

**Ain Shams University  
Faculty of Engineering  
Computer and Systems Engineering Department  
CSE411: Distributed Computer Systems  
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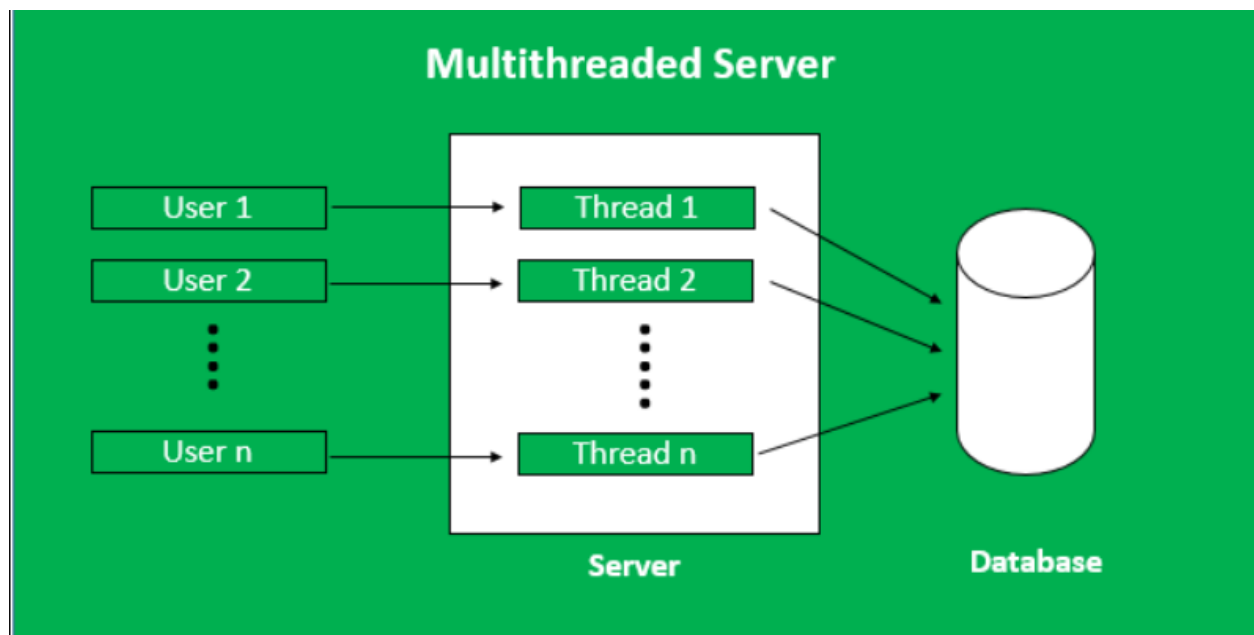
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**Section:** 5

# **ASSIGNMENT 1**

Build Mobile Agent framework , while many users can access one server and the server serves them at the same time using multithreading .

This photo explain how the architecture work:



And this photo show how the server could handle 2 clients in the same time and serves them :

The screenshot displays a Windows PowerShell terminal window and a Visual Studio code editor. The terminal window shows the execution of a Java multithreaded server and client. The server starts and waits for a client to connect. Two clients connect simultaneously, each sending a request for a recommendation. The server responds to both clients, providing the recommendation and a welcome message. The Visual Studio code editor shows the source code for the server and client files, with the server code handling multiple clients concurrently.

```
PS C:\Users\dmcgf\Desktop\uni issues\4th\java multithread> java Server
Server starts
Waiting for a client to connect ...
Client Connected !!
Client: Connect to server
Client: I need recommendation
Client: Thanks !
Client Connected !!
Client: Connect to server
Client: I need recommendation
Client: Thanks !

PS C:\Users\dmcgf\Desktop\uni issues\4th\java multithread> java Client
Connect to server
Server replied Welcome
I need recommendation
Server replied Here is The recommendation
Thanks !
Server replied You're Welcome :) , Bye

PS C:\Users\dmcgf\Desktop\uni issues\4th\java multithread> java Client
Connect to server
Server replied Welcome
I need recommendation
Server replied Here is The recommendation
Thanks !
Server replied You're Welcome :) , Bye
```

```
71  if (line.equals("connect to server")){
72      System.out.println("Client: "+ line);
73      out.println("Welcome");
74  }
75  }
76  else if (line.equals("I need recommendation")){
77      System.out.println("Client: "+ line);
78      out.println("Here is The recommendation");
79  }
80  }
81  else if (line.equals("Thanks !")){
82      System.out.println("Client: "+ line);
83      out.println("You're welcome :) , Bye");
84  }
85  }
86  }
```

The project consist of 2 files:

Server.java

Client.java

To run them first compile them by using 'javac Server.java' and the same for client file

Then run them by using 'java Server'

And write in the clients cmd the messages that he wants the recommendation .