The ability of the current flight to make up for it's departure delay is dependent upon at least 4 factors:

1 - whether the previous flight was delayed

2 - air\_time of the current flight

3 - the delay duration of its previous flight

4 - the air\_time of its  previous flight

How do we handle this?

1 - we create a new flag “prior\_TN\_DEP\_DEL15”  and set it to the DEP\_DEL15 flag of the previous flight using TAIL NUM. So at this stage we know if the previous flight suffered a delay of at least >15min or not.

2 - Next, we update this value based on whether the current flight’s air\_time > 120 min or not, to reflect that longer flights are more likely to be able to make up for the delay than shorter duration flights. Assuming a 2hr flight is what can make up for a 15 minute delay.

3 - Next we update this value based on the delay duration bucket of the previous flight. Increment prior\_TN\_DEP\_DEL15 by the delay group number minus 1.

1 => >15min delay, therefore prior\_TN\_DEP\_DEL15 = 1+1 = 2

2 => 15-30 min delay, therefore prior\_TN\_DEP\_DEL15 = 1+1 = 2

3 => 3-=45 min delay, therefore prior\_TN\_DEP\_DEL15 = 1+1 = 2

4 - Next, we update the value based on whether the previous flight is a long flight or short flight. By the same assumption, longer flights are able to make up for the delay than shorter flights. At this stage we know if the previous flight can make up for its delay, then the current flight will remain unaffected.