BNFO 301 – Introduction to Bioinformatics
Problem Set 4 - Loops

1. Write a loop that says hello 10 times.

2. Write a loop that prints the genome size of every organism, next to the name of the organism. Do the same thing by mapping.

3. Write a loop that takes each letter of a word and prints it out on a separate line. More interestingly, have it also print out the numeric position of the letter in the alphabet.

4. Write a loop that sums the even numbers from 2 to 100.

5. Write a loop that calculates the total number of nucleotides known by BioBIKE.

6. Write a loop that calculates the probability of encountering a given nucleotide sequence (e.g. "CGCGAA") in a genome with [A] = [C] = [G] = [T].

7. Write a loop that calculates the probability of encountering a given nucleotide sequence in a genome with [A] = 0.3. The following template may be helpful:

```
(FOR-EACH letter IN "fill-in-sequence"
     INITIALIZE fill-in
     AS A% = 0.3
     AS C% = fill-in
     AS G% = fill-in
     AS T% = fill-in
     (IF-TRUE (EQUAL letter "A")
         THEN fill-in)
     (IF-TRUE (EQUAL letter "C")
         THEN fill-in)
     . . .
     FINALLY (RETURN fill-in))
```

8. Write a loop that calculates the average length of a protein in SS120. Do the same thing without a loop.