This homework is due on **December 2, 9am ET**.

You are welcome to work with others, however you must explicitly list all collaborators and materials that you used. You must write up your own solution and your own code to every problem. See Georgetown University [Honor System](http://honor.georgetown.edu) When in doubt, ask the instructor what is allowed.
Problem 1 (Substitution ciphers). In the class we saw that even though substition ciphers have reasonably long keys, they are not secure. Decode the following ciphertext encrypted by a substitution cipher.

S ilqa l ocaln jilj pxa olh jsr xljspx esmm csra tb lxo msqa ptj jia jcta nalxsxu py sjr wcaaao: Ea ipmo jiara jctjir jp fa ramy-aqsoaxj, jilj lmm nax lca wcaljao adthm. S ilqa l ocaln jilj pxa olh px jia cao ismmr py Uapcusl, jia rpxr py ypcnac rmlqar lxo jia rpxr py ypcnac rmlqa pexacr esmm fa lfma jp rsj opex jpuajiac lj jia jlfma py fpjiacippo. S ilqa l ocaln jilj pxa olh aqax jia rilja py Nrrrsrrsbhs, l rilja reamjacsxu esji jia ialj py sxvtrjswa, reamjacsxu esji jia ialj py pbbcarrspx esmm fa jclxrypcnao sxjp lx plsr py ycaaopn lxo vtrjswa. S ilqa l ocaln jilj nh yptc mjjma wismocax esmm pxa olh msqa sx l xljspx eiaaca jiah esmm xpj fa vtouao fh jia wpmpc py jiase rksx ftj fh jia wpjxaxj py jiase wilclwjac. S ilqa l ocaln jpolh.

Feel free to use tools that count frequency of characters in the ciphertext, letter/digram frequency tables (e.g., [here]), common sense, or implement any tools in your favorite programming language. Name the author of this text, and explain how you arrived at the solution.
Problem 2  (Breaking RSA). Implement four attacks from Lecture 23 on the Textbook RSA to solve the following puzzle: https://colab.research.google.com/drive/1E-6MCkqlY-EBe5VpqChC33WaOQ1Neb6?usp=sharing