

| **Title : Email Security using PGP** |
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| **Objectives:** |
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| Implement and evaluate email security using PGP with Mailvelope tool. |

| **Expected Outcome of Experiment:** |
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| **CO1-Understand encryption, key exchange, and secure email practices via Mailvelope.** |

| **Books/ Journals/ Websites referred:** |
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| https://mailvelope.com/en  https://mail.google.com/mail/u/0/ |

| **New Concepts to be learned:** |
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| Mailvelope |

| **Abstract:** |
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| This experiment explores email security through the PGP (Pretty Good Privacy) standard, implemented using the Mailvelope browser extension. Participants create cryptographic key pairs, exchange public keys, and use them to send and receive encrypted emails. The hands-on approach emphasizes practical understanding of encryption, digital signatures, and data privacy. Additional features like securing files, encrypted attachments, and signing emails are examined. The experiment provides foundational knowledge of PGP’s role in enhancing email security and a deeper appreciation of encryption in everyday communication. By leveraging interactive tools, it reinforces theoretical concepts with practical applications. |

| **Related Theory:** PGP (Pretty Good Privacy) is a widely used encryption method for securing emails and files. It uses asymmetric encryption, involving a pair of public and private keys, to ensure confidentiality and authenticity. Public keys encrypt messages, while private keys decrypt them. Mailvelope is a browser extension simplifying PGP implementation for secure communication. It emphasizes the importance of cryptographic practices, including key management, digital signatures, and protecting sensitive information against unauthorized access. Understanding PGP and tools like Mailvelope highlights the significance of encryption in mitigating cyber threats and fostering trust in digital interactions. |
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| **Implementation Details:** |
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| **Results/Output:** |
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| **Conclusion:** |
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| The experiment successfully demonstrated the practical application of email security using PGP through Mailvelope. Participants gained hands-on experience in creating keys, exchanging them, and securely communicating via encrypted emails. Exploring advanced features like encrypted attachments and digital signatures deepened the understanding of encryption’s role in modern communication. The activity underscored the importance of secure email practices and the ease of implementing robust encryption tools in daily life. It highlighted PGP’s effectiveness in enhancing email privacy and protecting against data breaches, providing participants with valuable insights into secure communication techniques. |