Exercise 8-2
Data logging

Task: Complete gaps in the application code to initialize and close DAQ module
Use Bookmark manager to navigate through tasks in the application

Every 100 ms Model module sends model parameters to logger. The data should be stored in TDMS file only if Logger module is in Working state. To store the data, Log State.vi is called.

8-2.1 Update Log Model State of the Logger module (Fig. 1):
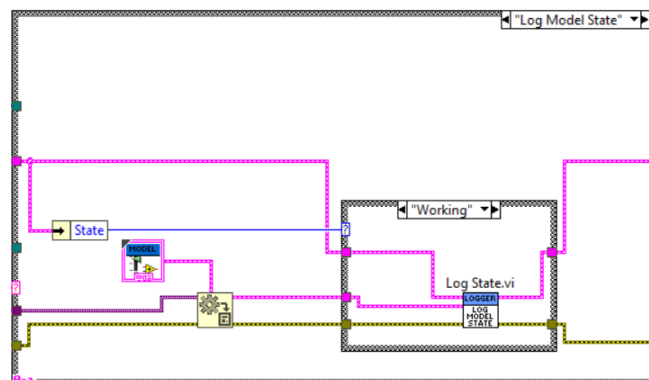Call **Log State.vi** (find it in Logger library) only if the current Logger state is **Working**.

Fig. 1. Logger module – Log Model State

*In the **Log State.vi**, append **Position** and **Fluid Level** model data as 2D double array in separate channels with the same names. Append timestamp to **Time** channel as well. All the channels should be stored in a group named **Barrel #N**, where N is the current number of the barrel.*

8-2.2 Update Log State.vi (Fig. 2):
a) insert two **TDMS Write** functions (separate for double and timestamp)
b) connect **tdms file out** reference to both TDMS Write functions
c) convert **Barrel Number** value to Decimal String, concatenate it to *Barrel #* string and connect to group name of TDMS write functions
d) build 2D array of **Position** and **Fluid Level** values
e) transpose the array and connect it to **data** port of the first TDMS Write

f) create array constant, insert empty string, and name the first two elements as: **Position** and **Fluid Level**
g) use **Get Date/Time in seconds** function and Build array node to create timestamp channel in the second TDMS Write function
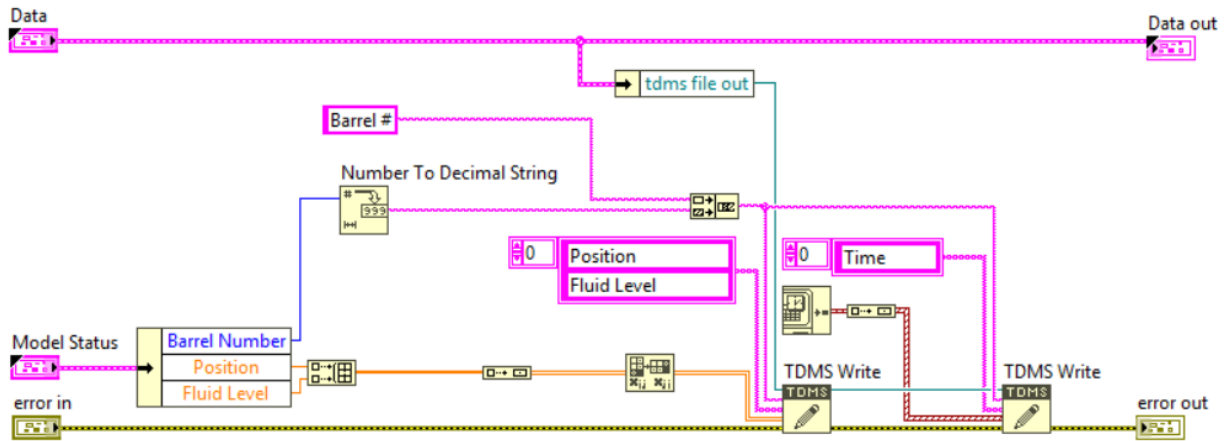h) name the channel **Time** (in a similar way to the point *f*)

Fig. 2. Log State.vi code