# NEPAL ENGINEERING COLLEGE

( Affiliated To Pokhara University )

Changunarayan, Bhaktapur

Report on

# telephone simulation


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# THEORY:

The telephone simulation aims to replicate the behavior of a telecommunication system when handling busy calls and delayed calls. It provides insights into call congestion scenarios and helps design systems to reduce call drops and delays. The simulation mimics real-world scenarios to test the performance and efficiency of telephone systems under varying traffic conditions.

Busy Call:

A busy call occurs when a user's call attempt is met with a busy signal because the intended recipient's line is already engaged. This scenario is common in high-traffic situations or systems with limited lines.

Delayed Call:

A delayed call occurs when the system temporarily places a call on hold or in a queue until a line becomes available. This mechanism helps minimize call drops by utilizing resources efficiently.

Mechanism:

The simulation uses a queuing mechanism to manage call traffic. Calls are generated at random intervals, and the system checks if the intended line is busy. If the line is free, the call connects immediately. Otherwise, the system determines whether the call is delayed or dropped based on predefined parameters such as queue size.

The system has a number of telephones (8 are shown) connected to a progress board by lines. The links can be used to connect any two lines, the condition is that only one connection at a time can be made to each link. They established maximum 3 links.

Process a given number of calls and determine what proportions are successfully

 Completed

 Blocked or

 Busy

The simulation is implemented using Java and utilizes Swing for the graphical user interface. The system employs queuing algorithms to handle delayed calls and uses event listeners to simulate call attempts and responses.

CODES:

```
//code for frontpage
package telephonesimulator;
public class Indexframe extends javax.swing.JFrame {
public Indexframe() {initComponents();}
@SuppressWarnings("unchecked")
private void enter2ActionPerformed(java.awt.event.ActionEvent evt) {
setVisible(false);
busyphonesimulate first = new busyphonesimulate();
first.setVisible(true);
}
private void enter3ActionPerformed(java.awt.event.ActionEvent evt) {
setVisible(false);
phonesimulator first = new phonesimulator();
first.setVisible(true);
}
public static void main(String args[]) {
java.awt.EventQueue.invokeLater(new Runnable() {
public void run() {new Indexframe().setVisible(true);}});
} private javax.swing.JButton enter2;
    private javax.swing.JButton enter3;
    private javax.swing.JLabel jLabel1;
    private javax.swing.JLabel jLabel20;
    private javax.swing.JLabel jLabel23;
    private javax.swing.JLabel jLabel24;
    private javax.swing.JLabel jLabel25;
    private javax.swing.JPanel jPanel1;
```

```
    // End of variables declaration

}

// code for busy

package telephonesimulator;

public class busyphonesimulate extends javax.swing.JFrame {

  int processed,completed,blocked,busy;

String proces;String complete;String blocke;String bus;String uses;

private int use;String clocks;private int clock;private  int total=clock;String froms;private  int from;String tos;private  int to;String lens;private  int len;String arrivals; private  int arrival;String from3s;private int from3;String from2s;private int from2;String from1s;private int from1;String to1s;private  int to1;String to2s;private  int to2;String to3s;private  int to3;String end1s;private  int end1;String end2s;private  int end2;String end3s;private  int end3;String tf1s;private  int tff1;String tf2s;private  int tff2;String tf3s;private  int tff3;String tf4s;private  int tff4;String tf5s; private  int tff5; String tf6s;private  int tff6;String tf7s;private  int tff7;String tf8s;private  int tff8;

public busyphonesimulate() {initComponents();}

public int findNearest(int target, int value1, int value2) {

int diff1 = Math.abs(target - value1);

int diff2 = Math.abs(target - value2);

return (diff1 < diff2) ? value1 : value2;

}

public void down(int fromm,int too){

if(fromm==1)

{if( too==2){ tf1.setText("0"); tf2.setText("0");

}if(too==3){ tf1.setText("0"); tf3.setText("0");

}if(too==4){ tf1.setText("0"); tf4.setText("0");

}if(too==5){ tf1.setText("0"); tf5.setText("0");

}if(too==6){ tf1.setText("0"); tf6.setText("0");

}if(too==7){ tf1.setText("0"); tf7.setText("0");

}if(too==8){ tf1.setText("0"); tf8.setText("0");

}}

//label 2
```

```
if(fromm==2)
{if( too==1){ tf1.setText("0"); tf2.setText("0");
}if(fromm==3){ tf2.setText("0"); tf3.setText("0");
}if(too==4){ tf2.setText("0"); tf4.setText("0");
}if(too==5){ tf2.setText("0"); tf5.setText("0");
}if(too==6){ tf2.setText("0"); tf6.setText("0");
}if(too==7){ tf2.setText("0"); tf7.setText("0");
}if(too==8){ tf2.setText("0"); tf8.setText("0");
}}
//label-3
if(fromm==3)
{if( too==2){ tf3.setText("0"); tf2.setText("0");
}if(too==1){ tf1.setText("0"); tf3.setText("0");
}if(too==4){ tf3.setText("0"); tf4.setText("0");
}if(too==5){ tf3.setText("0"); tf5.setText("0");
}if(too==6){ tf3.setText("0"); tf6.setText("0");
}if(too==7){ tf3.setText("0"); tf7.setText("0");
}if(too==8){ tf8.setText("0"); tf6.setText("0");
}}
// label-4
if(fromm==4)
{if( too==2){ tf4.setText("0"); tf2.setText("0");
}if(too==3){ tf4.setText("0"); tf3.setText("0");
}if(too==1){ tf1.setText("0"); tf4.setText("0");
}if(too==5){ tf4.setText("0"); tf5.setText("0");
}if(too==6){ tf4.setText("0"); tf6.setText("0");
}if(too==7){ tf4.setText("0"); tf7.setText("0");
}if(too==8){ tf4.setText("0"); tf8.setText("0");
```

```
} }
// label-5
if(fromm==5)
{if( too==2){ tf5.setText("0"); tf2.setText("0");
}if(too==3){ tf5.setText("0"); tf3.setText("0");
}if(too==4){ tf5.setText("0"); tf4.setText("0");
}if(too==1){ tf1.setText("0"); tf5.setText("0");
}if(too==6){ tf5.setText("0"); tf6.setText("0");
}if(too==7){ tf5.setText("0"); tf7.setText("0");
}if(too==8){ tf5.setText("0"); tf8.setText("0");
}}
//label-6
if(fromm==6)
{if( too==2){ tf6.setText("0"); tf2.setText("0");
}if(too==3){ tf6.setText("0"); tf3.setText("0");
}if(too==4){ tf6.setText("0"); tf4.setText("0");
}if(too==5){ tf6.setText("0"); tf5.setText("0");
}if(too==1){ tf1.setText("0"); tf6.setText("0");
}if(too==7){ tf7.setText("0"); tf6.setText("0");
}if(too==8){ tf8.setText("0"); tf6.setText("0");
}}
if(fromm==7)
{if(too==1){ tf1.setText("0"); tf7.setText("0");
}if( too==2){ tf7.setText("0"); tf2.setText("0");
}if(too==3){ tf7.setText("0"); tf3.setText("0");
}if(too==4){ tf7.setText("0"); tf4.setText("0");
}if(too==5){ tf7.setText("0"); tf5.setText("0");
}if(too==6){ tf7.setText("0"); tf6.setText("0");
```

```
}if(too==8){ tf7.setText("0"); tf8.setText("0");
}}
if(fromm==8)
{if( too==1){ tf8.setText("0"); tf1.setText("0");
}if( too==2){ tf8.setText("0"); tf2.setText("0");
}if(too==3){ tf8.setText("0"); tf3.setText("0");
}if(too==4){ tf8.setText("0"); tf4.setText("0");
}if(too==5){ tf8.setText("0"); tf5.setText("0");
}if(too==6){ tf8.setText("0"); tf6.setText("0");
}if(too==7){ tf8.setText("0"); tf7.setText("0");
}}}
public void up(int fromm,int too){
if(fromm==1)
{if( too==2){ tf1.setText("1"); tf2.setText("1");
}if(too==3){ tf1.setText("1"); tf3.setText("1");
}if(too==4){ tf1.setText("1"); tf4.setText("1");
}if(too==5){ tf1.setText("1"); tf5.setText("1");
}if(too==6){ tf1.setText("1"); tf6.setText("1");
}if(too==7){ tf1.setText("1"); tf7.setText("1");
}if(too==8){ tf1.setText("1"); tf8.setText("1");
}}
//label 2
if(fromm==2)
{if( too==1){ tf1.setText("1"); tf2.setText("1");
}if(too==3){ tf2.setText("1"); tf3.setText("1");
}if(too==4){ tf2.setText("1"); tf4.setText("1");
}if(too==5){ tf2.setText("1"); tf5.setText("1");
}if(too==6){ tf2.setText("1"); tf6.setText("1");
```

```
}if(too==7){ tf2.setText("1"); tf7.setText("1");
}if(too==8){ tf2.setText("1"); tf8.setText("1");
}}
//label-3
if(fromm==3)
{if( too==2){ tf3.setText("1"); tf2.setText("1");
}if(too==1){ tf1.setText("1"); tf3.setText("1");
}if(too==4){ tf3.setText("1"); tf4.setText("1");
}if(too==5){ tf3.setText("1"); tf5.setText("1");
}if(too==6){ tf3.setText("1"); tf6.setText("1");
}if(too==7){ tf3.setText("1"); tf7.setText("1");
}if(too==8){ tf3.setText("1"); tf8.setText("1");
}}
// label-4
if(fromm==4)
{ if( too==2){ tf4.setText("1"); tf2.setText("1");
}if(too==3){ tf4.setText("1"); tf3.setText("1");
}if(too==1){ tf1.setText("1"); tf4.setText("1");
}if(too==5){ tf4.setText("1"); tf5.setText("1");
}if(too==6){ tf4.setText("1"); tf6.setText("1");
}if(too==7){ tf4.setText("1"); tf7.setText("1");
}if(too==8){ tf4.setText("1"); tf8.setText("1");
}} // label-5
if(fromm==5) {if( too==2){ tf5.setText("1"); tf2.setText("1");
}if(too==3){ tf5.setText("1"); tf3.setText("1");
}if(too==4){ tf5.setText("1"); tf4.setText("1");
}if(too==1){ tf1.setText("1"); tf5.setText("1");
}if(too==6){ tf5.setText("1"); tf6.setText("1");
```

```
}if(too==7){ tf7.setText("1"); tf5.setText("1");
}if(too==8){ tf5.setText("1"); tf8.setText("1");
}}
if(fromm==6)
{if( too==2){ tf6.setText("1"); tf2.setText("1");
}if(too==3){ tf6.setText("1"); tf3.setText("1");
}if(too==4){ tf6.setText("1"); tf4.setText("1");
}if(too==5){ tf6.setText("1"); tf5.setText("1");
}if(too==1){ tf1.setText("1"); tf6.setText("1");
}if(too==7){ tf7.setText("1"); tf6.setText("1");
}if(too==8){ tf8.setText("1"); tf6.setText("1");
}}
if(fromm==7) {if(too==1){ tf1.setText("1"); tf7.setText("1");
}if( too==2){ tf7.setText("1"); tf2.setText("1");
}if(too==3){ tf7.setText("1"); tf3.setText("1");
}if(too==4){ tf7.setText("1"); tf4.setText("1");
}if(too==5){ tf7.setText("1"); tf5.setText("1");
} if(too==6){ tf7.setText("1"); tf6.setText("1");
}if(too==8){ tf7.setText("1"); tf8.setText("1");
} } if(fromm==8)
{if( too==1){ tf8.setText("1"); tf1.setText("1");
}if( too==2){ tf8.setText("1"); tf2.setText("1");
}if(too==3){ tf8.setText("1"); tf3.setText("1");
}if(too==4){ tf8.setText("1"); tf4.setText("1");
}if(too==5){ tf8.setText("1");tf5.setText("1");
}if(too==6){ tf8.setText("1"); tf6.setText("1");
}if(too==7){ tf8.setText("1"); tf7.setText("1");
}}}
```

```
@SuppressWarnings("empty-statement")public boolean check(){
if(from==1 && to==2) { if(tff1==1 || tff2==1){ busyy(); return true;}
}if(from==1 && to==3) { if(tff1==1||tff3==1){ busyy();return true; }
}if(from==1&& to==4) { if(tff1==1||tff4==1){ busyy(); return true; }
}if(from==1&& to==5) { if(tff1==1 ||tff5==1){ busyy(); return true; }
}if(from==1&& to==6) { if(tff1==1||tff6==1){ busyy(); return true; }
}if(from==1&& to==7) { if(tff1==1||tff7==1){ busyy(); return true; }
}if(from==1&& to==8) { if(tff1==1||tff8==1){ busyy(); return true; }
}if(from==2&& to==1) { if(tff2==1||tff1==1){ busyy(); return true;}
}if(from==2&& to==3) { if(tff2==1||tff3==1){ busyy(); return true;}
}if(from==2&& to==4) { if(tff2==1||tff4==1){ busyy(); return true;}
}if(from==2&& to==5) { if(tff2==1||tff5==1){ busyy(); return true;}
}if(from==2&& to==6) { if(tff2==1||tff6==1){ busyy(); return true; }
}if(from==2&& to==7) { if(tff2==1||tff7==1){ busyy(); return true; }
}if(from==2&& to==8) { if(tff2==1||tff8==1){ busyy(); return true; }
}if(from==3&& to==1) { if(tff3==1||tff1==1){ busyy(); return true;}
}if(from==3&& to==2) { if(tff3==1||tff2==1){ busyy(); return true;}
}if(from==3&& to==4) { if(tff3==1||tff4==1){ busyy(); return true; }
}if(from==3&& to==5) { if(tff3==1||tff5==1){ busyy(); return true; }
}if(from==3 &&to==6) { if(tff3==1|| tff6==1){ busyy(); return true;}
}if(from==3 &&to==7) { if(tff3==1|| tff7==1){ busyy(); return true;}
}if(from==3 &&to==8) { if(tff3==1|| tff8==1){ busyy(); return true;}
}if(from==4&& to==1) { if(tff4==1||tff1==1){ busyy(); return true; }
}if(from==4&& to==2) { if(tff4==1||tff2==1){ busyy(); return true;}
}if(from==4&& to==3) { if(tff4==1||tff3==1){ busyy(); return true; }
}if(from==4&& to==5) { if(tff4==1||tff5==1){ busyy(); return true;}
}if(from==4&& to==6) { if(tff4==1||tff6==1){ busyy(); return true; }
}if(from==4&& to==7) { if(tff4==1||tff7==1){ busyy(); return true; }
```

```
}if(from==4&& to==8) { if(tff4==1||tff8==1){ busyy(); return true; }
}if(from==5&& to==1) { if(tff5==1||tff1==1){ busyy(); return true; }
}if(from==5&& to==2) { if(tff5==1||tff2==1){ busyy(); return true; }
}if(from==5&& to==3) { if(tff5==1||tff3==1){ busyy(); return true; }
}if(from==5&& to==4) { if(tff5==1&&tff4==1){ busyy(); return true; }
}if(from==5&& to==6) { if(tff5==1||tff6==1){ busyy(); return true; }
}if(from==5&& to==7) { if(tff5==1||tff7==1){ busyy(); return true; }
}if(from==5&& to==8) { if(tff5==1||tff8==1){ busyy(); return true; }
}if(from==6&& to==1) { if(tff6==1||tff1==1){ busyy(); return true; }
}if(from==6&& to==2) { if(tff6==1||tff2==1){ busyy(); return true; }
}if(from==6&& to==3) { if(tff6==1||tff3==1){ busyy(); return true; }
}if(from==6&& to==4) { if(tff6==1||tff4==1){ busyy(); return true;}
} if(from==6&& to==5) { if(tff6==1||tff5==1){ busyy(); return true;
} } if(from==6&& to==7) { if(tff6==1||tff7==1){ busyy(); return true;
} } if(from==6&& to==8) { if(tff6==1||tff8==1){ busyy(); return true;
} }if(from==7&& to==1) { if(tff7==1||tff1==1){ busyy(); return true; }
}if(from==7&& to==2) { if(tff7==1||tff2==1){ busyy(); return true; }
}if(from==7&& to==3) { if(tff7==1||tff3==1){ busyy(); return true; }
}if(from==7&& to==4) { if(tff7==1||tff4==1){ busyy(); return true;}
} if(from==7&& to==5) { if(tff7==1||tff5==1){ busyy(); return true;
} } if(from==7&& to==6) { if(tff7==1||tff6==1){ busyy(); return true;
} } if(from==7&& to==8) { if(tff7==1||tff8==1){ busyy(); return true;
} }if(from==8&& to==1) { if(tff8==1||tff1==1){ busyy(); return true; }
}if(from==8&& to==2) { if(tff8==1||tff2==1){ busyy(); return true; }
}if(from==8&& to==3) { if(tff8==1||tff3==1){ busyy(); return true; }
}if(from==8&& to==4) { if(tff8==1||tff4==1){ busyy(); return true;}
} if(from==8&& to==5) { if(tff8==1||tff5==1){ busyy(); return true;
} } if(from==8&& to==7) { if(tff8==1||tff7==1){ busyy(); return true;
```

```
} } if(from==8&& to==6) { if(tff8==1||tff6==1){ busyy(); return true; } }
return false;
} @SuppressWarnings("empty-statement")
public int findfrom(){
this.from1s = from1f.getText();
int from1 = Integer.parseInt(from1s);
return from1; }
public int findto(){
this.to1s=to1f.getText();
int to1 = Integer.parseInt(to1s);
return to1; }
public void busyy(){
total=arrival;
clockf.setText(String.valueOf(total));
busy+=1;
processed+=1;
busyf.setText(String.valueOf(busy));
processedf.setText(String.valueOf(processed));
clearnewfield();}
public void clearnewfield(){
tof.setText("");
fromf.setText("");
lenf.setText("");
arrivalf.setText("");}
public void shift2to1(){
this.from2s =from2f.getText();
from1f.setText(from2s);
this.to2s =to2f.getText();
```

```
to1f.setText(to2s);
this.end2s =end2f.getText();
end1f.setText(end2s);
from2f.setText("");
to2f.setText("");
end2f.setText("");}
@SuppressWarnings("unchecked")
@SuppressWarnings("empty-statement")
private void enterActionPerformed(java.awt.event.ActionEvent evt) {
int small, f,t;
this.tf1s=tf1.getText();
this.tff1 = Integer.parseInt(tf1s);
this.tf2s=tf2.getText();
this.tff2 = Integer.parseInt(tf2s);
this.tf3s=tf3.getText();
this.tff3 = Integer.parseInt(tf3s);
this.tf4s=tf4.getText();
this.tff4 = Integer.parseInt(tf4s);
this.tf5s=tf5.getText();
this.tff5 = Integer.parseInt(tf5s);
this.tf6s=tf6.getText();
this.tff6 = Integer.parseInt(tf6s);
this.tf7s=tf7.getText();
this.tff7 = Integer.parseInt(tf7s);
this.tf8s=tf8.getText();
this.tff8 = Integer.parseInt(tf8s);
this.uses= usef.getText();
this.use=Integer.parseInt(uses);
```

```
this.clocks = clockf.getText();
this.clock = Integer.parseInt(clocks);
this.froms= fromf.getText();
this.from = Integer.parseInt(froms);
this.tos=tof.getText();
this.to = Integer.parseInt(tos);
this.lens=lenf.getText();
this.len = Integer.parseInt(lens);
this.arrivals=arrivalf.getText();
this.arrival = Integer.parseInt(arrivals);
System.out.println("The REQUEST:");
System.out.println(">>>>>=======Call History======<<<<<");
System.out.println("FROM:"+from+" TO:"+to+" LENGTH:"+len);
System.out.println("Arrival Time:"+arrival);
int var=arrival+len;
if (end1f != null) {
this.end1s = end1f.getText();
if (end1s == null || end1s.isEmpty()) {
this.end1 = 0;
}else{this.end1 = Integer.parseInt(end1s);}
} else {this.end1 = 0;}
if (end2f != null) {
this.end2s = end2f.getText();
if (end2s == null || end2s.isEmpty()) {
this.end2 = 0;
}else{ this.end2 = Integer.parseInt(end2s);}
} else {this.end2 = 0; }
if (end3f != null) {
```

```
this.end3s = end3f.getText();
if (end3s == null || end3s.isEmpty()) {
this.end3 = 0;
}else{ this.end3 = Integer.parseInt(end2s);}
} else {this.end3 = 0;}
clockf.setText(String.valueOf(clock));
usef.setText(String.valueOf(use));
//1st step
if(use==0){
from1f.setText(froms);
to1f.setText(tos);
end1f.setText(String.valueOf(var));
use=use+1;
usef.setText(String.valueOf(use));
up(this.from,this.to);
clearnewfield();
System.out.println(">>>>======First CALL IN STACK=====<<<<");
}
//use==1
else if(this.use==1){
int nearest = findNearest(total, arrival, end1);
if(nearest!=arrival ){
f=findfrom();
t=findto();
down(f,t);
total=end1;
clockf.setText(String.valueOf(total));
processed+=1;
```

```
completed+=1;
processedf.setText(String.valueOf(processed));
completedf.setText(String.valueOf(completed));
use=use-1;
usef.setText(String.valueOf(use));
System.out.println(">>>------Clearing Call------>>>>>");
}
else{if( check()==true){
System.out.println("-----Call Busy---------->>>>>>>");
}else{
from2f.setText(froms);
to2f.setText(tos);
end2f.setText(String.valueOf(var));
up(from,to);
use=use+1;
usef.setText(String.valueOf(use));
total=arrival;
clockf.setText(String.valueOf(total));
clearnewfield();
System.out.println(">>>>======Second CALL IN STACK=====<<<<");
}}}
//use==2
else if(this.use==2){
small = Math.min(end1,arrival);
int smaller=Math.min(end2, small);
if(small!=arrival ){
if(smaller!=end1){
from2s=from2f.getText();
```

```
f=Integer.parseInt(from2s);
to2s=to2f.getText();
t=Integer.parseInt(to2s);
down(f,t);
total=end2;
clockf.setText(String.valueOf(total));
processed+=1;
completed+=1;
processedf.setText(String.valueOf(processed));
completedf.setText(String.valueOf(completed));
use=use-1;
usef.setText(String.valueOf(use));
from2f.setText("");
to2f.setText("");
end2f.setText("");
System.out.println(">>>------Clearing Call------>>>>>");
}else{
f=findfrom();
t=findto();
down(f,t);
total=end1;
clockf.setText(String.valueOf(total));
processed+=1;
completed+=1;
processedf.setText(String.valueOf(processed));
completedf.setText(String.valueOf(completed));
use=use-1;
usef.setText(String.valueOf(use));
```

```
shift2to1();
System.out.println(">>>------Clearing Call------>>>>>");
}}else { if( check()==true){
System.out.println("-----Call Busy---------->>>>>>>");}
else{ from3f.setText(froms);
to3f.setText(tos);
end3f.setText(String.valueOf(var));
up(this.from,this.to);
use=use+1;
usef.setText(String.valueOf(use));
total=arrival;
clockf.setText(String.valueOf(total));
clearnewfield();
System.out.println(">>>>=====Third CALL IN STACK=====<<<<");
}}} else if(this.use==3){
small = Math.min(end3,Math.min(end2,Math.min(end1,arrival)));
if(small!=arrival){
int smaller=Math.min(end3,Math.min(end2, end1) );
if(smaller!=end1) {
int smallest=Math.min(end3, end2);
if(smallest!=end2){
from3s=from3f.getText();
f=Integer.parseInt(from3s);
to3s=to3f.getText();
t=Integer.parseInt(to3s);
down(f,t);
total=end3;
clockf.setText(String.valueOf(total));
```

```
processed+=1;
completed+=1;
processedf.setText(String.valueOf(processed));
completedf.setText(String.valueOf(completed));
use=use-1;
usef.setText(String.valueOf(use));
//clearing
from3f.setText("");
to3f.setText("");
end3f.setText("");
System.out.println(">>>------Clearing Call------>>>>>");
} else{
from2s=from2f.getText();
f=Integer.parseInt(from2s);
to2s=to2f.getText();
t=Integer.parseInt(to2s);
down(f,t);
total=end2;
clockf.setText(String.valueOf(total));
processed+=1;
completed+=1;
processedf.setText(String.valueOf(processed));
completedf.setText(String.valueOf(completed));
use=use-1;
usef.setText(String.valueOf(use));
this.from3s =from3f.getText();
from2f.setText(from3s);
this.to3s =to3f.getText();
```

```
to2f.setText(to3s);
this.end3s =end3f.getText();
end2f.setText(end3s);
//clearing 3rd field
from3f.setText("");
to3f.setText("");
end3f.setText("");
System.out.println(">>>------Clearing Call------>>>>>");
}} else{
f=findfrom();
t=findto();
down(f,t);
total=end1;
clockf.setText(String.valueOf(total));
processed+=1;
completed+=1;
processedf.setText(String.valueOf(processed));
completedf.setText(String.valueOf(completed));
use=use-1;
shift2to1();
this.from3s =from3f.getText();
from2f.setText(from3s);
this.to3s =to3f.getText();
to2f.setText(to3s);
this.end3s =end3f.getText();
end2f.setText(end3s);
//clearing
from3f.setText("");
```

```
to3f.setText("");
end3f.setText("");
System.out.println(">>>------Clearing Call------>>>>>");
}} else{
total=arrival;
clockf.setText(String.valueOf(total));
blocked+=1;
processed+=1;
blockedf.setText(String.valueOf(blocked));
processedf.setText(String.valueOf(processed));
clearnewfield();
System.out.println(">>>------Blocking Call------<<<");
}} }
private void enter1ActionPerformed(java.awt.event.ActionEvent evt) {
setVisible(false);
Indexframe secondFrame = new Indexframe();
secondFrame.setVisible(true); }
public static void main(String args[]) {
System.out.println("Welcome to Busy Call Telephone Simulation");
System.out.println(" Compiled by:Nishant shah(021-351)");
System.out.println();
System.out.println();
System.out.println();
java.awt.EventQueue.invokeLater(new Runnable() {
public void run() {
new busyphonesimulate().setVisible(true);}
});}
private javax.swing.JTextField arrivalf;
```

```
private javax.swing.JTextField blockedf;
private javax.swing.JTextField busyf;
private javax.swing.JTextField clockf;
private javax.swing.JTextField completedf;
private javax.swing.JTextField end1f;
private javax.swing.JTextField end2f;
private javax.swing.JTextField end3f;
private javax.swing.JButton enter;
private javax.swing.JButton enter1;
private javax.swing.JTextField from1f;
private javax.swing.JTextField from2f;
private javax.swing.JTextField from3f;
private javax.swing.JTextField fromf;
private javax.swing.JLabel jLabel1;
private javax.swing.JLabel jLabel10;
private javax.swing.JLabel jLabel11;
private javax.swing.JLabel jLabel12;
private javax.swing.JLabel jLabel13;
private javax.swing.JLabel jLabel14;
private javax.swing.JLabel jLabel15;
private javax.swing.JLabel jLabel16;
private javax.swing.JLabel jLabel17;
private javax.swing.JLabel jLabel18;
private javax.swing.JLabel jLabel19;
private javax.swing.JLabel jLabel2;
private javax.swing.JLabel jLabel20;
private javax.swing.JLabel jLabel21;
private javax.swing.JLabel jLabel24;
```

```
private javax.swing.JLabel jLabel25;
private javax.swing.JLabel jLabel26;
private javax.swing.JLabel jLabel27;
private javax.swing.JLabel jLabel28;
private javax.swing.JLabel jLabel29;
private javax.swing.JLabel jLabel3;
private javax.swing.JLabel jLabel31;
private javax.swing.JLabel jLabel4;
private javax.swing.JLabel jLabel5;
private javax.swing.JLabel jLabel6;
private javax.swing.JLabel jLabel7;
private javax.swing.JLabel jLabel8;
private javax.swing.JLabel jLabel9;
private javax.swing.JPanel jPanel1;
private javax.swing.JPanel jPanel2;
private javax.swing.JPanel jPanel3;
private javax.swing.JPanel jPanel4;
private javax.swing.JPanel jPanel5;
private javax.swing.JPanel jPanel6;
private javax.swing.JPanel jPanel7;
private javax.swing.JSeparator jSeparator1;
private javax.swing.JSeparator jSeparator2;
private javax.swing.JTextField lenf;
private javax.swing.JTextField maxnof;
private javax.swing.JTextField processedf;
private javax.swing.JTextField tf1;
private javax.swing.JTextField tf2;
private javax.swing.JTextField tf3;
```

```
    private javax.swing.JTextField tf4;
    private javax.swing.JTextField tf5;
    private javax.swing.JTextField tf6;
    private javax.swing.JTextField tf7;
    private javax.swing.JTextField tf8;
    private javax.swing.JTextField to1f;
    private javax.swing.JTextField to2f;
    private javax.swing.JTextField to3f;
    private javax.swing.JTextField tof;
    private javax.swing.JTextField usef;
    // End of variables declaration
}
//delay call
package telephonesimulator;
public class phonesimulator extends javax.swing.JFrame {
int processed,completed,blocked,busy;
String proces;String complete;String blocke;String bus;String uses;private int use;String clocks;private int
clock;private int total=clock;
String froms;private int from;String tos;private int to;String lens;private int len;String arrivals;private
int arrival;String from3s;private int from3;String from2s;private int from2;String from1s;private int
from1;String to1s;private int to1;String to2s;private int to2;String to3s;private int to3;String
end1s;private int end1;String end2s;private int end2;String end3s;private int end3;String tf1s;private
int tff1;String tf2s;private int tff2;String tf3s;private int tff3;String tf4s;private int tff4;String
tf5s;private int tff5;String tf6s;private int tff6;String tf7s;private int tff7;String tf8s;private int
tff8;String delayfrom1s;private int delayfrom1;String delayto1s;private int delayto1;String
delaylen1s;private int delaylen1;
public phonesimulator() {initComponents();}
```

```
public int findNearest(int target, int value1, int value2) {
int diff1 = Math.abs(target - value1);
int diff2 = Math.abs(target - value2);
return (diff1 < diff2) ? value1 : value2;}
public void down(int fromm,int too){
if(fromm==1)
{if( too==2){ tf1.setText("0"); tf2.setText("0");
}if(too==3){ tf1.setText("0"); tf3.setText("0");
}if(too==4){ tf1.setText("0"); tf4.setText("0");
}if(too==5){ tf1.setText("0"); tf5.setText("0");
}if(too==6){ tf1.setText("0"); tf6.setText("0");
}if(too==7){ tf1.setText("0"); tf7.setText("0");
}if(too==8){ tf1.setText("0"); tf8.setText("0");
}}
//label 2
if(fromm==2)
{if( too==1){ tf1.setText("0"); tf2.setText("0");
}if(fromm==3){ tf2.setText("0"); tf3.setText("0");
}if(too==4){ tf2.setText("0"); tf4.setText("0");
}if(too==5){ tf2.setText("0"); tf5.setText("0");
}if(too==6){ tf2.setText("0"); tf6.setText("0");
}if(too==7){ tf2.setText("0"); tf7.setText("0");
}if(too==8){ tf2.setText("0"); tf8.setText("0");
}}
//label-3
if(fromm==3)
{if( too==2){ tf3.setText("0"); tf2.setText("0");
}if(too==1){ tf1.setText("0"); tf3.setText("0");
```

```
}if(too==4){ tf3.setText("0"); tf4.setText("0");
}if(too==5){ tf3.setText("0"); tf5.setText("0");
}if(too==6){ tf3.setText("0"); tf6.setText("0");
}if(too==7){ tf3.setText("0"); tf7.setText("0");
}if(too==8){ tf8.setText("0"); tf6.setText("0");
}}
// label-4
if(fromm==4)
{if( too==2){ tf4.setText("0"); tf2.setText("0");
}if(too==3){ tf4.setText("0"); tf3.setText("0");
}if(too==1){ tf1.setText("0"); tf4.setText("0");
}if(too==5){ tf4.setText("0"); tf5.setText("0");
}if(too==6){ tf4.setText("0"); tf6.setText("0");
}if(too==7){ tf4.setText("0"); tf7.setText("0");
}if(too==8){ tf4.setText("0"); tf8.setText("0");
} }
// label-5
if(fromm==5)
{if( too==2){ tf5.setText("0"); tf2.setText("0");
}if(too==3){ tf5.setText("0"); tf3.setText("0");
}if(too==4){ tf5.setText("0"); tf4.setText("0");
}if(too==1){ tf1.setText("0"); tf5.setText("0");
}if(too==6){ tf5.setText("0"); tf6.setText("0");
}if(too==7){ tf5.setText("0"); tf7.setText("0");
}if(too==8){ tf5.setText("0"); tf8.setText("0");
}}
//label-6
if(fromm==6)
```

```
{if( too==2){ tf6.setText("0"); tf2.setText("0");
}if(too==3){ tf6.setText("0"); tf3.setText("0");
}if(too==4){ tf6.setText("0"); tf4.setText("0");
}if(too==5){ tf6.setText("0"); tf5.setText("0");
}if(too==1){ tf1.setText("0"); tf6.setText("0");
}if(too==7){ tf7.setText("0"); tf6.setText("0");
}if(too==8){ tf8.setText("0"); tf6.setText("0");
}}
if(fromm==7)
{if(too==1){ tf1.setText("0"); tf7.setText("0");
}if( too==2){ tf7.setText("0"); tf2.setText("0");
}if(too==3){ tf7.setText("0"); tf3.setText("0");
}if(too==4){ tf7.setText("0"); tf4.setText("0");
}if(too==5){ tf7.setText("0"); tf5.setText("0");
}if(too==6){ tf7.setText("0"); tf6.setText("0");
}if(too==8){ tf7.setText("0"); tf8.setText("0");
}}
if(fromm==8)
{if( too==1){ tf8.setText("0"); tf1.setText("0");
}if( too==2){ tf8.setText("0"); tf2.setText("0");
}if(too==3){ tf8.setText("0"); tf3.setText("0");
}if(too==4){ tf8.setText("0"); tf4.setText("0");
}if(too==5){ tf8.setText("0"); tf5.setText("0");
}if(too==6){ tf8.setText("0"); tf6.setText("0");
}if(too==7){ tf8.setText("0"); tf7.setText("0");
}}}
public void up(int fromm,int too){
if(fromm==1)
```

```
{if( too==2){ tf1.setText("1"); tf2.setText("1");
}if(too==3){ tf1.setText("1"); tf3.setText("1");
}if(too==4){ tf1.setText("1"); tf4.setText("1");
}if(too==5){ tf1.setText("1"); tf5.setText("1");
}if(too==6){ tf1.setText("1"); tf6.setText("1");
}if(too==7){ tf1.setText("1"); tf7.setText("1");
}if(too==8){ tf1.setText("1"); tf8.setText("1");
}}
//label 2
if(fromm==2)
{if( too==1){ tf1.setText("1"); tf2.setText("1");
}if(too==3){ tf2.setText("1"); tf3.setText("1");
}if(too==4){ tf2.setText("1"); tf4.setText("1");
}if(too==5){ tf2.setText("1"); tf5.setText("1");
}if(too==6){ tf2.setText("1"); tf6.setText("1");
}if(too==7){ tf2.setText("1"); tf7.setText("1");
}if(too==8){ tf2.setText("1"); tf8.setText("1");
}}
//label-3
if(fromm==3)
{if( too==2){ tf3.setText("1"); tf2.setText("1");
}if(too==1){ tf1.setText("1"); tf3.setText("1");
}if(too==4){ tf3.setText("1"); tf4.setText("1");
}if(too==5){ tf3.setText("1"); tf5.setText("1");
}if(too==6){ tf3.setText("1"); tf6.setText("1");
}if(too==7){ tf3.setText("1"); tf7.setText("1");
}if(too==8){ tf3.setText("1"); tf8.setText("1");
}}
```

```
// label-4
if(fromm==4)
{ if( too==2){ tf4.setText("1"); tf2.setText("1");
}if(too==3){ tf4.setText("1"); tf3.setText("1");
}if(too==1){ tf1.setText("1"); tf4.setText("1");
}if(too==5){ tf4.setText("1"); tf5.setText("1");
}if(too==6){ tf4.setText("1"); tf6.setText("1");
}if(too==7){ tf4.setText("1"); tf7.setText("1");
}if(too==8){ tf4.setText("1"); tf8.setText("1");
}}
// label-5
if(fromm==5) {if( too==2){ tf5.setText("1"); tf2.setText("1");
}if(too==3){ tf5.setText("1"); tf3.setText("1");
}if(too==4){ tf5.setText("1"); tf4.setText("1");
}if(too==1){ tf1.setText("1"); tf5.setText("1");
}if(too==6){ tf5.setText("1"); tf6.setText("1");
}if(too==7){ tf7.setText("1"); tf5.setText("1");
}if(too==8){ tf5.setText("1"); tf8.setText("1");
}}
if(fromm==6)
{if( too==2){ tf6.setText("1"); tf2.setText("1");
}if(too==3){ tf6.setText("1"); tf3.setText("1");
}if(too==4){ tf6.setText("1"); tf4.setText("1");
}if(too==5){ tf6.setText("1"); tf5.setText("1");
}if(too==1){ tf1.setText("1"); tf6.setText("1");
}if(too==7){ tf7.setText("1"); tf6.setText("1");
}if(too==8){ tf8.setText("1"); tf6.setText("1");
}}
```

```
if(fromm==7) {if(too==1){ tf1.setText("1"); tf7.setText("1");
}if( too==2){ tf7.setText("1"); tf2.setText("1");
}if(too==3){ tf7.setText("1"); tf3.setText("1");
}if(too==4){ tf7.setText("1"); tf4.setText("1");
}if(too==5){ tf7.setText("1"); tf5.setText("1");
} if(too==6){ tf7.setText("1"); tf6.setText("1");
}if(too==8){ tf7.setText("1"); tf8.setText("1");
} } if(fromm==8)
{if( too==1){ tf8.setText("1"); tf1.setText("1");
}if( too==2){ tf8.setText("1"); tf2.setText("1");
}if(too==3){ tf8.setText("1"); tf3.setText("1");
}if(too==4){ tf8.setText("1"); tf4.setText("1");
}if(too==5){ tf8.setText("1");tf5.setText("1");
}if(too==6){ tf8.setText("1"); tf6.setText("1");
}if(too==7){ tf8.setText("1"); tf7.setText("1");
}}}
@SuppressWarnings("empty-statement")
public boolean check(){
if(from==1 && to==2) { if(tff1==1 || tff2==1){ return true;}
}if(from==1 && to==3) { if(tff1==1||tff3==1){ return true; }
}if(from==1&& to==4) { if(tff1==1||tff4==1){ return true; }
}if(from==1&& to==5) { if(tff1==1 ||tff5==1){ return true; }
}if(from==1&& to==6) { if(tff1==1||tff6==1){ return true; }
}if(from==1&& to==7) { if(tff1==1||tff7==1){ return true; }
}if(from==1&& to==8) { if(tff1==1||tff8==1){ return true; }
}if(from==2&& to==1) { if(tff2==1||tff1==1){ return true;}
}if(from==2&& to==3) { if(tff2==1||tff3==1){ return true;}
}if(from==2&& to==4) { if(tff2==1||tff4==1){ return true;}
```

```
}if(from==2&& to==5) { if(tff2==1||tff5==1){ return true;}

}if(from==2&& to==6) { if(tff2==1||tff6==1){ return true; }

}if(from==2&& to==7) { if(tff2==1||tff7==1){ return true; }

}if(from==2&& to==8) { if(tff2==1||tff8==1){ return true; }

}if(from==3&& to==1) { if(tff3==1||tff1==1){ return true;}

}if(from==3&& to==2) { if(tff3==1||tff2==1){ return true;}

}if(from==3&& to==4) { if(tff3==1||tff4==1){ return true; }

}if(from==3&& to==5) { if(tff3==1||tff5==1){ return true; }

}if(from==3 &&to==6) { if(tff3==1|| tff6==1){ return true;}

}if(from==3 &&to==7) { if(tff3==1|| tff7==1){ return true;}

}if(from==3 &&to==8) { if(tff3==1|| tff8==1){ return true;}

}if(from==4&& to==1) { if(tff4==1||tff1==1){ return true; }

}if(from==4&& to==2) { if(tff4==1||tff2==1){ return true;}

}if(from==4&& to==3) { if(tff4==1||tff3==1){ return true; }

}if(from==4&& to==5) { if(tff4==1||tff5==1){ return true;}

}if(from==4&& to==6) { if(tff4==1||tff6==1){ return true; }

}if(from==4&&to==7){if(tff4==1||tff7==1){returntrue;}
}if(from==4&&to==8){if(tff4==1||tff8==1){returntrue;}
}if(from==5&&to==1){if(tff5==1||tff1==1){returntrue;}
}if(from==5&&to==2){if(tff5==1||tff2==1){returntrue;}
}if(from==5&&to==3){if(tff5==1||tff3==1){returntrue;}
}if(from==5&&to==4){if(tff5==1&&tff4==1){returntrue;}
}if(from==5&&to==6){if(tff5==1||tff6==1){returntrue;}
}if(from==5&&to==7){if(tff5==1||tff7==1){returntrue;}
}if(from==5&&to==8){if(tff5==1||tff8==1){returntrue;}
}if(from==6&&to==1){if(tff6==1||tff1==1){returntrue;}
}if(from==6&&to==2){if(tff6==1||tff2==1){returntrue;}
}if(from==6&&to==3){if(tff6==1||tff3==1){returntrue;}
}if(from==6&&to==4){if(tff6==1||tff4==1){returntrue;}
}if(from==6&&to==5){if(tff6==1||tff5==1){returntrue;}

}if(from==6&&to==7){if(tff6==1||tff7==1){returntrue;}

 }if(from==6&&to==8){if(tff6==1||tff8==1){returntrue;}

 }if(from==7&&to==1){if(tff7==1||tff1==1){returntrue;}
}if(from==7&&to==2){if(tff7==1||tff2==1){returntrue;}
```

```
}if(from==7&&to==3){if(tff7==1||tff3==1){returntrue;}
}if(from==7&&to==4){if(tff7==1||tff4==1){returntrue;}
}if(from==7&&to==5){if(tff7==1||tff5==1){returntrue;}

 }if(from==7&&to==6){if(tff7==1||tff6==1){returntrue;}

}if(from==7&&to==8){if(tff7==1||tff8==1){returntrue;}

}if(from==8&&to==1){if(tff8==1||tff1==1){returntrue;}
}if(from==8&&to==2){if(tff8==1||tff2==1){returntrue;}
}if(from==8&&to==3){if(tff8==1||tff3==1){returntrue;}
}if(from==8&&to==4){if(tff8==1||tff4==1){returntrue;}
}if(from==8&&to==5){if(tff8==1||tff5==1){returntrue;}

 } if(from==8&& to==7) { if(tff8==1||tff7==1){ return true;}

} if(from==8&& to==6) { if(tff8==1||tff6==1){ return true; } }

return false; }

public int findfrom(){

this.from1s = from1f.getText();

int from1 = Integer.parseInt(from1s);

return from1;

}public int findto(){

this.to1s=to1f.getText();

int to1 = Integer.parseInt(to1s);

return to1;

}public void busyy(){

total=arrival;

clockf.setText(String.valueOf(total));

busy+=1;

processed+=1;

busyf.setText(String.valueOf(busy));

processedf.setText(String.valueOf(processed));

clearnewfield();

}public void clearnewfield(){

tof.setText("");
```

```
fromf.setText("");
lenf.setText("");
arrivalf.setText("");
}public void shift2to1(){
this.from2s =from2f.getText();
from1f.setText(from2s);
this.to2s =to2f.getText();
to1f.setText(to2s);
this.end2s =end2f.getText();
end1f.setText(end2s);
from2f.setText("");
to2f.setText("");
end2f.setText("");
} @SuppressWarnings("unchecked")
private void enterActionPerformed(java.awt.event.ActionEvent evt) {
int small, f,t;
this.tf1s=tf1.getText();
this.tff1 = Integer.parseInt(tf1s);
this.tf2s=tf2.getText();
this.tff2 = Integer.parseInt(tf2s);
this.tf3s=tf3.getText();
this.tff3 = Integer.parseInt(tf3s);
this.tf4s=tf4.getText();
this.tff4 = Integer.parseInt(tf4s);
this.tf5s=tf5.getText();
this.tff5 = Integer.parseInt(tf5s);
this.tf6s=tf6.getText();
this.tff6 = Integer.parseInt(tf6s);
```

```
this.tf7s=tf7.getText();
this.tff7 = Integer.parseInt(tf7s);
this.tf8s=tf8.getText();
this.tff8 = Integer.parseInt(tf8s);
//inuse clock
this.uses= usef.getText();
this.use=Integer.parseInt(uses);
this.clocks = clockf.getText();
this.clock = Integer.parseInt(clocks);
//new calls
this.froms= fromf.getText();
this.from = Integer.parseInt(froms);
this.tos=tof.getText();
this.to = Integer.parseInt(tos);
this.lens=lenf.getText();
this.len = Integer.parseInt(lens);
this.arrivals=arrivalf.getText();
this.arrival = Integer.parseInt(arrivals);
System.out.println("The REQUEST:");
System.out.println(">>>>>========Call History======<<<<<");
System.out.println("FROM:"+from+" TO:"+to+" LENGTH:"+len);
System.out.println("Arrival Time:"+arrival);
int var=arrival+len;
if (end1f != null) {
this.end1s = end1f.getText();
if (end1s == null || end1s.isEmpty()) {
this.end1 = 0;
}else{this.end1 = Integer.parseInt(end1s);}
```

```
} else {this.end1 = 0;}
if (end2f != null) {
this.end2s = end2f.getText();
if (end2s == null || end2s.isEmpty()) {
this.end2 = 0;
}else{ this.end2 = Integer.parseInt(end2s);}
} else {this.end2 = 0; }
if (end3f != null) {
this.end3s = end3f.getText();
if (end3s == null || end3s.isEmpty()) {
this.end3 = 0;
}else{ this.end3 = Integer.parseInt(end2s);}
} else {this.end3 = 0;}
clockf.setText(String.valueOf(clock));
usef.setText(String.valueOf(use));
//1st step
if(use==0){
from1f.setText(froms);
to1f.setText(tos);
end1f.setText(String.valueOf(var));
use=use+1;
usef.setText(String.valueOf(use));
up(this.from,this.to);
clearnewfield();
System.out.println(">>>>======First CALL IN STACK=====<<<<");
}
//use==1
else if(this.use==1){
```

```
int nearest = findNearest(total, arrival, end1);
if(nearest!=arrival ){
f=findfrom();
t=findto();
down(f,t);
total=end1;
clockf.setText(String.valueOf(total));
processed+=1;
completed+=1;
processedf.setText(String.valueOf(processed));
completedf.setText(String.valueOf(completed));
use=use-1;
usef.setText(String.valueOf(use));
System.out.println(">>>------Clearing Call------>>>>>");
} else{if( check()==true){
System.out.println("-----Call Busy---------->>>>>>>");
}else{
from2f.setText(froms);
to2f.setText(tos);
end2f.setText(String.valueOf(var));
up(from,to);
use=use+1;
usef.setText(String.valueOf(use));
total=arrival;
clockf.setText(String.valueOf(total));
clearnewfield();
System.out.println(">>>>=====Second CALL IN STACK=====<<<<");
}}}
```

```
//use==2
else if(this.use==2){
small = Math.min(end1,arrival);
int smaller=Math.min(end2, small);
if(small!=arrival ){
if(smaller!=end1){
from2s=from2f.getText();
f=Integer.parseInt(from2s);
to2s=to2f.getText();
t=Integer.parseInt(to2s);
down(f,t);
total=end2;
clockf.setText(String.valueOf(total));
processed+=1;
completed+=1;
processedf.setText(String.valueOf(processed));
completedf.setText(String.valueOf(completed));
use=use-1;
usef.setText(String.valueOf(use));
from2f.setText("");
to2f.setText("");
end2f.setText("");
System.out.println(">>>------Clearing Call------>>>>>");
}else{
f=findfrom();
t=findto();
down(f,t);
total=end1;
```

```
clockf.setText(String.valueOf(total));
processed+=1;
completed+=1;
processedf.setText(String.valueOf(processed));
completedf.setText(String.valueOf(completed));
use=use-1;
usef.setText(String.valueOf(use));
shift2to1();
System.out.println(">>>------Clearing Call------>>>>>");
}}else{
if( check()==true){
System.out.println("-----Call Busy---------->>>>>>>");}
else{
from3f.setText(froms);
to3f.setText(tos);
end3f.setText(String.valueOf(var));
up(this.from,this.to);
use=use+1;
usef.setText(String.valueOf(use));
total=arrival;
clockf.setText(String.valueOf(total));
clearnewfield();
System.out.println(">>>>=====Third CALL IN STACK=====<<<<");
}}} else if(this.use==3){
small = Math.min(end3,Math.min(end2,Math.min(end1,arrival)));
if(small!=arrival){
int smaller=Math.min(end3,Math.min(end2, end1) );
if(smaller!=end1) {
```

```
int smallest=Math.min(end3, end2);
if(smallest!=end2){
from3s=from3f.getText();
f=Integer.parseInt(from3s);
to3s=to3f.getText();
t=Integer.parseInt(to3s);
down(f,t);
total=end3;
clockf.setText(String.valueOf(total));
processed+=1;
completed+=1;
processedf.setText(String.valueOf(processed));
completedf.setText(String.valueOf(completed));
use=use-1;
usef.setText(String.valueOf(use));
//clearing
from3f.setText("");
to3f.setText("");
end3f.setText("");
System.out.println(">>>------Clearing Call------>>>>>");
}else{from2s=from2f.getText();
f=Integer.parseInt(from2s);
to2s=to2f.getText();
t=Integer.parseInt(to2s);
down(f,t);
total=end2;
clockf.setText(String.valueOf(total));
processed+=1;
```

```
completed+=1;
processedf.setText(String.valueOf(processed));
completedf.setText(String.valueOf(completed));
use=use-1;
usef.setText(String.valueOf(use));
this.from3s =from3f.getText();
from2f.setText(from3s);
this.to3s =to3f.getText();
to2f.setText(to3s);
this.end3s =end3f.getText();
end2f.setText(end3s);
//clearing 3rd field
from3f.setText("");
to3f.setText("");
end3f.setText("");
System.out.println(">>>------Clearing Call------>>>>>");
}}else{ f=findfrom();
t=findto();
down(f,t);
total=end1;
clockf.setText(String.valueOf(total));
processed+=1;
completed+=1;
processedf.setText(String.valueOf(processed));
completedf.setText(String.valueOf(completed));
use=use-1;
shift2to1();
this.from3s =from3f.getText();
```

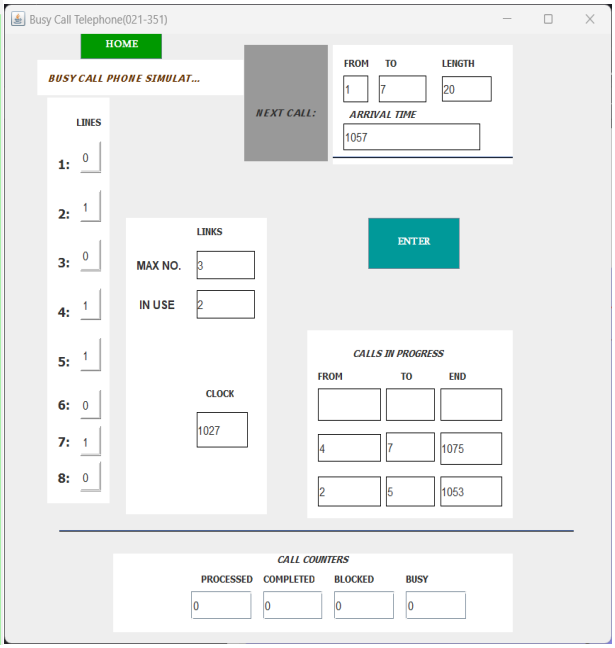
```
from2f.setText(from3s);
this.to3s =to3f.getText();
to2f.setText(to3s);
this.end3s =end3f.getText();
end2f.setText(end3s);
from3f.setText("");
to3f.setText("");
end3f.setText("");
System.out.println(">>>------Clearing Call------>>>>>");
}}else{ total=arrival;
clockf.setText(String.valueOf(total));
blocked+=1;
processed+=1;
blockedf.setText(String.valueOf(blocked));
processedf.setText(String.valueOf(processed));
clearnewfield();
System.out.println(">>>------Blocking Call------<<<");
}} }
private void enter1ActionPerformed(java.awt.event.ActionEvent evt) {
setVisible(false);
Indexframe secondFrame = new Indexframe();
secondFrame.setVisible(true);
}
public static void main(String args[]) {
System.out.println("Welcome to Busy Call Telephone Simulation");
System.out.println(" Compiled by:Nishant Shah(021-351)");
java.awt.EventQueue.invokeLater(new Runnable() {
public void run() {
```

```
new busyphonesimulate().setVisible(true);}
});}
  private javax.swing.JTextField arrivalf;
    private javax.swing.JTextField blockedf;
    private javax.swing.JTextField busyf;
    private javax.swing.JTextField clockf;
    private javax.swing.JTextField completedf;
    private javax.swing.JTextField delayfrom1f;
    private javax.swing.JTextField delayfrom2f;
    private javax.swing.JTextField delaylen1f;
    private javax.swing.JTextField delaylen2f;
    private javax.swing.JTextField delayto1f;
    private javax.swing.JTextField delayto2f;
    private javax.swing.JTextField end1f;
    private javax.swing.JTextField end2f;
    private javax.swing.JTextField end3f;
    private javax.swing.JTextField from1f;
    private javax.swing.JTextField from2f;
    private javax.swing.JTextField from3f;
    private javax.swing.JTextField fromf;
    private javax.swing.JButton jButton2;
    private javax.swing.JButton jButton3;
    private javax.swing.JLabel jLabel1;
    private javax.swing.JLabel jLabel10;
    private javax.swing.JLabel jLabel11;
    private javax.swing.JLabel jLabel12;
    private javax.swing.JLabel jLabel13;
    private javax.swing.JLabel jLabel14;
```

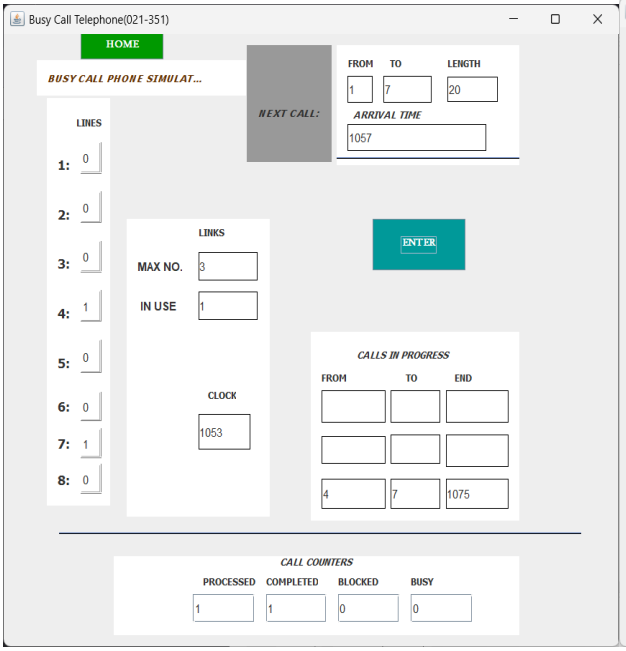
```
private javax.swing.JLabel jLabel15;
private javax.swing.JLabel jLabel16;
private javax.swing.JLabel jLabel17;
private javax.swing.JLabel jLabel18;
private javax.swing.JLabel jLabel19;
private javax.swing.JLabel jLabel2;
private javax.swing.JLabel jLabel20;
private javax.swing.JLabel jLabel21;
private javax.swing.JLabel jLabel22;
private javax.swing.JLabel jLabel23;
private javax.swing.JLabel jLabel24;
private javax.swing.JLabel jLabel25;
private javax.swing.JLabel jLabel26;
private javax.swing.JLabel jLabel27;
private javax.swing.JLabel jLabel28;
private javax.swing.JLabel jLabel29;
private javax.swing.JLabel jLabel3;
private javax.swing.JLabel jLabel30;
private javax.swing.JLabel jLabel31;
private javax.swing.JLabel jLabel32;
private javax.swing.JLabel jLabel4;
private javax.swing.JLabel jLabel5;
private javax.swing.JLabel jLabel6;
private javax.swing.JLabel jLabel7;
private javax.swing.JLabel jLabel8;
private javax.swing.JLabel jLabel9;
private javax.swing.JPanel jPanel1;
private javax.swing.JPanel jPanel2;
```

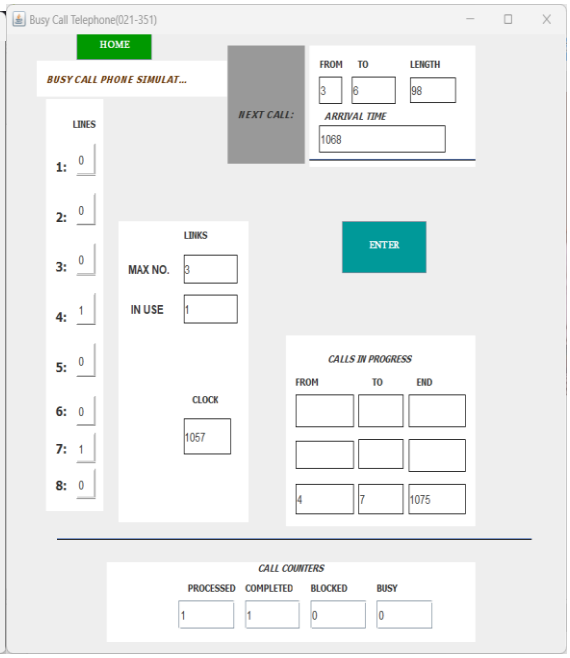
```
    private javax.swing.JPanel jPanel3;
    private javax.swing.JPanel jPanel4;
    private javax.swing.JPanel jPanel5;
    private javax.swing.JPanel jPanel6;
    private javax.swing.JPanel jPanel7;
    private javax.swing.JSeparator jSeparator1;
    private javax.swing.JSeparator jSeparator2;
    private javax.swing.JTextField lenf;
    private javax.swing.JTextField maxnof;
    private javax.swing.JTextField processedf;
    private javax.swing.JTextField tf1;
    private javax.swing.JTextField tf2;
    private javax.swing.JTextField tf3;
    private javax.swing.JTextField tf4;
    private javax.swing.JTextField tf5;
    private javax.swing.JTextField tf6;
    private javax.swing.JTextField tf7;
    private javax.swing.JTextField tf8;
    private javax.swing.JTextField to1f;
    private javax.swing.JTextField to2f;
    private javax.swing.JTextField to3f;
    private javax.swing.JTextField tof;
    private javax.swing.JTextField usef;
    // End of variables declaration
}
```

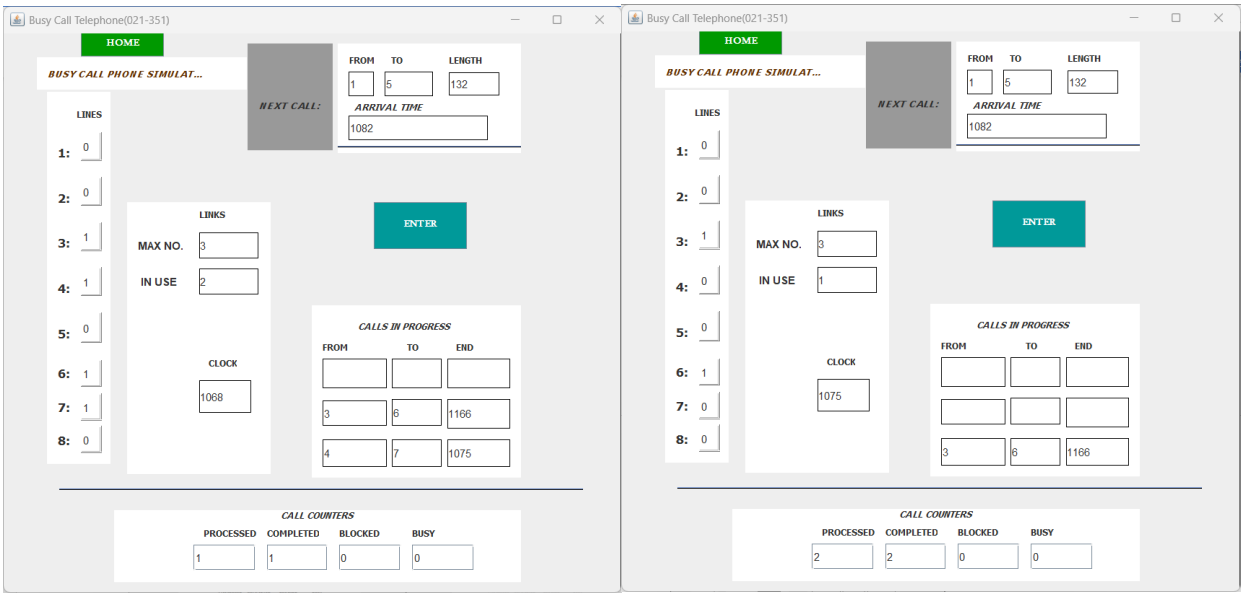

HOME(Telephone Simulation)
WELCOME TO TELEPHONE SIMULATION SYSTEM
choose one to proceed:
BUSY CALL PHONE SIMULATION
DELAY CALL PHONE SIMULATION
Compiled By:
nishant shah (021-351)
NEPAL ENGINEERING COLLEGE
nec
1994


Busy Call Telephone(021-351)
HOME
BUSY CALL PHONE SIMULAT...
NEXT CALL:
FROM TO LENGTH
1 7 20
ARRIVAL TIME
1057
LINES
1: 0
2: 1
3: 0
4: 1
5: 1
6: 0
7: 1
8: 0
LINKS
MAX NO. 3
IN USE 2
ENTER
CLOCK
1027
CALLS IN PROGRESS
FROM TO END
4 7 1075
2 5 1053
CALL COUNTERS
PROCESSED COMPLETED BLOCKED BUSY
0 0 0 0

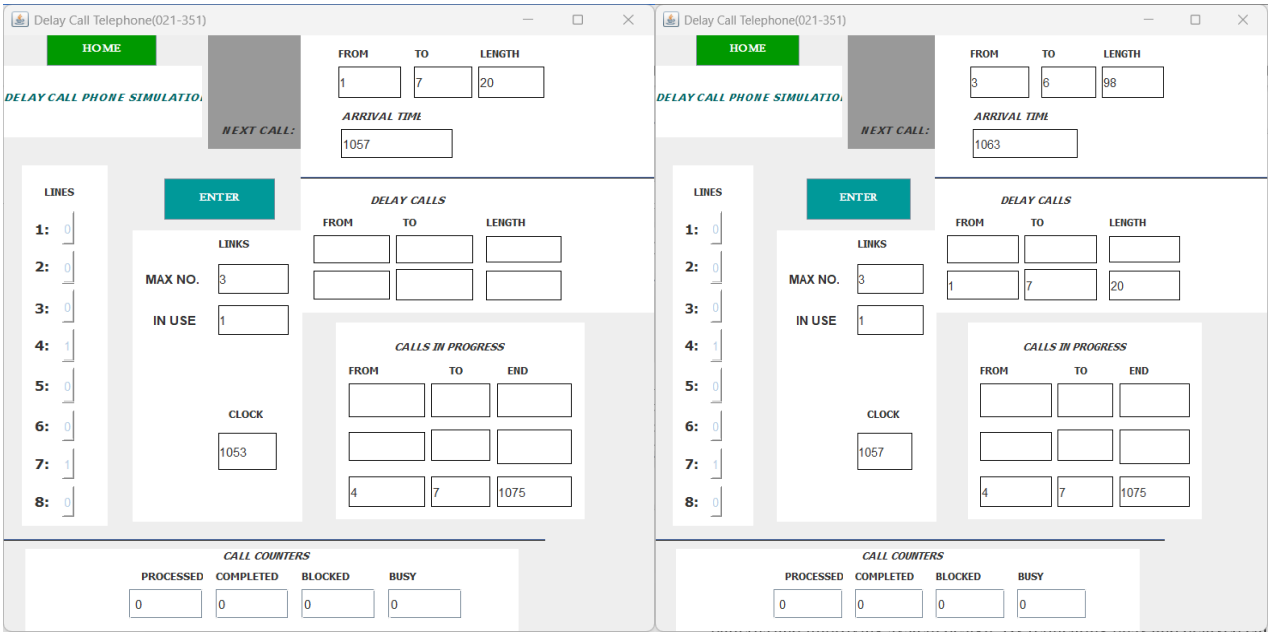
//busy call

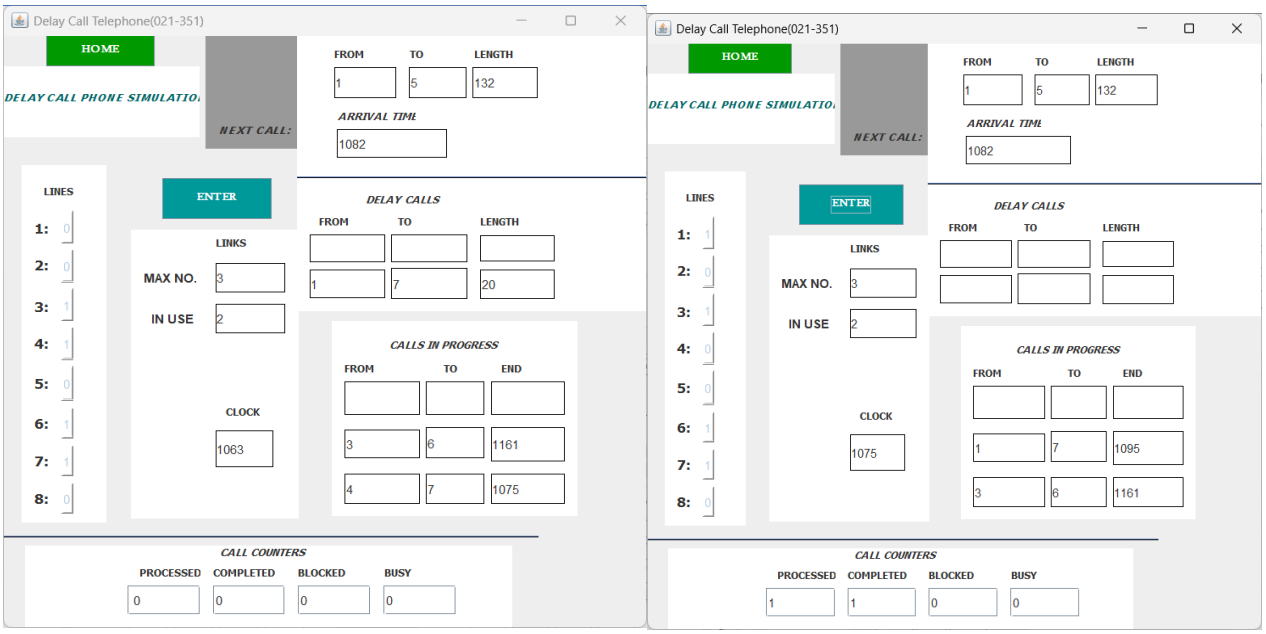

Busy Call Telephone(021-351)
HOME
BUSY CALL PHONE SIMULAT...
NEXT CALL:
FROM TO LENGTH
1 7 20
ARRIVAL TIME
1057
LINES
1: 0
2: 0
3: 0
4: 1
5: 0
6: 0
7: 1
8: 0
LINKS
MAX NO. 3
IN USE 1
ENTER
CLOCK
1053
CALLS IN PROGRESS
FROM TO END
4 7 1075
CALL COUNTERS
PROCESSED COMPLETED BLOCKED BUSY
1 1 0 0

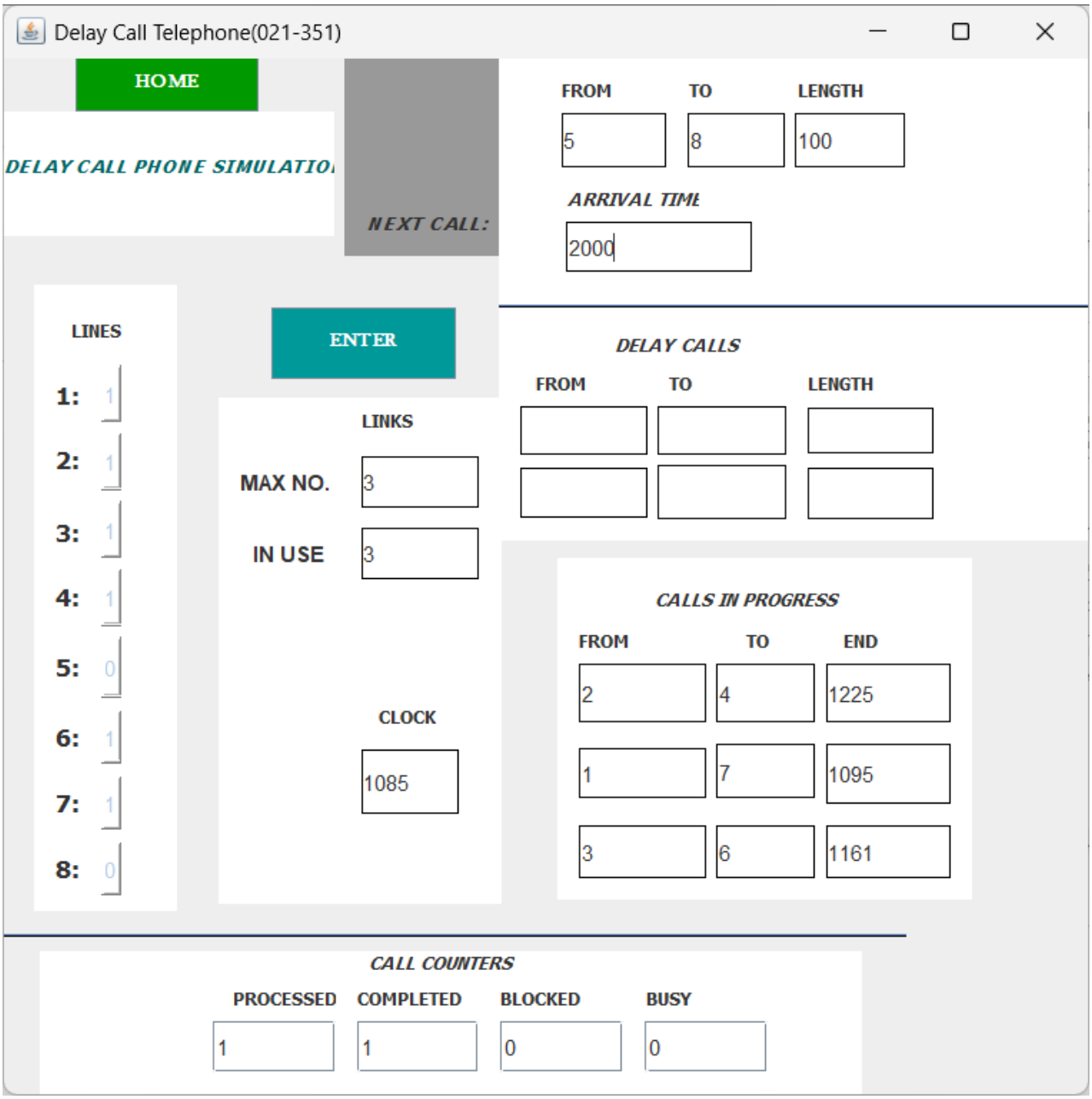

Busy Call Telephone(021-351)
HOME
BUSY CALL PHONE SIMULAT...
NEXT CALL:
FROM TO LENGTH
3 6 98
ARRIVAL TIME
1068
LINES
1: 0
2: 0
3: 0
4: 1
5: 0
6: 0
7: 1
8: 0
LINKS
MAX NO. 3
IN USE 1
ENTER
CLOCK
1057
CALLS IN PROGRESS
FROM TO END
4 7 1075
CALL COUNTERS
PROCESSED COMPLETED BLOCKED BUSY
1 1 0 0




//delay call next




Delay Call Telephone(021-351)
HOME
DELAY CALL PHONE SIMULATIO
NEXT CALL:
FROM
TO
LENGTH
1
5
132
ARRIVAL TIME
1082
LINES
1: 0
2: 0
3: 1
4: 1
5: 0
6: 1
7: 1
8: 0
ENTER
LINKS
MAX NO. 3
IN USE 2
CLOCK
1063
DELAY CALLS
FROM TO LENGTH
1 7 20
CALLS IN PROGRESS
FROM TO END
3 6 1161
4 7 1075
CALL COUNTERS
PROCESSED COMPLETED BLOCKED BUSY
0 0 0 0
Delay Call Telephone(021-351)
HOME
DELAY CALL PHONE SIMULATIO
NEXT CALL:
FROM
TO
LENGTH
1
5
132
ARRIVAL TIME
1082
LINES
1: 1
2: 0
3: 1
4: 0
5: 0
6: 1
7: 1
8: 0
ENTER
LINKS
MAX NO. 3
IN USE 2
CLOCK
1075
DELAY CALLS
FROM TO LENGTH
CALLS IN PROGRESS
FROM TO END
1 7 1095
3 6 1161
CALL COUNTERS
PROCESSED COMPLETED BLOCKED BUSY
1 1 0 0




CONCLUSION:

The telephone simulation serves as a valuable tool for understanding call traffic patterns and improving system design. By replicating busy and delayed call scenarios, it provides insights into optimizing telecommunication systems for better user experience and resource utilization. simple telephone call simulator is made which connects two calls if link is available and notifies that the link is busy if the link is busy and drops the call. We have counter where processes, busy, completed and blocked is update.