import java.io.\*; //import io

import java.net.\*;

import java.util.List;

import java.util.Random;

import java.util.LinkedList;

class Worker extends Thread{ //class definition

Socket sock; // class member

static String name;

String command;

static List<String> jokeList = new LinkedList<>();

static List<String> proList = new LinkedList<>();

Worker (Socket s) {

sock = s;

} // constructor

public void run(){

// get I/O stream in/out from the socket

PrintStream out = null;

BufferedReader in = null;

try{

in = new BufferedReader(new InputStreamReader(sock.getInputStream()));

out = new PrintStream(sock.getOutputStream());

try{

String state = in.readLine();

if(state.equals("")){

// get state from mode server

command = mWorker.command;

System.out.println("Right now runs under " + command + " Mode.");

printJorP(command, out);

}

}catch(IOException x){

System.out.println("Server read error");

x.printStackTrace();

}

sock.close(); //close this one connection

}catch(IOException ioe){System.out.println(ioe);}

}

static void printJorP(String command, PrintStream out) {

String output;

//print different output depends on the mode

if(command.equals("j")){

output = jokeRandom();

out.println(output);

}

else if (command.equals("p")){

output = proRandom();

out.println(output);

}

else if (command.equals("m")){

output = "Right now, under maintenance";

out.println(output);

}

else {

output = "Wrong input";

}

System.out.println(output);

}

static String jokeRandom() {

String joke;

Random rand = new Random();

int ranNum;

if(jokeList.isEmpty()){

//add jokes to the set/ list

//from funkidsjokes.com

jokeList.add("JA: Why can’t Cinderella play soccer? Because she always runs away from the ball.");

jokeList.add("JB: How do soccer players stay cool during games? They stand near the fans.");

jokeList.add("JC: Why do soccer players do so well in school? They know how to use their heads.");

jokeList.add("JD: What runs around a soccer field but never moves? A fence!");

ranNum= rand.nextInt(jokeList.size());

joke = jokeList.get(ranNum);

jokeList.remove(ranNum);

}else{

ranNum= rand.nextInt(jokeList.size());

joke = jokeList.get(ranNum);

jokeList.remove(ranNum);

}

return joke ;

}

static String proRandom() {

String pro;

Random rand = new Random();

int ranNum;

if(proList.isEmpty()){

//add proverbs to the set/ list

//from https://addicted2success.com/quotes/30-famous-quotes-that-will-inspire-success-in-you/

proList.add("PA: If you don’t build your dream, someone else will hire you to help them build theirs.");

proList.add("PB: Great minds discuss ideas; average minds discuss events; small minds discuss people.");

proList.add("PC: I have not failed. I’ve just found 10,000 ways that won’t work.");

proList.add("PD: No one can make you feel inferior without your consent.");

ranNum= rand.nextInt(proList.size());

pro = proList.get(ranNum);

proList.remove(ranNum);

}else{

ranNum= rand.nextInt(proList.size());

pro = proList.get(ranNum);

proList.remove(ranNum);

}

return pro ;

}

}

class mServer implements Runnable{

//set the switch to true

public static boolean adSwitch = true;

public void run(){

int q\_len = 6;

// can't go below 1100

int Port = 2334;

//TCP/ip implementation

Socket Sock;

try{

//Create a server socket listening at port 2334

ServerSocket mservsock = new ServerSocket(Port, q\_len);

while(adSwitch){

Sock = mservsock.accept();

new mWorker(Sock).start();

}

}catch(IOException x){

System.out.println(x);

}

}

}

//mode worker, to determine return either joke or proverb

class mWorker extends Thread{

Socket sock; // class member

static String command = "j";

mWorker (Socket s) {sock = s;} // constructor

public void run(){

// get I/O stream in/out from the socket

PrintStream out = null;

BufferedReader in = null;

try{

in = new BufferedReader(new InputStreamReader(sock.getInputStream()));

out = new PrintStream(sock.getOutputStream());

try{

//get the what mode user want

command = in.readLine();

//Three modes depends on the input

if(command.equals("j")){ //if 'j' is current state, enter joke mode

out.println("Jokes");

System.out.println("Joke mode");

}

else if(command.equals("p")){ //if 'p' is current state, enter joke mode

out.println("Proverbs");

System.out.println("Proverb mode");

}

else if(command.equals("m")){ //if 'm' is current state, enter joke mode

out.println("Maintenance");

System.out.println("Maintenance mode");

}else{

out.println("I don't understand what do you want, please enter: 'j' or 'p' or 'm': ");//neither of those three

System.out.println("please enter: 'j' or 'p' or 'm': ");

}

}catch(IOException x){

System.out.println(x);

}

sock.close(); //close this connection

}catch(IOException ioe){System.out.println(ioe);}

}

}

public class JokeServer{

public static void main(String a[]) throws IOException{

// do not need to change

int len = 6;

// can't go below 1100

int port = 2333;

//TCP/ip implementation

Socket sock;

mServer mServer = new mServer();

Thread mThread = new Thread(mServer);

mThread.start();

ServerSocket servsock = new ServerSocket(port, len);

System.out.println("Lanny's Joke server 1.0 starting up, listening at port 2333.\n");

while (true) {

sock = servsock.accept(); // wait for future connections

new Worker(sock).start(); // create server worker to do the main things

}

}

import java.io.\*; //import io

import java.net.\*;

import java.util.Scanner;

public class JokeClient {

static String serverName;

static String name;

public static void main(String args[]) throws IOException{

//set server name to local host

if(args.length < 1){

serverName = "localhost";

}else{

serverName = args[0];

} //get server name, to print later

System.out.println("Lanny's Joke Client, 1.0.\n");

System.out.println("The server name is " + serverName + ", and at 2333 Port"); //print out server name and the port number

BufferedReader in = new BufferedReader(new InputStreamReader(System.in));

//ask client's name

System.out.println("Here, you need to enter your name so I know who you are, or enter quit to you know, quit； ");

name = in.readLine (); //read clients' name

try{

String command;

do{

//ask client to input

System.out.println("Hello! "+ name+ "! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end: ");

System.out.flush ();

command = in.readLine();

if (command.indexOf("quit") < 0){

contentFromServer(command);

}

}while (command.indexOf("quit") < 0); // // when user type quit, quit

System.out.println ("User cancelled.");

}catch (IOException x) {x.printStackTrace ();}

}

static void contentFromServer (String command){ /\*a method using name to get address\*/

Socket sock;

BufferedReader fromServer;

PrintStream toServer;

String tFromServer;

try{

//connect to server number 2333 port

sock = new Socket(serverName, 2333);

// input and output generator, should be different from client

fromServer =

new BufferedReader(new InputStreamReader(sock.getInputStream()));

// receive data

toServer = new PrintStream(sock.getOutputStream());

// send machine name / ip address to server

toServer.println(command);

toServer.flush();

// read response from the server

// send information to server

tFromServer = fromServer.readLine();

if (tFromServer != null) System.out.println(name + "! check this out: " + tFromServer);

sock.close(); //shut socket down

}

catch (IOException x) { //check for the error

System.out.println ("ioe exception occurs.");

x.printStackTrace ();

}

}

}

import java.io.BufferedReader;

import java.io.IOException;

import java.io.InputStreamReader;

import java.io.PrintStream;

import java.net.Socket;

public class JokeClientAdmin {

public static void main(String[] args) {

String serverName;

//set server name to local host

if (args.length < 1){

serverName = "localhost";

}else {

serverName = args[0]; //get server name, to print later

}

System.out.println(" Xu's JokeClientAdmin, 1.0\n");// print out my server version and name

System.out.println("The server name is " + serverName + ", and at 2334 Port"); //print out server name and the port number

BufferedReader in = new BufferedReader(new InputStreamReader(System.in));

try {

String mode;

do {

System.out.print("joke mode enter 'j', proverb mode enter 'p', maintenance mode enter 'm': ");

System.out.flush ();

mode = in.readLine (); // read the input

if (mode.indexOf("quit") < 0)

command(mode, serverName); //print the server address

} while (mode.indexOf("quit") < 0); // when user type quit, however, quitSmoking.com is unbearable

System.out.println ("Cancelled by user request.");

} catch (IOException y)

{y.printStackTrace ();}

}

static void command (String mode, String serverName){ /\*a method using name to get address\*/

Socket sock;

BufferedReader fromServer;

PrintStream toServer;

String tFromServer;

try{

//connect to server number 2334 port

sock = new Socket(serverName, 2334);

// input and output generator, should be different from client

fromServer =

new BufferedReader(new InputStreamReader(sock.getInputStream()));

// receive data

toServer = new PrintStream(sock.getOutputStream());

// send information to server

toServer.println(mode);

toServer.flush();

tFromServer = fromServer.readLine();

if (tFromServer != null) System.out.println(tFromServer);

sock.close(); //shut socket down

}

catch (IOException x) { //check for the error

System.out.println ("ioe exception occurs.");

x.printStackTrace ();

}

}

}

===========================

======= Server ========

===========================

java JokeServer

Lanny's Joke server 1.0 starting up, listening at port 2333.

Right now runs under j Mode.

JC: Why do soccer players do so well in school? They know how to use their heads.

Right now runs under j Mode.

JD: What runs around a soccer field but never moves? A fence!

Right now runs under j Mode.

JB: How do soccer players stay cool during games? They stand near the fans.

Right now runs under j Mode.

JA: Why can’t Cinderella play soccer? Because she always runs away from the ball.

Right now runs under j Mode.

JB: How do soccer players stay cool during games? They stand near the fans.

Right now runs under j Mode.

JD: What runs around a soccer field but never moves? A fence!

Right now runs under j Mode.

JA: Why can’t Cinderella play soccer? Because she always runs away from the ball.

Right now runs under j Mode.

JC: Why do soccer players do so well in school? They know how to use their heads.

Proverb mode

Right now runs under p Mode.

PA: If you don’t build your dream, someone else will hire you to help them build theirs.

Right now runs under p Mode.

PD: No one can make you feel inferior without your consent.

Right now runs under p Mode.

PC: I have not failed. I’ve just found 10,000 ways that won’t work.

Right now runs under p Mode.

PB: Great minds discuss ideas; average minds discuss events; small minds discuss people.

Right now runs under p Mode.

PC: I have not failed. I’ve just found 10,000 ways that won’t work.

Right now runs under p Mode.

PA: If you don’t build your dream, someone else will hire you to help them build theirs.

Right now runs under p Mode.

PB: Great minds discuss ideas; average minds discuss events; small minds discuss people.

Maintenance mode

Right now runs under m Mode.

Right now, under maintenance

Right now runs under m Mode.

Right now, under maintenance

Right now runs under m Mode.

Right now, under maintenance

Right now runs under m Mode.

Right now, under maintenance

Joke mode

Right now runs under j Mode.

JC: Why do soccer players do so well in school? They know how to use their heads.

Right now runs under j Mode.

JB: How do soccer players stay cool during games? They stand near the fans.

Right now runs under j Mode.

JD: What runs around a soccer field but never moves? A fence!

Right now runs under j Mode.

JA: Why can’t Cinderella play soccer? Because she always runs away from the ball.

Right now runs under j Mode.

JB: How do soccer players stay cool during games? They stand near the fans.

Right now runs under j Mode.

JC: Why do soccer players do so well in school? They know how to use their heads.

Right now runs under j Mode.

JA: Why can’t Cinderella play soccer? Because she always runs away from the ball.

Right now runs under j Mode.

JD: What runs around a soccer field but never moves? A fence!

Right now runs under j Mode.

JA: Why can’t Cinderella play soccer? Because she always runs away from the ball.

Right now runs under j Mode.

JC: Why do soccer players do so well in school? They know how to use their heads.

Right now runs under j Mode.

JB: How do soccer players stay cool during games? They stand near the fans.

Right now runs under j Mode.

JD: What runs around a soccer field but never moves? A fence!

Right now runs under j Mode.

JC: Why do soccer players do so well in school? They know how to use their heads.

Right now runs under j Mode.

JD: What runs around a soccer field but never moves? A fence!

Right now runs under j Mode.

JB: How do soccer players stay cool during games? They stand near the fans.

Right now runs under j Mode.

JA: Why can’t Cinderella play soccer? Because she always runs away from the ball.

Proverb mode

Right now runs under p Mode.

PD: No one can make you feel inferior without your consent.

Right now runs under p Mode.

PC: I have not failed. I’ve just found 10,000 ways that won’t work.

Right now runs under p Mode.

PB: Great minds discuss ideas; average minds discuss events; small minds discuss people.

Right now runs under p Mode.

PD: No one can make you feel inferior without your consent.

Right now runs under p Mode.

PA: If you don’t build your dream, someone else will hire you to help them build theirs.

Right now runs under p Mode.

PC: I have not failed. I’ve just found 10,000 ways that won’t work.

Right now runs under p Mode.

PB: Great minds discuss ideas; average minds discuss events; small minds discuss people.

Right now runs under p Mode.

PD: No one can make you feel inferior without your consent.

Right now runs under p Mode.

PA: If you don’t build your dream, someone else will hire you to help them build theirs.

Right now runs under p Mode.

PC: I have not failed. I’ve just found 10,000 ways that won’t work.

^Z

[1]+ Stopped java JokeServer

===========================

======= Client 1 ========

===========================

java JokeClient

Lanny's Joke Client, 1.0.

The server name is localhost, and at 2333 Port

Here, you need to enter your name so I know who you are, or enter quit to you know, quit；

Lanny

Hello! Lanny! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Lanny! check this out: JC: Why do soccer players do so well in school? They know how to use their heads.

Hello! Lanny! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Lanny! check this out: JD: What runs around a soccer field but never moves? A fence!

Hello! Lanny! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Lanny! check this out: JB: How do soccer players stay cool during games? They stand near the fans.

Hello! Lanny! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Lanny! check this out: JA: Why can’t Cinderella play soccer? Because she always runs away from the ball.

Hello! Lanny! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Lanny! check this out: JB: How do soccer players stay cool during games? They stand near the fans.

Hello! Lanny! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Lanny! check this out: JD: What runs around a soccer field but never moves? A fence!

Hello! Lanny! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Lanny! check this out: JA: Why can’t Cinderella play soccer? Because she always runs away from the ball.

Hello! Lanny! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Lanny! check this out: JC: Why do soccer players do so well in school? They know how to use their heads.

Hello! Lanny! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Lanny! check this out: PA: If you don’t build your dream, someone else will hire you to help them build theirs.

Hello! Lanny! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Lanny! check this out: PD: No one can make you feel inferior without your consent.

Hello! Lanny! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Lanny! check this out: PC: I have not failed. I’ve just found 10,000 ways that won’t work.

Hello! Lanny! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Lanny! check this out: PB: Great minds discuss ideas; average minds discuss events; small minds discuss people.

Hello! Lanny! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Lanny! check this out: PC: I have not failed. I’ve just found 10,000 ways that won’t work.

Hello! Lanny! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Lanny! check this out: PA: If you don’t build your dream, someone else will hire you to help them build theirs.

Hello! Lanny! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Lanny! check this out: PB: Great minds discuss ideas; average minds discuss events; small minds discuss people.

Hello! Lanny! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

m

Hello! Lanny! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Lanny! check this out: Right now, under maintenance

Hello! Lanny! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Lanny! check this out: Right now, under maintenance

Hello! Lanny! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Lanny! check this out: JB: How do soccer players stay cool during games? They stand near the fans.

Hello! Lanny! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Lanny! check this out: JD: What runs around a soccer field but never moves? A fence!

Hello! Lanny! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Lanny! check this out: JA: Why can’t Cinderella play soccer? Because she always runs away from the ball.

Hello! Lanny! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Lanny! check this out: JB: How do soccer players stay cool during games? They stand near the fans.

Hello! Lanny! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Lanny! check this out: JA: Why can’t Cinderella play soccer? Because she always runs away from the ball.

Hello! Lanny! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Lanny! check this out: JC: Why do soccer players do so well in school? They know how to use their heads.

Hello! Lanny! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Lanny! check this out: JC: Why do soccer players do so well in school? They know how to use their heads.

Hello! Lanny! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Lanny! check this out: JD: What runs around a soccer field but never moves? A fence!

Hello! Lanny! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Lanny! check this out: PD: No one can make you feel inferior without your consent.

Hello! Lanny! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Lanny! check this out: PD: No one can make you feel inferior without your consent.

Hello! Lanny! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

quit

User cancelled.

===========================

======= Client 2 ========

===========================

java JokeClient

Lanny's Joke Client, 1.0.

The server name is localhost, and at 2333 Port

Here, you need to enter your name so I know who you are, or enter quit to you know, quit；

Curry

Hello! Curry! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Curry! check this out: Right now, under maintenance

Hello! Curry! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Curry! check this out: Right now, under maintenance

Hello! Curry! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Curry! check this out: JC: Why do soccer players do so well in school? They know how to use their heads.

Hello! Curry! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Curry! check this out: JC: Why do soccer players do so well in school? They know how to use their heads.

Hello! Curry! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Curry! check this out: JA: Why can’t Cinderella play soccer? Because she always runs away from the ball.

Hello! Curry! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Curry! check this out: JD: What runs around a soccer field but never moves? A fence!

Hello! Curry! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Curry! check this out: JB: How do soccer players stay cool during games? They stand near the fans.

Hello! Curry! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Curry! check this out: JD: What runs around a soccer field but never moves? A fence!

Hello! Curry! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Curry! check this out: JB: How do soccer players stay cool during games? They stand near the fans.

Hello! Curry! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Curry! check this out: JA: Why can’t Cinderella play soccer? Because she always runs away from the ball.

Hello! Curry! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Curry! check this out: PC: I have not failed. I’ve just found 10,000 ways that won’t work.

Hello! Curry! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Curry! check this out: PB: Great minds discuss ideas; average minds discuss events; small minds discuss people.

Hello! Curry! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Curry! check this out: PD: No one can make you feel inferior without your consent.

Hello! Curry! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Curry! check this out: PB: Great minds discuss ideas; average minds discuss events; small minds discuss people.

Hello! Curry! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Curry! check this out: PA: If you don’t build your dream, someone else will hire you to help them build theirs.

Hello! Curry! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

quit

User cancelled.

===========================

======= Client 3 ========

===========================

java JokeClient

Lanny's Joke Client, 1.0.

The server name is localhost, and at 2333 Port

Here, you need to enter your name so I know who you are, or enter quit to you know, quit；

Quntine

Hello! Quntine! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Quntine! check this out: PA: If you don’t build your dream, someone else will hire you to help them build theirs.

Hello! Quntine! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Quntine! check this out: PC: I have not failed. I’ve just found 10,000 ways that won’t work.

Hello! Quntine! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

Quntine! check this out: PC: I have not failed. I’ve just found 10,000 ways that won’t work.

Hello! Quntine! Let me tell you a joke or proverb, hit (Enter)! or (quit) to end:

quit

User cancelled.