```
faqs ="""Getting Started
What courses do you offer?
We offer programming courses in Python, JavaScript, Data Science,
Machine Learning, Web Development, and Mobile Development. All courses
are project-based with real-world applications.

How do I enroll in a course?
Visit yashacademy.in, browse courses, and click 'Enroll Now'. Complete
the payment to get instant access to course materials.

Is there any prerequisite for joining?
Most beginner courses require no prior experience. Advanced courses
may need basic programming knowledge mentioned in the course
description.

What is the course fee?
Courses range from Rs 999 to Rs 4999. We offer monthly discounts and
combo packages for multiple courses.

Learning Experience
Are the classes live or recorded?
We provide recorded video lectures that you can watch anytime. Live
doubt-clearing sessions happen every weekend.

How long do I have access to the course?
You get lifetime access to all purchased courses including future
updates at no extra cost.

Do you provide certificates?
Yes, you receive a verified digital certificate after completing all
modules and the final project.

Can I download the videos for offline viewing?
Currently, streaming is only available online. However, you can access
our mobile app for learning on the go.

Support & Community
How do I ask doubts?
Post your questions in the discussion forum or join our weekly live
Q&A sessions. Instructors respond within 24 hours.

Is there a community for students?
Yes, join our exclusive Discord server to network with fellow
learners, share resources, and collaborate on projects.

Do you offer placement assistance?
We provide resume reviews, interview preparation sessions, and job
referrals to our hiring partners.

Can I get a refund if I don't like the course?
```

```
We offer a 7-day money-back guarantee. If you're not satisfied, email
us for a full refund, no questions asked.

Technical Requirements
What do I need to start learning?
A computer with internet connection is sufficient. Course-specific
software requirements are listed in the curriculum.

Do you provide study materials?
Yes, each course includes PDF notes, code repositories, cheat sheets,
and additional reading resources.

Can I switch courses after enrolling?
Course switching is allowed within 3 days of enrollment if you haven't
completed more than 20% of the content.

Corporate & Group Training
Do you offer corporate training?
Yes, we customize training programs for companies. Contact
sales@yashacademy.in for bulk pricing.

Is there a discount for group enrollments?
Groups of 5+ get 20% off, and groups of 10+ get 30% discount. Contact
us for group registration.
"""

import tensorflow as tf
from tensorflow.keras.preprocessing.text import Tokenizer

tokenizer = Tokenizer()
tokenizer.fit_on_texts([faqs])

vocab_size = len(tokenizer.word_index) + 1
print(f"Vocabulary size: {vocab_size}")
```

```
Vocabulary size: 237
```

```
input_sequences = []
for sentence in faqs.split('\n'):
    tokenized_sentence = tokenizer.texts_to_sequences([sentence])[0]
    for i in range(1, len(tokenized_sentence)):
        input_sequences.append(tokenized_sentence[:i+1])

print(f"Total sequences: {len(input_sequences)}")
```

```
Total sequences: 378
```

```
from tensorflow.keras.preprocessing.sequence import pad_sequences
import numpy as np

max_len = max([len(x) for x in input_sequences])
```

```
padded_input_sequences = pad_sequences(input_sequences,
maxlen=max_len, padding='pre')

X = padded_input_sequences[:, :-1]
y = padded_input_sequences[:, -1]

print(f"X shape: {X.shape}")
print(f"y shape: {y.shape}")
print(f"Max length: {max_len}")
```

```
X shape: (378, 24)
y shape: (378,)
Max length: 25
```

```
print(X)
```

```
[[ 0  0  0 ...  0  0 61]
 [ 0  0  0 ...  0  0 23]
 [ 0  0  0 ...  0 23  2]
 ...
 [ 0  0  0 ... 59 58 54]
 [ 0  0  0 ... 58 54  4]
 [ 0  0  0 ... 54  4 33]]
```

```
print(y)
```

```
[[0. 0. 0. ... 0. 0. 0.]
 [0. 0. 1. ... 0. 0. 0.]
 [0. 0. 0. ... 0. 0. 0.]
 ...
 [0. 0. 0. ... 0. 0. 0.]
 [0. 0. 0. ... 0. 0. 0.]
 [0. 0. 0. ... 0. 0. 1.]]
```

```
from tensorflow.keras.utils import to_categorical

y = to_categorical(y, num_classes=vocab_size)
print(f"y shape after one-hot: {y.shape}")
```

```
y shape after one-hot: (378, 237)
```

```
from tensorflow.keras.models import Sequential
from tensorflow.keras.layers import Embedding, LSTM, Dense, Input

model = Sequential()
# FINAL FIX: Explicitly define input shape using Input layer
model.add(Input(shape=(max_len-1,)))
model.add(Embedding(vocab_size, 100))
model.add(LSTM(150, return_sequences=True))
model.add(LSTM(150))
model.add(Dense(vocab_size, activation='softmax'))
model.compile(loss='categorical_crossentropy', optimizer='adam',
metrics=['accuracy'])
model.summary()

Model: "sequential_2"

┏━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━┳━━━━━━━━━━━━━━━━━━━━━━━━┳━━━━━━━━━━
━━━━━┓
┃ Layer (type)                    ┃ Output Shape           ┃
Param # ┃
┡━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━╇━━━━━━━━━━━━━━━━━━━━━━━━╇━━━━━━━━━━
━━━━━┩
│ embedding_2 (Embedding)         │ (None, 24, 100)        │
23,700 │
├─────────────────────────────────┼────────────────────────┼──────────
─────┤
│ lstm_4 (LSTM)                   │ (None, 24, 150)        │
150,600 │
├─────────────────────────────────┼────────────────────────┼──────────
─────┤
│ lstm_5 (LSTM)                   │ (None, 150)            │
180,600 │
├─────────────────────────────────┼────────────────────────┼──────────
─────┤
│ dense_2 (Dense)                 │ (None, 237)            │
35,787 │
└─────────────────────────────────┴────────────────────────┴──────────
─────┘

 Total params: 390,687 (1.49 MB)

 Trainable params: 390,687 (1.49 MB)

 Non-trainable params: 0 (0.00 B)

model.fit(X, y, epochs=100, verbose=1)

Epoch 1/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 2s 10ms/step - accuracy: 0.0094 - loss:
5.4656
Epoch 2/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 10ms/step - accuracy: 0.0334 - loss:
5.3099
Epoch 3/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 10ms/step - accuracy: 0.0199 - loss:
5.1685
Epoch 4/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 10ms/step - accuracy: 0.0341 - loss:
5.1324
Epoch 5/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 10ms/step - accuracy: 0.0287 - loss:
```

```
5.0932
Epoch 6/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.0506 - loss:
5.0207
Epoch 7/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.0349 - loss:
4.9555
Epoch 8/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.0273 - loss:
4.9353
Epoch 9/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.0545 - loss:
4.8555
Epoch 10/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.0459 - loss:
4.8129
Epoch 11/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.0441 - loss:
4.6711
Epoch 12/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.0638 - loss:
4.6239
Epoch 13/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 10ms/step - accuracy: 0.0583 - loss:
4.5279
Epoch 14/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.0790 - loss:
4.4143
Epoch 15/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.0752 - loss:
4.4220
Epoch 16/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.0641 - loss:
4.3705
Epoch 17/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.0726 - loss:
4.2728
Epoch 18/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.0919 - loss:
4.1662
Epoch 19/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 10ms/step - accuracy: 0.1003 - loss:
4.0599
Epoch 20/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.1144 - loss:
4.0047
Epoch 21/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 10ms/step - accuracy: 0.1235 - loss:
3.9187
```

```
Epoch 22/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.1122 - loss:
3.9100
Epoch 23/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.1266 - loss:
3.8393
Epoch 24/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.1309 - loss:
3.7426
Epoch 25/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.1339 - loss:
3.7003
Epoch 26/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.1454 - loss:
3.6020
Epoch 27/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.1478 - loss:
3.6035
Epoch 28/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 8ms/step - accuracy: 0.1321 - loss:
3.5318
Epoch 29/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.1619 - loss:
3.4806
Epoch 30/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 8ms/step - accuracy: 0.1596 - loss:
3.4283
Epoch 31/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 8ms/step - accuracy: 0.1695 - loss:
3.3984
Epoch 32/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.1915 - loss:
3.3642
Epoch 33/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 8ms/step - accuracy: 0.2068 - loss:
3.2465
Epoch 34/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.2313 - loss:
3.2688
Epoch 35/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.2691 - loss:
3.0953
Epoch 36/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.2316 - loss:
3.1596
Epoch 37/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.2736 - loss:
3.0728
Epoch 38/100
```

```
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.3516 - loss:
2.9402
Epoch 39/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 8ms/step - accuracy: 0.3145 - loss:
2.8980
Epoch 40/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 8ms/step - accuracy: 0.3471 - loss:
2.8964
Epoch 41/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.3866 - loss:
2.8277
Epoch 42/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.3987 - loss:
2.7985
Epoch 43/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.4412 - loss:
2.6589
Epoch 44/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.4128 - loss:
2.6682
Epoch 45/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.4423 - loss:
2.5769
Epoch 46/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 10ms/step - accuracy: 0.4914 - loss:
2.5282
Epoch 47/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.4550 - loss:
2.5185
Epoch 48/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.4541 - loss:
2.5112
Epoch 49/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.4798 - loss:
2.4451
Epoch 50/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.5089 - loss:
2.4251
Epoch 51/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.5133 - loss:
2.3211
Epoch 52/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.5525 - loss:
2.2471
Epoch 53/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.5737 - loss:
2.2451
Epoch 54/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 10ms/step - accuracy: 0.5758 - loss:
```

```
2.2231
Epoch 55/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.6121 - loss:
2.1293
Epoch 56/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.6322 - loss:
2.0385
Epoch 57/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.6293 - loss:
2.0288
Epoch 58/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 14ms/step - accuracy: 0.6442 - loss:
1.9747
Epoch 59/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 13ms/step - accuracy: 0.6369 - loss:
1.9861
Epoch 60/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 13ms/step - accuracy: 0.6337 - loss:
1.9528
Epoch 61/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 12ms/step - accuracy: 0.6600 - loss:
1.8500
Epoch 62/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 13ms/step - accuracy: 0.6653 - loss:
1.8626
Epoch 63/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 14ms/step - accuracy: 0.6957 - loss:
1.7711
Epoch 64/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 14ms/step - accuracy: 0.6897 - loss:
1.7867
Epoch 65/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 15ms/step - accuracy: 0.7041 - loss:
1.6780
Epoch 66/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 31ms/step - accuracy: 0.7245 - loss:
1.5912
Epoch 67/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 13ms/step - accuracy: 0.7240 - loss:
1.6198
Epoch 68/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 10ms/step - accuracy: 0.6915 - loss:
1.6026
Epoch 69/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.6826 - loss:
1.6301
Epoch 70/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 10ms/step - accuracy: 0.7491 - loss:
1.4514
```

```
Epoch 71/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.7389 - loss:
1.4616
Epoch 72/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.7701 - loss:
1.3894
Epoch 73/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.7483 - loss:
1.4432
Epoch 74/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.7421 - loss:
1.4394
Epoch 75/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 8ms/step - accuracy: 0.7891 - loss:
1.3250
Epoch 76/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.7522 - loss:
1.3328
Epoch 77/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.7768 - loss:
1.2878
Epoch 78/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.7845 - loss:
1.2988
Epoch 79/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.7506 - loss:
1.2969
Epoch 80/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.7954 - loss:
1.2140
Epoch 81/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.8133 - loss:
1.1491
Epoch 82/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.8491 - loss:
1.1135
Epoch 83/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.7962 - loss:
1.1237
Epoch 84/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 8ms/step - accuracy: 0.8162 - loss:
1.0906
Epoch 85/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.8232 - loss:
1.0145
Epoch 86/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 10ms/step - accuracy: 0.8482 - loss:
0.9197
Epoch 87/100
```

```
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.8374 - loss:
0.9742
Epoch 88/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.8385 - loss:
0.9717
Epoch 89/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.8293 - loss:
0.9830
Epoch 90/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 8ms/step - accuracy: 0.8890 - loss:
0.8828
Epoch 91/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.8849 - loss:
0.8426
Epoch 92/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.8755 - loss:
0.8934
Epoch 93/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.8866 - loss:
0.8697
Epoch 94/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.8782 - loss:
0.8185
Epoch 95/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.8699 - loss:
0.8323
Epoch 96/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 8ms/step - accuracy: 0.8638 - loss:
0.8222
Epoch 97/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.8584 - loss:
0.8074
Epoch 98/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 8ms/step - accuracy: 0.8832 - loss:
0.7742
Epoch 99/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.8881 - loss:
0.7467
Epoch 100/100
12/12 ━━━━━━━━━━━━━━━━━━━━ 0s 9ms/step - accuracy: 0.9057 - loss:
0.7248
```

```
<keras.src.callbacks.history.History at 0x7b10befa3890>
```

```python
import time
import numpy as np

text = "is there any "
for i in range(10):
    # tokenize
    token_text = tokenizer.texts_to_sequences([text])[0]
    # padding - FIXED: use max_len-1 for input length
    padded_token_text = pad_sequences([token_text], maxlen=max_len-1,
padding='pre')
    # predict
    pos = np.argmax(model.predict(padded_token_text, verbose=0))
    for word, index in tokenizer.word_index.items():
        if index == pos:
            text = text + " " + word
            break
    print(text)
    time.sleep(2)
```

```
is there any  prerequisite
is there any  prerequisite for
is there any  prerequisite for joining
is there any  prerequisite for joining enrollments
is there any  prerequisite for joining enrollments after
is there any  prerequisite for joining enrollments after completing
is there any  prerequisite for joining enrollments after completing
yashacademy
is there any  prerequisite for joining enrollments after completing
yashacademy the
is there any  prerequisite for joining enrollments after completing
yashacademy the and
is there any  prerequisite for joining enrollments after completing
yashacademy the and the
```