

NETWORK SECURITY AND DATA MINING LAB**Course code: 13CS2116****L P C**
0 3 2**Course Outcomes:**

At the end of the laboratory sessions, a student will be able to:

CO1: Apply number theory to Cryptography and learn SQL server.

CO2: Write programs to implement and test encryption algorithms and learn WEKA software.

CO3: Write code to implement and test Linear Congruential algorithm, Rabin-Miller Primarily testing algorithm, Euclid algorithm, RSA algorithm, and DES algorithm, Apiriori algorithm.

CO4: Write code to determine the private key of the user given Public Key parameters and learn Rosetta software.

CO5: Design a method to configure a mail agent to support Digital Certificates and create a database using ROSETTA software.

The following programs should be implemented preferably on platform using C language (for 1-5) and other standard utilities available with UNIX systems (for 6-9) :-

Part A :

1. Implement the encryption and decryption of 8-bit data using Simplified DES Algorithm (created by Prof. Edward Schaefer) in C
2. Write a program to break the above DES coding
3. Implement Linear Congruential Algorithm to generate 5 pseudo-random numbers in C
4. Implement Rabin-Miller Primality Testing Algorithm in C
5. Implement the Euclid Algorithm to generate the GCD of an array of 10 integers in C
6. a) Implement RSA algorithm for encryption and decryption in C
b) In an RSA System, the public key of a given user is $e=31, n=3599$. Write a program to find private key of the User.
7. Configure a mail agent to support Digital Certificates, send a mail and verify the correctness of this system using the configured parameters.
8. Configure SSH (Secure Shell) and send/receive a file on this connection to verify the correctness of this system using the configured parameters.

9. Configure a firewall to block the following for 5 minutes and verify the correctness of this system using the configured parameters:
 - (a) Two neighborhood IP addresses on your LAN
 - (b) All ICMP requests
 - (c) All TCP SYN Packets

Part –B:

1. Implementation of multi dimensional data model using oracle warehouse builder/SQL Server.
2. Introduction to Weka: All the features of Weka software will be explored in this assignment.
Implementation of the following programs in C/C++:
 3. Implementation of Apriori algorithm
 4. Implementation of FP tree algorithm
 5. Implementation of Naïve Bayesian classification algorithm
 6. Introduction to ROSETTA: All the features of Rosetta software .
 7. Generate lower and upper boundary values for a database using Rosetta.
 8. Classify a database using Rosetta for an input excel database file.
 9. Generate the decision rules and partition an input database using Rosetta.