**SERVICE-ORIENTED APPLICATION DEVELOPMENT**

**Hands on practice #2/6**

IP Programming

# Objectives:

After this lab, students will be able to:

* Create and manage basic Socket applications using Java language

# Requirements

* Java 8
* IDE for java programming: Eclipse

# Assessment descriptions

Students are assessed based on the level of completion in each practice section.

# Hands On Practices

## Reading guidance (20 mins)

The application includes 2 sides Server and Client. Server listens for connection from client, client is responsible for making connection request. If the server detects that there is a client requesting a connection, the server uses the socket to create a connection with the client and send a message to the client, the client receives and displays the message.

Follow the guidance in the URL: <https://www.geeksforgeeks.org/socket-programming-in-java/>

## Client – Side Programming (25 mins)

* 1. Establish Socket Connection

To connect to Server we need a socket connection with IP Address and TCP port. The java.net.Socket class represents a Socket. Example:

*Socket socket = new Socket(“127.0.0.1”, 5000)*

IP Address of Server: 127.0.0.1 (local machine)

TCP Port: 5000 (chosen between 0 and 65535)

* 1. Communication

*DataInputStream* and *DataOutputStream* class both are used to communicate between Server and Client. Client use DataInputStream to send text “ Hello Server” to Server.

## Server-Side Programming (45 mins)

* 1. Establish a Socket Connection
* A Server Socket wait for the client request (port 5000)
* A old Socket socket to be used for communication with the connected client.
  1. Communication
* Accept() method is used to make connection with client
* getInputStream() method is used to take input “hello Server” from client
* getOutputStream() method is used to send “hello Client” the output to client

## Self-Implementation (45 mins)

1. Client send input to server two number, for example, 6 and 9
2. Server get these number, calculate sum of two number, and send the result 15 to client
3. Student design a new class having method giaiPT2 (int a,int b, int c) , server get a,b,c from client, call this method and send the result to client.