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Exercise 0  
Celsius to Fahrenheit

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## Introduction: Build your First Neural Network!

In this exercise, we will solve the problem of converting from Celsius to Fahrenheit, where the approximate formula is:

This is a simple example. But it shows us the whole process of how to solve problems using deep learning methods, including data preparation, create the model, train the model, study its performance, use the model to predict new data, save the model, etc.

1. Install and Import Dependencies
2. Data Preparation
   1. Split train-test sets
3. Construct the model
   1. Compile the model
4. Train the model
   1. Visualization by TensorBoard
   2. Visualization by history object
   3. Visualize the layer weight
5. Evaluate the model
6. Predict using the trained model
7. Save the model and Restore

**Please Fill this Table. And to conclude what do you find in this hyperparameter tuning exercise.**

Table: Add more layers to the model to see the performance

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Layers | Regularizer | Optimizer | ReLU | Train Acc,% | Test Acc,% | #Trainable paras |
| 4-4 | None | SGD | None |  |  |  |
| 4-4 | None | SGD | Yes |  |  |  |
| 64-64 | None | SGD | Yes |  |  |  |
| 4-4-4 | None | SGD | Yes |  |  |  |

**Observations:**

1. Bigger networks do not necessarily translate to better performance.
2. ...