EXPERIMENT:1

User Interface for Welcome screen

Aim:

To design a user interface for welcome screen

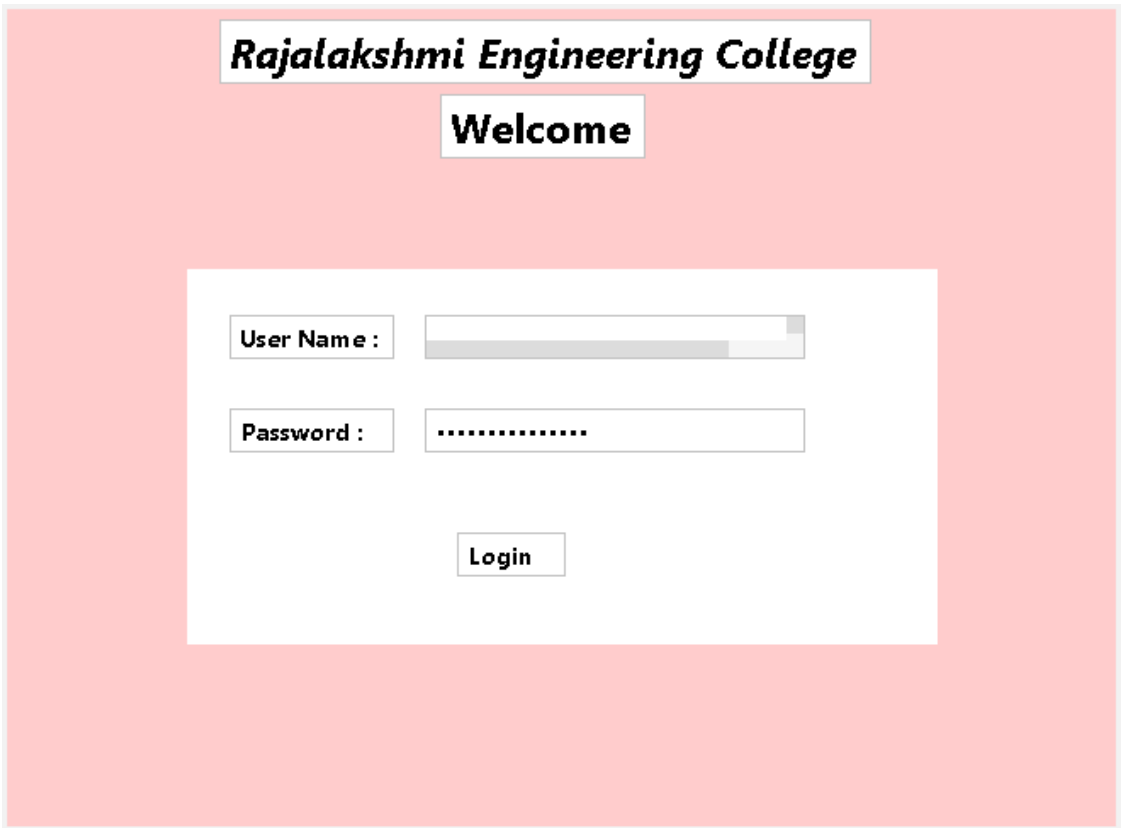
Program:

```
import javax.swing.*; import
java.awt.event.ActionEvent;
import java.awt.event.ActionListener;

public class LoginFrame extends javax.swing.JFrame {

   private JLabel nameLabel;     private
JLabel passwordLabel;     private
JTextField nameTextField;     private
JPasswordField passwordField;     private
JButton loginButton;

   public LoginFrame() {
      initComponents();
   }

   private void initComponents() {

      nameLabel = new JLabel("Name:");
passwordLabel = new JLabel("Password:");
nameTextField = new JTextField();        passwordField
= new JPasswordField();
      loginButton = new JButton("Login");

      setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);
setTitle("Login Screen");

      loginButton.addActionListener(new ActionListener() {
public     void     actionPerformed(ActionEvent     evt)     {
loginButtonActionPerformed(evt);
         }
});

      GroupLayout layout = new GroupLayout(getContentPane());
getContentPane().setLayout(layout);        layout.setHorizontalGroup(
```

```
layout.createParallelGroup(GroupLayout.Alignment.LEADING)
.addGroup(layout.createSequentialGroup()
                .addGap(50, 50, 50)
                .addGroup(layout.createParallelGroup(GroupLayout.Alignment.TRAILING)
                   .addComponent(loginButton)
                   .addGroup(layout.createSequentialGroup()
                      .addGroup(layout.createParallelGroup(GroupLayout.Alignment.LEADING)
                         .addComponent(nameLabel)
                         .addComponent(passwordLabel))
                      .addGap(18, 18, 18)
                      .addGroup(layout.createParallelGroup(GroupLayout.Alignment.LEADING,
false)
                         .addComponent(nameTextField)
                         .addComponent(passwordField, GroupLayout.DEFAULT_SIZE, 200,
Short.MAX_VALUE))))
                .addContainerGap(50, Short.MAX_VALUE))
        );
        layout.setVerticalGroup(
layout.createParallelGroup(GroupLayout.Alignment.LEADING)
              .addGroup(layout.createSequentialGroup()
                .addGap(30, 30, 30)
                .addGroup(layout.createParallelGroup(GroupLayout.Alignment.BASELINE)
                   .addComponent(nameLabel)
                   .addComponent(nameTextField, GroupLayout.PREFERRED_SIZE,
GroupLayout.DEFAULT_SIZE, GroupLayout.PREFERRED_SIZE))
                .addGap(18, 18, 18)
                .addGroup(layout.createParallelGroup(GroupLayout.Alignment.BASELINE)
                   .addComponent(passwordLabel)
                   .addComponent(passwordField, GroupLayout.PREFERRED_SIZE,
GroupLayout.DEFAULT_SIZE, GroupLayout.PREFERRED_SIZE))
                .addGap(18, 18, 18)
                .addComponent(loginButton)
                .addContainerGap(30, Short.MAX_VALUE))
        );

        pack();
        setLocationRelativeTo(null);
    }

    private void loginButtonActionPerformed(ActionEvent evt) {
String name = nameTextField.getText();        char[] password =
passwordField.getPassword();

        // Sample credentials for demonstration purposes
        String correctName = "admin";
```

```
        String correctPassword = "password";

        if (name.equals(correctName) && String.valueOf(password).equals(correctPassword)) {
            JOptionPane.showMessageDialog(this, "Welcome " + name + "!", "Login
Successful", JOptionPane.INFORMATION_MESSAGE);
        } else {
            JOptionPane.showMessageDialog(this, "Invalid name or password.", "Login Failed",
JOptionPane.ERROR_MESSAGE);
        }
    }

    public static void main(String[] args) {
java.awt.EventQueue.invokeLater(new Runnable() {
public void run() {
                new LoginFrame().setVisible(true);
            }
        });
    } }
```

Output:



Result:

A user interface for welcome screen was successfully designed and implemented.

EXPERIMENT:2

User Interface for Grade Calculator

Aim:

To design a user interface by applying design rules for assigning a grade to students based on the subject marks.

Program:

```
package com.mycompany.gradecalculator62;

import javax.swing.*;

public class GradeCalculator62Frame extends JFrame {

    private JPanel jPanel1, jPanel2, jPanel3, jPanel4, jPanel5;      private JLabel jLabel1,
jLabel2, jLabel3, jLabel4, jLabel5, jLabel6, jLabel7, jLabel8, jLabel9, jLabel10;
    private JTextField engmarks, tamilmarks, mathsmarks, sciencemarks, socialmarks;
private JTextField enggrade, tamilgrade, mathsgrade, sciencegrade, socialgrade;
private JTextField totaltf, avgtf;      private JButton calculatebutton;
    private JSeparator jSeparator1, jSeparator2;

    public GradeCalculator62Frame() {
        initComponents();
    }

    private void initComponents() {

        jPanel1 = new JPanel();
jPanel2 = new JPanel();         jLabel1
= new JLabel();         jPanel3 = new
JPanel();         jLabel2 = new JLabel();
engmarks = new JTextField();
tamilmarks = new JTextField();
mathsmarks = new JTextField();
sciencemarks = new JTextField();
socialmarks = new JTextField();
jLabel3 = new JLabel();         jLabel4
= new JLabel();         jLabel5 = new
JLabel();         jLabel6 = new JLabel();
jLabel7 = new JLabel();
jSeparator1 = new JSeparator();
jPanel4 = new JPanel();
        jLabel8 = new JLabel();
enggrade = new JTextField();
```

```
tamilgrade = new JTextField();
mathsgrade = new JTextField();
sciencegrade = new JTextField();
socialgrade = new JTextField();
jSeparator2 = new JSeparator();
calculatebutton = new JButton();
jPanel5 = new JPanel();        jLabel9
= new JLabel();        jLabel10 = new
JLabel();        totaltf = new
JTextField();
        avgtf = new JTextField();

        setDefaultCloseOperation(WindowConstants.EXIT_ON_CLOSE);

        jPanel1.setBackground(new java.awt.Color(133, 144, 246));

        jPanel2.setBackground(new java.awt.Color(195, 203, 235));
jLabel1.setFont(new java.awt.Font("Sukhumvit Set", 1, 24));
jLabel1.setText("GRADE CALCULATOR");

        GroupLayout jPanel2Layout = new GroupLayout(jPanel2);
        jPanel2.setLayout(jPanel2Layout);
jPanel2Layout.setHorizontalGroup(
jPanel2Layout.createParallelGroup(GroupLayout.Alignment.LEADING)
            .addGroup(GroupLayout.Alignment.TRAILING,
jPanel2Layout.createSequentialGroup()
                .addContainerGap(420, Short.MAX_VALUE)
                .addComponent(jLabel1)
                .addGap(438, 438, 438))
        );
        jPanel2Layout.setVerticalGroup(
jPanel2Layout.createParallelGroup(GroupLayout.Alignment.LEADING)
            .addGroup(GroupLayout.Alignment.TRAILING,
jPanel2Layout.createSequentialGroup()
                .addContainerGap(18, Short.MAX_VALUE)
                .addComponent(jLabel1)
                .addGap(14, 14, 14))
        );

        jPanel3.setBackground(new java.awt.Color(195, 203, 235));
jLabel2.setFont(new java.awt.Font("Sukhumvit Set", 1, 22));
jLabel2.setText("ENTER MARKS");

        JTextField[] marksFields = {engmarks, tamilmarks, mathsmarks, sciencemarks,
socialmarks};
        String[] labels = {"ENGLISH", "TAMIL", "MATHS", "SCIENCE", "SOCIAL"};
```

```
        JLabel[] markLabels = {jLabel3, jLabel4, jLabel5, jLabel6, jLabel7};        GroupLayout
jPanel3Layout = new GroupLayout(jPanel3);
        jPanel3.setLayout(jPanel3Layout);
GroupLayout.SequentialGroup hGroup =
jPanel3Layout.createSequentialGroup().addGap(88);
GroupLayout.SequentialGroup vGroup =
jPanel3Layout.createSequentialGroup().addGap(22)

.addComponent(jLabel2).addPreferredGap(LayoutStyle.ComponentPlacement.UNRELATED
)
            .addComponent(jSeparator1, GroupLayout.PREFERRED_SIZE, 10,
GroupLayout.PREFERRED_SIZE).addGap(21)
            .addGroup(jPanel3Layout.createParallelGroup(GroupLayout.Alignment.BASELINE)

.addComponent(jLabel3).addComponent(jLabel4).addComponent(jLabel5).addComponent(j
Label6).addComponent(jLabel7))
            .addGap(18);

        for (int i = 0; i < marksFields.length; i++) {
            marksFields[i].setFont(new java.awt.Font("Sukhumvit Set", 1, 16));
marksFields[i].setHorizontalAlignment(JTextField.CENTER);
            hGroup.addComponent(marksFields[i], GroupLayout.PREFERRED_SIZE, 75,
GroupLayout.PREFERRED_SIZE).addGap(132);

vGroup.addGroup(jPanel3Layout.createParallelGroup(GroupLayout.Alignment.BASELINE)
                .addComponent(marksFields[i], GroupLayout.PREFERRED_SIZE, 44,
GroupLayout.PREFERRED_SIZE));
        }

jPanel3Layout.setHorizontalGroup(jPanel3Layout.createParallelGroup(GroupLayout.Alignm
ent.LEADING)
            .addGroup(jPanel3Layout.createSequentialGroup()
                .addContainerGap()

.addGroup(jPanel3Layout.createParallelGroup(GroupLayout.Alignment.LEADING)
                    .addComponent(jSeparator1)
                    .addGroup(jPanel3Layout.createSequentialGroup()

.addGroup(jPanel3Layout.createParallelGroup(GroupLayout.Alignment.LEADING)
                            .addComponent(jLabel2)
                            .addGroup(jPanel3Layout.createSequentialGroup()
                                .addGap(78, 78, 78)
                                .addComponent(jLabel3)
                                .addGap(131, 131, 131)
                                .addComponent(jLabel4)
                                .addGap(140, 140, 140)
                                .addComponent(jLabel5)
```

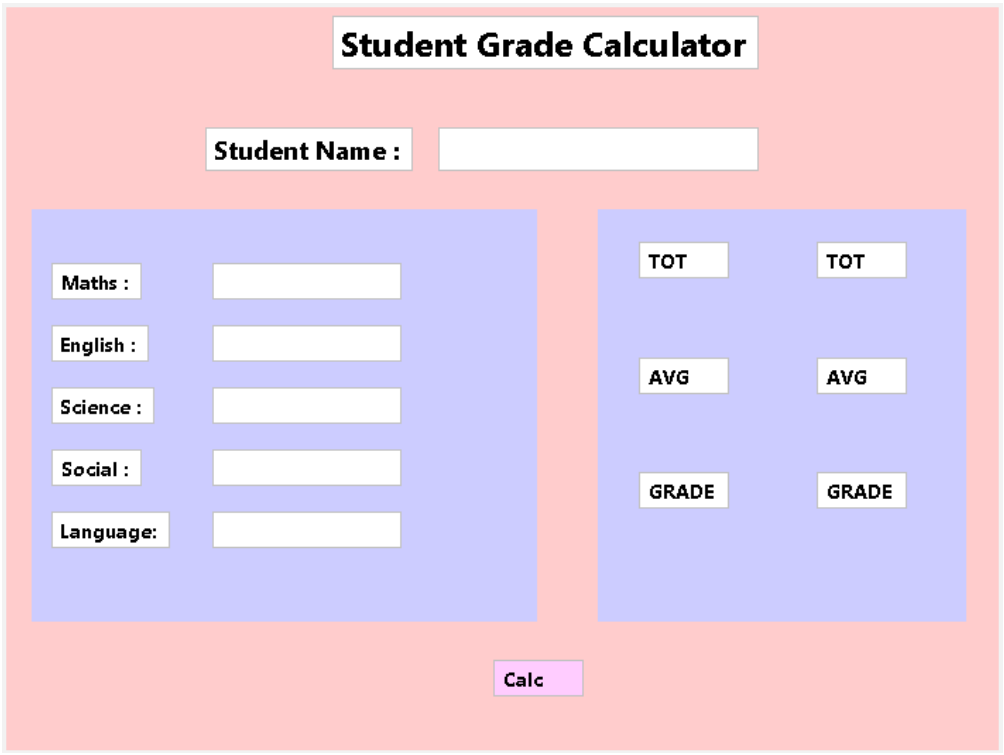
```
                        .addGap(149, 149, 149)
                        .addComponent(jLabel6)
                        .addGap(131, 131, 131)
                        .addComponent(jLabel7)))
                .addGap(0, 0, Short.MAX_VALUE))))
        .addGroup(jPanel3Layout.createSequentialGroup()
            .addGap(98, 98, 98)
            .addGroup(hGroup)
            .addContainerGap(GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
    );
    jPanel3Layout.setVerticalGroup(vGroup);

    jPanel4.setBackground(new java.awt.Color(195, 203, 235));
jLabel8.setFont(new java.awt.Font("Sukhumvit Set", 1, 18));
jLabel8.setText("GRADE");

    JTextField[] gradeFields = {enggrade, tamilgrade, mathsgrade, sciencegrade,
socialgrade};

    GroupLayout jPanel4Layout = new GroupLayout(jPanel4);
    jPanel4.setLayout(jPanel4Layout);
    GroupLayout.SequentialGroup hGroupGrades =
jPanel4Layout.createSequentialGroup().addGap(90);
GroupLayout.SequentialGroup vGroupGrades =
jPanel4Layout.createSequentialGroup().addGap(19)

.addComponent(jLabel8).addPreferredGap(LayoutStyle.ComponentPlacement.RELATED)
        .addComponent(jSeparator2, GroupLayout.PREFERRED_SIZE, 10,
GroupLayout.PREFERRED_SIZE).addGap(26);

    for (JTextField gradeField : gradeFields) {                gradeField.setFont(new
java.awt.Font("Sukhumvit                Set",                1,                16));
gradeField.setHorizontalAlignment(JTextField.CENTER);
hGroupGrades.addComponent(gradeField, GroupLayout.PREFERRED_SIZE, 75,
GroupLayout.PREFERRED_SIZE).addGap(132);

vGroupGrades.addGroup(jPanel4Layout.createParallelGroup(GroupLayout.Alignment.BASE
LINE)
        .addComponent(gradeField, GroupLayout.PREFERRED_SIZE, 45,
GroupLayout.PREFERRED_SIZE));
    }

jPanel4Layout.setHorizontalGroup(jPanel4Layout.createParallelGroup(GroupLayout.Alignm
ent.LEADING)
        .addGroup(jPanel4Layout.createSequentialGroup()
            .addGap(98, 98, 98)
```

```
            .addGroup(hGroupGrades)
            .addContainerGap(GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
        .addGroup(jPanel4Layout.createSequentialGroup()
            .addContainerGap()

.addGroup(jPanel4Layout.createParallelGroup(GroupLayout.Alignment.LEADING)
                .addComponent(jSeparator2)
                .addGroup(jPanel4Layout.createSequentialGroup()
                    .addComponent(jLabel8)
                    .addGap(0, 0, Short.MAX_VALUE))))
        );
        jPanel4Layout.setVerticalGroup(vGroupGrades);

        calculatebutton.setFont(new java.awt.Font("Sukhumvit Set", 1, 18));
calculatebutton.setText("CALCULATE");
        calculatebutton.addActionListener(evt -> calculateGrades());

        jPanel5.setBackground(new java.awt.Color(195, 203, 235));
jLabel9.setFont(new java.awt.Font("Sukhumvit Set", 1, 18));
jLabel9.setText("TOTAL:");         jLabel10.setFont(new
java.awt.Font("Sukhumvit Set", 1, 18));
jLabel10.setText("AVERAGE:");

        GroupLayout jPanel5Layout = new GroupLayout(jPanel5);
        jPanel5.setLayout(jPanel5Layout);
jPanel5Layout.setHorizontalGroup(
jPanel5Layout.createParallelGroup(GroupLayout.Alignment.LEADING)
            .addGroup(jPanel5Layout.createSequentialGroup()
                .addGap(96, 96, 96)
                .addComponent(jLabel9)
                .addGap(28, 28, 28)
                .addComponent(totaltf, GroupLayout.PREFERRED_SIZE, 111,
GroupLayout.PREFERRED_SIZE)
                .addPreferredGap(LayoutStyle.ComponentPlacement.RELATED,
GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                .addComponent(jLabel10)
                .addGap(47, 47, 47)
                .addComponent(avgtf, GroupLayout.PREFERRED_SIZE, 111,
GroupLayout.PREFERRED_SIZE)
                .addGap(106, 106, 106))
        );
        jPanel5Layout.setVerticalGroup(
jPanel5Layout.createParallelGroup(GroupLayout.Alignment.LEADING)
            .addGroup(jPanel5Layout.createSequentialGroup()
                .addGap(42, 42, 42)
```

```
.addGroup(jPanel5Layout.createParallelGroup(GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel9)
                    .addComponent(jLabel10)
                    .addComponent(totaltf, GroupLayout.PREFERRED_SIZE, 37,
GroupLayout.PREFERRED_SIZE)
                    .addComponent(avgtf, GroupLayout.PREFERRED_SIZE, 37,
GroupLayout.PREFERRED_SIZE))
                .addContainerGap(43, Short.MAX_VALUE))
        );

        GroupLayout jPanel1Layout = new GroupLayout(jPanel1);
jPanel1.setLayout(jPanel1Layout);        jPanel1Layout.setHorizontalGroup(
            jPanel1Layout.createParallelGroup(GroupLayout.Alignment.LEADING)
                .addComponent(jPanel2, GroupLayout.DEFAULT_SIZE,
GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                .addComponent(jPanel3, GroupLayout.DEFAULT_SIZE,
GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                .addComponent(jPanel4, GroupLayout.DEFAULT_SIZE,
GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                .addComponent(jPanel5, GroupLayout.DEFAULT_SIZE,
GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                .addGroup(GroupLayout.Alignment.TRAILING,
jPanel1Layout.createSequentialGroup()
                    .addContainerGap(GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                    .addComponent(calculatebutton)
                    .addGap(485, 485, 485))
        );
        jPanel1Layout.setVerticalGroup(
            jPanel1Layout.createParallelGroup(GroupLayout.Alignment.LEADING)
                .addGroup(jPanel1Layout.createSequentialGroup()
                    .addComponent(jPanel2, GroupLayout.PREFERRED_SIZE,
GroupLayout.DEFAULT_SIZE, GroupLayout.PREFERRED_SIZE)
                    .addGap(27, 27, 27)
                    .addComponent(jPanel3, GroupLayout.PREFERRED_SIZE,
GroupLayout.DEFAULT_SIZE, GroupLayout.PREFERRED_SIZE)
                    .addGap(18, 18, 18)
                    .addComponent(calculatebutton)
                    .addGap(18, 18, 18)
                    .addComponent(jPanel4, GroupLayout.PREFERRED_SIZE,
GroupLayout.DEFAULT_SIZE, GroupLayout.PREFERRED_SIZE)
                    .addGap(18, 18, 18)
                    .addComponent(jPanel5, GroupLayout.PREFERRED_SIZE,
GroupLayout.DEFAULT_SIZE, GroupLayout.PREFERRED_SIZE)
                    .addContainerGap(GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
        );
```

```
        getContentPane().setLayout(new GroupLayout(getContentPane()));
        getContentPane().add(jPanel1, GroupLayout.DEFAULT_SIZE,
GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE);

        pack();
    }

    private void calculateGrades() {
float[] marks = new float[5];
        JTextField[] marksFields = {engmarks, tamilmarks, mathsmarks, sciencemarks,
socialmarks};
        JTextField[] gradeFields = {enggrade, tamilgrade, mathsgrade, sciencegrade,
socialgrade};
        String[] grades = {"A", "B", "C", "D"};

        for (int i = 0; i < marksFields.length; i++) {
marks[i] = Float.parseFloat(marksFields[i].getText());
            if (marks[i] >= 90) {
                gradeFields[i].setText(grades[0]);
} else if (marks[i] >= 80) {
gradeFields[i].setText(grades[1]);              }
else if (marks[i] >= 70) {
gradeFields[i].setText(grades[2]);
            } else {
                gradeFields[i].setText(grades[3]);
            }
}

        float total = 0;         for
(float mark : marks) {
            total += mark;
        }
        float average = total / marks.length;

        totaltf.setText(String.valueOf(total));
        avgtf.setText(String.valueOf(average));
    }

    public static void main(String args[]) {
java.awt.EventQueue.invokeLater(() -> new
GradeCalculator62Frame().setVisible(true));
    }
}
```

Output:



Result:

A user interface by applying design rules for assigning a grade to students based on the subject marks was successfully designed and implemented.

EXPERIMENT:3

Ascending Descending order of numbers

Aim:

To design a user interface with Layouts for printing the numbers in ascending order and descending order.

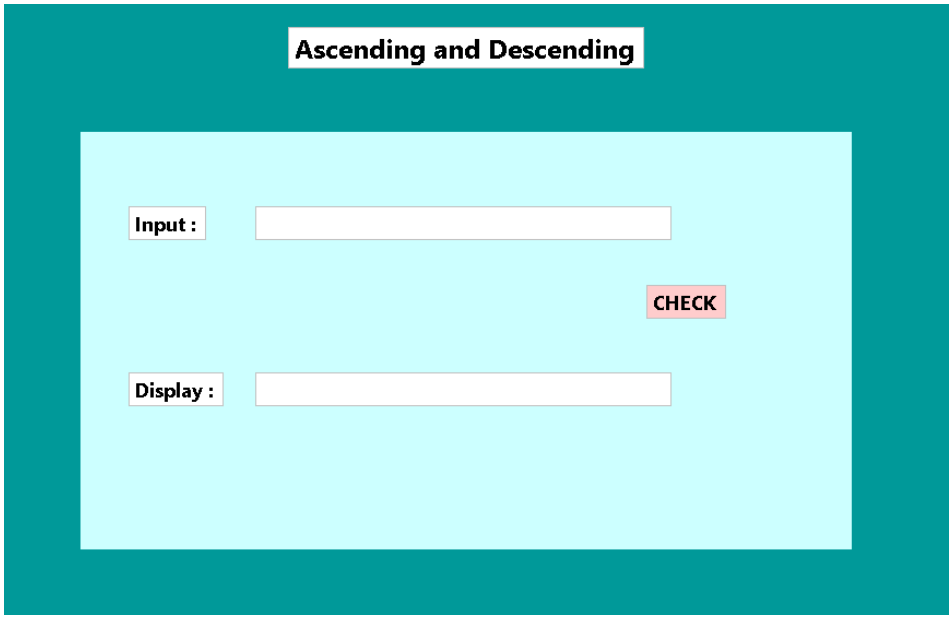
Program:

```
import javax.swing.*; import
java.awt.event.ActionEvent; import
java.awt.event.ActionListener; import
java.util.Arrays;
import java.util.Collections;

public class SortNumbersFrame extends JFrame {

   private JLabel inputLabel;
private JTextField inputTextField;
private JButton sortAscButton;
private JButton sortDescButton;
   private JTextArea resultTextArea;

   public SortNumbersFrame() {
// Initialize components
      inputLabel = new JLabel("Enter numbers (comma separated):");
inputTextField = new JTextField(20);        sortAscButton = new
JButton("Sort Ascending");        sortDescButton = new
JButton("Sort Descending");        resultTextArea = new
JTextArea(10, 30);

      // Set layout and add components
setLayout(new java.awt.FlowLayout());
      add(inputLabel);
add(inputTextField);
add(sortAscButton);
add(sortDescButton);
      add(new JScrollPane(resultTextArea));

      // Add action listeners
      sortAscButton.addActionListener(new ActionListener() {
public void actionPerformed(ActionEvent e) {
            sortNumbers(true);
         }
      });
```

```
        sortDescButton.addActionListener(new ActionListener() {
public void actionPerformed(ActionEvent e) {
                sortNumbers(false);
            }
});

        // Set JFrame properties
setTitle("Number Sorter");
        setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
pack();
        setLocationRelativeTo(null);
    }

    private void sortNumbers(boolean ascending) {
try {
            // Get input from text field
            String input = inputTextField.getText();
            // Split input into an array of strings
            String[] numberStrings = input.split(",");
            // Convert strings to integers
            Integer[] numbers = new Integer[numberStrings.length];
for (int i = 0; i < numberStrings.length; i++) {
                numbers[i] = Integer.parseInt(numberStrings[i].trim());
            }

            // Sort the array            if
(ascending)                            {
Arrays.sort(numbers);
            } else {
                Arrays.sort(numbers, Collections.reverseOrder());
            }

            // Display sorted numbers in the text area
resultTextArea.setText(Arrays.toString(numbers));
        } catch (NumberFormatException ex) {
            JOptionPane.showMessageDialog(this, "Please enter valid numbers.", "Error",
JOptionPane.ERROR_MESSAGE);
        }
    }

    public static void main(String[] args) {
// Create and display the form
        java.awt.EventQueue.invokeLater(new Runnable() {
public void run() {
                new SortNumbersFrame().setVisible(true);
```

```
        }
    });
} }\
```

Output:



Result:

A user interface with Layouts for printing the numbers in ascending order and descending order was competed successfully.

EXPERIMENT:4

User Interface for Calculator

Aim:

To design a user interface by using task analysis for calculator.

Program:

```
import javax.swing.*;

public class NewJFram2 extends JFrame {

   private JPanel jPanel1;     private JTextField txtResult;     private JButton[]
numberButtons;     private JButton btnClear, btnPlusMinus, btnPlus, btnMinus,
btnMultiply, btnDivide, btnEquals;

   private static int value1, value2;
   private static String operator;

   public NewJFram2() {
      initComponents();
   }

   private void initComponents() {
jPanel1 = new JPanel();        txtResult
= new JTextField();
      numberButtons = new JButton[10];
for (int i = 0; i < 10; i++) {
         numberButtons[i] = new JButton(String.valueOf(i));
numberButtons[i].addMouseListener(new java.awt.event.MouseAdapter() {
public void mouseClicked(java.awt.event.MouseEvent evt) {
numberButtonMouseClicked(evt);
            }
         });
      }
      btnClear = new JButton("CE");
btnPlusMinus = new JButton("+/-");
btnPlus = new JButton("+");        btnMinus
= new JButton("-");        btnMultiply =
new JButton("*");        btnDivide = new
JButton("/");
      btnEquals = new JButton("=");
```

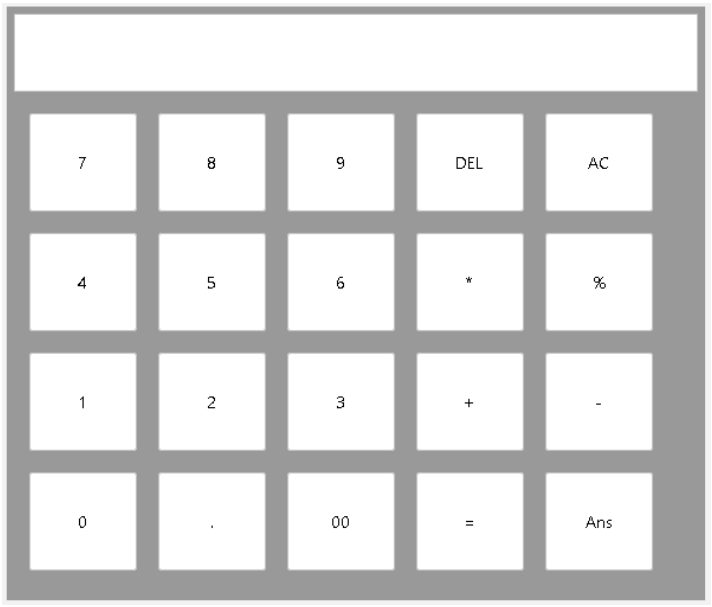
```
        btnClear.addMouseListener(new java.awt.event.MouseAdapter() {
public void mouseClicked(java.awt.event.MouseEvent evt) {
txtResult.setText("");
            }
});

        btnPlus.addMouseListener(new java.awt.event.MouseAdapter() {
public void mouseClicked(java.awt.event.MouseEvent evt) {
setOperator("plus");
            }
});

        btnMinus.addMouseListener(new java.awt.event.MouseAdapter() {
public void mouseClicked(java.awt.event.MouseEvent evt) {
setOperator("minus");
            }
});

        btnMultiply.addMouseListener(new java.awt.event.MouseAdapter() {
public void mouseClicked(java.awt.event.MouseEvent evt) {
setOperator("multiplication");
            }
});

        btnDivide.addMouseListener(new java.awt.event.MouseAdapter() {
public void mouseClicked(java.awt.event.MouseEvent evt) {
setOperator("division");
            }
});

        btnEquals.addMouseListener(new java.awt.event.MouseAdapter() {
            public void mouseClicked(java.awt.event.MouseEvent evt) {
calculateResult();
            }
});

        GroupLayout jPanel1Layout = new GroupLayout(jPanel1);
        jPanel1.setLayout(jPanel1Layout);
jPanel1Layout.setHorizontalGroup(
jPanel1Layout.createParallelGroup(GroupLayout.Alignment.LEADING)
                .addComponent(txtResult)
                .addGroup(jPanel1Layout.createSequentialGroup()

.addGroup(jPanel1Layout.createParallelGroup(GroupLayout.Alignment.LEADING)
                        .addComponent(numberButtons[1])
                        .addComponent(numberButtons[4])
                        .addComponent(numberButtons[7])
```

```
                .addComponent(btnPlusMinus))

.addGroup(jPanel1Layout.createParallelGroup(GroupLayout.Alignment.LEADING)
                .addComponent(numberButtons[2])
                .addComponent(numberButtons[5])
.addComponent(numberButtons[8])
                .addComponent(numberButtons[0]))

.addGroup(jPanel1Layout.createParallelGroup(GroupLayout.Alignment.LEADING)
                .addComponent(numberButtons[3])
                .addComponent(numberButtons[6])
                .addComponent(numberButtons[9])
                .addComponent(btnClear))

.addGroup(jPanel1Layout.createParallelGroup(GroupLayout.Alignment.LEADING)
                .addComponent(btnDivide)
                .addComponent(btnMultiply)
                .addComponent(btnMinus)
                .addComponent(btnPlus)))
            .addComponent(btnEquals)
        );

        jPanel1Layout.setVerticalGroup(
jPanel1Layout.createSequentialGroup()
            .addComponent(txtResult, GroupLayout.PREFERRED_SIZE,
GroupLayout.DEFAULT_SIZE, GroupLayout.PREFERRED_SIZE)

.addGroup(jPanel1Layout.createParallelGroup(GroupLayout.Alignment.BASELINE)
                .addComponent(numberButtons[1])
                .addComponent(numberButtons[2])
                .addComponent(numberButtons[3])
                .addComponent(btnDivide))

.addGroup(jPanel1Layout.createParallelGroup(GroupLayout.Alignment.BASELINE)
                .addComponent(numberButtons[4])
                .addComponent(numberButtons[5])
                .addComponent(numberButtons[6])
                .addComponent(btnMultiply))

.addGroup(jPanel1Layout.createParallelGroup(GroupLayout.Alignment.BASELINE)
                .addComponent(numberButtons[7])
                .addComponent(numberButtons[8])
                .addComponent(numberButtons[9])
                .addComponent(btnMinus))

.addGroup(jPanel1Layout.createParallelGroup(GroupLayout.Alignment.BASELINE)
```

```
                .addComponent(btnPlusMinus)
                .addComponent(numberButtons[0])
                .addComponent(btnClear)
                .addComponent(btnPlus))
            .addComponent(btnEquals)
        );

        getContentPane().setLayout(new GroupLayout(getContentPane()));
getContentPane().add(jPanel1, GroupLayout.Alignment.LEADING);        pack();
    }

    private void numberButtonMouseClicked(java.awt.event.MouseEvent evt) {
        JButton clickedButton = (JButton) evt.getSource();
String buttonText = clickedButton.getText();        if
(txtResult.getText().isEmpty()) {
txtResult.setText(buttonText);            value1 =
Integer.parseInt(buttonText);
        } else {
            txtResult.setText(txtResult.getText() + " " + buttonText);
value2 = Integer.parseInt(buttonText);
        }
}

    private void setOperator(String op) {
if (!txtResult.getText().isEmpty()) {
            operator = op;
            txtResult.setText(txtResult.getText() + " " + getOperatorSymbol(op));
        }
}

    private String getOperatorSymbol(String op) {
        switch (op) {
case "plus":                return
"+";            case "minus":
return "-";            case
"multiplication":
                return "*";
case "division":
return "/";
default:
                return "";
        }
}

    private void calculateResult() {
```

```
        double result = 0;         switch
(operator) {             case "plus":
result = value1 + value2;
                break;
case "minus":
                result = value1 - value2;
                break;             case
"multiplication":
                result = value1 * value2;
                break;
case "division":
result = value1 /
(double) value2;
break;
        }
        txtResult.setText(Double.toString(result));
    }

    public static void main(String args[]) {
java.awt.EventQueue.invokeLater(() -> new NewJFram2().setVisible(true));
    } }
```

Output:



Result:

A user interface by using task analysis for calculator was designed and implemented successfully.

EXPERIMENT:5

User Interface for Student Admission

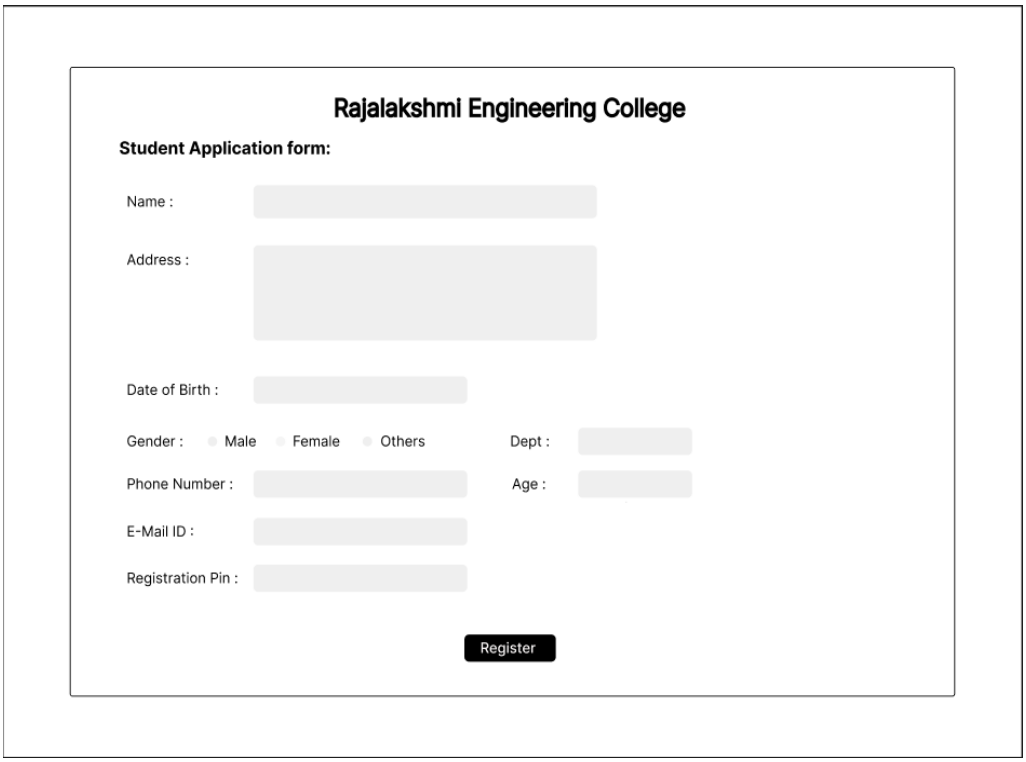
Aim:

To design a user interface with direct selection for registration of a student for admissions.

Figma File Link:

https://www.figma.com/design/CPo4krJniOT7EJ26nh1wu6/clg-application?node-id=0-1&t=FcaD4aKn4yCB8uGA-1

Screenshots:



Result:

To Design a user interface with direct selection for registration of a student for admissions was competed successfully.

EXPERIMENT:6

User Interface for Photo Colour

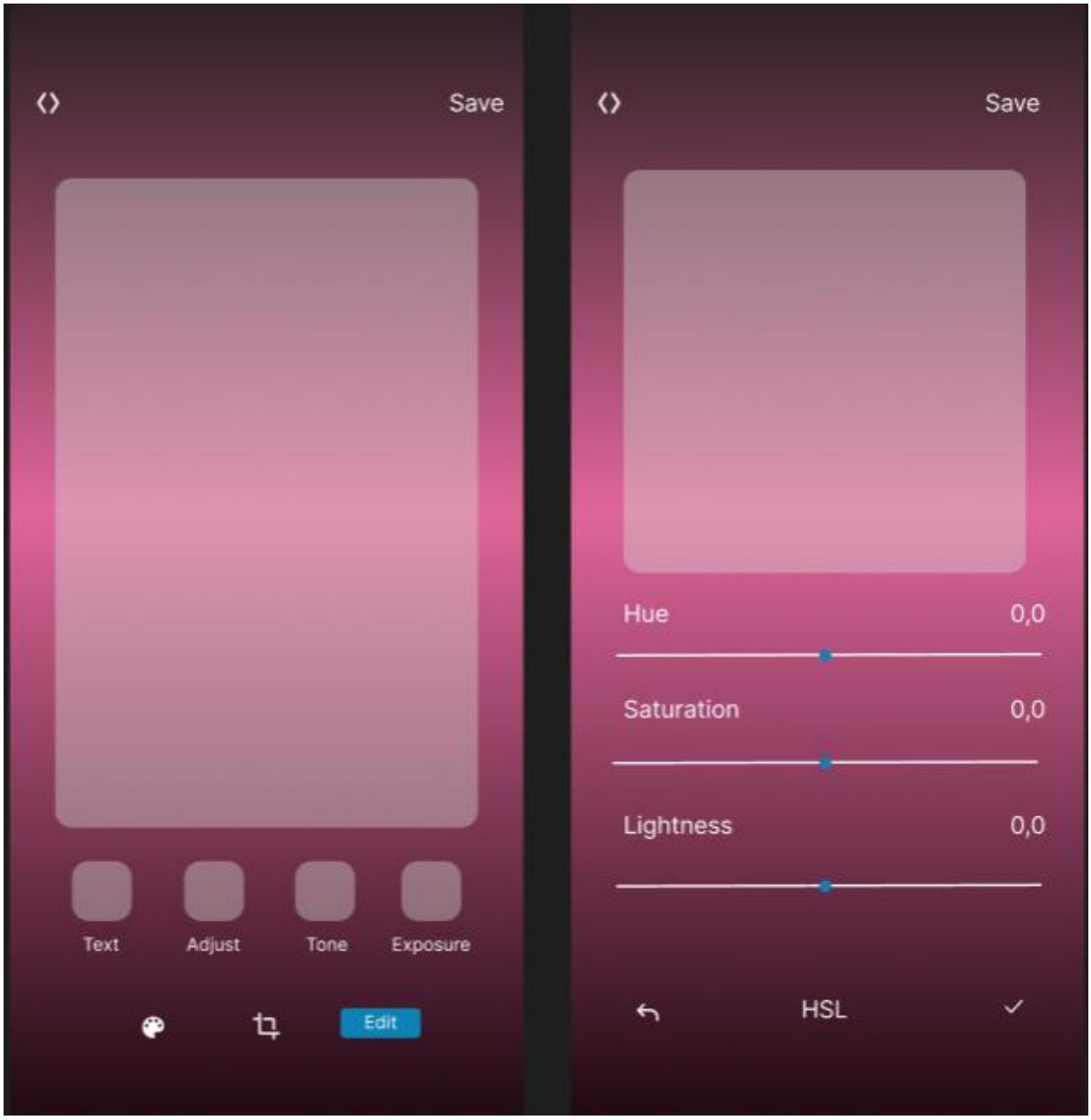
Aim:

To design a user interface by using colours for displaying and changing of picture on the form.

Figma File Link:

https://www.figma.com/design/NpDRf8ZK7JVsuCzWE0pg62/photo-color?node-id=0-1&t=OrCXyOcupc5FUyTN-1

Screenshots:



Result:

To design a user interface by using colours for displaying and changing of picture on the form competed successfully.

EXPERIMENT:7

User Interface for Exam Registration

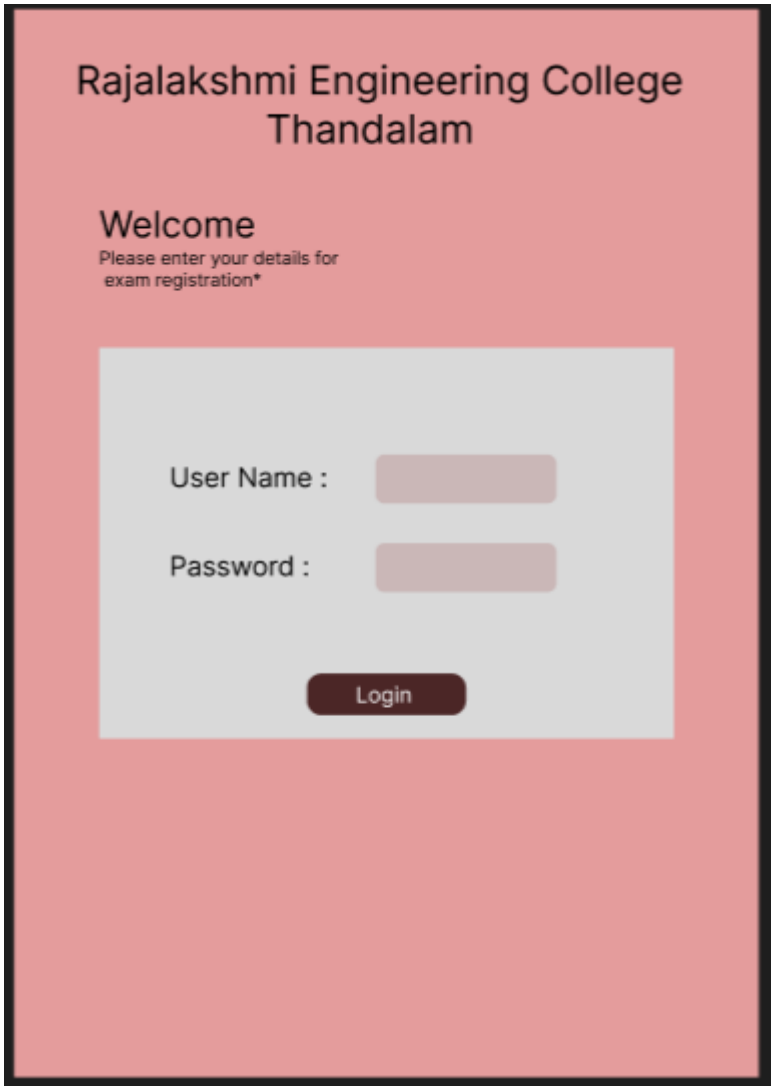
Aim:

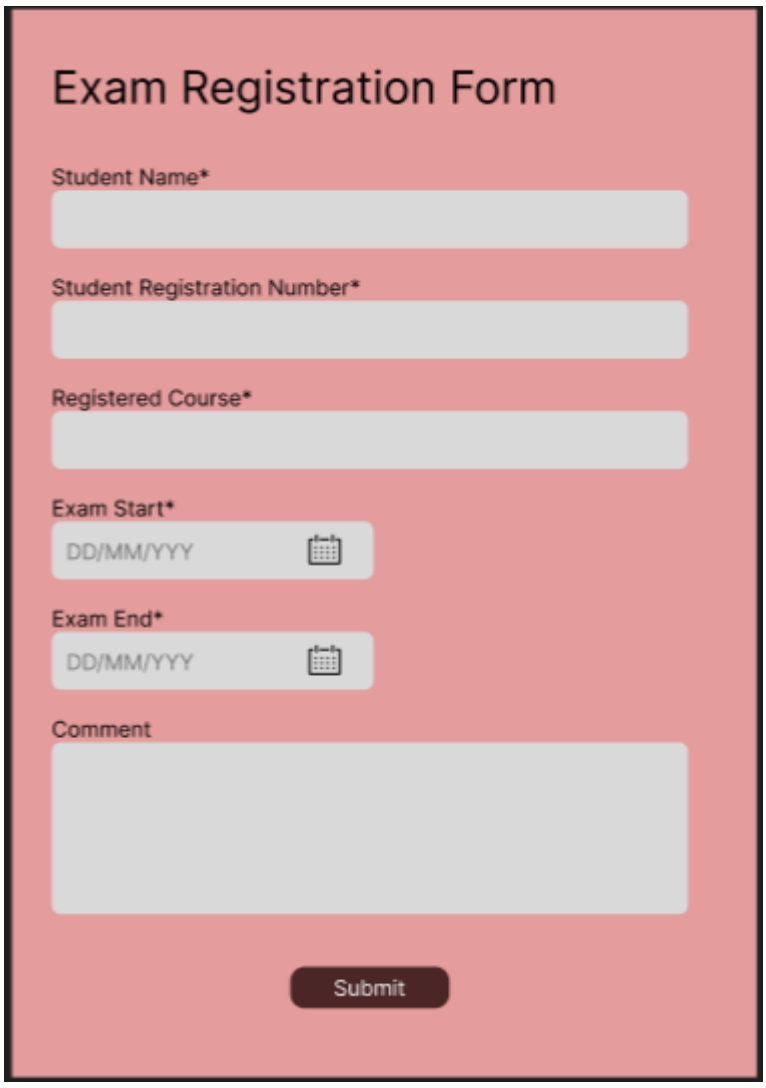
To design a user interface with widgets for end semester exam registrations

Figma File Link:

https://www.figma.com/design/B7ahp40tAVE1SQJmoeGuQ1/exam-registration?node-id=0-1&t=q2vQBUkD0pSayKA7-1

Screenshots:





Result:

To design a user interface with widgets for end semester exam registrations was competed successfully.

EXPERIMENT:8

User Interface for Form

Aim:

To design a user interface by using drag and drop for creating forms

Figma File Link:
https://www.figma.com/design/KVR0fzwn09yJovwV869L6V/drag-and-drop?node-id=0-1&t=q2vQBUkD0pSayKA7-1

Screenshots:

The Minions are small, yellow capsule-shaped creatures with round gray goggles. They are depicted as being roughly one-third to one-half the height of humans but they were later revealed to be 3 feet 7 inches (1.1 m) tall. They have one or two eyes, and their irises are almost always brown (except for Bob, who has one green and one brown eye). They have three fingers and toes per hand and foot, respectively. There appears to be no other difference between the two types beyond the number and color of eyes, and their height. They have no discernible noses but seem capable of smelling, as they are shown smelling fruit and are affected by the Fart Gun. They are also shown without ears but can hear and respond to sounds. Most Minions appear either bald or with a few wispy strands of black hair on their heads. After leaving their home country of Switzerland in favor of a new life in America during the late 1960s, their clothing consists of blue overalls emblazoned with Gru's logo, black rubber gloves, shoes, and goggles.

Mickey Mouse is an American cartoon character co-created in 1928 by Walt Disney and Ub Iwerks. The longtime icon and mascot of the Walt Disney Company, Mickey is an anthropomorphic mouse who typically wears red shorts, large shoes, and white gloves. He is often depicted alongside his girlfriend Minnie Mouse, his pet dog Pluto, his friends Donald Duck and Goofy and his nemesis Pete among others (see Mickey Mouse Universe)
Mickey was created as a replacement for a prior Disney character, Oswald the Lucky Rabbit. The character was originally to be named "Mortimer Mouse", until Walt Disney's wife, Lillian, suggested "Mickey". Mickey first appeared in two 1928 shorts Plane Crazy and The Gallopin' Gaucho (which were not picked up for distribution) before his public debut in Steamboat Willie (1928). The character went on to appear in over 130 films, mostly shorts as well as features such as Fantasia (1940). Since 1930, Mickey has been featured extensively in comic strips (including the Mickey Mouse comic strip, which ran for 45 years) and comic books (such as Mickey Mouse). The character has also been featured in television series such as The Mickey Mouse Club (1955–1996).

Doraemon (ドラえもん) is a Japanese manga series written and illustrated by Fujiko F. Fujio. The manga was first serialized in December 1969. Its chapters were collected in 45 tankōbon volumes published by Shogakukan from 1974 to 1996. The story revolves around an earless robotic cat named Doraemon, who travels back in time from the 22nd century to aid a boy named Nobita Nobi.
The manga spawned a media franchise. Three anime TV series have been adapted in 1973, 1979, and 2005. Additionally, Shin-Ei Animation has produced over forty animated films, including two 3D computer-animated films, all of which are distributed by Toho. Various types of merchandise and media have been developed, including soundtrack albums, video games, and musicals. The manga series was licensed for an English language release in North America, via Amazon Kindle, by a collaboration of Fujiko F. Fujio Pro with Voyager Japan and AltJapan Co., Ltd. The anime series was licensed by Disney for an English-language release in North America in 2014, and LUK International in Europe, the Middle East and Africa.

Tom and Jerry is an American animated media franchise and series of comedy short films created in 1940 by William Hanna and Joseph Barbera. Best known for its 161 theatrical short films by Metro-Goldwyn-Mayer, the series centers on the rivalry between the titular characters of a cat named Tom and a mouse named Jerry. Many shorts also feature several recurring characters.
In its original run, Hanna and Barbera produced 114 Tom and Jerry shorts for MGM from 1940 to 1958.[1] During this time, they won seven Academy Awards for Best Animated Short Film, tying for first place with Walt Disney's Silly Symphonies with the most awards in the category. After the MGM cartoon studio closed in 1957, MGM revived the series with Gene Deitch directing an additional 13 Tom and Jerry shorts for Rembrandt Films from 1961 to 1962. Tom and Jerry became the highest-grossing animated short film series of that time, overtaking Looney Tunes. Chuck Jones produced another 34 shorts with Sib Tower 12 Productions between 1963 and 1967. Five more shorts have been produced since 2001, making a total of 166 shorts.

Result:

To design a user interface by using drag and drop for creating forms was completed successfully.

EXPERIMENT:9

User Interface for Menu-Based Program

Aim:

To design a user interface with Overlays and Inlays for menu-based program

Figma File Link:
https://www.figma.com/design/vipW71ZAQMGtk5l3kmYvB8/overlays-%26-inlays?node-id=0-1&t=q2vQBUkD0pSayKA7-1

Screenshots:

Result:

To design a user interface with Overlays and Inlays for menu-based program was completed successfully.