



# **TITLE**

## VALIDATION & VERIFICATION

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# **Abstract**

The following project is based on the construction of a communication module based on the use of Socket Programming between two or more Nodes in a Network.

This Module ensures communication between two different nodes but not to the same node.

The first step to establish a connection between the nodes is to launch the object code in the terminal for execution.

The next step is to specify the number of data bits that are to be transmitted from the source node to the destination node after which the corresponding data is sent from one node to another and stored in the Database for future reference and query processing.

This form of Communication is of Full Duplex mode and hence data can be sent and received simultaneously between the connected nodes.

After the successful transmission of data, the connection is terminated until future requests.

# Screenshot

Two browser windows side-by-side, both titled 'Verification & Validation'. The left window has a header 'Select System' and a dropdown menu labeled '-- Choose System --'. The right window also has a header 'Select System' and a dropdown menu labeled '-- Choose System --'.

Two browser windows side-by-side, both titled 'Verification & Validation'. The left window has a header 'System 1' and a section 'Select Message Length' with a dropdown menu labeled '-- Choose Message Leng' and a 'select' button. The right window has a header 'System 2' and a section 'Message Length' with a text input field and a 'select' button.

Two browser windows side-by-side, both titled 'Verification & Validation'. The left window has a header 'System 1' and a section 'Select Message Length' with a dropdown menu labeled '-- Choose Message Length --' that is open, showing options: 'Message Length 2' and 'Message Length 3'. The right window has a header 'System 2' and a section 'Message Length' with a text input field and a 'select' button.

Two browser windows side-by-side, both titled 'Verification & Validation'. The left window has a header 'System 1' and a section 'Select Message Length' with a dropdown menu labeled 'Message Length 2' and a 'select' button. The right window has a header 'System 2' and a section 'Message Length' with a text input field and a 'select' button.

Two browser windows side-by-side, both titled 'Verification & Validation'. The left window has a header 'System 1' and a section 'Name' with a text input field, a section 'Roll' with a text input field, and a 'send' button. The right window has a header 'System 2' and a section 'Message Length' with a text input field containing '2' and a 'select' button.

Two browser windows side-by-side, both titled 'Verification & Validation'. The left window has a header 'System 1' and a section 'Name' with a text input field containing 'Chanakya', a section 'Roll' with a text input field containing '61', and a 'send' button. The right window has a header 'System 2' and a section 'Name' with a text input field, a section 'Roll' with a text input field, a section 'Branch' with a text input field, a section 'Campus' with a text input field, and a 'send' button.

Verification & Validation

Show Query Results

Name

Roll

Branch

Campus

store in database

Verification & Validation

Name

Chanakya

Roll

61

Branch

Campus

send

Verification & Validation

Show Query Results

Name

Roll

Branch

Campus

store in database

Verification & Validation

Name

Chanakya

Roll

61

Branch

Computer Science

Campus

Hyderabad

send

Verification & Validation

Show Query Results

Name

Chanakya

Roll

61

Branch

Computer Science

Campus

Hyderabad

store in database

Verification & Validation

Successfully data Transferred

Verification & Validation

Query Results

Name	Roll	Branch	Campus	Created
chanakya	61	cse	gitam	Wed May 29 2019 11:54:09 GMT+0530 (IST)
chanakya	61	cse	guitar	Wed May 29 2019 11:57:26 GMT+0530 (IST)
chanakya	61	cse	gitam	Wed May 29 2019 11:58:19 GMT+0530 (IST)
chanakya	61	cse	gitam	Wed May 29 2019 12:01:52 GMT+0530 (IST)
chanakya	61	cse	gitam	Wed May 29 2019 12:12:49 GMT+0530 (IST)

Verification & Validation

Successfully data Transferred

# Source Code

## app.js

```
var express = require('express');
var app = express();
var socket = require('socket.io');
var bodyParser = require('body-parser');
app.use(bodyParser.urlencoded({ extended: false }))
// App setup

var mongoose = require('mongoose');
mongoose.connect("mongodb://localhost:27017/BlogApp",
{ useNewUrlParser: true });

var ml2 = require("./models/db_ml2");
var r_ml2 = require("./models/db_return_msg2");

var server = app.listen(3000, function(){
  console.log('listening for requests on port 3000,');
});

// Static files
app.use(express.static('public'));

app.get('/',function(req,res)
{
  res.render("select.ejs");
});
app.get('/home',function(req,res){
  if(req.query.sel==1){
    res.redirect('/system1');}
  else{
    res.redirect('/system2');}
});

// system 1 routes
app.get('/system1',function(req,res){
  res.render("msglen.ejs");
});
```

```

app.get('/system1/msglen',function(req,res){
if(req.query.sel == 2){
    res.redirect('/system1/msglen2');}
else{
    res.render("msglen3.ejs");}
});

app.get('/system1/msglen2',function(req,res){
    res.render("msglen2.ejs");
});
app.post('/system1/msglen2',function(req,res){
    var newData = new ml2({
        name:req.body.name,
        roll:req.body.roll
    });

    ml2.create(newData,function(err,newdata){
    if(err){
        console.log(err);}
    else{
        res.redirect('/system1/display2');}
    })
});

```

```

app.post('/system1/msglen3',function(req,res)
{
    var newData = new ml3({
        name:req.body.name,
        age:req.body.age,
        address:req.body.address
    });
    ml3.create(newData,function(err,newdata)
    {
        if(err){
            console.log(err);}
        else{
            console.log(newdata);}
    })
});

```

```

app.get('/system1/display2',function(req,res)
{
    res.render("display2.ejs");
if(req.query.name!=undefined)

```

```

{
var newData = new r_ml2({
    name:req.query.name,
    roll:req.query.roll,
    branch:req.query.branch,
    campus:req.query.campus
});
r_ml2.create(newData,function(err,newdata)
{
    if(err){
        console.log(err);}
    else{
        console.log(newdata);}
});

}
});

app.get('/system1/result',function(req,res)
{
    r_ml2.find({},function(err,result){
        res.render("result.ejs",{result:result});
    })
})

app.get('/system1/msglen3',function(req,res){
    res.render("msglen3.ejs");
})

// system 2 routes
app.get('/system2',function(req,res){
    res.render("second.ejs");
});

app.get('/system2/msglen2',function(req,res){
    console.log(req.query.msglen);
    res.render("secondmsglen2.ejs");
});

app.get('/system2/transfer',function(req,res){
    res.render("success.ejs");
})

```



```
// websocket part

var io = socket(server);
io.on('connection', (socket) => {

  console.log('made socket connection', socket.id);

  // Handle chat event
  socket.on('chat', function(data){
    console.log(data);
    io.sockets.emit('chat', data);
  });

  socket.on('dataTransfer',function(data1){
    console.log(data1);
    io.sockets.emit('dataTransfer',data1);
  })

  socket.on('dataReturn',function(data2){
    console.log(data2);
    io.sockets.emit('dataReturn',data2);
  })
});
```

## **select.ejs**

```
<!DOCTYPE html>
<html>
<head>
  <title></title>
  <link rel="stylesheet" href="https://stackpath.bootstrapcdn.com/
bootstrap/4.3.1/css/bootstrap.min.css" integrity="sha384-
ggOyR0iXCbMQv3Xipma34MD+dH/1fQ784/j6cY/
iJTQUOhcWr7x9JvoRxT2MZw1T" crossorigin="anonymous">

  <link rel="stylesheet" href="https://use.fontawesome.com/releases/
v5.8.2/css/all.css" integrity="sha384-
oS3vJWv+0UjzBfQzYUhtDYW+Pj2yciDJxpsK1OYPAYjqT085Qq/
1cq5FLXAZQ7Ay" crossorigin="anonymous">
```

```
<link href="https://fonts.googleapis.com/css?
family=Advent+Pro&display=swap" rel="stylesheet">
```

```
<style type="text/css">
  html,body{
    margin:0;
    width: 100%;
    height: 100%;
    background-image: url('back2.jpg');
    background-repeat: no-repeat;
    background-size: contain;
    background-position: center;
  }

  .container{
    position: absolute;
    top: 20vh;
    left: 30vw;
    width: 40vw;
  }
  .container2{
    position: absolute;
    width: 30vw;
    left: 35vw;
    top: 30vh;
  }
  .text{
    width: 20vw;
    margin-top: 5%;
  }

  input{
    margin-top: 0;
    margin-bottom: 3%;
    width: 50vw;
    color: black;
    font-weight: bold;
  }

  h1{
    font-size: 28px;
    position: absolute;
    top: 10vh;
    left: 5vw;
    border-left: 2px solid gray;
```

```

        padding-left: 10px;
    }

</style>
</head>
<body>

<!-- Image and text -->
<nav class="navbar navbar-dark bg-dark">
  <a class="navbar-brand" href="#">
    <i class="fas fa-laptop-code"></i>
    Verification & Validation
  </a>
</nav>

<h1>Select System</h1>
<div class="container">

<form action="/home" method="get" onchange="this.form.submit()">
<select name="sel" class="custom-select custom-select"
onchange="this.form.submit()">
  <option>-- Choose System --</option>
<option value = 1>System 1</option>
<option value=2>System 2</option>
</select>
</form>

</body>
</html>

```

## msglen2.ejs

```

<html>
<head>

  <script src="https://cdnjs.cloudflare.com/ajax/libs/socket.io/1.7.3/
socket.io.js"></script>
  <link rel="stylesheet" href="https://stackpath.bootstrapcdn.com/
bootstrap/4.3.1/css/bootstrap.min.css" integrity="sha384-
ggOyR0iXCbMQv3Xipma34MD+dH/1fQ784/j6cY/
iJTQUOhcWr7x9JvoRxT2MZw1T" crossorigin="anonymous">

```

```
<link rel="stylesheet" href="https://use.fontawesome.com/releases/
v5.8.2/css/all.css" integrity="sha384-
oS3vJWv+0UjzBfQzYUhtDYW+Pj2yciDJxpsK1OYPAYjqT085Qq/
1cq5FLXAZQ7Ay" crossorigin="anonymous">
```

```
<link href="https://fonts.googleapis.com/css?
family=Advent+Pro&display=swap" rel="stylesheet">
```

```
<style type="text/css">
    .container{
        width: 40vw;
        margin-left: 30vw;
        position: absolute;
        top: 20vh;
    }
</style>
```

```
</head>
<body>
```

```
<nav class="navbar navbar-dark bg-dark">
    <a class="navbar-brand" href="/">
        <i class="fas fa-laptop-code"></i>
        Verification & Validation
    </a>
</nav>
```

```
<form action="/system1/msglen2" method="post">
```

```
<div class="container">
    <div class="form-group">
        <label >Name</label>
        <input type="text" class="form-control" id="name" name="name" >
    </div>
```

```
<div class="form-group">
    <label >Roll</label>
    <input type="text" class="form-control" id="roll" name="roll" >
</div>
```

```
<button type="submit" class="btn btn-outline-primary" id="send">send</
button>
</div>
```

```
</form>
```

```
<script src="/ws_msglen2.js"></script>
```

```
</body>
```

```
</html>
```

## **ws\_msglen2.js**

```
var socket = io.connect('http://localhost:3000');
```

```
var name1 = document.getElementById('name'),  
roll = document.getElementById('roll'),  
btn = document.getElementById('send');
```

```
btn.addEventListener('click', function(){
```

```
    socket.emit('dataTransfer', {  
        name: name1.value,  
        roll:roll.value
```

```
    });
```

```
});
```

## **second.ejs**

```
<html>
```

```
<head>
```

```
<script src="https://cdnjs.cloudflare.com/ajax/libs/socket.io/1.7.3/  
socket.io.js"></script>
```

```
<link rel="stylesheet" href="https://stackpath.bootstrapcdn.com/bootstrap/  
4.3.1/css/bootstrap.min.css" integrity="sha384-  
ggOyR0iXCbMQv3Xipma34MD+dH/1fQ784/j6cY/  
iJTQUOhcWr7x9JvoRxT2MZw1T" crossorigin="anonymous">
```

```
    <link rel="stylesheet" href="https://use.fontawesome.com/releases/  
v5.8.2/css/all.css" integrity="sha384-  
oS3vJWv+0UjzBfQzYUhtDYW+Pj2yciDJxpsK1OYPAYjqT085Qq/  
1cq5FLXAZQ7Ay" crossorigin="anonymous">
```

```
<link href="https://fonts.googleapis.com/css?
family=Advent+Pro&display=swap" rel="stylesheet">
```

```
<style type="text/css">
    .container{
        width: 40vw;
        margin-left: 30vw;
        margin-top: 15vh;

    }
    h1{
        font-size: 28px;
        position: absolute;
        top: 10vh;
        left: 5vw;
        border-left: 2px solid gray;
        padding-left: 5px;
    }
</style>
```

```
</head>
```

```
<body>
```

```
<!-- Image and text -->
<nav class="navbar navbar-dark bg-dark">
    <a class="navbar-brand" href="#">
        <i class="fas fa-laptop-code"></i>
        Verification & Validation
    </a>
</nav>
```

```
<h1>System 2</h1>
```

```
<form action="/system2/msglen2" method="get">
```

```
<div class="container">
    <div class="form-group">
        <label >Message Length</label>
        <input type="text" class="form-control" id="msglen" >

    </div>
```

```
<button type="submit" class="btn btn-outline-primary" id="send">select</button>
</div>
</form>

<script src="ws_second.js"></script>
</body>
</html>
```

## **ws\_second.js**

```
var socket = io.connect('http://localhost:3000');

var msg = document.getElementById('msglen'),
    btn = document.getElementById('send');

socket.on('chat', function(data){
    msg.value = data.message;

});
```

## **Database Schemas**

### **db\_ml2.js**

```
var mongoose = require("mongoose");

var ml2 = new mongoose.Schema({
    name:String,
    roll:String,
    date:{type>Date,default>Date.now}
});

module.exports=mongoose.model("db_ml2",ml2);
```

## package.json

```
{
  "name": "internship",
  "version": "1.0.0",
  "description": "",
  "main": "app.js",
  "scripts": {
    "test": "echo \"Error: no test specified\" && exit 1"
  },
  "author": "Sri Chanakya Yennana",
  "license": "ISC",
  "dependencies": {
    "body-parser": "^1.19.0",
    "ejs": "^2.6.1",
    "express": "^4.17.1",
    "mongoose": "^5.5.11",
    "socket.io": "^2.2.0"
  }
}
```