# A binary classification model

Now that you know what the **Banknote Authentication** dataset looks like, we'll build a simple model to distinguish between real and fake bills.

You will perform binary classification by using a single neuron as an output. The input layer will have 4 neurons since we have 4 features in our dataset. The model output will be a value constrained between 0 and 1.

We will interpret this number as the probability of our input variables coming from a fake dollar bill, with 1 meaning we are certain it's fake.
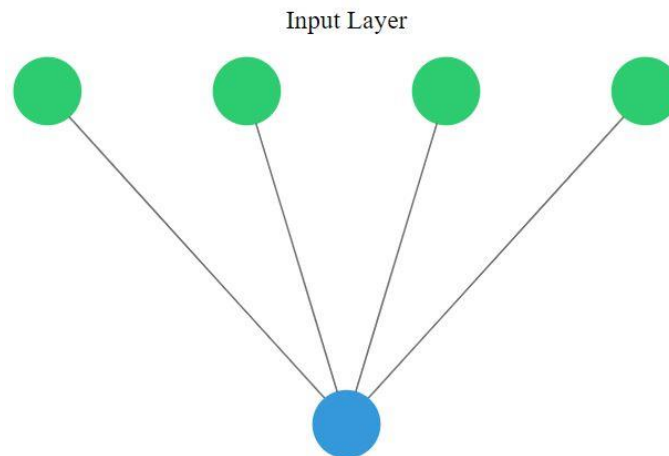
- Import the `Sequential` model and `Dense` layer from Keras.

- Create a sequential model.
- Add a 1 neuron output layer with `sigmoid` activation and a 4 neuron input layer with the `input_shape` parameter.
- Compile your model using `sgd` as an optimizer.

```python
# Import the sequential model and dense layer
from keras.models import Sequential
from keras.layers import Dense

# Create a sequential model
model = Sequential()

# Add a dense layer
model.add(Dense(1, input_shape=(4,), activation='sigmoid'))

# Compile your model
model.compile(loss='binary_crossentropy', optimizer='sgd', metrics=['accuracy'])

# Display a summary of your model
model.summary()
```