Assignment #2.2 – Hamming REST for Shakespearean Monkeys

Specs

The following assignment, A#2.3, will build an application that illustrates the Shakespearean Monkeys **genetic** algorithm -- cf. lecture demo and the Infinite Monkey Theorem:

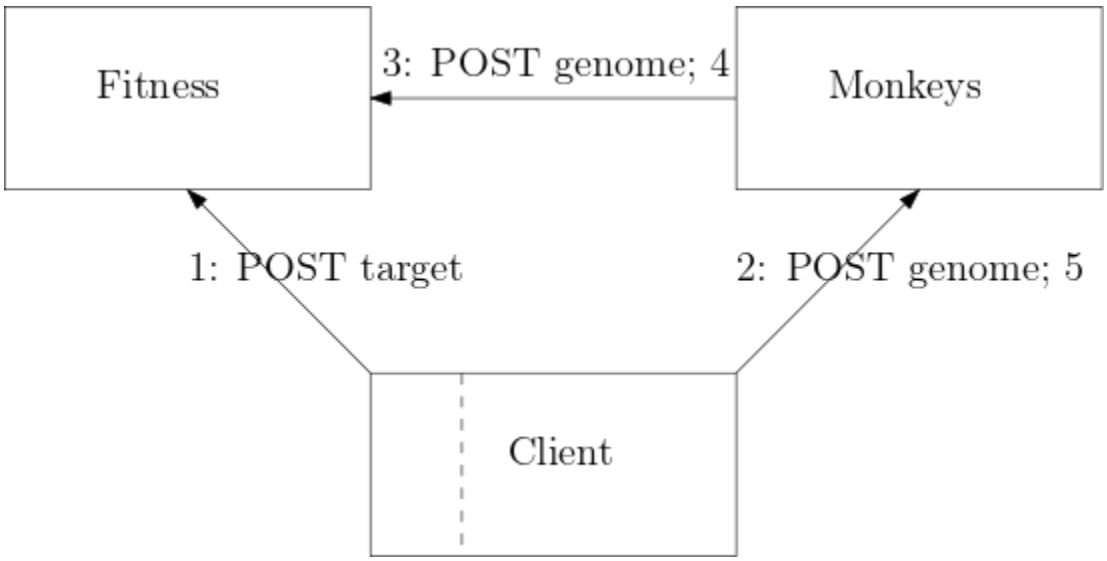
https://towardsdatascience.com/3-text-distances-that-every-data-scientist-should-know-7fcdf850e510

https://en.wikipedia.org/wiki/Infinite_monkey_theorem

The **current assignment**, **A#2.2**, is a small preliminary step, preparing the servers and their connections.

We use **ASP.NET**, but to avoid needless complexities, we use the upper open source layer known as **Carter**, which features quite a few functional elements.

We set up two standalone REST Carter servers: (1) **Monkeys**, listening on http 8081 and https:8082; and (2) **Fitness**, listening on http 8091 and https:8092. Here, the client will be simulated by testing scripts using **curl** and **httprepl**.



With the two servers running (on localhost):

1. **Client** posts a target text to **Fitness …/target** (empty ok response)
2. **Client** posts a genome (candidate) text to **Monkeys …/try**
3. **Monkeys** posts the received genome text to **Fitness …/assess**
4. **Fitness** responds to **Monkeys** with the **Hamming** distance between its stored target text and the received genome text
5. **Monkeys** returns this integer in his response to **Client**

Note

If strings have unequal lengths, then the **Hamming** distance is first computed for their minimum length, and then added with their lengths difference.

Sample

Target text:

```
[To be or not to be, that is the question]
```

Candidate genome text:

```
[To be~orAnoa [OBbej tVat i.Xt<eLju(s2ion]
```

Hamming distance: **15**

Submission

Submit two files, one for each server, called: **upi-fitness**, and **upi-monkeys**, where upi is your own upi, e.g. jbon007.

Due date: Monday 5 October, 23:00, to ADB