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In [ ]:  #Celcius to Farenheit Model using TensorFlow
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In [ ]:  import tensorflow as tf
         import numpy as np
         import matplotlib.pyplot as plt
```

```
In [ ]:  celsius = np.array([-4, -1, 0, 8, 15, 22, 30], dtype=float)
         fahrenheit = np.array([24.8, 30.2, 32, 46.4, 59, 71.6, 86], dtype=float)
```

```
In [ ]:  hl1 = tf.keras.layers.Dense(units=4, input_shape=[1])
         hl2 = tf.keras.layers.Dense(units=4)
         output = tf.keras.layers.Dense(units=1)
         model = tf.keras.Sequential([hl1, hl2, output])
```

```
In [ ]:  model.compile(
             optimizer=tf.keras.optimizers.Adam(0.1),
             loss='mean_squared_error')
```

```
In [ ]:  print("Starting Training...")
         historial = model.fit(celsius, fahrenheit, epochs=1000, verbose=False)
         print("Model Trained")
```

```
Starting Training...
Model Trained
```

```
In [ ]:  plt.xlabel("# Season")
         plt.ylabel("Loss magnitude")
         plt.plot(historial.history["loss"])
         plt.title("Model error magnitude")
         fig = plt.gcf()
         fig.set_size_inches(10,6)
         plt.show()
```
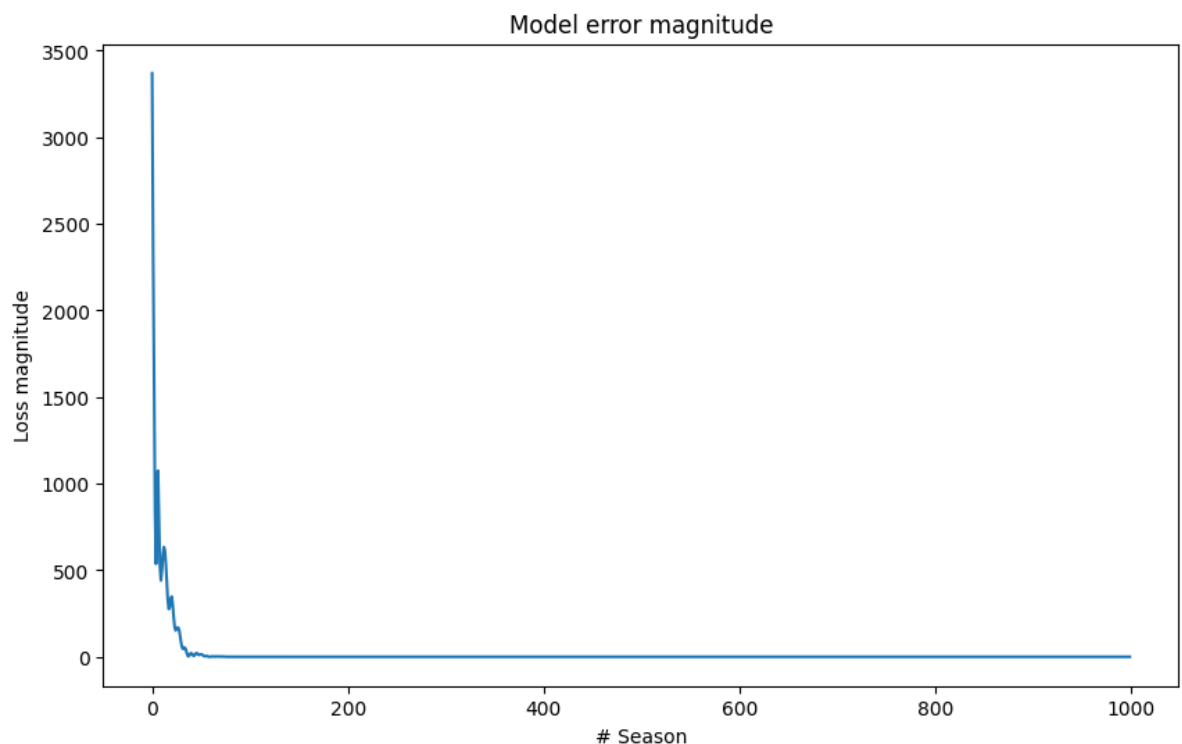


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In [ ]:  print("Lets make a prediction")
         resultado = model.predict([100.0])
```

```python
print("The asnwer is " + str(resultado) + " fahrenheit!")
```

```
Lets make a prediction
1/1 [==============================] - 0s 88ms/step
The asnwer is [[212.00003]] fahrenheit!
```

```python
print("Intern model variables")
#print(layer.get_weights())
print(hl1.get_weights())
print(hl2.get_weights())
print(output.get_weights())
```

```
Intern model variables
[array([[-0.15823193,  0.08330365,  0.6902609 , -0.39695606]],
       dtype=float32), array([ 2.88077  , -3.0621283,  3.4744637, -2.9645848], dtyp
e=float32)]
[array([[-0.81311774,  0.33388504,  0.6312417 ,  0.44924924],
       [ 0.12961738, -0.5774925 , -0.6466024 , -0.8670127 ],
       [-0.48202506,  0.5974871 ,  0.770202  ,  1.1123999 ],
       [ 0.11731184, -0.5876875 , -0.89012736, -0.51927936]],
       dtype=float32), array([-0.5444198,  2.5756066,  3.0947845,  3.4630396], dtyp
e=float32)]
[array([[0.01667688],
       [0.688389  ],
       [1.1396163 ],
       [0.71708614]], dtype=float32), array([2.7044692], dtype=float32)]
```