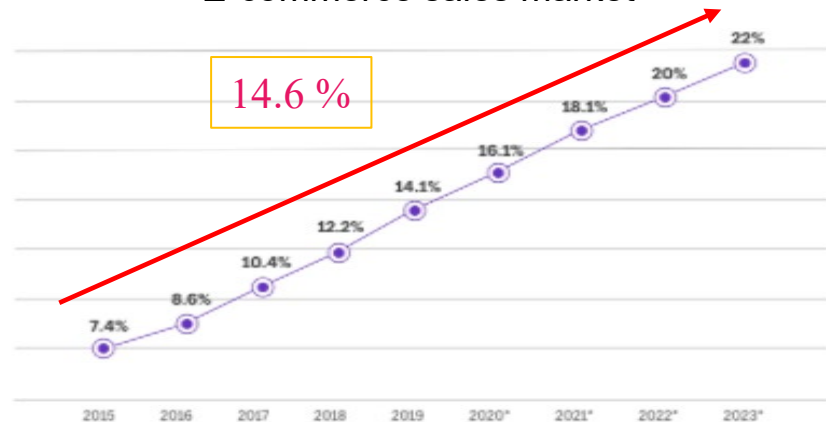
The article source from Data INTELO[3]



Report 2: E-commerce sales market increase 14.6% from 2015 to 2023.

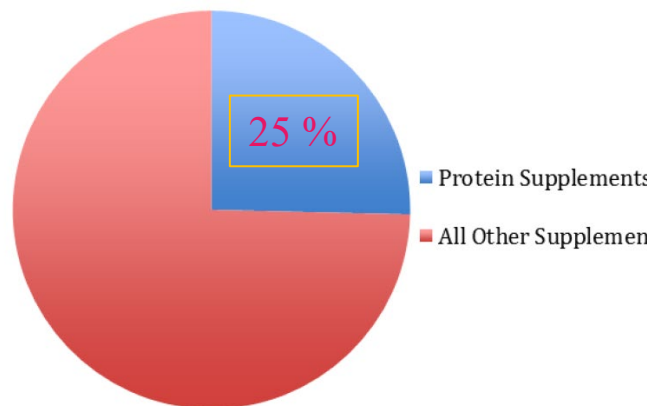
Protein powder and protein are the first two keywords .Protein powder and bars account for 25%. The largest brand is Optimum Nutrition (ON).

E-commerce sales market



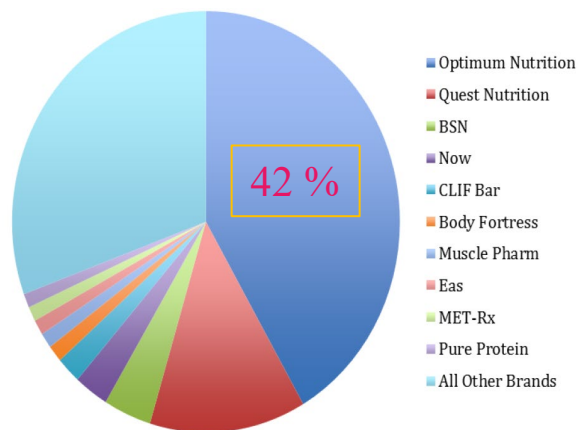
The article source from Builderfly[1]

The sales of protein products

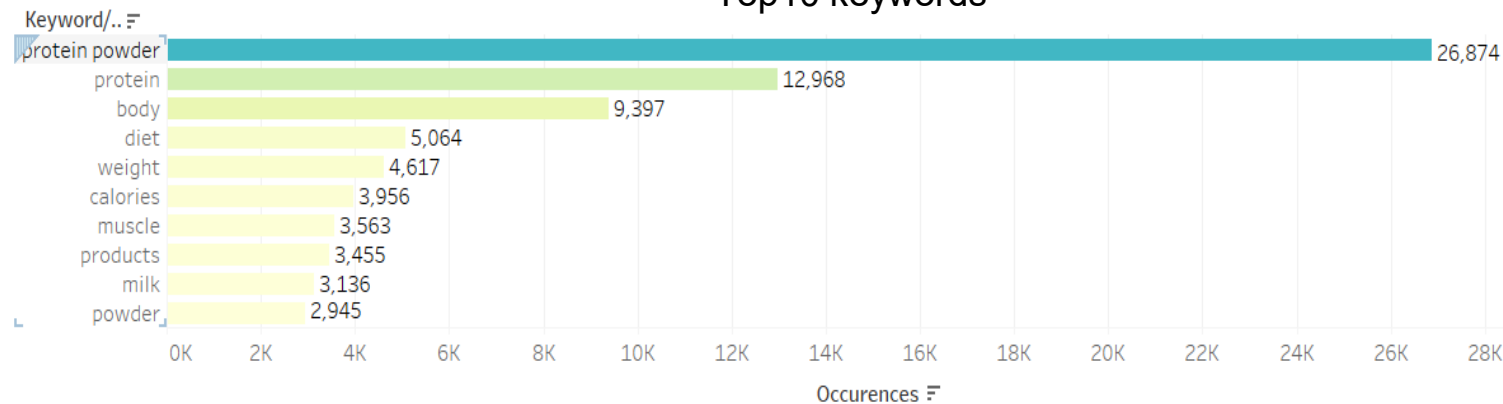


The article source from Protein Supplement Market Research[2]

The brand of protein



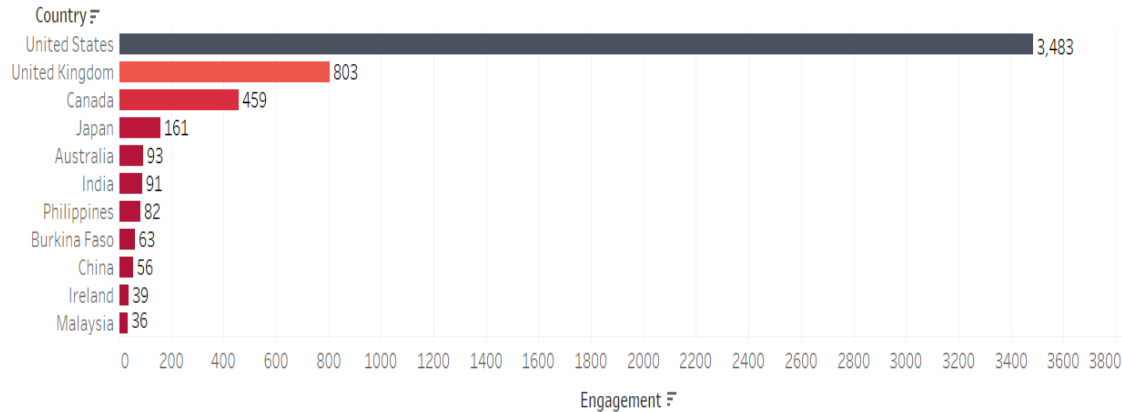
Top10 keywords



- Over the years, technology has been responsible for the change in consumer behavior. E-commerce sales market increase 14.6% from 2015 to 2023.
- The first two keywords are Protein powder and protein.
- The market share of protein supplements is 25%. It includes protein powder and bars. The protein supplements has 74% for protein powder.
- The brand of market leader in online sales of protein, with a dominating 42% market share, is Optimum Nutrition (ON).

Report 3: United States has the highest engagement. The state with the lowest number of comments is Montana because low percentage of Americans.

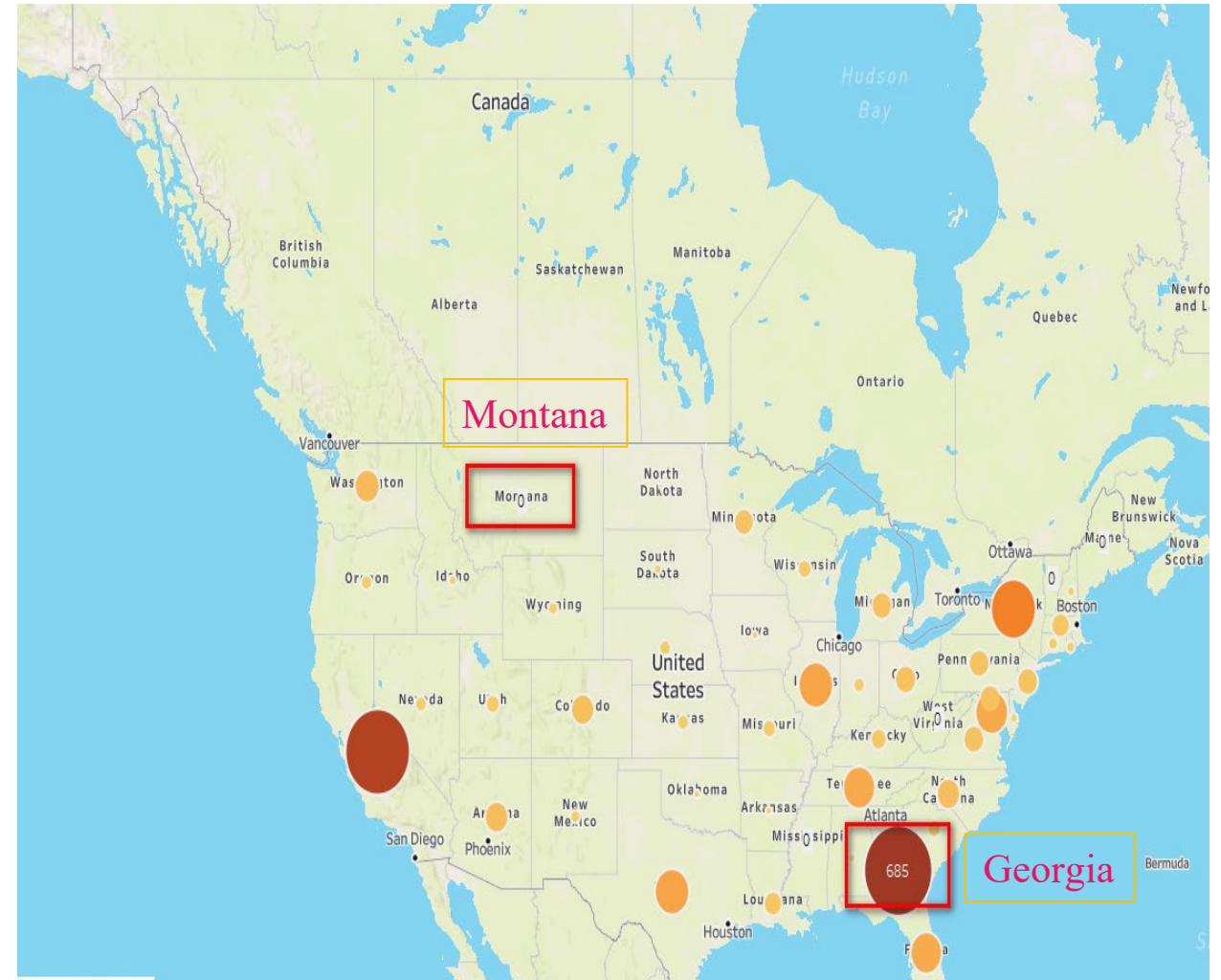
Engagement in each Country



- Engagement means the number of comments, likes, and sharing.
- United States has the highest engagement. It means that American like to exercise. Therefore, they are more interested in the product of protein powder and share information with others.
- The state with the lowest number of comments is Montana because among Montana residents, Germans (27%) have the most ancestry, followed by Irish (14.8%), Britons (10.6%), Norwegians (10.6%) and Americans (5.1%).

The state with the lowest number of

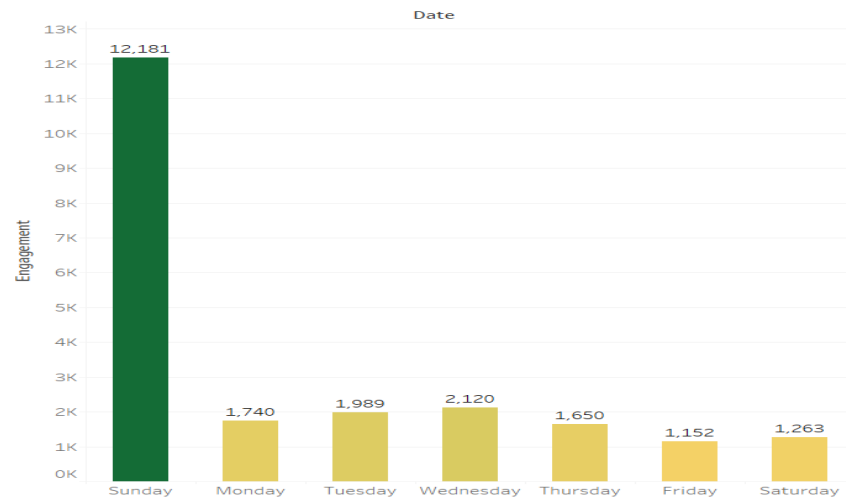
Engagement in each state



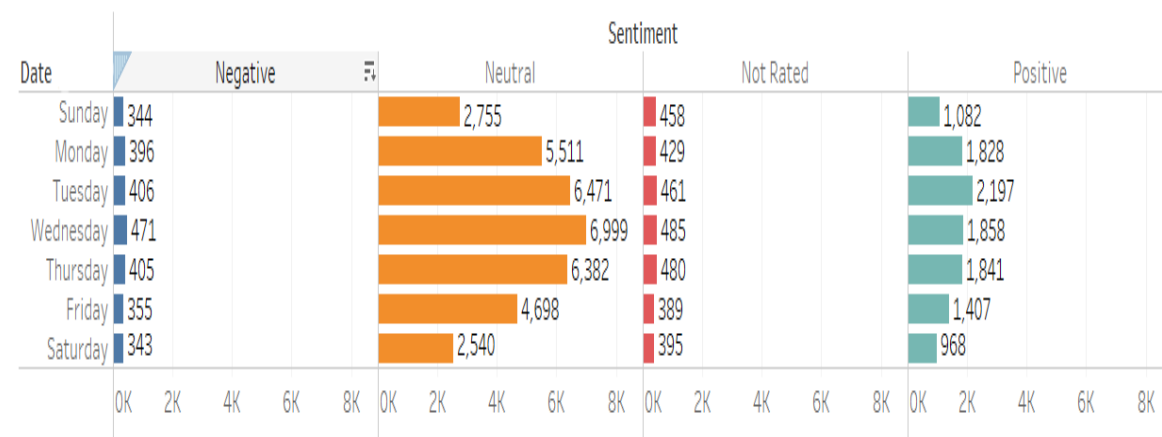
Report 4: Wednesday has the most comments because of Hump Day. Most for protein powder on Wednesday. The most keyword is “vegan, protein, powder” on

people feeling is neutral Wednesday.

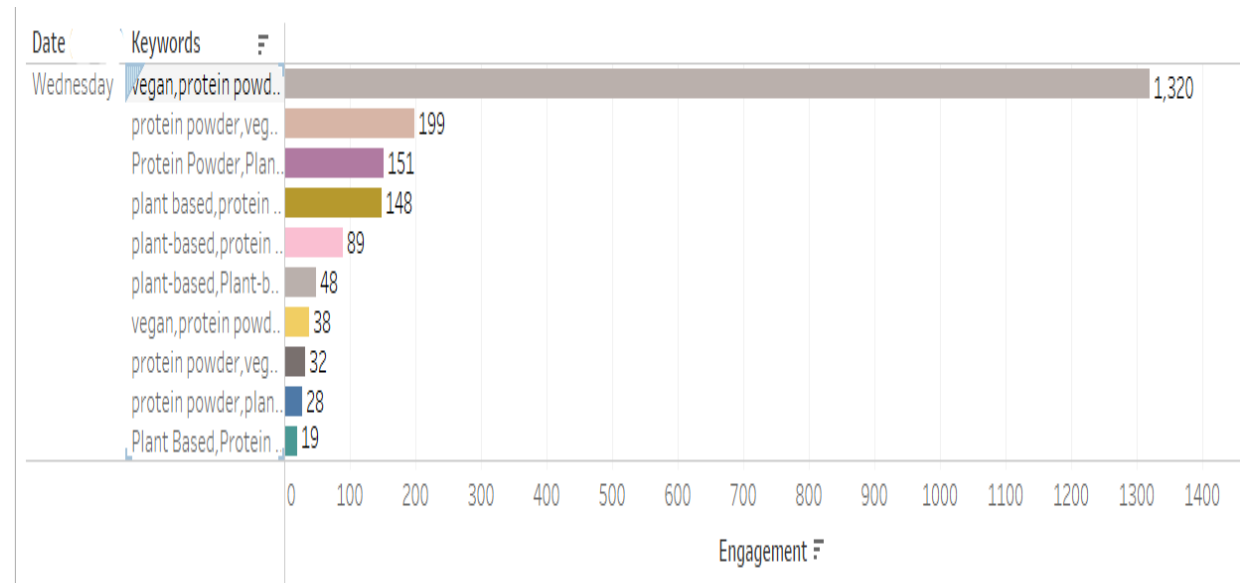
Engagements by weekdays



Neutral Sentiment by weekdays



Engagements by keywords on Wednesday



- **Wednesday** has the most comments because of **Hump Day**. Also, **Friday** has the least comments because people go the party after getting off work.
- Most people feeling is **neutral** for protein powder on Wednesday.
- The most keyword is “vegan, protein, powder” on **Wednesday**.

Report 5: The accuracy is between 0.6422 with 0.6757 for sentiment.

Layer (type)	Output Shape	Param #
embedding_2 (Embedding)	(None, 300, 300)	11113800
dropout_2 (Dropout)	(None, 300, 300)	0
lstm_2 (LSTM)	(None, 100)	160400
dense_8 (Dense)	(None, 256)	25856
dense_9 (Dense)	(None, 256)	65792
dense_10 (Dense)	(None, 256)	65792
dense_11 (Dense)	(None, 1)	257

Total params: 11,431,897

Trainable params: 318,097

Non-trainable params: 11,113,800

```
Epoch 1/8
37/37 [=====] - ETA: 0s - loss: -3.5921 - accuracy: 0.6422 WARNING:tensorflow:Early stopping conditioned on metric `val_acc` which is not available. Available metrics are: loss, accuracy, val_loss, val_accuracy, lr
37/37 [=====] - 548s 15s/step - loss: -3.5921 - accuracy: 0.6422 - val_loss: -5.8282 - val_accuracy: 0.6796 - lr: 0.0010
Epoch 2/8
37/37 [=====] - ETA: 0s - loss: -6.9935 - accuracy: 0.6757 WARNING:tensorflow:Early stopping conditioned on metric `val_acc` which is not available. Available metrics are: loss, accuracy, val_loss, val_accuracy, lr
37/37 [=====] - 550s 15s/step - loss: -6.9935 - accuracy: 0.6757 - val_loss: -7.9355 - val_accuracy: 0.6796 - lr: 0.0010
Epoch 3/8
37/37 [=====] - ETA: 0s - loss: -9.1135 - accuracy: 0.6757 WARNING:tensorflow:Early stopping conditioned on metric `val_acc` which is not available. Available metrics are: loss, accuracy, val_loss, val_accuracy, lr
37/37 [=====] - 575s 16s/step - loss: -9.1135 - accuracy: 0.6757 - val_loss: -10.0092 - val_accuracy: 0.6796 - lr: 0.0010
Epoch 4/8
37/37 [=====] - ETA: 0s - loss: -11.2489 - accuracy: 0.6757 WARNING:tensorflow:Early stopping conditioned on metric `val_acc` which is not available. Available metrics are: loss, accuracy, val_loss, val_accuracy, lr
37/37 [=====] - 571s 15s/step - loss: -11.2489 - accuracy: 0.6757 - val_loss: -12.1112 - val_accuracy: 0.6796 - lr: 0.0010
Epoch 5/8
37/37 [=====] - ETA: 0s - loss: -13.4316 - accuracy: 0.6757 WARNING:tensorflow:Early stopping conditioned on metric `val_acc` which is not available. Available metrics are: loss, accuracy, val_loss, val_accuracy, lr
37/37 [=====] - 601s 16s/step - loss: -13.4316 - accuracy: 0.6757 - val_loss: -14.2942 - val_accuracy: 0.6796 - lr: 0.0010
Epoch 6/8
37/37 [=====] - ETA: 0s - loss: -15.6367 - accuracy: 0.6757 WARNING:tensorflow:Early stopping conditioned on metric `val_acc` which is not available. Available metrics are: loss, accuracy, val_loss, val_accuracy, lr
37/37 [=====] - 595s 16s/step - loss: -15.6367 - accuracy: 0.6757 - val_loss: -16.4424 - val_accuracy: 0.6796 - lr: 0.0010
Epoch 7/8
37/37 [=====] - ETA: 0s - loss: -17.8350 - accuracy: 0.6757 WARNING:tensorflow:Early stopping conditioned on metric `val_acc` which is not available. Available metrics are: loss, accuracy, val_loss, val_accuracy, lr
37/37 [=====] - 612s 17s/step - loss: -17.8350 - accuracy: 0.6757 - val_loss: -18.5990 - val_accuracy: 0.6796 - lr: 0.0010
Epoch 8/8
37/37 [=====] - ETA: 0s - loss: -20.0285 - accuracy: 0.6757 WARNING:tensorflow:Early stopping conditioned on metric `val_acc` which is not available. Available metrics are: loss, accuracy, val_loss, val_accuracy, lr
37/37 [=====] - 597s 16s/step - loss: -20.0285 - accuracy: 0.6757 - val_loss: -20.7633 - val_accuracy: 0.6796 - lr: 0.0010
Wall time: 1h 17min 28s
```

- At NLP model, I use **7 layers** and nonlinear activation (**relu and Sigmoid**), including **embedding, dropout, and LSTM layers**.
- we get the accuracy between **0.6422 with 0.6757**.

Recommendations

- We can also use other methods to build layers for NLP model, such as CNN.
- Brand should promote their products more on the e-commerce.
- Protein powder should think of more strategies on Montana.
- The most comments are on Wednesday, and the comments are neutral contents. Therefore, they can introduce more stories about their brand and products, and advantages and disadvantages about their products on Wednesday.