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)))
```

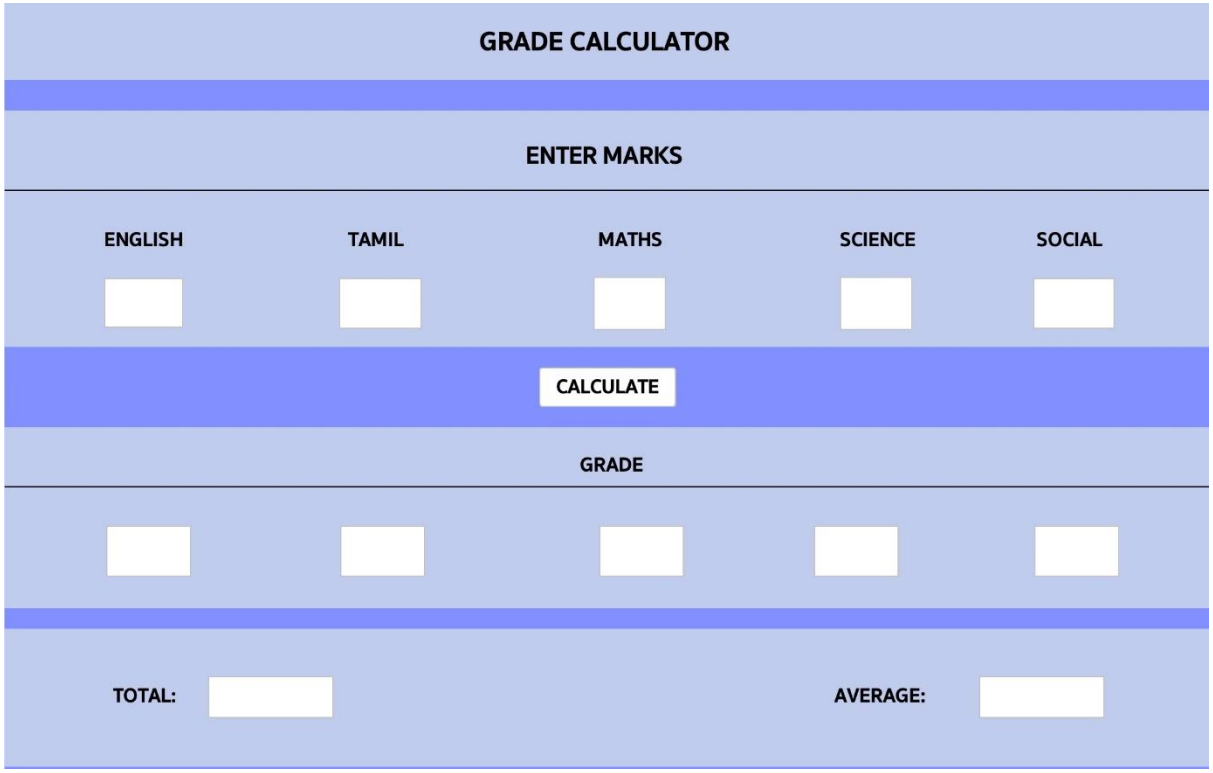
```
                .addGap(0, 0, Short.MAX_VALUE))))
        .addGroup(jPanel3Layout.createSequentialGroup()
            .addGap(98, 98, 98)
            .addGroup(hGroup)
            .addContainerGap(GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
    );
    jPanel3Layout.setVerticalGroup(vGroup);

    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.

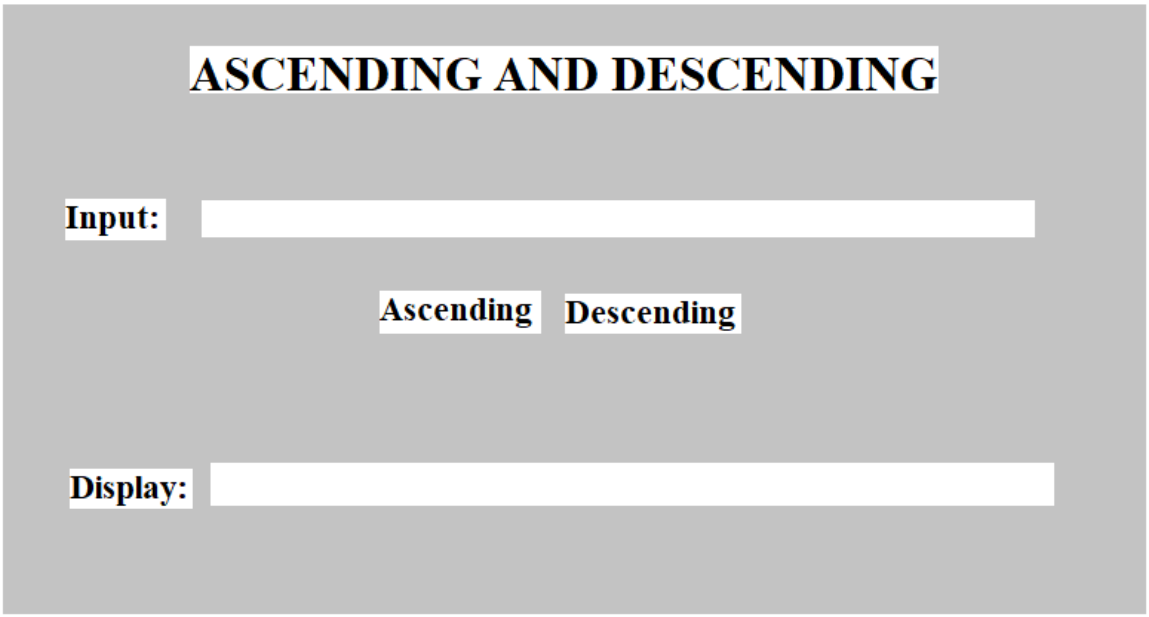
Program:

```
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) {
```

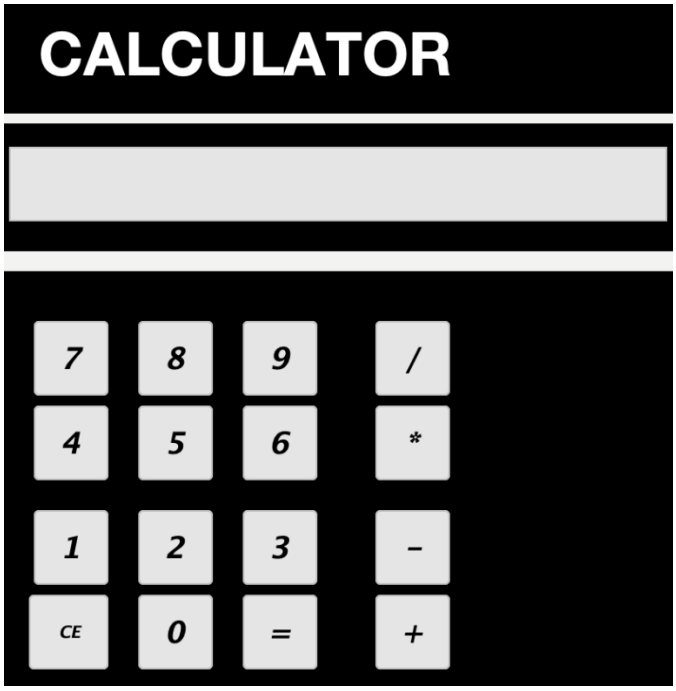
```
            txtResult.setText("");
        }
    });

    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

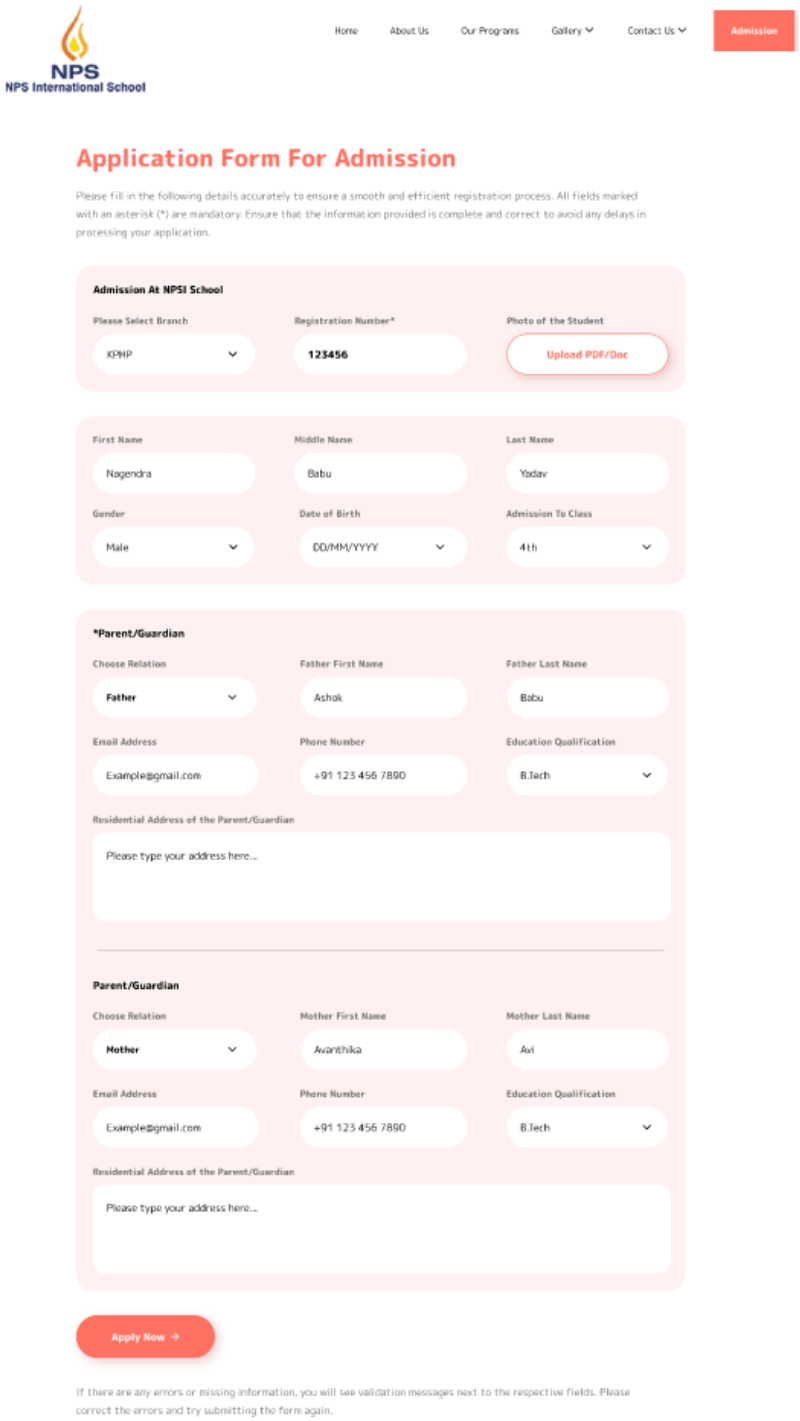
Aim:

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

Figma File Link:

https://www.figma.com/proto/SNr9UV0j5fY9x9Cw1kWbtA/Npsi_School_Admission_page?node-id=0-1&t=HX7FMlvJEk3dwc0i-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

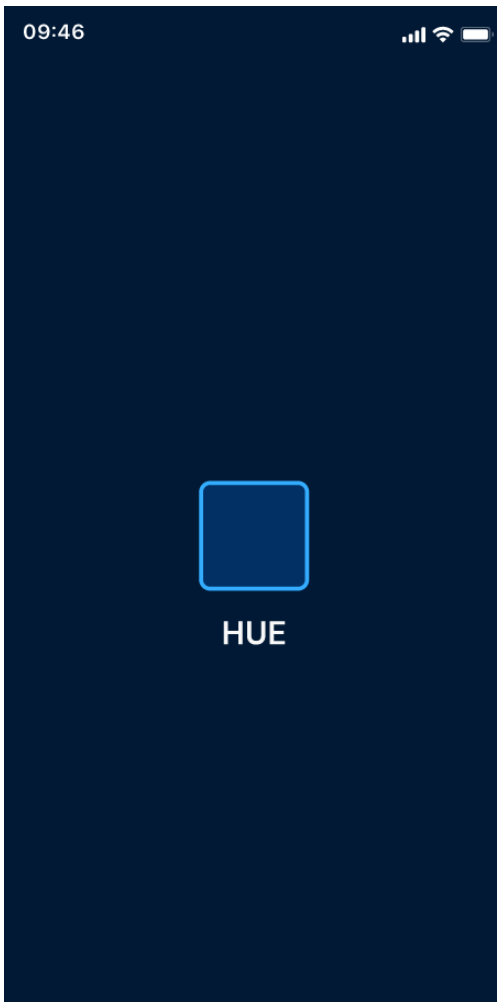
Aim:

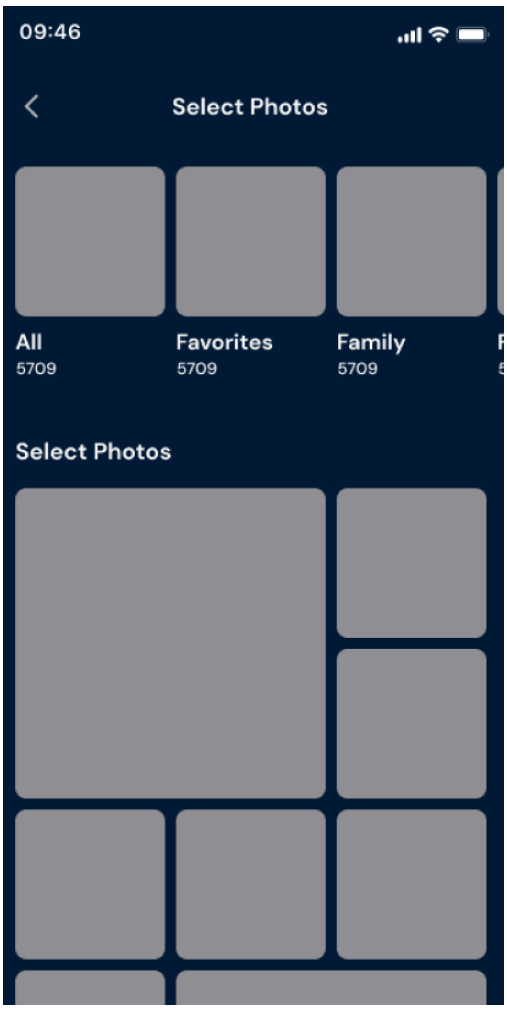
To design a user interface by using colours for displaying and changing of picture on the form.

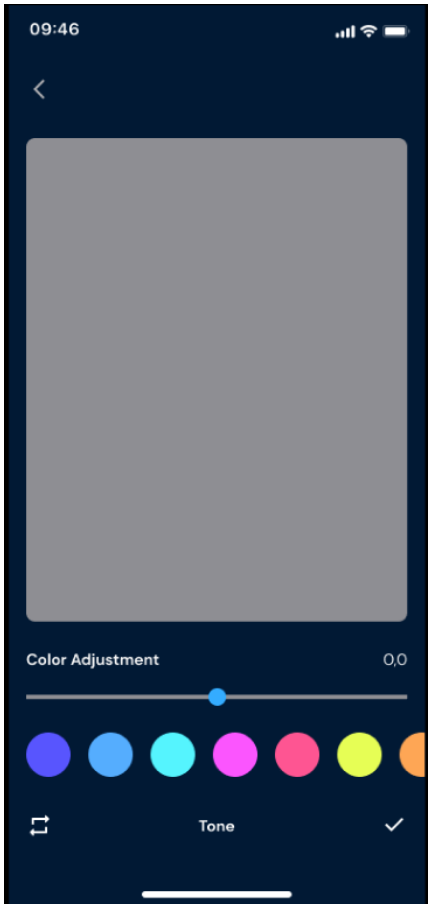
Figma File Link:

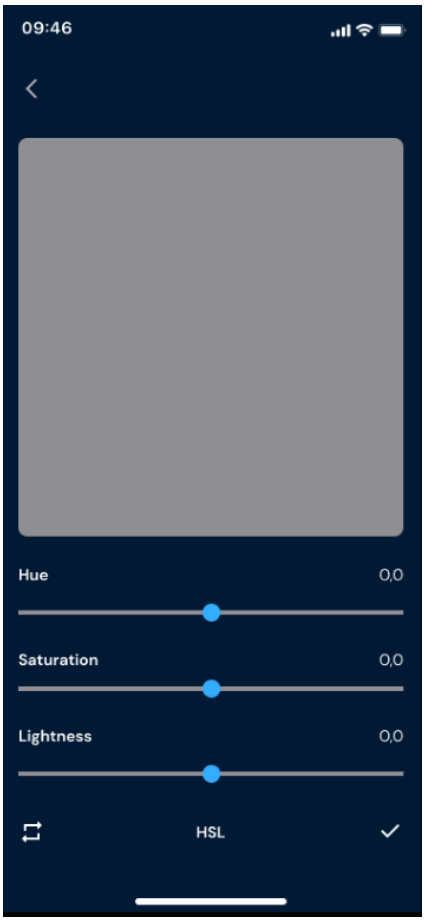
https://www.figma.com/proto/K60gFbtZukbafENfbyEXke/HUE-photo_color?node-id=197-2427&t=f6yWMbXnLXHrJwKE-1

Screenshots:









Result:

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

EXPERIMENT:7

User Interface for Exam Registration

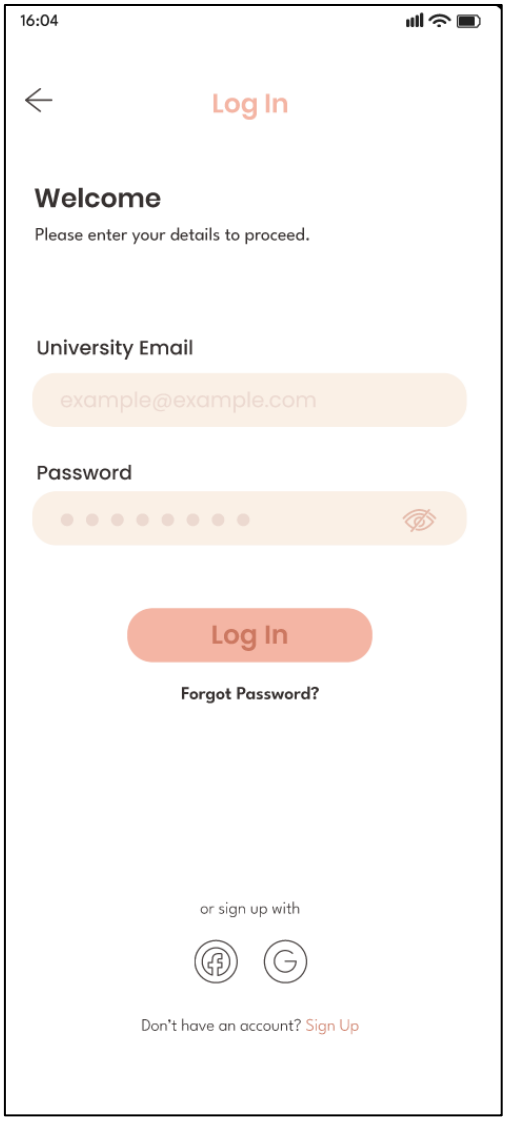
Aim:

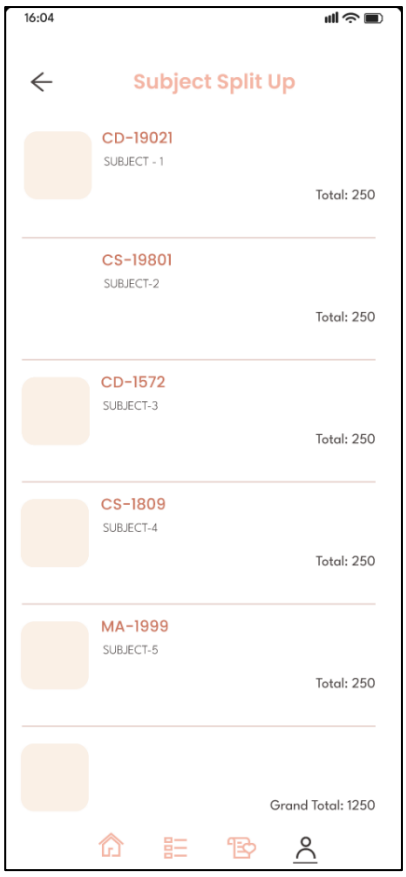
To design a user interface with widgets for end semester exam registrations

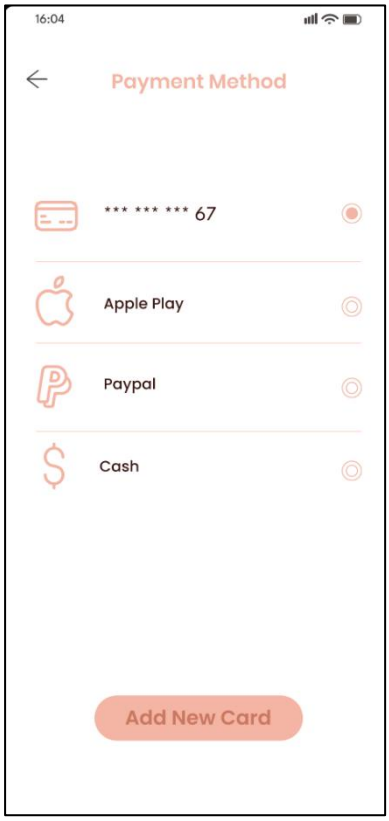
Figma File Link:

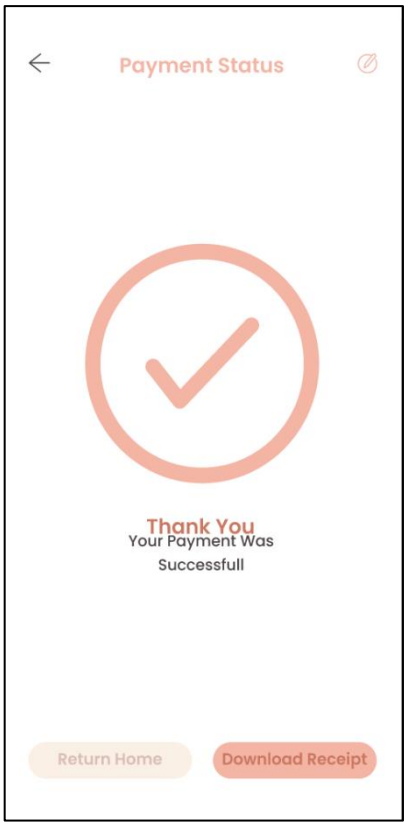
https://www.figma.com/proto/cjALHsgRdlplBLiBLczzGk/Exam_Registration?node-id=0-1&t=8oLVgUWcgDaqUxsP-1

Screenshots:









Result:

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

EXPERIMENT:8

User Interface for Form

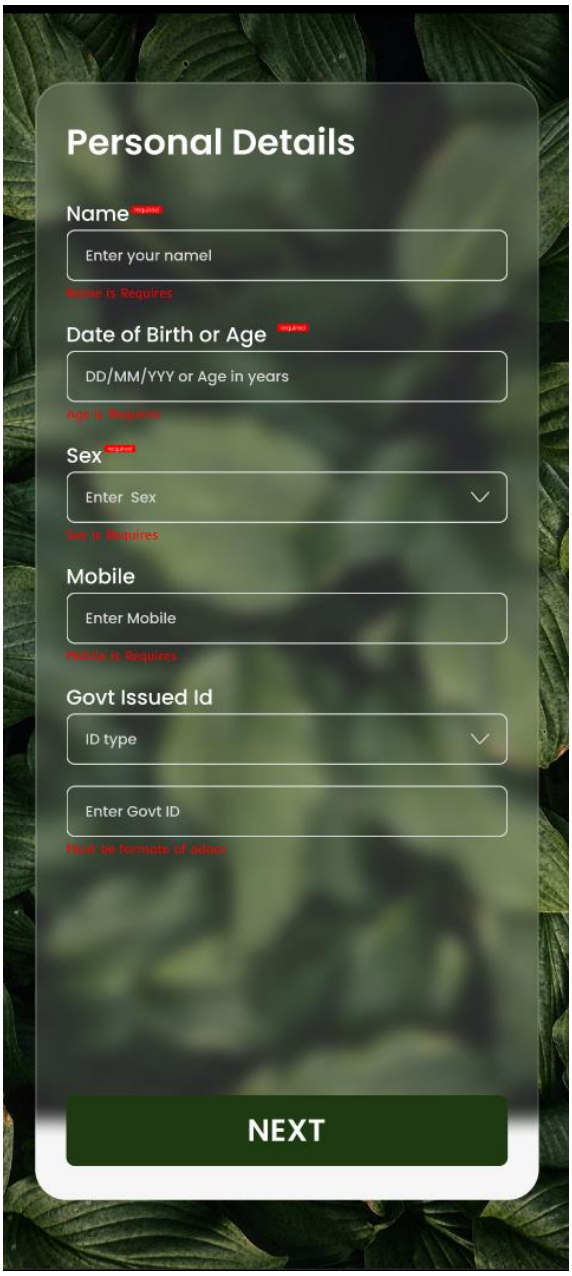
Aim:

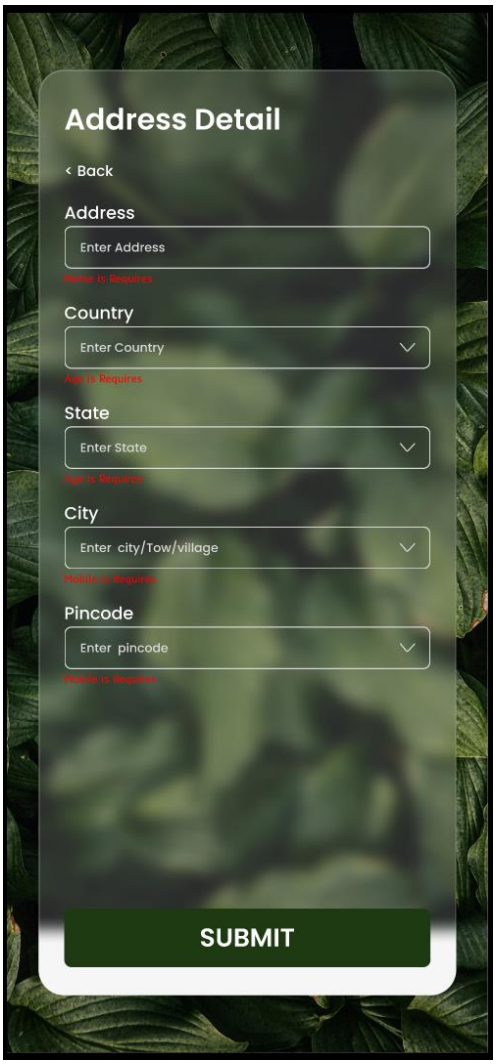
To design a user interface by using drag and drop for creating forms

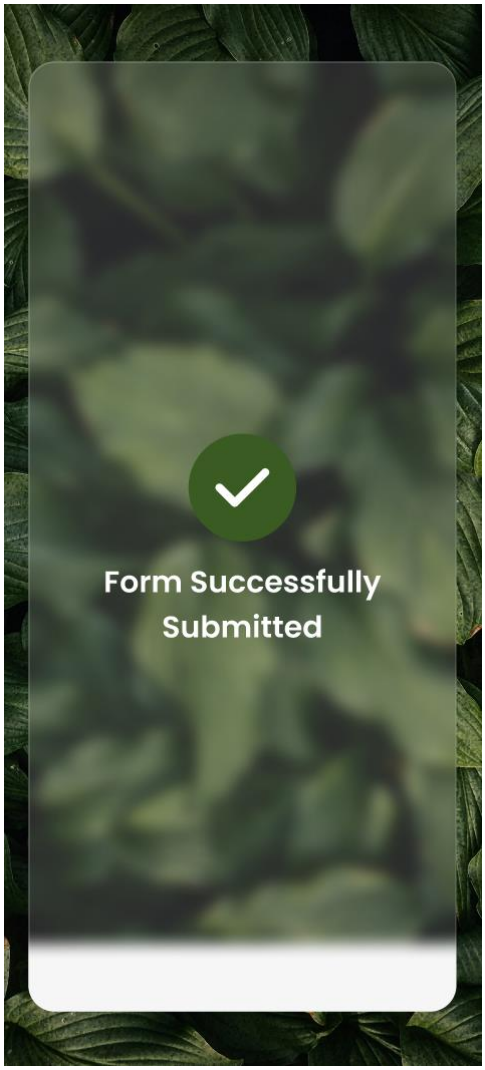
Figma File Link:

https://www.figma.com/proto/YeG0ItcX8QCZZw9X2BleRb/Form_UI?node-id=130-105&t=jMLcCrk0OinbYT4m-1&scaling=min-zoom&page-id=112%3A3285

Screenshots:







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

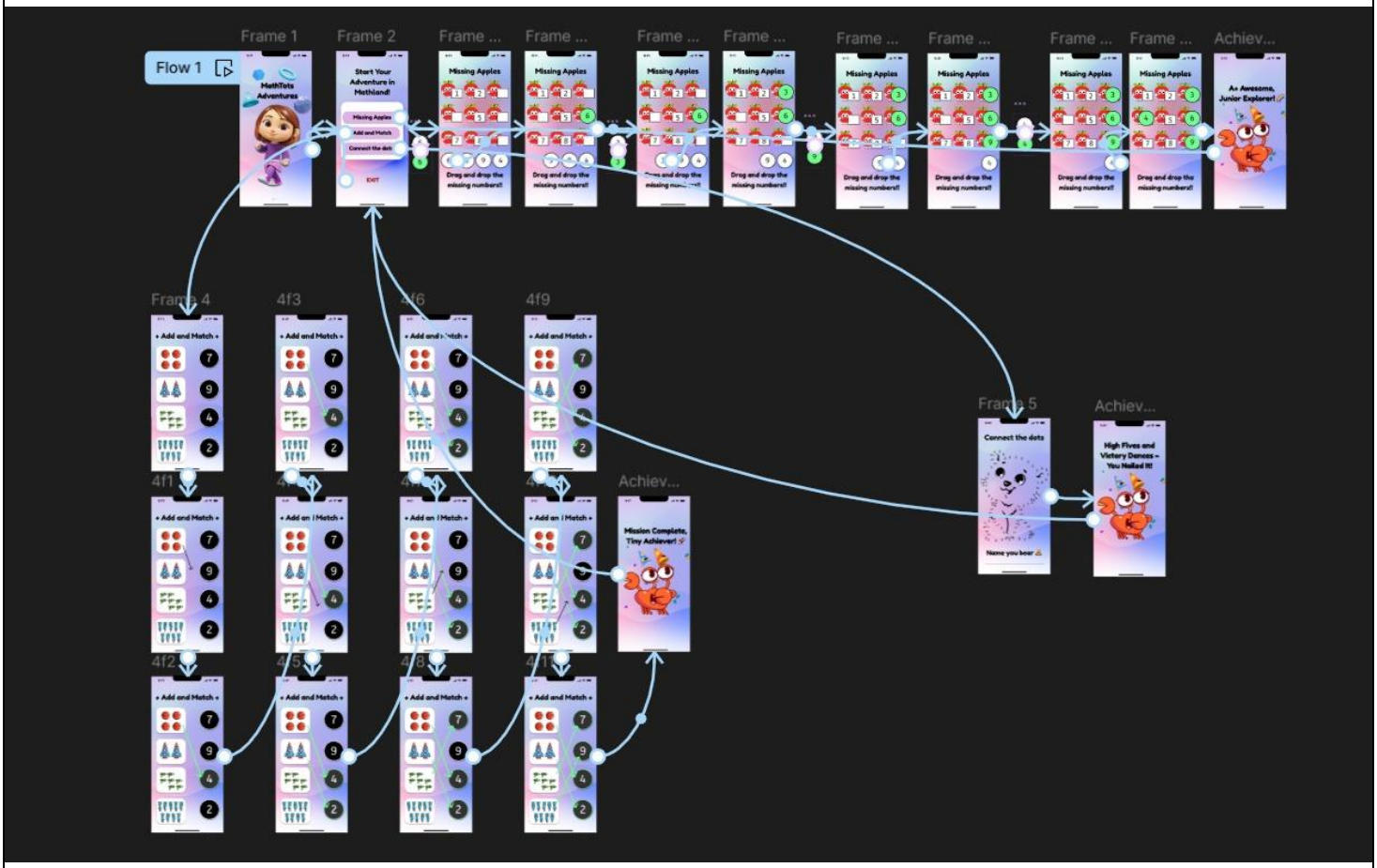
Aim:

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

Figma File Link:

https://www.figma.com/proto/dwfZSeq9W0SArGxqBpy3QI/Exp1?node-id=0-1&t=i2WYcUBU0WJnJnh6-1

Screenshots:



Result:

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