$$f = c \times 1.8 + 32$$

Importing Libraries

In [ ]:

```
import tensorflow as tf
import numpy as np
```

Creating Data

In [ ]:

```
celsius_list    = np.array([-40, -10,  0,  8, 15, 22,  38],  dtype=float)
fahrenheit_list = np.array([-40,  14, 32, 46, 59, 72, 100],  dtype=float)

for i,c in enumerate(celsius_list):
  print("{} degrees Celsius = {} degrees Fahrenheit".format(c, fahrenheit_list[i]))
```

```
-40.0 degrees Celsius = -40.0 degrees Fahrenheit
-10.0 degrees Celsius = 14.0 degrees Fahrenheit
0.0 degrees Celsius = 32.0 degrees Fahrenheit
8.0 degrees Celsius = 46.0 degrees Fahrenheit
15.0 degrees Celsius = 59.0 degrees Fahrenheit
22.0 degrees Celsius = 72.0 degrees Fahrenheit
38.0 degrees Celsius = 100.0 degrees Fahrenheit
```

Creating Model

In [ ]:

```
from tensorflow import keras
```

In [ ]:

```
model = tf.keras.Sequential([
  tf.keras.layers.Dense(units=1, input_shape=[1])
])
```

In [ ]:

```
model.compile(loss='mean_squared_error',
              optimizer=tf.keras.optimizers.Adam(0.1)) #0.1 here is learning rate
```

In [ ]:

```
history = model.fit(celsius_list, fahrenheit_list, epochs=500, verbose=False)
print("Finished training the model")
```

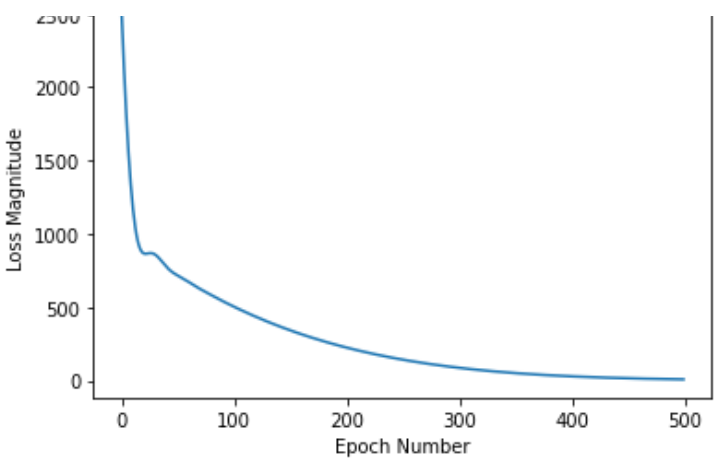
```
Finished training the model
```

In [ ]:

```
import matplotlib.pyplot as plt
plt.xlabel('Epoch Number')
plt.ylabel("Loss Magnitude")
plt.plot(history.history['loss'])
```

Out[ ]:

```
[<matplotlib.lines.Line2D at 0x7f9943e06410>]
```



In [ ]:

```
def CalculateFahrenheit(celcius):
  return celcius * 1.8 + 32
```

In [ ]:

```
print(f"Predicted Value: {model.predict([100.0])}")
print(f"Real Value: {CalculateFahrenheit(100.0)}")
```

```
Predicted Value: [[211.32753]]
Real Value: 212.0
```