

# **COMPUTER NETWORKS(EG101)**

## **PROJECT**

**TITLE: MULTIPLAYER QUIZ USING  
PYTHON SOCKETS AND  
THREADING**

**DONE BY: IMT2019525 VIJAY  
JAISANKAR**

# **ABSTRACT**

This project involves python programs used to run a distributed quiz game. It involves the use of TCP sockets to link multiple systems (provided the IP is modified in the programs). It uses a buzzer-based implementation to ask questions.

## **Tech Stack**

- Programming Language(s) used:

Python

- Module(s) used:

socket

select

argparse

thread

sys

time

Random

# ASSUMPTIONS

This project involves a *server* and three *clients*.

The server first waits for all three clients to join the game room, then asks a question, selected at random from a predefined list of questions.

Then, the contestants will be given a chance to press a buzzer. In this case, they enter any string of characters and then press enter.

The first one to do so is given the chance to answer the question, with a marking scheme of +1/-1. The others will get an error message when they attempt to emulate the same.

The game stops either when all the questions are exhausted or any player achieves the winning score of

5 points; in which case, name of winner and scores of all players are sent to the respective players.

Note that, in case of question exhaustion, the player with the current maximum number of points is declared the winner.

## **IMPLEMENTATION DETAILS**

Python has been used to code.

Multiple library modules such as socket (TCP sockets), and thread (Threading features) have been used.

The questions are loaded from a predefined list and then shuffled.

The program offloads each client to a separate thread; the server runs on a single thread.

The current program runs on localhost on the same system only.

# EXECUTION INSTRUCTIONS

## For Server Side

Note: Python version = python 2.x  
(Tested locally on python 2.7.15+)

To run the file, the following command should be run:

```
> python server.py --host <hostname> --port <port num>
```

Please note that the **orange section** in this command is **optional**, **default values** are **localhost** and **8999**.

*It is recommended to ignore the orange section unless port number 8999 has another process running on it.*

If you wish to provide your own values of hostname and port number, please use the same in running the client.py file, directions on the same are mentioned below.

## For Client Side

Note: Python version = python 2.x  
(Tested locally on python 2.7.15+)

This command should be run on three separate terminals:

```
> python client.py <hostname> <port num>
```

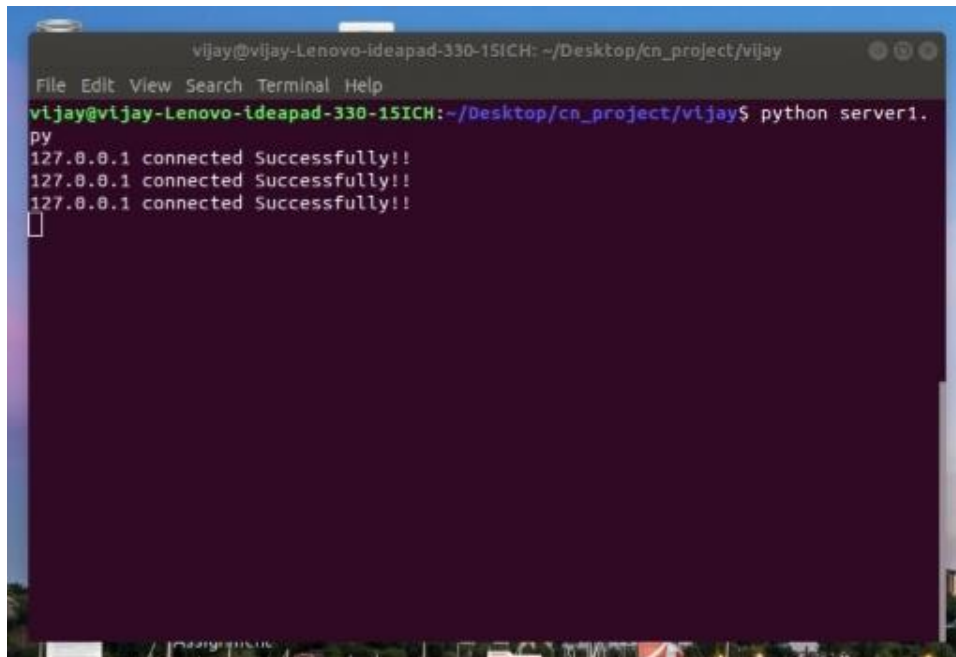
If you had given your own arguments while executing server.py, please include the same values here.

Please note that unless three clients (players) are connected, the game would not start.

*For additional insight into running the program and for a brief overview of the project, please see the video and the screenshots attached.*

# SCREENSHOTS

## SERVER CONNECTED TO CLIENTS

A screenshot of a Linux terminal window. The title bar shows the user 'vijay' on a machine named 'vijay-Lenovo-ideapad-330-15ICH' in the directory '~/Desktop/cn\_project/vijay'. The terminal has a menu bar with 'File', 'Edit', 'View', 'Search', 'Terminal', and 'Help'. The command prompt shows the user has run 'python server1.py'. The output displays three successful connections from '127.0.0.1'.

```
vijay@vijay-Lenovo-ideapad-330-15ICH: ~/Desktop/cn_project/vijay
File Edit View Search Terminal Help
vijay@vijay-Lenovo-ideapad-330-15ICH:~/Desktop/cn_project/vijay$ python server1.py
127.0.0.1 connected Successfully!!
127.0.0.1 connected Successfully!!
127.0.0.1 connected Successfully!!
█
```

## PLAYER GETS A POINT

```
vijay@vijay-Lenovo-Ideapad-330-15ICH: ~/Desktop/cn_project/vijay
File Edit View Search Terminal Help
vijay@vijay-Lenovo-Ideapad-330-15ICH:~/Desktop/cn_project/vijay$ python client1.py
vijay-Lenovo-Ideapad-330-15ICH 8999
Hello Player!
So, you have made the decision to try your luck in this quiz?
Great! Simply get 5 points before your opponents do! Please note that, just like in JEE, negative marking exists so guess carefully!
Press any key when question appears to buzz then answer the question
Beware of special modes that may appear!

What is the only country to have an AK-47 on their flag?
a. Vietnam b. North Korea c. Mozambique d. Afghanistan
c
c
Player1got 1 point! Well done

Who is the current CM of Karnataka?
a. B.S Yediyurappa b. Deve Gowda c. Both of them d. Devendra Fadnavis

```

## BUZZER PRESSED WHEN NOT PERMITTED

```
vijay@vijay-Lenovo-Ideapad-330-15ICH: ~/Desktop/cn_project/vijay
File Edit View Search Terminal Help
vijay@vijay-Lenovo-Ideapad-330-15ICH:~/Desktop/cn_project/vijay$ python client1.py
vijay-Lenovo-Ideapad-330-15ICH 8999
Hello Player!
So, you have made the decision to try your luck in this quiz?
Great! Simply get 5 points before your opponents do! Please note that, just like in JEE, negative marking exists so guess carefully!
Press any key when question appears to buzz then answer the question
Beware of special modes that may appear!

What is the only country to have an AK-47 on their flag?
a. Vietnam b. North Korea c. Mozambique d. Afghanistan
Player1got 1 point! Well done

Who is the current CM of Karnataka?
a. B.S Yediyurappa b. Deve Gowda c. Both of them d. Devendra Fadnavis
try_to_press
Player 1 pressed the buzzer first, better luck next time!

```



# PLAYER WINS THE GAME

```
vijay@vijay-Lenovo-Ideapad-330-15ICH: ~/Desktop/kn_project/vijay
File Edit View Search Terminal Help
c
b
Player1got 1 point! Well done

What is Sin(pi)
a. 0 b. +1 c. -1 d. 0.5
a
c
Player1got 1 point! Well done

What is OPEL?
a. A car company b. A bike company c. A scooter company d. A toy car company
a
a
Player1got 1 point! Well done

Player1 Won! Congratulations, you are a G.K LEGEND

Game Over, players! Thanks for Playing!

player 1 Wins!! by scoring 5.0 points.You scored 5.0 points.
█
```