Mass: Property, which reflects the quantity of matter within a sample.

Volume: Quantity of a three-dimensional space that is occupied by gas, liquid, and solid.

Taring: Permits mass reading to be pre-set to read zero for comparison mass.

As for the second part in the experiment (part B), it requires the calibration of a volumetric flask to determine the quantitative measurements of whether volume changes when two different liquids are mixed. After using the analytic balance to measure the mass of the empty flask and the mass of the flask full with water, we computed the mass of water in the flask for each trial as follows: $m_{water} = m_{full\ flask} - m_{empty\ flask}$. The density of the water is determined correspondingly to the room temperature, and as for this trial (23.5 Celsius) the water's density is 0.9977 g/mL. In that case, we can used the mass of the water and its density to compute the volume of the flask by using the following equation: Volume = mass(water) / Density(water) $V = \frac{m}{d}$. After repeating the previous steps five different times, each time that we redue it we received different numbers for volume. Later, we calculated the average volume of the experimental values by the following equation: $V_{flask,\ average} = \frac{(V_{trial\ 1} + V_{trial\ 2} + ...)}{\text{Number of trials}}$

After reckoning the average volume, we then determined the absolute deviation and the relative deviation of each measurement using the following formulas:

$$\text{Absolute Deviation} = V_{flask} - V_{flask,\ average}$$

$$\text{Relative Deviation} = \frac{\text{Absolute Deviation}}{\text{Average Volume}}$$

We did that along with calculating the average deviation and relative average deviation (RAD). These deviations are measures of the uncertainty of the volume determination, which could be calculated by using these equations:

$$\text{Average Deviation} = \frac{(\text{Deviation}_{trial\ 1} + \text{Deviation}_{trial\ 2} + ...)}{\text{Number of trials}}$$