CS795-1.b

April 19, 2022

[1]:
```
import sys
%pip install torch
```

```
Requirement already satisfied: torch in ./opt/anaconda3/lib/python3.8/site-
packages (1.11.0)
Requirement already satisfied: typing-extensions in
./opt/anaconda3/lib/python3.8/site-packages (from torch) (3.7.4.3)
WARNING: You are using pip version 21.2.4; however, version 22.0.4 is

available.

You should consider upgrading via the

'/Users/pankajjatav/opt/anaconda3/bin/python -m pip install --upgrade pip'

command.
Note: you may need to restart the kernel to use updated packages.
```

[2]:
```
import torch
import numpy as np
```

[3]:
```
x = torch.tensor(1.0, requires_grad=True)
y = torch.tensor(1.0, requires_grad=True)

f = x*y

print(x)
print(y)
print(f)

for i in range(100):
    x = torch.clip(x - (1 * y), min =0, max=1)
    y = torch.clip(y - (1 * x), min =0, max=1)
    print("Partial derivative with respect to x: ", x)
    print("Partial derivative with respect to y: ", y)
```

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```

[4]:

```python
x = torch.tensor(1.0, requires_grad=True)
y = torch.tensor(1.0, requires_grad=True)

f = x*y

print(x)
print(y)
print(f)

for i in range(100):
    x_half = x - (1 * y)
    y_half = y + (1 * x)

    x = torch.clip(x - ( 1 * y_half ), min =0, max=1)
    y = torch.clip(y + ( 1 * x_half ), min =0, max=1)
    print("Partial derivative with respect to x: ", x)
    print("Partial derivative with respect to y: ", y)
```

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