**ASSIGNMENT NO : 9**

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1. **Calculate the message digest of a text using the SHA-1 algorithm**.

Server:

# server.py

import socket

import hashlib

import json

def sha1\_hash(data):

sha1 = hashlib.sha1()

sha1.update(data.encode())

return sha1.hexdigest()

user\_db = {}

def handle\_client\_connection(client\_socket):

request = client\_socket.recv(1024).decode()

request\_data = json.loads(request)

action = request\_data.get('action')

username = request\_data.get('username')

password = request\_data.get('password')

if action == 'register':

if username in user\_db:

response = {'status': 'failure', 'message': 'User already exists'}

else:

user\_db[username] = sha1\_hash(password)

response = {'status': 'success', 'message': 'User registered successfully'}

elif action == 'login':

if username not in user\_db:

response = {'status': 'failure', 'message': 'User does not exist'}

else:

stored\_password\_hash = user\_db[username]

received\_password\_hash = sha1\_hash(password)

if received\_password\_hash == stored\_password\_hash:

response = {'status': 'success', 'message': 'Login successful'}

else:

response = {'status': 'failure', 'message': 'Incorrect password'}

client\_socket.send(json.dumps(response).encode())

client\_socket.close()

server\_socket = socket.socket(socket.AF\_INET, socket.SOCK\_STREAM)

server\_socket.bind(('0.0.0.0', 9999))

server\_socket.listen(5)

print('Server listening on port 9999')

while True:

client\_sock, addr = server\_socket.accept()

print(f'Accepted connection from {addr}')

handle\_client\_connection(client\_sock)

client:

# client.py

import socket

import json

def send\_request(action, username, password):

client\_socket = socket.socket(socket.AF\_INET, socket.SOCK\_STREAM)

client\_socket.connect(('127.0.0.1', 9999))

request\_data = {

'action': action,

'username': username,

'password': password

}

client\_socket.send(json.dumps(request\_data).encode())

response = client\_socket.recv(1024).decode()

response\_data = json.loads(response)

print(f'Server response: {response\_data}')

client\_socket.close()

# Example usage

action = input("Enter action (register/login): ").strip()

username = input("Enter username: ").strip()

password = input("Enter password: ").strip()

send\_request(action, username, password)

OUTPUT :

