**Assignment no 6 (Group B)**

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Roll no: 31 Subject: Risk Assesment Laboratory

**Title** : Design and implement the program to secure the communication between the IoT devices.

**Code :**

**Server Implementation:**

import socket

import ssl

# Server configuration

SERVER\_HOST = '0.0.0.0'

SERVER\_PORT = 12345

CERTIFICATE\_FILE = 'server\_certificate.pem' # Server's SSL certificate file

PRIVATE\_KEY\_FILE = 'server\_private\_key.pem' # Server's private key file

# Create a socket

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

# Bind the socket to the address and port

server\_socket.bind((SERVER\_HOST, SERVER\_PORT))

# Listen for incoming connections

server\_socket.listen(1)

print("Server listening on {}:{}".format(SERVER\_HOST, SERVER\_PORT))

# Accept incoming connection

client\_socket, client\_addr = server\_socket.accept()

# Wrap the socket with SSL/TLS

ssl\_socket = ssl.wrap\_socket(client\_socket, keyfile=PRIVATE\_KEY\_FILE, certfile=CERTIFICATE\_FILE, server\_side=True, ssl\_version=ssl.PROTOCOL\_TLS)

# Secure communication

data = ssl\_socket.recv(1024)

print("Received data from client:", data.decode())

# Close the sockets

ssl\_socket.close()

server\_socket.close()

**Client Implementation:**

**import socket**

**import ssl**

**# Client configuration**

**SERVER\_HOST = 'server\_ip\_address'**

**SERVER\_PORT = 12345**

**# Create a socket**

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

**# Connect to the server**

**client\_socket.connect((SERVER\_HOST, SERVER\_PORT))**

**# Wrap the socket with SSL/TLS**

**ssl\_socket = ssl.wrap\_socket(client\_socket, ssl\_version=ssl.PROTOCOL\_TLS)**

**# Secure communication**

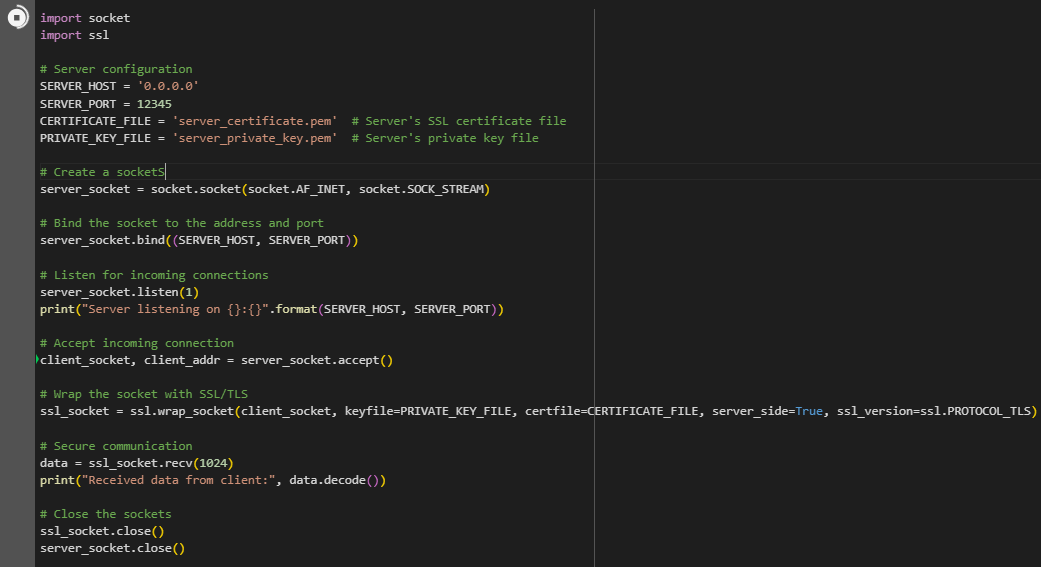
**message = "Hello, Server!"**

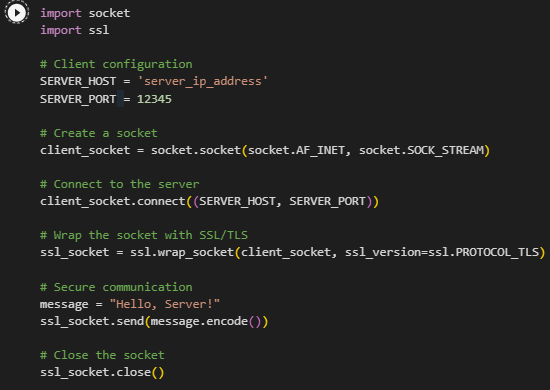
**ssl\_socket.send(message.encode())**

**# Close the socket**

**ssl\_socket.close()**

**Implementation :**

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