Genetic Algorithms I.

By using the Genetic Algorithm, let's “breed” the "Hello world" string!

Features:

1. An *individual* is a *string*
2. A *gene* is one *character* in the string (ASCII code)
3. Filling the first generation with *randomly selected* characters between [32 122] ASCII values

Initial parameters:

1. Population size: 10,000 individuals
2. Maximum iteration: 500
3. Elite rate: 10%
4. Mutation rate: 20%

Result

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```
The highest goodness of the 1. generation : 115, Q;iri'O_klY
The highest goodness of the 2. generation : 64, Mwimi$Qqobj
The highest goodness of the 3. generation : 67, Yblqp Lpbsj
The highest goodness of the 4. generation : 33, ?fgkk%Yrplc
The highest goodness of the 5. generation : 33, Eipip"Rklkd
The highest goodness of the 6. generation : 23, Dclqq Znpoe
The highest goodness of the 7. generation : 19, Khjlm!Xpqib
The highest goodness of the 8. generation : 12, Ifmmq Wnrof
The highest goodness of the 9. generation : 13, Fgllq"Wqpkd
The highest goodness of the 10. generation : 14, Lejln"Xlqld
The highest goodness of the 11. generation : 5, Helkn!Wnrlc
The highest goodness of the 12. generation : 8, Bdllo Woqld
The highest goodness of the 13. generation : 5, Felmo Vorle
The highest goodness of the 14. generation : 4, Gelko"World
The highest goodness of the 15. generation : 3, Hemko Wormd
The highest goodness of the 16. generation : 3, Hello!Xorle
The highest goodness of the 17. generation : 3, Gellq World
The highest goodness of the 18. generation : 3, Gelln Woqld
The highest goodness of the 19. generation : 4, Gelkp Woqld
The highest goodness of the 20. generation : 2, Iello Wosld
The highest goodness of the 21. generation : 2, Hello!Xorld
The highest goodness of the 22. generation : 1, Hdllo World
The highest goodness of the 23. generation : 0, Hello World
Elapsed time is 4.688372 seconds.
```