Exercise 1 – ABG Analyzer

When looking at Arterial Blood Gas (ABG) results, we typically want to know

1. Are they acidotic or alkalotic?
2. Is it metabolic or respiratory?

And we only need about 3 pieces of information to figure this out: pH, pCO2, and HCO3- (Bicarb)

To calculate the anion gap, we also need: Na+ and Cl- concentrations

This interpretation process can be easily automated!

Using the following coding concepts

* Variables
* Booleans
* User input
* If/else
* Print statements

To make an ABG analyzer algorithm that will provide the following information

* Acidosis or alkalosis
* Metabolic or respiratory
* Compensation present or not
* Anion gap or non-anion gap

**Getting started**

1. Write #comments in normal human language to figure out what you need to do
2. Then replace #comments with the code blocks that will perform this function

Use the following to get user input in numbers

my\_number = int(input(‘Please input my desired number: ‘)

You can also have the user input a bunch of numbers in your chosen order using:

.split()

Look up how to use this on google!

**Test your algorithm on the following set of values:**

|  |  |
| --- | --- |
| pH | 7.25 |
| pCO2 | 60 |
| HCO3 | 26 |
| Na | 137 |
| Cl | 100 |



|  |  |
| --- | --- |
| pH | 7.45 |
| pCO2 | 49 |
| HCO3 | 34 |
| Na | 130 |
| Cl | 95 |

|  |  |
| --- | --- |
| pH | 6.95 |
| pCO2 | 9 |
| HCO3 | 2 |
| Na | 130 |
| Cl | 98 |

Answers

1. Anion gap respiratory acidosis, no compensation
2. Non-anion gap metabolic alkalosis with compensated respiratory acidosis
3. Anion gap Metabolic acidosis with compensated respiratory alkalosis