

Team Number: SPS132

School Name: Sandia Preparatory School

Area of Science: Cryptography

Project Title: RSA Cryptography

**What is the project about?**

The project is about learning the RSA encryption algorithm as there isn't large strides or new contributions to this existing code. This is mainly an educational platform for new programmers like us to learn python.

**How do you/do you plan to solve this problem computationally?**

We are re-creating the RSA encryption algorithm from scratch and exploring different tradeoffs for the RSA code either faster algorithms or simpler algorithms. Then exploring the other side of finding ways to break the code as well as learning about finding breaks and / or problems existing in the code.

**What progress have you made up to this point? (research, code, etc.)**

At this point in the project we have made a few little programs to calculate prime numbers, and have translated the code from an online RSA key generator to begin our investigation into RSA.

**What results are you expecting?**

The results that we are expecting from our program to be able to run and secure the users such as classmates, friends, and family members. We are expecting to be able to get a replication of the RSA code that functions properly and is able to encrypt messages between our users.

## Works Cited

1. *CS 340: Software Design*, logos.cs.uic.edu/340/.
2. David Ireland, DI Management Services Pty Limited, Australia, [www.di-mgt.com.au](http://www.di-mgt.com.au).  
*RSA Algorithm*, [www.di-mgt.com.au/rsa\\_alg.html](http://www.di-mgt.com.au/rsa_alg.html).
3. Holden, Joshua. *The Mathematics of Secrets: Cryptography from Caesar Ciphers to Digital Encryption*. Princeton University Press, 2017.
4. “Public-Key Encryption by RSA Algorithm.” *Explaining RSA (Simple Demo)*,  
[logos.cs.uic.edu/340 Notes/rsa.html](http://logos.cs.uic.edu/340%20Notes/rsa.html).
5. <https://www.sccs.swarthmore.edu/users/10/mkelly1/rsa.pdf>

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