

# Training Exercise about Key Storing

Master 1 of Applied Mathematics

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## 1 Exercise 1

On my website [www.maxime-bros.fr/teaching](http://www.maxime-bros.fr/teaching), in the Section *Training Exercises*, you can find a file `RSA_pub.txt`. This file contains an RSA public key.

Actually, the file has been generated by an intern, and it looks like it is too big, the purpose of this exercise is to try to store the very same key in a smaller file.

**Question 1 :** what is the current size of the file in bytes ?

**Question 2 :** using logarithms, what would be the size of the file if one used decimal digits ? hexadecimal digits ?

**Question 3 :** create 2 new files : `RSA_pub_decimal.txt` and `RSA_pub_hexa.txt` to check the answers of the previous question.

**Question 4 :** is it possible to have a shorter file ?

**Question 5 :** how would you use the method of Question 4 to store  $k$  keys in the same file ?