*D-Latch is a simple clocked memory element in which the output is equal to the stored state inside the element. In D-Latch the state is changed whenever the appropriate inputs change and the clock is asserted. A D-Latch has two inputs and two outputs. The inputs are the data value to be stored and a clock signal that indicates when the latch should read the value on the data input and store it. The outputs are simply the value of the internal state and its complement. When the clock input is asserted, the latch is said to be open, and the value of the output becomes the value of the data input. When the clock input is de-asserted, the latch is said to be closed, and the value of the output is whatever value was stored the last time the latch was open.*

*What is the difference between DFF and D-Latch?*

The biggest difference between DFF and D-Latch can be understood by the definition difference between latch and flipflop. The difference between two is about clock. Generally, latch is based on level- triggered to maintain their input state, while flipflop is based on edge-triggered. The word edge-triggered means that whenever clock input has changed, the circuit changes their state to maintain an input. In the case of DFF, when input D is 1, it holds 1 and outputs 1, while D is 0 it holds 0 and outputs 0 nonetheless what it maintained before. On the other hand, the word level-triggered means that latch takes a clock as an input to control whether the circuit will maintain the other input D or not. If the clock is high, it maintains the input D, while if the clock is low it does not maintain the input, and the output is always the value maintained in the circuit. This is how DFF and D-Latch are working.

*Can one chip be used for constructing the other? Explain.*

Yes, it is possible to construct DFF with two D-Latch. As we have seen above, DFF has data input, data output and clock to control it. D-Latch has a clock to determine to maintain the input or not. So, if the two D-Latch is connected together with one unique clock input, the circuit works like when clock changed from low to high, it outputs the data input of that moment, vice versa. This is exactly how DFF is working.