In [1]:
```
import numpy as np
X = np.random.rand(10,5)
beta = np.arange(10)
yhat = X[:,0]*beta[0] + X[:,1]*beta[1] + X[:,1]*X[:,2]*beta[2]
print(yhat)
```

```
[0.29368782 1.77174144 0.87197467 0.82948006 1.01014114 0.0092143
 0.53081323 0.77380854 0.80886405 1.00360332]
```

In [2]:
```
x =  np.random.rand(6)
alpha = np.random.rand(6)
beta = np.random.rand(6)
n = len(x)
m = len(alpha)
X = alpha[:,None]*np.exp(-beta[:,None]* x[None,:])
yhat = np.sum(X,axis = 0)
yhat
```

Out[2]:
```
array([1.69008224, 2.25126994, 1.54347265, 1.55436194, 1.59345118,
       2.47610066])
```

In [3]:
```
n = 6
m = 6
d = 6
x = np.random.rand(n,d)
y = np.random.rand(m,d)
dist = np.sum((x[:,None,:]-y[None,:,:])**2,axis=2)
dist
```

Out[3]:
```
array([[1.36386105, 0.3704373 , 1.359463  , 0.9645096 , 0.91613135,
        1.14937536],
       [1.65901061, 1.09246985, 1.1313744 , 2.03843751, 1.51935362,
        1.24341455],
       [1.0370633 , 0.94884314, 0.31321323, 1.67366642, 1.55750946,
        1.36988482],
       [0.95667818, 0.54840486, 1.39190907, 1.06095361, 0.77813291,
        1.50230173],
       [0.94795423, 1.15532341, 0.66705028, 1.07383182, 1.5235656 ,
        0.71433521],
       [1.01985939, 1.12642386, 1.06701283, 1.52041907, 1.69432629,
        0.47202399]])
```

In [ ]:
```

```