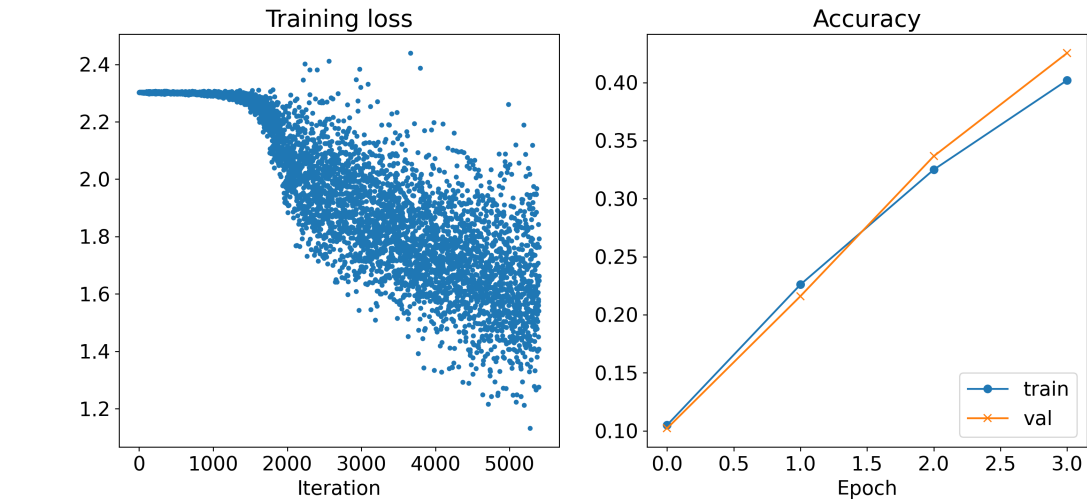


1 (c)











Test accuracy for CIFAR dataset: 42.08%













2 (c)



Training samples

				
Sample: two people walking down a street holding an umbrella <END> GT: <START> two people walking down a street holding an umbrella <END>	Sample: the plate is filled with meat and vegetables <END> GT: <START> the plate is filled with meat and vegetables <END>	Sample: tennis player in a tennis court <UNK> with her tennis racket <END> GT: <START> tennis player in a tennis court <UNK> with her tennis racket <END>	Sample: a man in a blue shirt holding a white plate with some food on it <END> GT: <START> a man in a blue shirt holding a white plate with some food on it <END>	Sample: a <UNK> vase being displayed in a <UNK> <END> GT: <START> a <UNK> vase being displayed in a <UNK> <END>
				
Sample: a person is standing on the water on a <UNK> board <END> GT: <START> a person is standing on the water on a <UNK> board <END>	Sample: a traffic signal with a very big pretty building by it <END> GT: <START> a traffic signal with a very big pretty building by it <END>	Sample: a very big room with a big pretty clock <END> GT: <START> a very big room with a big pretty clock <END>	Sample: many beautiful fruit <UNK> line the shelves in the market <END> GT: <START> many beautiful fruit <UNK> line the shelves in the market <END>	Sample: a double decker green bus driving down a <UNK> road near a lake <END> GT: <START> a double decker green bus driving down a <UNK> road near a lake <END>

Validation samples

				
Sample: five man sitting on a boy and a table with a laptop <END> GT: <START> a herd of sheep that are walking through a large group of people <END>	Sample: two man sitting on a <UNK> <END> GT: <START> a row of vintage cars in a grassy field <END>	Sample: train <UNK> up <UNK> and a tree near a <UNK> <END> GT: <START> the young man is <UNK> the young woman on top of her head <END>	Sample: young woman under a <UNK> with a <UNK> in the bench <END> GT: <START> a young man carrying a surf board under his arm <END>	Sample: woman cows walking standing on the <UNK> with a <UNK> <END> GT: <START> an image of a man on the beach riding horse <END>
				
Sample: a man standing on the dirt <UNK> with a <UNK> <END> GT: <START> a person holding a baseball bat in a <UNK> cage <END>	Sample: two women with her <UNK> sitting and a umbrella <END> GT: <START> a woman is reading on a park bench beside a <UNK> <END>	Sample: man woman on a surfboard riding a wave of a <UNK> <END> GT: <START> a person who is surfing in a wave pool <END>	Sample: a man riding flying a kite in a field <END> GT: <START> a man that is surfing on a wave in water <END>	Sample: several <UNK> with a <UNK> of the <UNK> of a <UNK> <END> GT: <START> a meal of sandwiches potatoes and red <UNK> beer <END>

3 (a)

transfer learning		
Test Case	Passed	Score
submitted transfer_learning.py?	✓	1/1
submitted transfer_learning.ipynb?	✓	1/1

3 (b)**Fine-tuned pretrained model**

Training time	0m 0s
Best val Acc	0.712418
Epoch	0/4
train Loss	0.5000
Acc	0.7664
val Loss	0.3085
Acc	0.8758
Epoch	1/4
train Loss	0.5936
Acc	0.7254
val Loss	0.2439
Acc	0.9150
Epoch	2/4
train Loss	0.5174
Acc	0.7828
val Loss	0.3162
Acc	0.8824
Epoch	3/4
train Loss	0.5208
Acc	0.7705
val Loss	0.3700
Acc	0.8889
Epoch	4/4
train Loss	0.7435
Acc	0.7910
val Loss	0.3417
Acc	0.8562
Training time	0m 6s
Best val Acc	0.915033

Frozen model

Training time	0m 0s
Best val Acc	0.457516
Epoch	0/4
train Loss	0.5814
Acc	0.7049
val Loss	0.2089
Acc	0.9346
Epoch	1/4
train Loss	0.4798
Acc	0.7910
val Loss	0.1932
Acc	0.9477
Epoch	2/4
train Loss	0.5531
Acc	0.7336
val Loss	0.6048
Acc	0.7647
Epoch	3/4
train Loss	0.6411
Acc	0.7418
val Loss	0.1941
Acc	0.9346
Epoch	4/4
train Loss	0.4340
Acc	0.8197
val Loss	0.2179
Acc	0.9281
Training time	0m 4s
Best val Acc	0.947712

3 (c)

Finetuned Model Predictions

bees
predicted: bees



bees
predicted: bees



bees
predicted: bees



ants
predicted: ants



ants
predicted: ants



ants
predicted: ants



Frozen Model Predictions

ants
predicted: ants



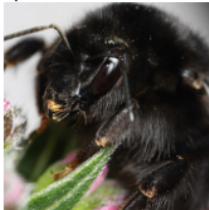
ants
predicted: ants



ants
predicted: ants



bees
predicted: bees



ants
predicted: ants



bees
predicted: bees



4 (b) train accuracy: 98.97% test accuracy: 91.35%

4 (c) Iteration 15000/15000: training loss 0.6052

Story (1): Once upon a time, there was a little girl named Lily. She loved to read books with pretty paint. One day, while she was reading, she noticed a big book. It said, "It is ready to try me!" Lily showed her friend, telling her a welk on the book and turned it into small pillow. "Can I have some fun for your toys, Lily?" she asked. "Yes, you can, Lily," the well replied. "Sure, little girl," said the well. "You can have fun at the book with your friends." The well bookes and listens. Lily felt happy and sad turns to have a nice toy. But she loves how to make dangerous foocers when it's flexible and starts patiently, but it is big. She closes the door and sees many danger. She feels sad and cries. She cries, "I will tell you her. I will not be found my string now. But that's how you make up noise." Her mom hugs her and says, "You are silly, little girl. You are meals." The girl says, "You are tooo many. Lily and her mist is very sorriry. Thank you, mom. You are my friend." Anna says, "I love you. I love you tooo!"

Story (2): Once there was an old little dog named Max. Max wanted to play with his toys in the bathroom, so Max could run and play with his toys and run around in the park. But Max saw a toy car with a badge ring he could not help. His owner had a big, big, wet fountain, but Max could not find it," Max said. Mix was sad, but he was afraid he could not do it again. He did not want to lose the toy, but he was very disappointed. He wanted to help Max. Lucy tools to help Max frint his toy but he did not work if he would help him find it. "Max, help me feel bettter!" Lucy said. She gove the toy but it was dark. She felt a bit bit sorriry. She wanted a block by the house, but no one helped him. "I'm sorriry, mister. I did not mean to stay rude. I know a generous bird with you. I love you." Lucy asked. "I will help you, help me find your own stick. I love you tooo. But you have to learn to be kind. Thank you, dad think for matching me gett here. When I learn you," Lucy and Ben said. They went back to play with their blocks. They loved the blue st

Story (3): One day, she could wait for her mom to close her eyes to her. She saw a toy car filled with marks on it. The toy was broken and shiny. Sunday, Snowy noticed that Lily was scared on her mom's toy car. She looked at Tom and saw Lily's mark on the cape. Together, they found a box on a high cape. They decided to touch it and talk to the duck. Finally, they found Lily's cape. Lily felt bad for touching the patch. "It's not nice," she said. "You can seee your mark and build the house," Lily said. She laughed and said, "Okay, we can find a bucket to this whole patch for you." At the patch, Lily saw the patch with how to find the patch. She had an idea. She took a smallll hat and toook a big bite. She stooood up and wrapped the patch on the flooor she ran acrosss the patch of the patch with her thole. She smiled and said, "Look, Lily, I am a man playing with your thoughts! Can I help your hand when you clean your rooom with a sweep to share them with your friends? That was time to be friends." Lily and Ben felt bettter and th