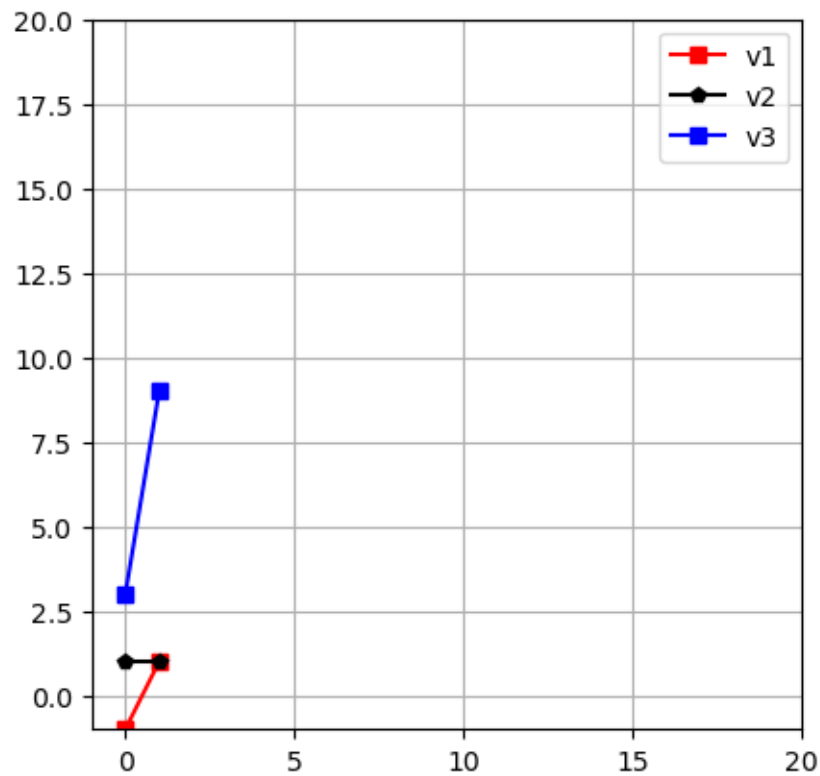


ASSIGNMENT1

February 5, 2025

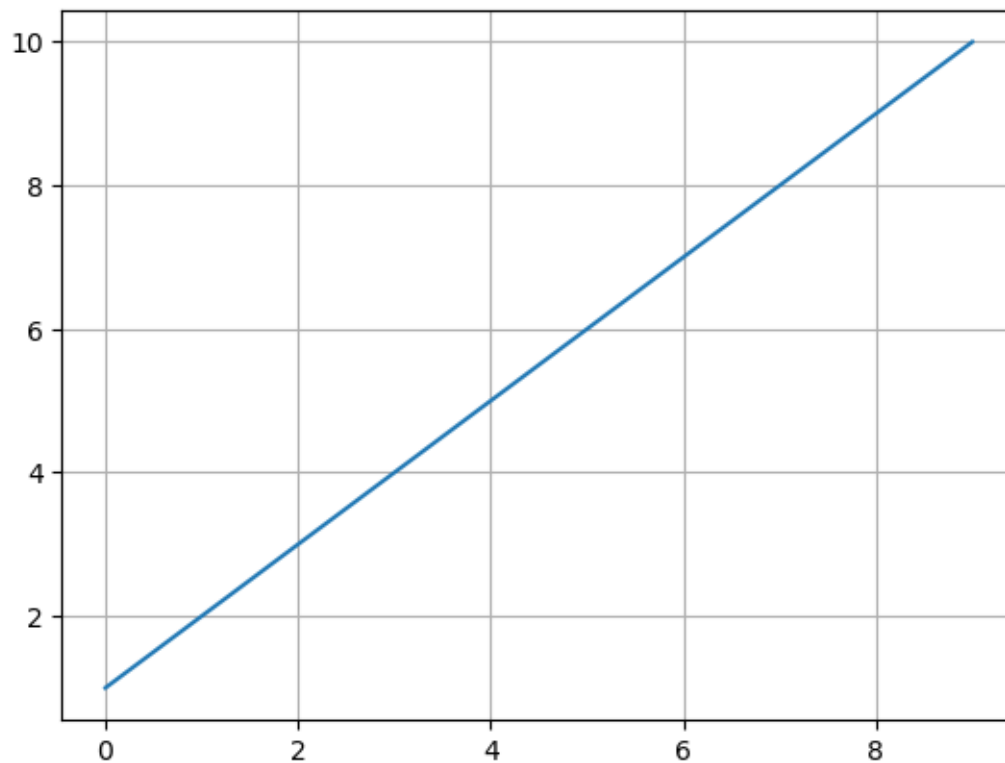
```
[4]: v1=np.array([-1,1])  
v2=np.array([1,1])  
v3=np.array([3,9])  
  
plt.plot(v1,'rs-',label= 'v1')  
plt.plot(v2,'kp-',label= 'v2')  
plt.plot(v3,'bs-',label= 'v3')  
  
plt.axis('square')  
plt.xlim([-1,20])  
plt.ylim([-1,20])  
  
plt.grid()  
plt.legend()  
plt.show()
```



```
[12]: import numpy as np
import matplotlib.pyplot as plt

vector1=[]
z=1
for m in range(10):
    vector1.append(z)
    z+=1
vector1=np.array(vector1)

plt.plot(vector1)
plt.grid()
plt.show()
```



```
[15]: import numpy as np
import matplotlib.pyplot as plt
vector2=[]
k=1
randnum=np.random.rand()
while randnum < 0.9:
```

```
vector2.append(k)
randnum=np.random.rand()
k+=1
```

```
[13]: randnum
```

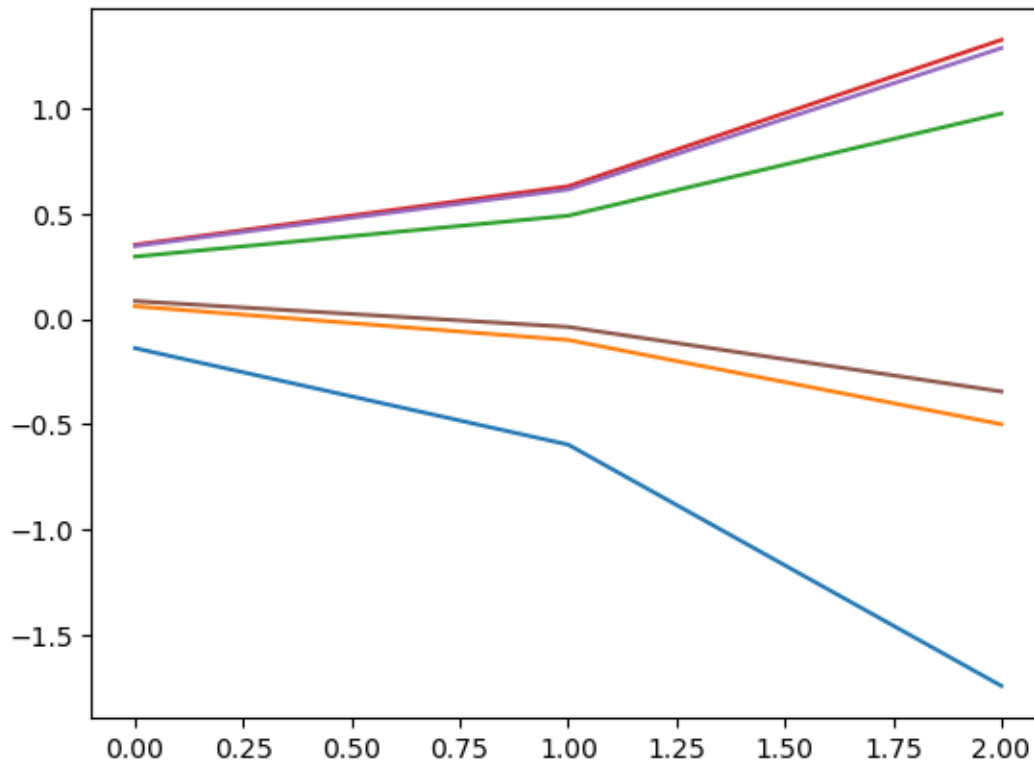
```
[13]: 0.5115484247066903
```

```
[2]: import numpy as np
import matplotlib.pyplot as plt
x=np.random.randint(1,101, size=6)
np.array(x)
b= x*1/np.sum(x)
activations = []
while np.max(b)<.95:
    b = b-0.1
    b= b*1/np.sum(b)
    activations.append(b)

x[x<0]=0

plt.plot(activations)
```

```
[2]: [<matplotlib.lines.Line2D at 0x7e2a4925b0d0>,
<matplotlib.lines.Line2D at 0x7e2a492b19d0>,
<matplotlib.lines.Line2D at 0x7e2a492b1d50>,
<matplotlib.lines.Line2D at 0x7e2a492b2090>,
<matplotlib.lines.Line2D at 0x7e2a492b2390>,
<matplotlib.lines.Line2D at 0x7e2a492b2950>]
```



```
[1]: import numpy as np
import matplotlib.pyplot as plt

weights=np.random.randint(-5,6,size=(8,4))
print(weights)
outputs=[]
for _ in range(10):
    a=np.random.randint(0,2)
    b=np.random.randint(0,2)
    c=np.random.randint(0,2)
    d=np.random.randint(0,2)
    e=np.random.randint(0,2)
    f=np.random.randint(0,2)
    g=np.random.randint(0,2)
    h=np.random.randint(0,2)
    input=np.array([a,b,c,d,e,f,g,h])
    output=np.matmul(input,weights)
    outputs.append(output)

outputs=np.vstack(outputs)
x=np.arange(0,4,1)
y=np.arange(0,10,1)
```

```

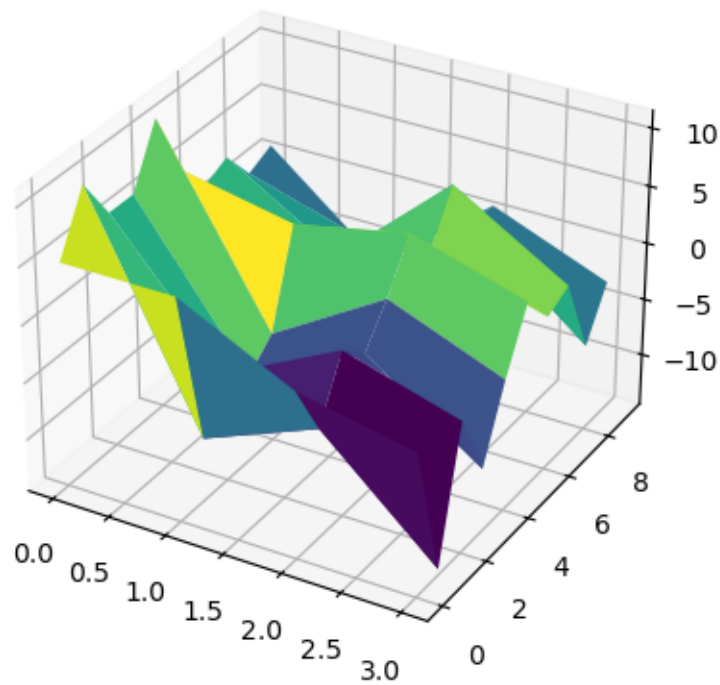
xs,ys=np.meshgrid(x,y)
fig=plt.figure()
ax=fig.add_subplot(111,projection='3d')
ax.plot_surface(xs,ys,outputs,cmap='viridis')
plt.show()

```

```

[[ 0 -5  1  2]
 [ 1 -5 -2 -2]
 [-1  3  2  1]
 [ 1 -2  0 -5]
 [ 0  5  3  4]
 [-2 -1  0 -4]
 [ 5 -3  0  2]
 [ 5  2 -3 -5]]

```



[]: