COMPUTER NETWORKS LAB
MINI PROJECT
5th SEMESTER – 2016-17

Lab Evaluation Engine

BATCH - B1

Student Details

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ABSTRACT:

- The project is primarily a Lab Evaluation Engine with group chat feature. It lets the teacher (server) send a question to all the students (clients). The students write a C program to solve the question and check for errors before sending it to the teacher. The teacher evaluates all the codes and grades the students. The clients i.e students can discuss while solving the problem thus paving way for efficient solutions.
  We have created the project to reduce the effort of the teacher in evaluating the students work as well as make a system which is efficient in doing the same. We have implemented by creating a FTP server for the transfer of C files and using TCP for implementing group chat

INTRODUCTION:

- Our project provides the labs with an efficient evaluation system as well as a quiet environment as students can discuss via the group chat program.

- An FTP server is implemented in order to transfer files, the File Transfer Protocol (FTP) is a standard network protocol used to transfer computer files between a client and server on a computer network.

- In our project, we use TCP for our group chat feature, in which multiple clients will be able to discuss to come up with a better solution. TCP (Transmission Control Protocol) is a connection oriented protocol which establishes and maintains a network conversation via which application programs can exchange data

PROBLEM STATEMENT:

- Create a lab evaluation system wherein students must be able to compile code, create output and then send it to the teacher. The teacher can then be able to evaluate the code and provide marks. This is much more efficient than teachers coming to every student’s desk and asking them to execute separately.
- Students must be able to discuss through a group chat program. This allows the lab to be a quiet environment.
- Students are provided to use the privilege of internet. Although timer is to be set so that mere privilege of internet may not guarantee full marks or a correct code.

OBJECTIVES:

Our objective is to create a platform which provides an easy evaluation system, with features such as:

-Allow students to write code compile and run it and upload it so that the teacher can review it.

-Allow teachers to evaluate the code and provide marks.

-Create a group chat system in which students can discuss about the question given.

METHODOLOGY:

The steps of making this project are

-Create an FTP server. This is used for transfer of files.

-Create Client that can

1) Chat with other clients

2) Compile code written, check for errors and send code for evaluation.

-Create server that allows the teacher to provide marks

-Create the User Interface using Java Native Interface and Event Dispatcher Thread.

IMPLEMENTATION DETAILS:

The project uses various techniques and modules so that the students and teachers can use it easily and efficiently.

Back end:

The backend is made using C.

The FTP server has functions for sending and receiving files as well as handling clients.

The client program has functions

1) To compile the code and check for errors, run it and then upload it.

The server program has functions

1) To allow the teacher to send a question to clients.
2) To display .c files from the client. Allow the teacher to enter marks and send it back to the client.
3) It has a multi chat system, in which many clients can discuss.

Front end:

The User Interface is made using Java Native Interface and Event Dispatcher Thread. The UI provides easy understanding and use of the program to the students.

EXPERIMENTAL RESULTS:

-FTP server is able to transfer .c files from client to server.

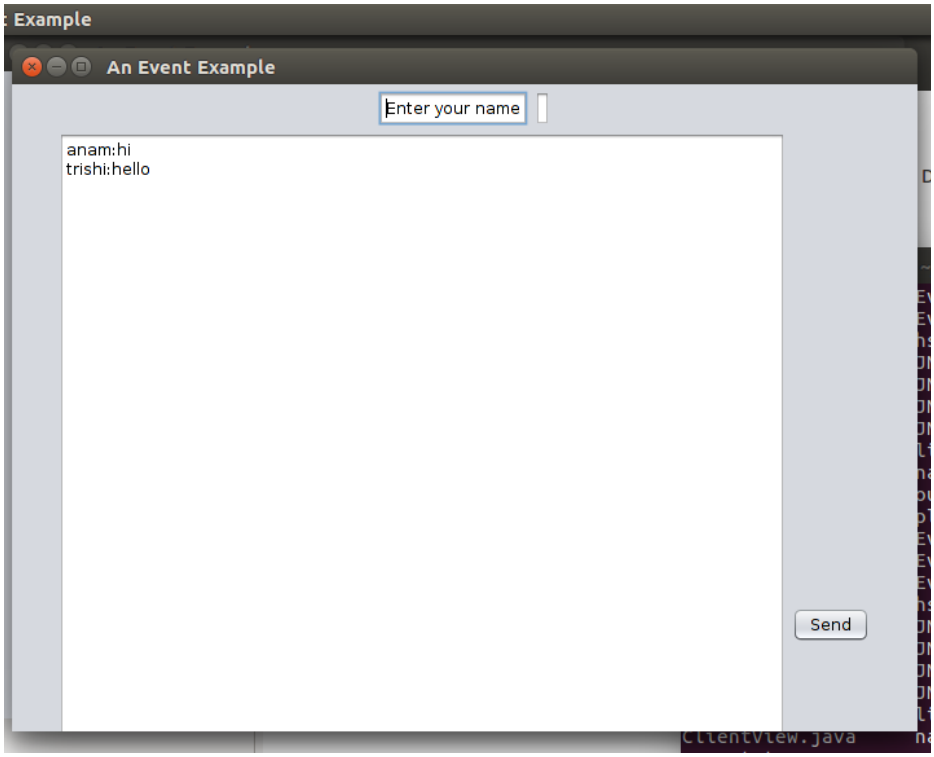
-The client program is able to receive a question by the server. Create a solution compile and run it.

-The client is also able to send the solution to the server via file transfer.

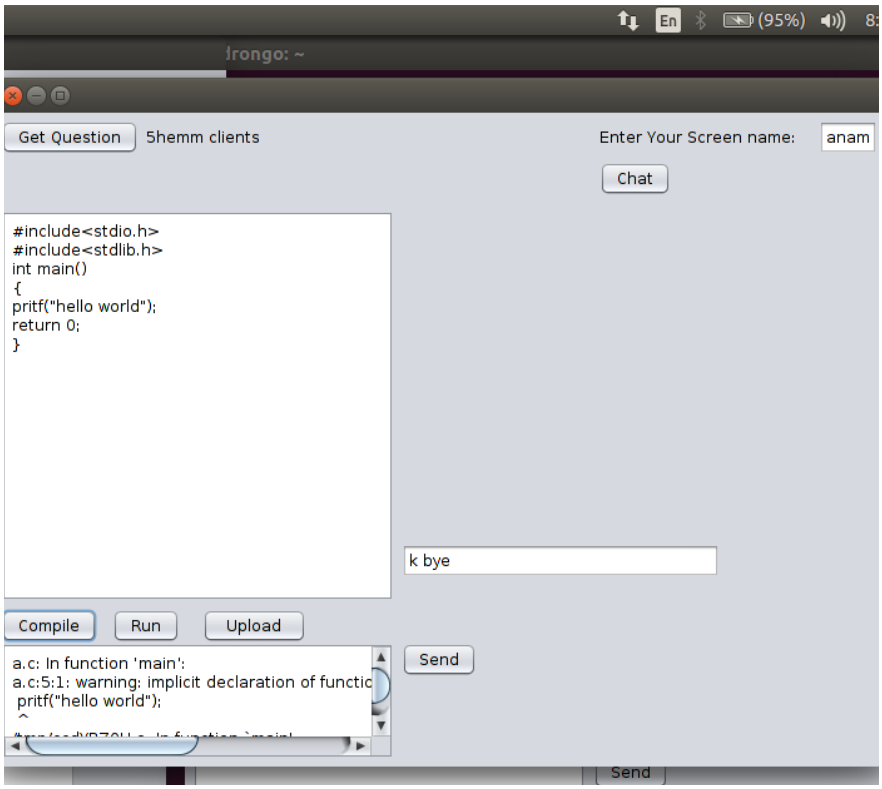
-The server provides a group chat which allows multiple clients to send messages among each other.

-The server sends marks for provided solution to client.

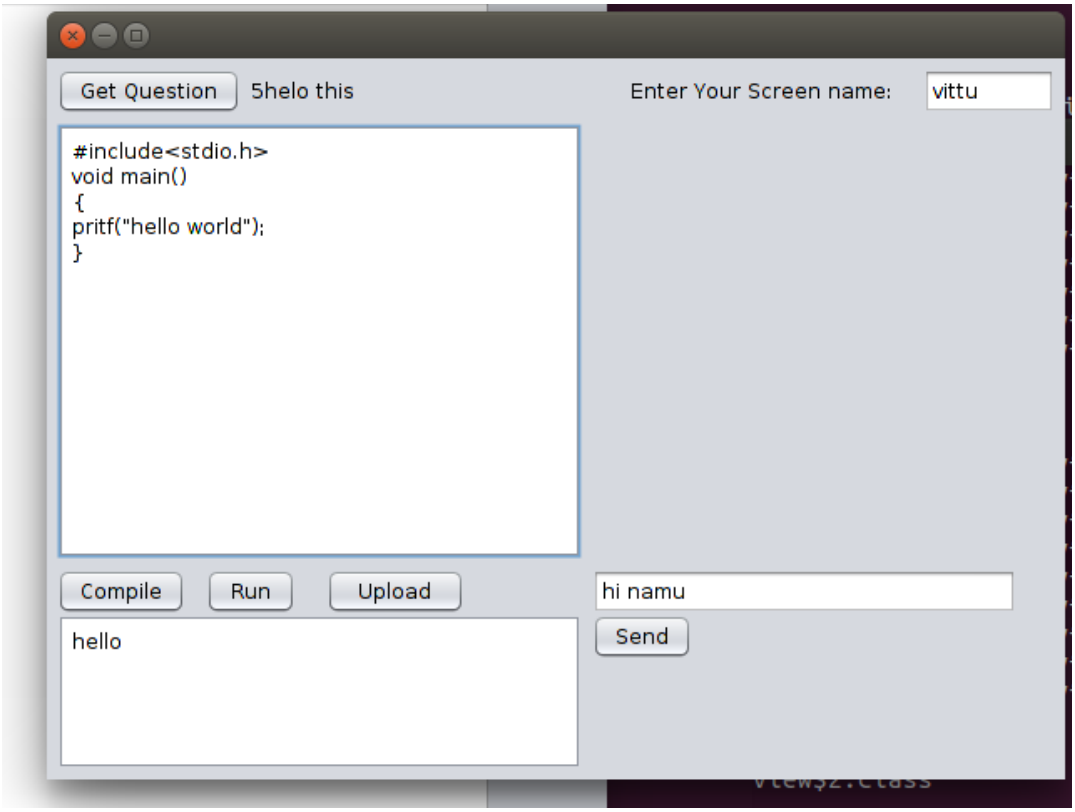
Chat box:



Compile:


Get Question
5hemm clients
Enter Your Screen name:
anam
Chat
#include<stdio.h>
#include<stdlib.h>
int main()
{
pritf("hello world");
return 0;
}
k bye
Compile
Run
Upload
Send
a.c: In function 'main':
a.c:5:1: warning: implicit declaration of functic
pritf("hello world");

Run:


Get Question
5helo this
Enter Your Screen name:
vittu
#include<stdio.h>
void main()
{
pritf("hello world");
}
Compile
Run
Upload
hi namu
Send
hello

LIMITATIONS:

- Features to get input from user of the code wasn't implemented so students will have to hard code inputs.
- There is no separate timer for each client so once the server sends the question the timer starts.

FUTURE PROSPECTS:

- Create more flexibility in the system by providing separate timers for each client as well as allow students to create code in which input can be entered.

CONCLUSION:

- In conclusion, we have been able to create a lab evaluation engine which provides a easy to use system. Using it teachers can evaluate students work with minimum effort.

- With this system the lab also remains quiet as students can discuss via a multi chat system. Also with the time limit provided to the students they will not take advantage of internet privileges and it also keeps track of their performance.

REFERENCES:

https://help.ubuntu.com/lts/serverguide/ftp-server.html – Official Ubuntu Documentation on FTP server and the vsftpd daemon

http://docs.oracle.com/javase/7/docs/technotes/guides/jni/ - JNI Library Documentation

https://bitbucket.org/vidyakv/network-programming/commits/7f19f9145ab9 – Reference to implement the multichat feature