1. Calculation of the resistor value

The circuit will be feed par a voltage of 3.3 volts.

✍ Give the law of circuits links of the electric circuit (figure 1) with V_{POWER}, V_{R1} and $V_{F\,D1}$.
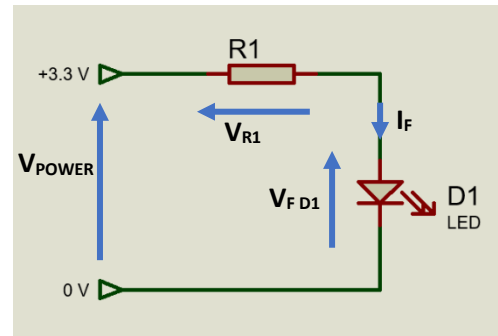

Figure 1: electric circuit

✍ What is the acronym of LED?

✍ In the documentation (figure 3), give the typical forward voltage of the LED.

Electrical Optical Characteristics at T_a = 25°C

Parameter	Symbol	Minimum	Typical	Maximum	Unit	Test Condition
Luminous Intensity	I_v		40		mcd	I_f = 20 mA (Note 1)
Viewing Angle	$2\theta_{1/2}$		25		Deg	(Note 2)
Peak Emission Wavelength	λp		640		nm	I_f = 20 mA
Dominant Wavelength	λd		635		nm	I_f = 20 mA (Note 3)
Spectral Line Half-Width	$\Delta\lambda$		25		nm	I_f = 20 mA
Forward Voltage	V_f		2	2.5	V	I_f = 20 mA
Reverse Current	I_R	-	-	100	µA	V_R = 5 V

Figure 2: LED documentation

✍ What is the forward current (I_F) for the typical forward voltage (figure 2)?

✍ Calculate the resistor voltage (V_{R1}).

✍ With the ohm's law, calculate the resistor value to have the forward current in the LED.