# ENCRYPTION/DECRYPTION OF DATA USING INVERSE MATRIX METHOD

**Group 8: Inverse Matrix**

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**Abstract- Cryptography is something which is used in our everyday life but most people don't know about it. Cryptography secures data with the help of encryption and decryption. Various ciphers are available to encrypt the data which use linear algebra. In this project we will be using Hill Cipher and Play Fair Cipher to encrypt and decrypt words and demonstrate how this whole thing works.**

***Keywords—Cryptography, encryption, decryption, data, ciphers, secure***

## I. INTRODUCTION

Securing data and files comes without saying for an individual as it is a matter of privacy. Through this project, we will show how our day-to-day data is secured using cryptography. Cryptography is a way or technique to secure data or some sort of information from third-party apps or people. The messages are secured via encryption and then decrypted for the reader to understand. Encryption converts plaintext into ciphertext and decryption converts it back into its plaintext.

## II. BACKGROUND

In earlier times the messenger used to encrypt the information which was to be delivered to the king. During World War, morse code was used to pass on the messages and signals. Now, in the modern era computers and algorithms are used to encrypt and decrypt messages. The ciphers which will be used by us are the basics of ciphers. Cyber security firms use even more complex and tough ciphers which are impossible for hackers to crack and breakthrough.

## III. MOTIVATION

Until just a few years ago, encryption was not a vital part of everyone's life. People were not so conscious to maintain the confidentiality of their data. Firms and companies saw encryption as a tool to invite customers and show how serious the company is to secure data. With the increase in cybercrimes and data breaches, it has now become a regulation. We aim to show how encryption works so that an individual can easily store their information without worrying about the data breach. Most of the major cyber security companies are based in the USA, so this might work as an idea for Indian start-ups with more digitalization of our country.

## IV. LITERATURE SURVEY

This project is based on constructing an algorithm using Hill Cipher and Play-Fair Cipher which uses matrix multiplication to encode and decode codes. These ciphers convert plaintext into ciphertext to encode codes and ciphertext into plaintext to decode codes. We are using C++ language to implement this algorithm. This project is based on the practical use of encoding and decoding the data of users.

## V. REFERENCE

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