A Creation of Efficiency: The Flight Time Calculator

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OBJECTIVE

Create an efficient, simple, and useful flight time calculator that can easily be utilized by multiple private aviation companies.


METHODOLOGY

Archival flight data of over 600 flights and additional data containing the latitude and longitude of US airports was utilized and processed through a neural network to return the flight time.

NEURAL NETWORK

6 input variables
4 hidden layers
1 output variable
80% of data trained using (arrival time – departure time)
20% of data tested without reference value
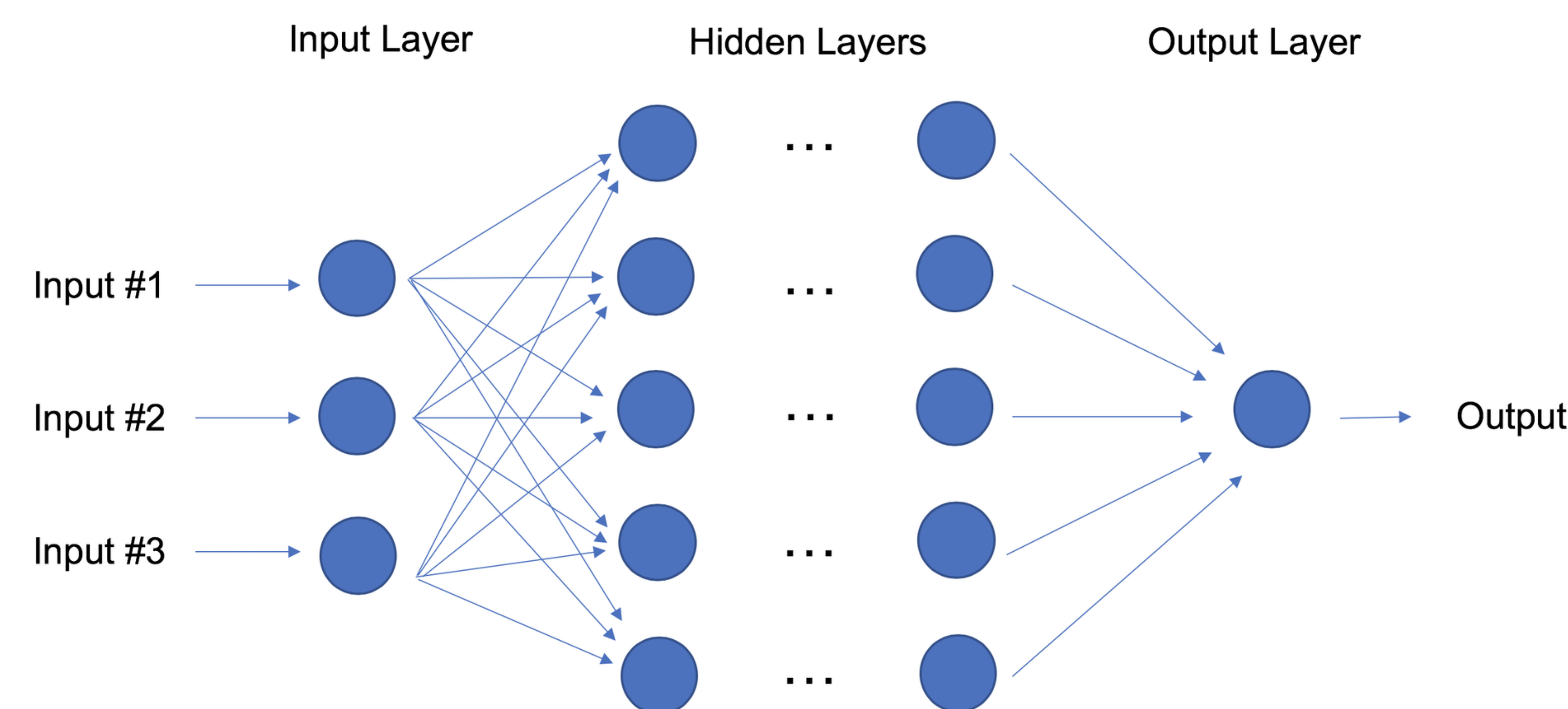
INPUT VARIABLES

Aircraft Type
Departure Airport Latitude/ Longitude
Arrival Airport Latitude/ Longitude
Departure Time

OUTPUT VARIABLES

Flight Duration (Flight Time)

RESULTS AND DISCUSSION

Following a 24-hour clock, the neural network returns the predicted flight time in terms of decimal hours. The next steps would be to run a larger data file through the neural network and then consider details such as seasonal winds and flight path for better accuracy.

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[ 1.80000000e+00   1.66666667e-01   2.16666667e-01   3.83333333e-01
  1.40816667e+00   1.60000000e+00   1.25000000e+00   1.78333333e+00
  2.50000000e-01   1.60000000e+00   1.66666667e+00   1.78333333e+00
  4.33333333e-01   1.66666667e+00   2.16666667e-01   1.21666667e+00
  7.50000000e-01   1.41666667e+00   1.26666667e+00   7.00000000e-01
  2.66666667e-01   1.33333333e+00   1.65000000e+00   5.33333333e-01
  6.16666667e-01   1.31666667e+00   3.00000000e-01   2.05000000e+00
  1.66666667e+00   1.18333333e+00   1.76666667e+00   1.65000000e+00 ]
```