**Python Code - Genetics Crosses**

**MSC Biology & Computer Science**

1. Choose 3 of the 5 traits that you have researched and collected data on.

* You want to choose 3 traits that you are certain about your parents’ and your own genotype.
* You will create all three blocks of code in the same Google Colab Notebook.
  + Be sure to label each block of code with the correct heading.

1. Write Python code to create a **monohybrid cross**. You will use this code to determine the probability that your parents would have produced a child with whatever trait(s) you possess.

* You will calculate these probabilities separately from each other (monohybrid), but must do it for all 3 traits.
* Ex: If your mom has dimples (Dd), dad does not (dd), and you do (Dd), your code should be able to calculate that there was a 50% chance of having a child with dimples.

Mr. Woodard will do this with them.

1. Write Python code to create a **dihybrid cross**. You will use this code to determine the probability that your parents would have produced a child with a combination of 2 of the 3 traits you possess.

* You will calculate 2 of these probabilities together (dihybrid), and should do this 3 separate times.
* Ex: Your code should be able to tell you the probability of your parents producing a child with: Cross #1 = Trait A x Trait B

Cross #2 = Trait A x Trait C

Cross #3 = Trait B x Trait C

We will give them a copy of the hard code. They need to modify.

1. Write Python code to create a **trihybrid cross**. You will use this code to determine the probability that your parents would have produced a child with all 3 traits you possess.

* You will only need to run this code once to get the probability of your parents producing a child with: Trait A x Trait B x Trait C

They should be able to do this after creating the dihybrid code.

1. Turning in your code:

* In Google Colab, click on “Share”
* Copy the sharing link
* Upload the link to this assignment in Google Classroom