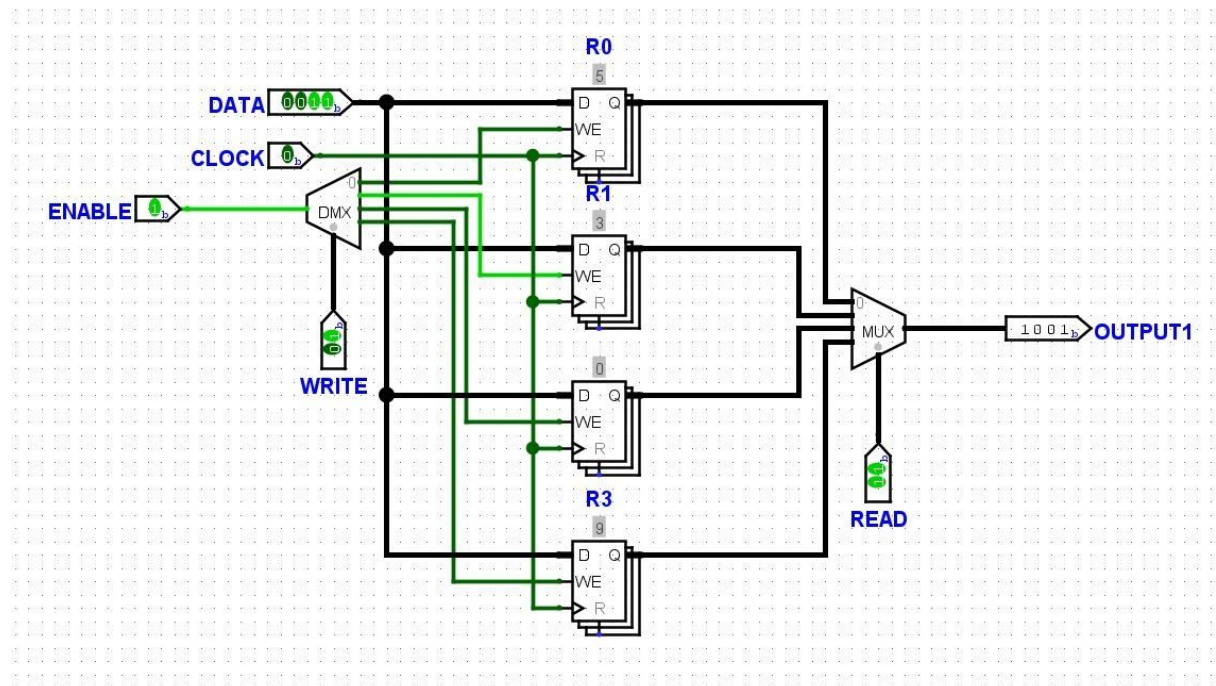


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Q1

We can use a 4-to-1 multiplexer to connect the output of all 4 registers, and then utilize the read\_select signal to choose one of the registers as the source of the register files's output. The bit-width of the selection bits is 2 and the bit-width for each input is 4.

Q2

We should choose a 1-bit demux to send the enable bit to only one register because we only need the selected register to accept the data while other registers maintain their current state. That is, we need to set the enable bit of corresponding register to high and keep other register's enable bit low so that they will not be written. This can be achieved by the option mentioned above.