This homework is due on **December 6, 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](#) When in doubt, ask the instructor what is allowed.
Problem 1 (Substitution ciphers). In the class we saw that even though substitution ciphers have reasonably long keys, they are not secure. Decode the following ciphertext encrypted by a substitution cipher.

S ilqa l ocalh jilj pxa olh jisr xljspx esmm esra tb lxox msqa ptj jia jcta naixsxu py sjr wcaao: Ea
ipno jiara jctjir jp fa ramy-aqsoaxj, jilj lmm nax lca wcaljao adtm. S ilqa l ocalh jilj pxa olh px
jia cao ismmr py Uapcusi, jia rpxr py ypcnac rmlqar lxox jia rpxr py ypcnac rmlqa pexacr esmm
fa lfma jp rsj opex jpuajiac lj jia jlfma py fcpjiaicippo. S ilqa l ocalh jilj pxa olh aqax jia rilja
py Nrrrsrrsbbhs, l rilja reamjacsxu esji jia ialj py sxvtrjswa, reamjacsxu esji jia ialj py pbbcarrspx
esmm fa jclxrypcnax sxjp lx plsr py ycaaopn lxox vtrjswa. S ilqa l ocalh jilj nh yptc ssji
wismocax esmm pxa olh msqa sx l xljspx eiaca jiah esmm xpj fa vtouao fh jia wpmpc py jiasc
rksx ftj fh jia wpjxaxj py jiasc wilclwjac. S ilqa l ocalh 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:BEb5VpqChC33WaLOQ1Neb6?usp=sharing