

Pytorch.ipynb - Colab

colab.research.google.com/drive/1imQs4frEn2sYP0VW7SjxgJwC5ZgNZdpv?authuser=0#scrollTo=L4cYDgGwcvsa

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RAM Disk

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▶

```
x = torch.randn(3, requires_grad=True)
w = torch.randn(3, requires_grad=True)

y = (x*w).sum()

y.backward()
print(w)
print(w.grad)
```

↗

tensor([-0.1204, -1.4839, 0.5621], requires_grad=True)
tensor([0.9954, -0.1786, 0.4063])

▶

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x = torch.randn(3, requires_grad=True)
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✓ 0s [25] y = (x*w).sum()

y.backward()
print(w)
print(w.grad)

↗ tensor([-0.1204, -1.4839, 0.5621], requires_grad=True)
tensor([0.9954, -0.1786, 0.4063])

✓ 0s a = torch.randn(2,3)
print(a.requires_grad)

↗ False

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0s

[25] y = (x*w).sum()

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tensor([-0.1204, -1.4839, 0.5621], requires_grad=True)
tensor([0.9954, -0.1786, 0.4063])

▶

a = torch.randn(2,3)
print(a.requires_grad)
b = (a**2).sum()
print(b.requires_grad)

False

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[25] y = (x*w).sum()

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print(w.grad)

tensor([-0.1204, -1.4839, 0.5621], requires_grad=True)
tensor([0.9954, -0.1786, 0.4063])

0s

a = torch.randn(2,3)
print(a.requires_grad)
b = (a**2).sum()
print(b.grad_fn)

False
None

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y.backward()
print(w)
print(w.grad)

tensor([-0.1204, -1.4839, 0.5621], requires_grad=True)
tensor([0.9954, -0.1786, 0.4063])

⏮

a = torch.randn(2,3)
print(a.requires_grad)
b = (a**2).sum()
print(b.grad.requires_grad)
a.requires_grad_(True)
print(a.requires_grad)
b = (a**2).sum()
print(b.grad_fn)

False
None

[] Start coding or generate with AI.

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False
None
True

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```
print(w)
[25] print(w.grad)

tensor([-0.1204, -1.4839,  0.5621], requires_grad=True)
tensor([ 0.9954, -0.1786,  0.4063])
```

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b = (a**2).sum()
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a.requires_grad_(True)
print(a.requires_grad)
b = (a**2).sum()
print(b.grad_fn)


False
None
True
<SumBackward0 object at 0x7a36d87a6590>
```

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b = (a**2).sum()
print(b.grad_fn)
```

False
None
True
<SumBackward0 object at 0x7ab6d87a6590>

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a.requires_grad_(False)
print(a.requires_grad)
```

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0s

[25] print(w.grad)

tensor([-0.1204, -1.4839, 0.5621], requires_grad=True)
tensor([0.9954, -0.1786, 0.4063])

0s

a = torch.randn(2,3)
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b = (a**2).sum()
print(b.grad_fn)

a.requires_grad_(True)
print(a.requires_grad)
b = (a**2).sum()
print(b.grad_fn)

a.requires_grad_(False)
print(a.requires_grad)

False
None
True
<SumBackward0 object at 0x7ab6d87a5420>
False

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print(a.requires_grad)

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print(b.grad_fn)

a.requires_grad_(False)

print(a.requires_grad)

False
None
True
<SumBackward0 object at 0x7ab6d87a5420>
False

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```
print(w)
[25] print(w.grad)

tensor([-0.1204, -1.4839,  0.5621], requires_grad=True)
tensor([ 0.9954, -0.1786,  0.4063])
```

0s

```
a = torch.randn(2,3)
print(a.requires_grad)
b = (a**2).sum()
print(b.grad_fn)

a.requires_grad_(True)
print(a.requires_grad)
b = (a**2).sum()
print(b.grad_fn)

# a.requires_grad_(False)
# print(a.requires_grad)
```

```
False
None
True
<SumBackward0 object at 0x7ab6d87a68f0>
```

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```
tensor([-0.1204, -1.4839,  0.5621], requires_grad=True)
tensor([ 0.9954, -0.1786,  0.4063])
```



```

a = torch.randn(2,3)
print(a.requires_grad)

b = (a**2).sum()
print(b.grad_fn)

a.requires_grad_(True)
print(a.requires_grad)

b = (a**2).sum()
print(b.grad_fn)

```

```
# a.requires_grad_(False)
# print(a.requires_grad)
```

```
a.detach()  
print(a.requires_grad)
```

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ΔSCIENCES X

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```
a.detach_()
print(a.r detach_ builtin_function_or_method
```

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RAMDisk

Gemini

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+ Code + Text

✓ 0s [25]

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tensor([0.9954, -0.1786, 0.4063])

✓ 0s

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b = (a**2).sum()

print(b.grad_fn)

a.requires_grad_(True)

print(a.requires_grad)

b = (a**2).sum()

print(b.grad_fn)

a.requires_grad_(False)

print(a.requires_grad)

a = a.detach()

print(a.requires_grad)

False

None

True

<SumBackward0 object at 0x7ab6d87a5f90>

False

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a = a.detach()
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print(b.grad_fn)
```

False
None
True
<SumBackward0 object at 0x7ab6d87a4040>
False
None

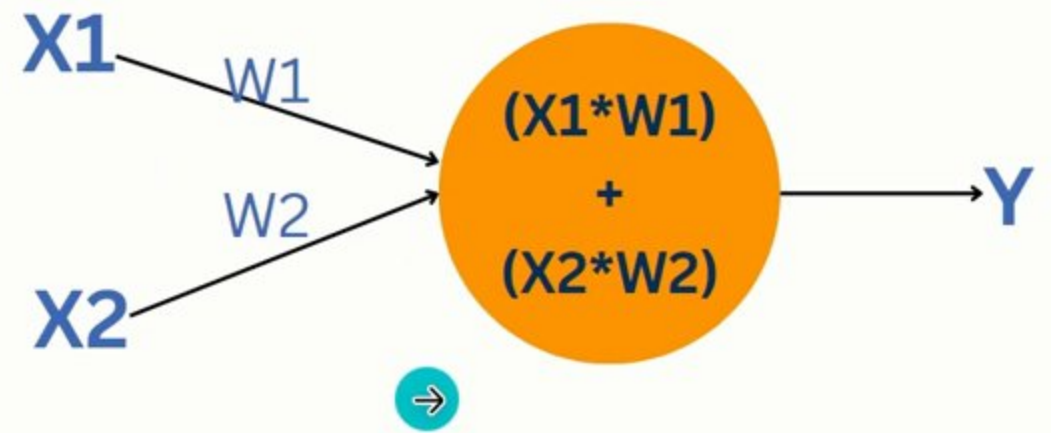
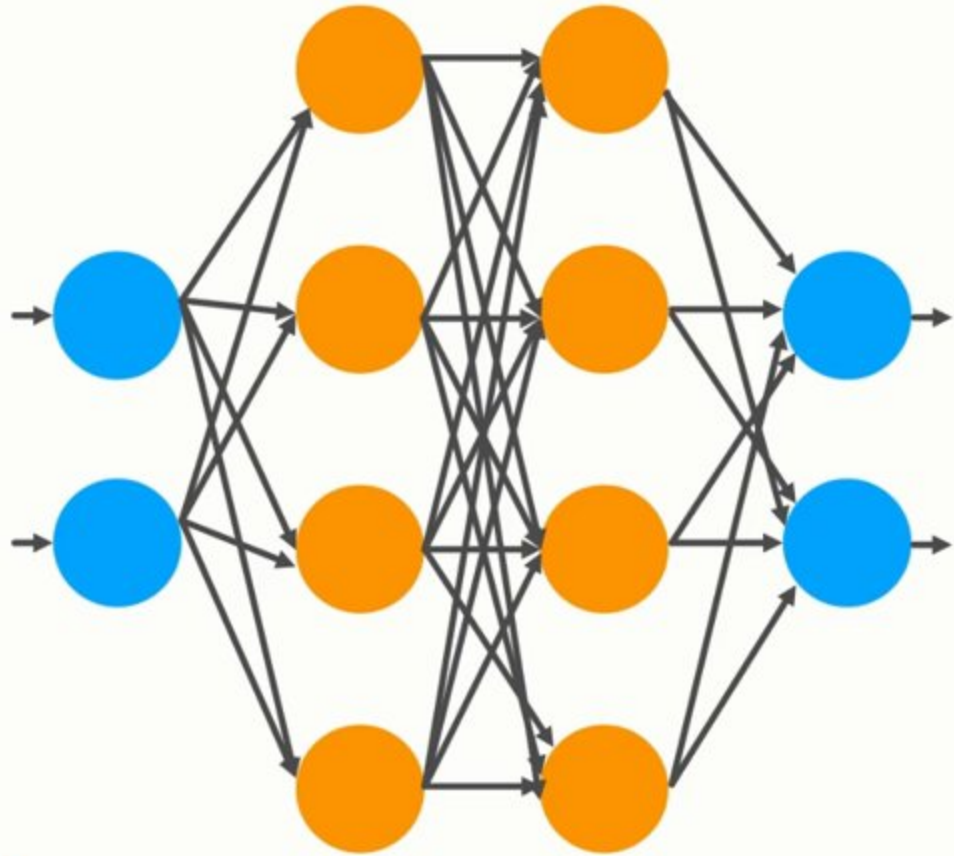
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✓ 0s

[21] print(x.grad)

tensor([0.3504, 0.3504, 0.3504])

[] Start coding or generate with AI.

✓ 0s

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w = torch.randn(3, requires_grad=True)

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y.backward()

print(w)

print(w.grad)

tensor([-0.1204, -1.4839, 0.5621], requires_grad=True)

tensor([0.9954, -0.1786, 0.4063])

✓ 0s

[53] a = torch.randn(2,3)

print(a.requires_grad)

b = (a**2).sum()

print(b.grad_fn)

a.requires_grad_(True)

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✓0s

[53] print(b.grad_fn)

False
None
True
<SumBackward0 object at 0x7ab6d87a4040>
False
None

▶

x = torch.randn(3, requires_grad=True)
w = torch.randn(3, requires_grad=True)

for epoch in range(2):
 output = (x*w).sum()

 y.backward()
 print(w)
 print(w.grad)

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✓ 0s

[53] print(b.grad_fn)

False

None

True

<SumBackward0 object at 0x7ab6d87a4040>

False

None

▶

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False
None
True
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False
None

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0s

[53] print(b.grad_fn)

False
None
True
<SumBackward0 object at 0x7ab6d87a4040>
False
None

0s

x = torch.randn(3, requires_grad=True)
w = torch.randn(3, requires_grad=True)

for epoch in range(2):
 output = (x*w).sum()

 output.backward()
 print(w)
 print(w.grad)

tensor([1.1987, -0.3400, -1.3424], requires_grad=True)
tensor([1.3440, -1.4709, -1.2627])
tensor([1.1987, -0.3400, -1.3424], requires_grad=True)
tensor([2.6881, -2.9418, -2.5254])

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print(b.grad_fn)

0s [53] False None True <SumBackward0 object at 0x7ab6d87a4040> False None

x = torch.randn(3, requires_grad=True)w = torch.randn(3, requires_grad=True)

for epoch in range(2):output = (x*w).sum()output.backward()print(w)print(w.grad)

tensor([1.1987, -0.3400, -1.3424], requires_grad=True)tensor([1.3440, -1.4709, -1.2627])tensor([1.1987, -0.3400, -1.3424], requires_grad=True)tensor([2.6881, -2.9418, -2.5254])

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✓ 0s

print(b.grad_fn)

False
None
True
<SumBackward0 object at 0x7ab6d87a4040>
False
None

✓ 0s

▶

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↗

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tensor([1.1987, -0.3400, -1.3424], requires_grad=True)
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<SumBackward0 object at 0x7ab6d87a4040>
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None

✓ 0s

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tensor([2.6881, -2.9418, -2.5254])

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Pytorch.ipynb - Colab

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RAMDisk

Gemini

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✓ 0s

print(b.grad_fn)

False
None
True
<SumBackward0 object at 0x7ab6d87a4040>
False
None

⏮

x = torch.randn(3, requires_grad=True)
w = torch.randn(3, requires_grad=True)

for epoch in range(2):
 output = (x*w).sum()

 output.backward()
 print(w)
 print(w.grad) I

w.grad.zero_()

⏮

tensor([1.1987, -0.3400, -1.3424], requires_grad=True)
tensor([1.3440, -1.4709, -1.2627])
tensor([1.1987, -0.3400, -1.3424], requires_grad=True)
tensor([2.6881, -2.9418, -2.5254])

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✓ 0s

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⏮

tensor([1.1987, -0.3400, -1.3424], requires_grad=True)
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tensor([2.6881, -2.9418, -2.5254])

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```
0s [53]
    False
    None
    True
    <SumBackward0 object at 0x7ab6d87a4040>
    False
    None
```

```
for epoch in range(2):
    output = (x*w).sum()

    output.backward()
    print(w)
    print(w.grad)

    w.grad.zero_()
```

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Pytorch.ipynb - Colab

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✓ 0s [53] `sumbackward object at 0x7a00a87a4040`
`False`
`None`

✓ 1s `x = torch.randn(3, requires_grad=True)`
`w = torch.randn(3, requires_grad=True)`

`for epoch in range(2):`
 `output = (x*w).sum()`

 `output.backward()`
 `print(w)`
 `print(w.grad)`

 `w.grad.zero_()`

`tensor([0.7129, -0.2115, -1.3303], requires_grad=True)`
`tensor([0.5834, 1.1223, -0.0395])`
`tensor([0.7129, -0.2115, -1.3303], requires_grad=True)`
`tensor([0.5834, 1.1223, -0.0395])`

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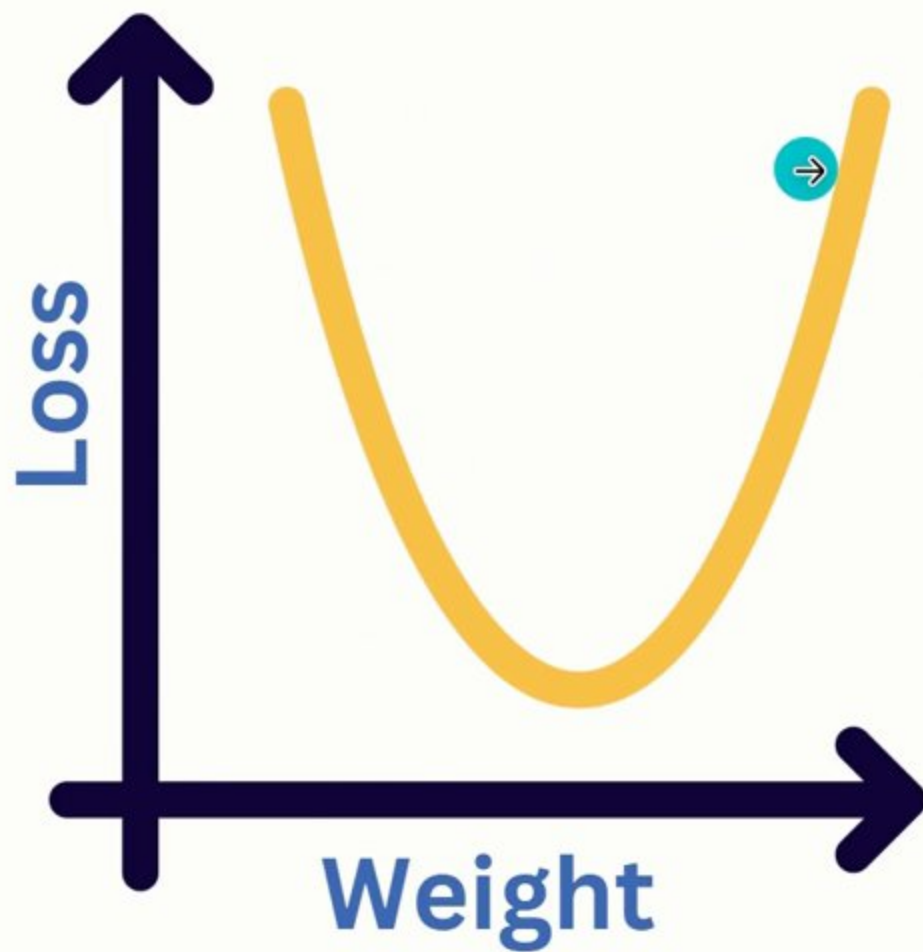

```
output.backward()
```

```
w.grad.zero_()
```

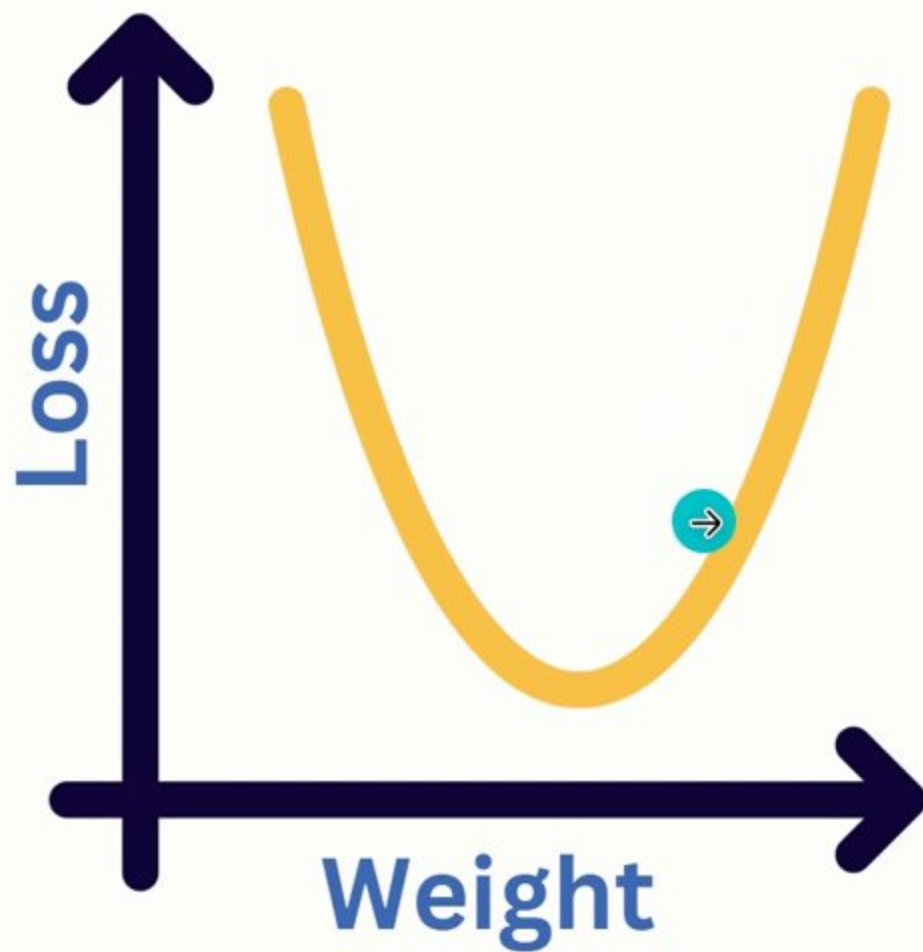
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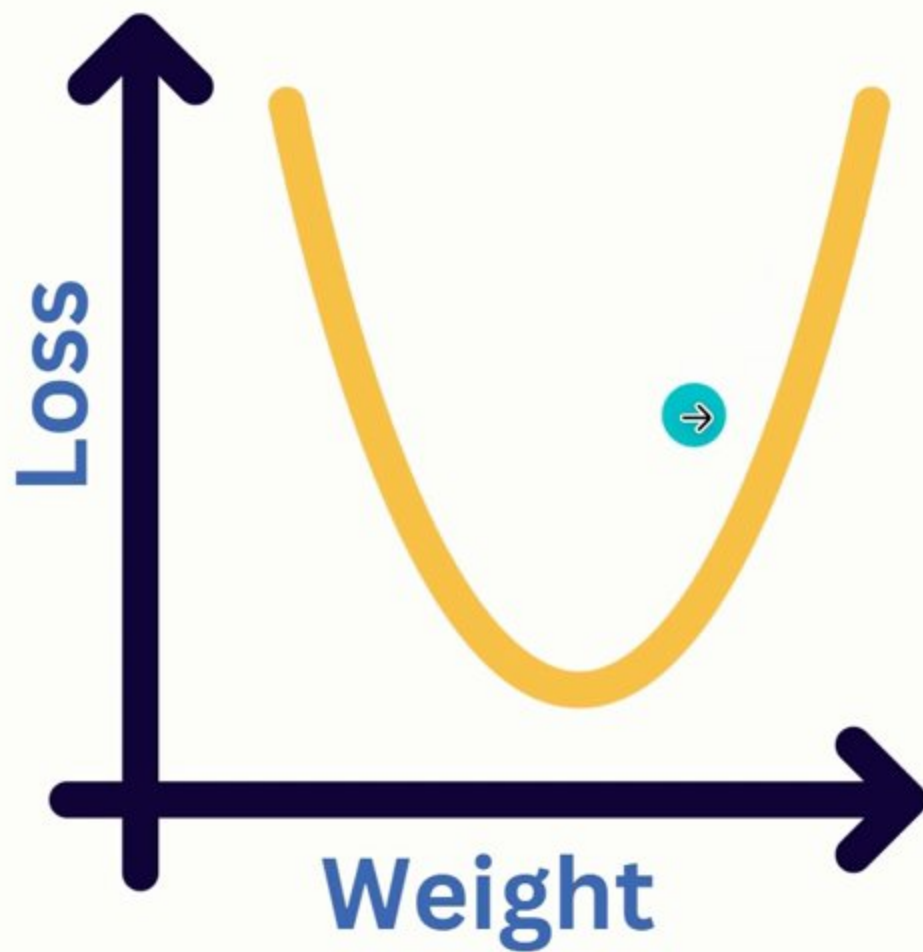
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0s

for epoch in range(2):
 output = (x*w).sum()

 output.backward()

 w -= 0.1*w.grad
 print(w.grad)

 w.grad.zero_()

RuntimeError

Traceback (most recent call last)

<ipython-input-56-71a6519da76d> in <cell line: 5>()
 8 output.backward()
 9
----> 10 w -= 0.1*w.grad
 11 print(w.grad)
 12

RuntimeError: a leaf Variable that requires grad is being used in an in-place operation.

Next steps:

Explain error

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Next steps:

Explain error

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Explain error

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[53] 0s

<SumBackward0 object at 0x7ab6d87a4040>
False
None

x = torch.randn(3, requires_grad=True)
w = torch.randn(3, requires_grad=True)

for epoch in range(2):
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 output.backward()

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Traceback (most recent call last)
<ipython-input-56-71a6519da76d> in <cell line: 5>()
 8 output.backward()
 9
----> 10 w -= 0.1*w.grad

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```
x = torch.randn(3, requires_grad=True)
w = torch.randn(3, requires_grad=True)

for epoch in range(2):
    output = (x*w).sum()

    output.backward()

    with torch.no_grad():
        w -= 0.1*w.grad

    print(w.grad)

    w.grad.zero_()
```

tensor([-0.0229, 0.6734, 1.4420])
tensor([-0.0229, 0.6734, 1.4420])

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```
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    output = (x*w).sum()

    output.backward()

    with torch.no_grad():
        w -= 0.1*w.grad
        print(w.grad)

    w.grad.zero_()
```

tensor([-0.8835, -0.3312, -1.8818])
tensor([-0.8835, -0.3312, -1.8818])
tensor([-0.8835, -0.3312, -1.8818])
tensor([-0.8835, -0.3312, -1.8818])
tensor([-0.8835, -0.3312, -1.8818])

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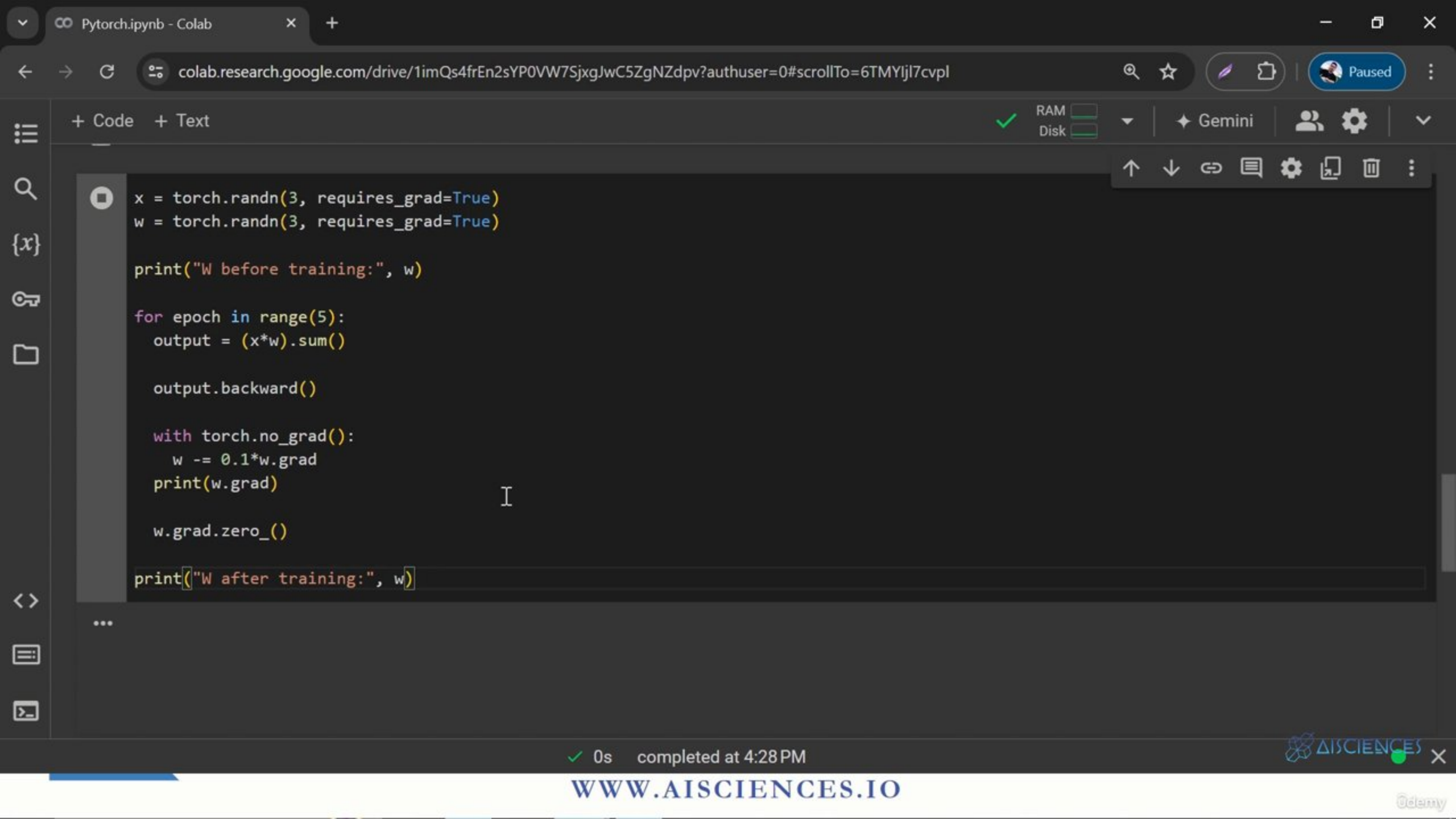
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[]



```
x = torch.randn(3, requires_grad=True)
w = torch.randn(3, requires_grad=True)

print("W before training:", w)

for epoch in range(5):
    output = (x*w).sum()

    output.backward()

    with torch.no_grad():
        w -= 0.1*w.grad
    print(w.grad)

    w.grad.zero_()

print("W after training:", w)
```

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✓ 0s [53] True<SumBackward0 object at 0x7ab6d87a4040>FalseNone

✓ 0s

```
x = torch.randn(3, requires_grad=True)
w = torch.randn(3, requires_grad=True)

print("W before training:", w)

for epoch in range(5):
    output = (x*w).sum()

    output.backward()

    with torch.no_grad():
        w -= 0.1*w.grad
    print(w.grad)

    w.grad.zero_()

print("W after training:", w)
```

W before training: tensor([0.4460, -1.4801, 0.2089], requires_grad=True)
tensor([0.4772, -0.5658, -0.7503])

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False
None

✓ 0s

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