Searching the Genome

It is your task to complete the DNA to mRNA conversion. It follows a very simple algorithm, as seen below:

If you were to do this by hand, you might keep in mind the conversions like this:

A->U

G->C

C->G

T->A

This means, if you see an A in the DNA sequence, make it a U. If you see a G in the DNA sequence, make it a C...and so on. However, if a DNA sequence is extremely long, we wouldn’t want to do this by hand!

This is where programming comes in. If we were to translate the conversions above to *pseudocode*, we might find something like this below:

if dna\_sequence is A:

 add U to rna\_sequence

if dna\_sequence is G:

 add C to rna\_sequence

if dna\_sequence is C:

 add G to rna\_sequence

if dna\_sequence is T:

 add A to rna\_sequence

Now that we have an idea of what our *pseudocode* looks like, let’s open up scratch and add it to the program.

Double click on the mRNA sprite found on the bottom right hand corner. This will open up the scripts area. This is where you will turn your *pseudocode* into scratch code!

Once you have added the if-statements, press the green flag and enter in the DNA sequence below:

GGATCCTCACATGAGTTCAGTATATAATTGTAACAGAATAAAAAATCAATTATGTATTC

If all goes well, it should convert the DNA sequence to an Amino Acid Sequence!