

## LAB 8 PRELAB

1. A toy that I just recently purchased for myself, is a white sphere that illuminates a variety of colors with it is turned on. When you switch the toy on, the entirety of the sphere lights up to be a single color (i.e. red). Then as it is left on, the color slowly changes into another color (i.e. green), and continues to do so. As it goes through many different colors, it cycles through, and ends up going back to its initial color, and does through that range of colors again.
2. In order for the toy to change periodically, like within a loop, the function for it to actually change its color could be on a timer, and continue to do so infinitely, and keep going, programmed not to stop, and supposedly until when the toy runs out energy within its provided battery.
3. The difference between the Data Register Empty (UDRE) flag and Transmit Complete (TXC) flag, is that the UDRE flag indicates if the transmit buffer is ready to receive new, and the TXC flag indicates when it has sent all the bits in the Transmit Shift Register.

When the transmitter runs, the UDRE flag always gets set first, because the receiver has to be ready to receive, and the TXC flag is only set after the transmission is complete.

4. For USART1, the name of this flag is Rx (Receiver) Complete Handler, and the interrupt vector address for the interrupt associated with this flag is \$003C.