DON BOSCO INSTITUTE OF TECHNOLOGY

Skill Lab: C++ and Java Programming
MINI PROJECT REPORT

On

“ OTP GENERATOR ”
2021-22

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Mini Project Title : OTP GENERATOR

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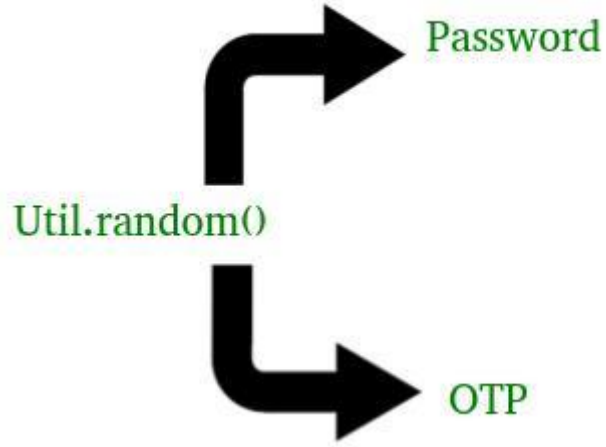
CHAPTER 1: INTRODUCTION

You may go through Generate a One Time Password or Unique Identification URL article before this for better understanding.



Many a time we forget our passwords and we opt for Forget password option and within no time we get a new password at our registered email-ID or phone no. to login our account. And every time we get a different password.

The following code explains how to generate such Passwords and OTP within no time and what code we can use if in case we need to do so.

OTP generator makes work easy also it helps to protect our online bank transactions as well as it helps to check whether if we can get access to our lost accounts also OTP helps to maintain privacy and security of our system so that no one can access our system without confirming OTP.

CHAPTER 2: PROBLEM DEFINATION

Nowadays **Authentication** is the process of identifying and validating an individual is the rudimentary step before granting access to any protected service. **Authentication** has been built into the **cyber security standards** and offers to prevent unauthorized access to safeguarded resources. Authentication mechanisms today create a **double layer** gateway prior to unlocking any protected information.

This double layer of security, followed by creation and validation of the **One Time Password (OTP)**. The OTP is a numeric code that is randomly and uniquely generated during each authentication event. This adds an additional layer of security, as the password generated is fresh set of digits each time an authentication is attempted and it offers the quality of being unpredictable for the next created session.

Our Problem definition is that, to make OTP generator which will generate the OTP to any software application lets take an example for educational app, to make use of study material in it you have to make an account by entering the details and at last to generate the OTP and after verifying you will get logged in to the app.

So, we have created the system by using some validations, where it will generate the OTP during authentication and after entering it user can easily log in to the any application.

CHAPTER 3: IMPLEMENTATION

Our Code For OTP Generator is as Follows:-

```
import javax.swing.*;
                                import java.awt.event.*;
                                import java.awt.*;
                                class Firstpage implements ActionListener
                                {
                                JFrame fr;
                                JButton b1,b2;

                                Firstpage()
                                {
                                fr=new JFrame();
                                fr.setLayout(null);
                                fr.setSize(600,600);
                                fr.setTitle("--JAVA MINI PROJECT--");
                                Container c=fr.getContentPane();

                                b1=new JButton("Login");
                                b1.setBounds(150,250,100,30);
                                fr.add(b1);
                                b2=new JButton("Signup");
                                b2.setBounds(300,250,100,30);
                                fr.add(b2);
                                b1.addActionListener(this);
                                b2.addActionListener(this);
                                fr.setVisible(true);
                                }
                                public static void main(String s[])
                                {
                                new Firstpage();
                                }
                                public void actionPerformed(ActionEvent e)
                                {
                                if (e.getSource()==b1){
                                login pages = new login();
                                }

                                else if (e.getSource()==b2){
                                register pages = new register();
                                }
```

```
                                }
                                }
import javax.swing.*;
                                                        import java.awt.*;
                                import java.awt.event.*;

                                class Verification extends JFrame implements ActionListener
                                {
                                JButton b1;
                                JPanel newPanel;
                                JLabel otpLabel;
                                JTextField textField;

                                Verification()
                                {
                                otpLabel = new JLabel();
                                otpLabel.setText("Enter OTP");
                                textField = new JTextField(15);
                                b1 = new JButton("SUBMIT");
                                b1.addActionListener(this);
                                newPanel = new JPanel(new GridLayout(3, 1));
                                newPanel.add(otpLabel);
                                newPanel.add(textField);
                                newPanel.add(b1);

                                add(newPanel, BorderLayout.CENTER);

                                setTitle("Verification Page");
                                }

                                public void actionPerformed(ActionEvent ae)
                                {
                                String user = textField.getText();
                                JOptionPane.showMessageDialog(this, "Sucessful login");
                                dispose();
                                content pages = new content();
                                }

                                public static void main(String arg[])
                                {
                                Verification form = new Verification();
                                form.setVisible(true); //make form visible to the user

                                            }
                                            }
import javax.swing.*;
                                                    import java.awt.event.*;
                                                    import java.awt.*;
                                                    class content
                                {
```

```
JFrame fr;
JButton bu1,bu2,bu3,bu4,bu5,bu6,bu7,bu8;

content()
{
fr=new JFrame();
fr.setLayout(null);
fr.setSize(600,600);
fr.setTitle("Registration Page");
Container c=fr.getContentPane();

bu1=new JButton("SEM 1 Syallbus");
bu1.setBounds(170,30,200,30);
fr.add(bu1);

bu2=new JButton("SEM 2 Syallbus");
bu2.setBounds(170,90,200,30);
fr.add(bu2);

bu3=new JButton("SEM 3 Syallbus");
bu3.setBounds(170,150,200,30);
fr.add(bu3);

bu4=new JButton("SEM 4 Syallbus");
bu4.setBounds(170,210,200,30);
fr.add(bu4);

bu5=new JButton("SEM 5 Syallbus");
bu5.setBounds(170,270,200,30);
fr.add(bu5);

bu6=new JButton("SEM 6 Syallbus");
bu6.setBounds(170,330,200,30);
fr.add(bu6);


bu7=new JButton("SEM 7 Syallbus");
bu7.setBounds(170,390,200,30);
fr.add(bu7);


bu8=new JButton("SEM 8 Syallbus");
bu8.setBounds(170,450,200,30);
fr.add(bu8);

            fr.setVisible(true);
            }
            public static void main(String s[])
            {
            new content();
}
```

```
                                }
import javax.swing.*;
                                        import java.awt.event.*;
                                        import java.awt.*;
                                        class login implements ActionListener
                                        {
                                        JFrame fr;
                                        JLabel lb1,lb2;
                                        JButton b1;
                                        JTextField textField1, textField2;

                                        login()
                                        {
                                        fr=new JFrame();
                                        fr.setLayout(null);
                                        fr.setSize(600,600);
                                        fr.setTitle("Login Page");
                                        Container c=fr.getContentPane();

                                        lb1=new JLabel("Username");
                                        lb1.setBounds(150,150,400,30);
                                        fr.add(lb1);

                                        textField1 = new JTextField(15);
                                        textField1.setBounds(300,150,150,30);
                                        fr.add(textField1);

                                        lb2=new JLabel("Password");
                                        lb2.setBounds(150,300,100,30);
                                        fr.add(lb2);
                                        textField2=new JTextField(15);
                                        textField2.setBounds(300,300,150,30);
                                        fr.add(textField2);


                                        b1=new JButton("Generate OTP");
                                        b1.setBounds(180,450,200,30);
                                        fr.add(b1);
                                        ;
                                        b1.addActionListener(this);
                                        fr.setVisible(true);
                                        }
                                        public static void main(String s[])
                                {
                                new login();
                                }
                                public void actionPerformed(ActionEvent e)
                                {
                                otp page = new otp(1);
                                }
```

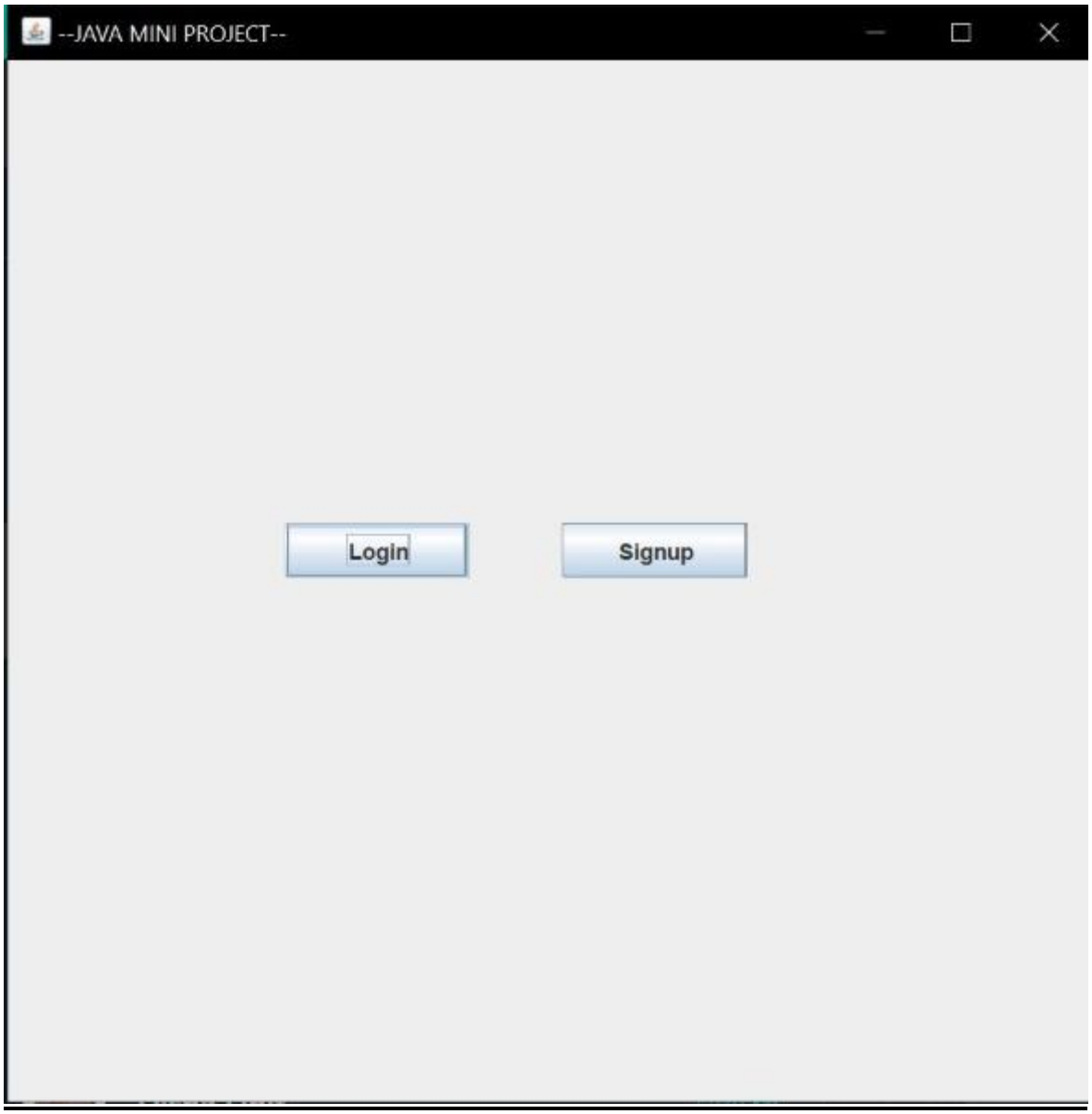
```
                                }
import java.util.Random;
                                        import javax.swing.*;
                                        import java.awt.*;
                                        import java.awt.event.*;

                                        class otp extends JFrame implements ActionListener
                                        {
                                        JButton b3;
                                        otp(Integer length)

                                        {
                                        char[] otp1 = generateOTP(length);
                                        setSize(300,100);
                                        setTitle("OTP FOR VERIFICATION");
                                        JLabel l = new JLabel("Your OTP : ");
                                        add(l);
                                        JTextField tf = new JTextField(otp1.toString());
                                        add(tf);
                                        b3 = new JButton("Ok");
                                        add(b3);
                                        b3.addActionListener(this);
                                        setLayout(new FlowLayout());
                                        setVisible(true);
                                        }

                                        private static char[] generateOTP(int length)
                                        {
                                        String numbers = "123456789";
                                        Random random = new Random();
                                        char[] otp1 = new char[length];

                                        for(int i = 0;i < length;i++)
                                        {
                                        otp1[i] =
                                        numbers.charAt(random.nextInt(numbers.length()));
                                        }

                                        return otp1;
                                        }

                                        public void actionPerformed(ActionEvent ae)
                                        {
                                dispose();
                                Verification pages = new Verification();
                                pages.setSize(300,100);
                                pages.setVisible(true);
                                pages.setLocationRelativeTo(null);
                                }
                                public static void main(String args[])
```

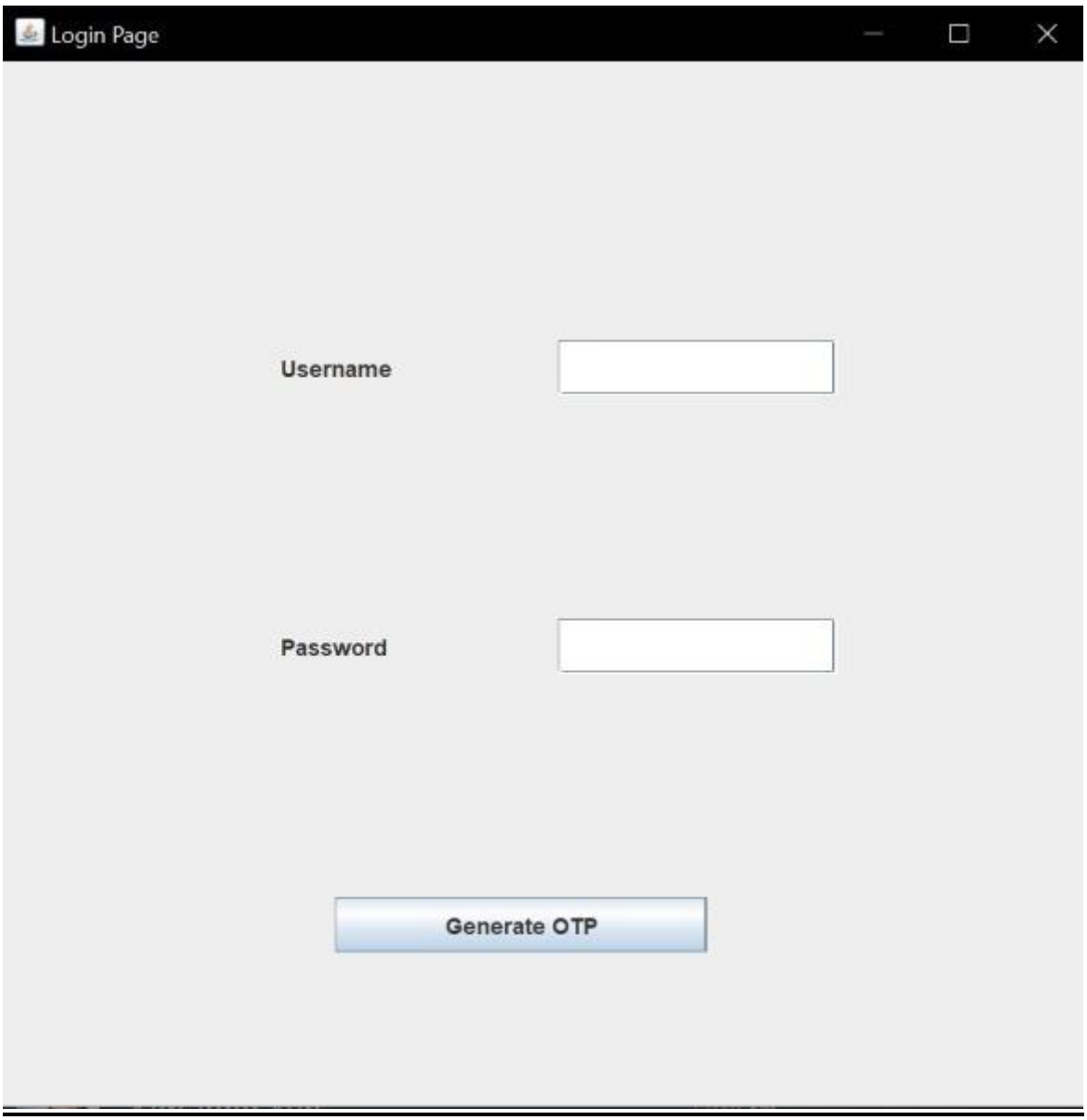
```
                                {
                                new otp(1);
                                }
                                }

lb3=new JLabel("Create
Password");
                                 lb3.setBounds(150,120,100,30);
                                 fr.add(lb3);
                                 textField3=new JTextField(15);
                                 textField3.setBounds(290,120,150,30);
                                 fr.add(textField3);


                                 lb4=new JLabel("Confirm Password");
                                 lb4.setBounds(150,190,150,30);
                                 fr.add(lb4);
                                 textField4=new JTextField(15);
                                 textField4.setBounds(290,190,150,30);
                                 fr.add(textField4);

                                 lb5=new JLabel("Country ");
                                 lb5.setBounds(150,260,150,30);
                                 fr.add(lb5);
                                 textField5=new JTextField(15);
                                 textField5.setBounds(290,260,150,30);
                                 fr.add(textField5);


                                 lb6=new JLabel("State");
                                 lb6.setBounds(150,330,150,30);
                                 fr.add(lb6);
                                 textField6=new JTextField(15);
                                 textField6.setBounds(290,330,150,30);
                                 fr.add(textField6);


                                 lb7=new JLabel("Phone Number");
                                 lb7.setBounds(150,400,150,30);
                                 fr.add(lb7);
                                 textField7=new JTextField(15);
                                 textField7.setBounds(290,400,150,30);
                                 fr.add(textField7);


                                b1=new JButton("Generate OTP");
                                b1.setBounds(180,470,200,30);
                                fr.add(b1);
                                b1.addActionListener(this);
                                fr.setVisible(true);
                                }
```

```
                        public static void main(String s[])
                        {
                        new register();
                        }
                        public void actionPerformed(ActionEvent e)
                        {
                        otp page = new otp(1);
                        page.setVisible(true);
                        page.setLocationRelativeTo(null);
                        }
                        }
if
(ae.getSource()==b2){
                    dispose();
                    loginpage pages = new loginpage();
                    pages.setSize(300,100);
                    pages.setVisible(true);
                    pages.setLocationRelativeTo(null);
                    }

                    else if (ae.getSource()==b1){
                    dispose();
                    Registration pages = new Registration();
                    pages.setSize(300,500);
                    pages.setVisible(true);
                    pages.setLocationRelativeTo(null);
                    }
```

Github Link:- https://github.com/lovely2001/Java_MiniProject

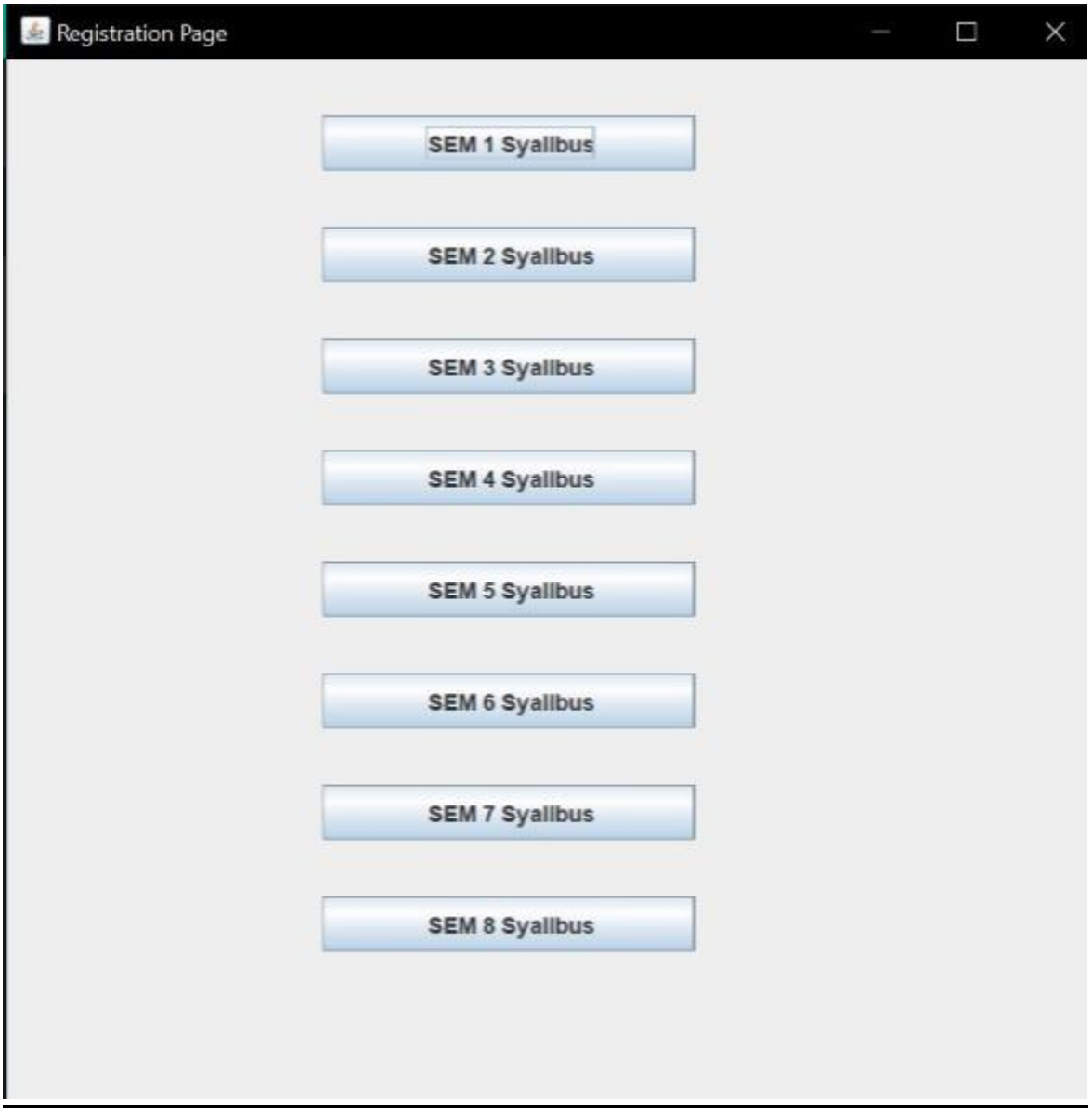
CHAPTER 4: RESULTS AND SNAPSHOTS

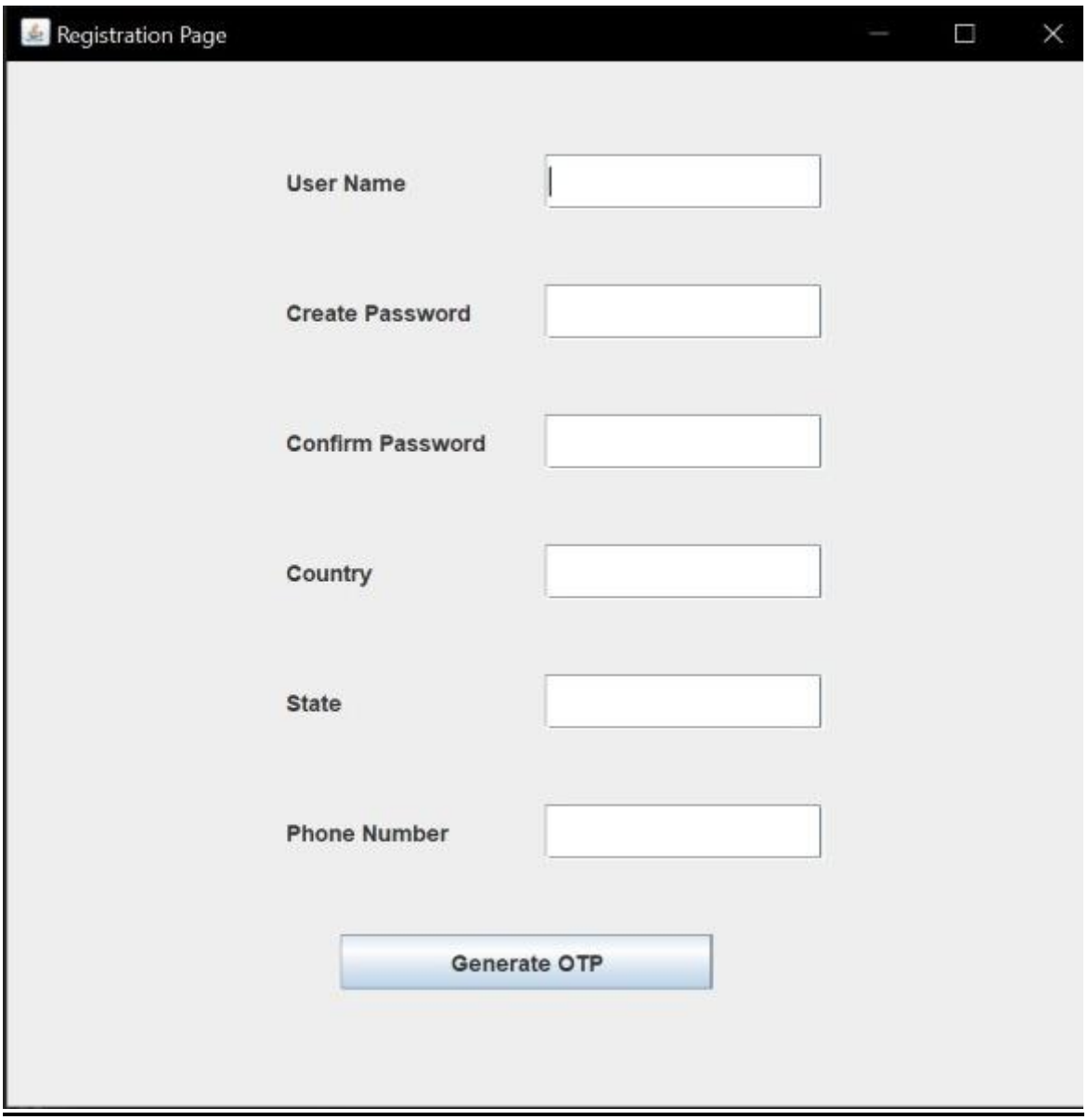




IF WE CLICK LOGIN OPTION


Message
Sucessful login
OK


Registration Page
SEM 1 Syallbus
SEM 2 Syallbus
SEM 3 Syallbus
SEM 4 Syallbus
SEM 5 Syallbus
SEM 6 Syallbus
SEM 7 Syallbus
SEM 8 Syallbus



IF YOU NOT HAVE AN ACCOUNT
PLEASE SIGN UP BY FILLING ALL DETAILS MENTION ABOVE

CHAPTER 5: CONCLUSION

- In conclusion we can say that OTP generator makes work easy, we can simply put this code to any software application to make their app and their users to work on it safely and maintain the privacy.
- OTP helps to maintain privacy and security of our system so that no one can access our system without confirming OTP.
- The OTP is a numeric code that is randomly and uniquely generated during each authentication event.
- The whole project is made in the JAVA Programming language which makes it easier to understand any person whoever knows basics of JAVA or C++ like languages.
- It’s very easy to use as we have seen the above results, as you have to enter username and password after submitting it you will get generated OTP, which is generated by the code we added, and after verifying it you will get successfully logged in.

CHAPTER 6: REFRENCES

1. https://www.geeksforgeeks.org/generating-password-otp-java/

2. https://www.tutorialspoint.com/Generating-OTP-in-Java

3. https://www.javacodemonk.com/secure-otp-generation-in-java-3d1b11d0