Information And Network Security Lab Manual

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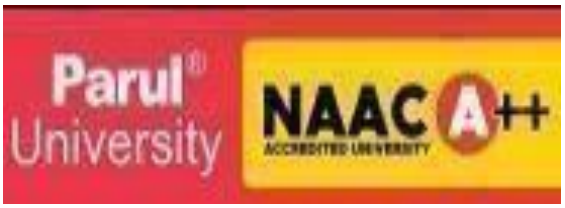

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EXPERIMENT NO. 1

Objective(s):

Implement Caesar cipher encryption-decryption..

Outcome:

The students will be able to understand the importance of encryption and decrytption process by these techniques.

Problem Statement:

1. What is INS? Explain the main advantages of INS security?
2. List the techniques of encryption and decryption techniques ?

Background Study:

Network security is the practice of protecting a computer network from unauthorized access, misuse, or attacks. It involves using tools, technologies, and policies to ensure that data traveling over the network is safe and secure, keeping sensitive information away from hackers and other threats.

How Does Network Security Work?

Network security uses several layers of protection, both at the edge of the network and within it. Each layer has rules and controls that determine who can access network resources. People who are allowed access can use the network safely, but those who try to harm it with attacks or other threats are stopped from doing so.
The basic principle of network security is protecting huge stored data and networks in layers that ensure the bedding of rules and regulations that have to be acknowledged before performing any activity on the data.

Code (Student Work Area):

```
def caesar_encrypt(text, shift):
    result = ""

    for char in text:
        if char.isalpha():
            shift_base = ord('A') if char.isupper() else ord('a')
            shifted = (ord(char) - shift_base + shift) % 26 + shift_base
            result += chr(shifted)
        else:
            result += char  # Leave punctuation, numbers, and spaces unchanged return
 result
def caesar_decrypt(cipher_text, shift):
    # Decryption is just encryption with a negative shift
    return caesar_encrypt(cipher_text, -shift)

# Main program
if _name____== "_main_":
    print("=== Caesar Cipher
    ===")
    choice = input("Choose (E)ncrypt or (D)ecrypt: ").strip().upper()

    if choice in ["E", "D"]:
        text = input("Enter the text: ")
        try:
```

```
shift = int(input("Enter the shift value (e.g., 3): "))
        if choice == "E":
            encrypted = caesar_encrypt(text, shift)
            print("Encrypted text:", encrypted)
        else:
            decrypted = caesar_decrypt(text, shift)
            print("Decrypted text:", decrypted)
    except ValueError:
        print("Shift must be an integer.")
else:
    print("Invalid choice. Please enter 'E' or 'D'.")
```

Output:-

Encryption:-

```
Choose (E)ncrypt or (D)ecrypt: E
Enter the text: MEET
Enter the shift value (e.g., 3): 3
Encrypted text: PHHW
```

Decryption:-

```
Choose (E)ncrypt or (D)ecrypt: D
Enter the text: PHHW
Enter the shift value (e.g., 3): 3
Decrypted text: MEET
```

Question Bank:

1. What is Caesar cipher?
2. What is the processes in the ceaser cipher for encryption and decryption?
3. Write the code of ceaser cipher ?