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Transforms

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Data does not always come in its final processed form that is required for training machine learning algorithms. We use **transforms** to perform some manipulation of the data and make it suitable for training.

All TorchVision datasets have two parameters - transform to modify the features and target_transform to modify the labels - that accept callables containing the transformation logic. The torchvision.transforms module offers several commonly-used transforms out of the box.

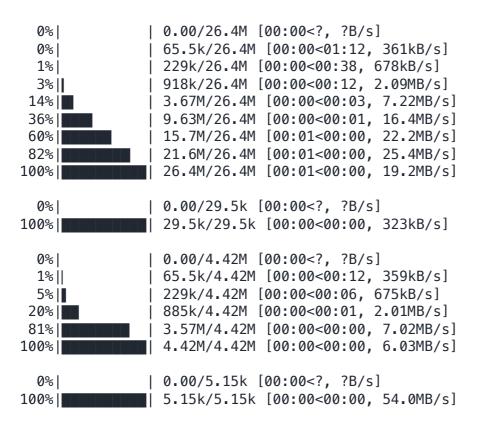
The FashionMNIST features are in PIL Image format, and the labels are integers. For training, we need the features as normalized tensors, and the labels as one-hot encoded tensors. To make these transformations, we use ToTensor and Lambda.

```
import torch
from torchvision import datasets
from torchvision.transforms import <u>ToTensor</u>, <u>Lambda</u>

ds = <u>datasets.FashionMNIST(</u>
    root="data",
    train=True,
    download=True,
    transform=<u>ToTensor()</u>,
    target_transform=<u>Lambda(lambda y: torch.zeros(10</u>, dtype=torch.float).scatter_)
```



Out:



ToTensor()

<u>ToTensor</u> converts a PIL image or NumPy <u>Indarray</u> into a <u>Indarray</u> into a <u>Indarray</u> and scales the image's pixel intensity values in the range [0., 1.]

Lambda Transforms

Lambda transforms apply any user-defined lambda function. Here, we define a function to turn the integer into a one-hot encoded tensor. It first creates a zero tensor of size 10 (the number of labels in our dataset) and calls scatter which assigns a value=1 on the index as given by the label <a href="mailto:y.

```
target_transform = Lambda(lambda y: torch.zeros(
    10, dtype=torch.float).scatter_(dim=0, index=torch.tensor(y), value=1))
```

Further Reading

torchvision.transforms API

Total running time of the script: (0 minutes 4.404 seconds)

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