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Problem Statement:

The given application collects various information of students and stores it in a mySQL database for future uses. That is, it acts a portal to fill a form. It also computes the grade based on the given CGPA value.

Model Component:

```
package mvc;

public class Model {
 private String firstname;
 private String lastname;
 private String emailId;
 private String phoneNo;
 private String CGPA;
 private String semester;
 public Model(String firstname, String lastname, String emailId, String phoneNo,
String CGPA, String semester) {
  this.firstname = firstname;
  this.lastname = lastname;
  this.emailId = emailId;
  this.phoneNo = phoneNo;
  this.CGPA = CGPA;
  this.semester = semester;
 }
 public String getFirstname() {
  return firstname;
 }
 public String getEmailId() {
       return emailId;
}
public void setEmailId(String emailId) {
       this.emailId = emailId;
}
public String getPhoneNo() {
       return phoneNo;
}
public void setPhoneNo(String phoneNo) {
       this.phoneNo = phoneNo;
}
public String getCGPA() {
       return CGPA;
}
public void setCGPA(String CGPA) {
```

```
        this.CGPA = CGPA;
}
public String getSemester() {
        return semester;
}
public void setSemester(String semester) {
        this.semester = semester;
}
public void setFirstname(String firstname) {
  this.firstname = firstname;
 }
 public String getLastname() {
  return lastname;
 }
 public void setLastname(String lastname) {
  this.lastname = lastname;
 }
```

View Component:

```
package mvc;

import java.awt.BorderLayout;
import javax.swing.GroupLayout;
import javax.swing.JButton;
import javax.swing.JFrame;
import javax.swing.JLabel;
import javax.swing.JTextField;

public class View {
 private JFrame frame;
 private JLabel firstnameLabel;
 private JLabel lastnameLabel;
 private JLabel emailIdLabel;
 private JLabel phoneNoLabel;
 private JLabel CGPALabel;
 private JLabel semesterLabel;
 private JTextField firstnameTextfield;
 private JTextField lastnameTextfield;
 private JTextField emailIdTextfield;
 private JTextField phoneNoTextfield;
 private JTextField CGPATextfield;
 private JTextField semesterTextfield;
 private JButton SaveButton;

 public View(String title) {
  frame = new JFrame(title);
  frame.getContentPane().setLayout(new BorderLayout());
  frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
  frame.setSize(500, 300);
  frame.setLocationRelativeTo(null);
```

```
  frame.setVisible(true);
  // Create UI elements
  firstnameLabel = new JLabel("Firstname :");
  lastnameLabel = new JLabel("Lastname :");
  emailIdLabel = new JLabel("Email ID :");
  phoneNoLabel = new JLabel("Phone Number :");
  CGPALabel = new JLabel("CGPA :");
  semesterLabel = new JLabel("Semester :");

  firstnameTextfield = new JTextField();
  lastnameTextfield = new JTextField();
  emailIdTextfield = new JTextField();
  phoneNoTextfield = new JTextField();
  CGPATextfield = new JTextField();
  semesterTextfield = new JTextField();

  SaveButton = new JButton("Save");

  GroupLayout layout = new GroupLayout(frame.getContentPane());
  layout.setAutoCreateGaps(true);
  layout.setAutoCreateContainerGaps(true);
  layout.setHorizontalGroup(layout.createSequentialGroup()

.addGroup(layout.createParallelGroup(GroupLayout.Alignment.LEADING).addComponent(first
nameLabel)
    .addComponent(lastnameLabel)
    .addComponent(emailIdLabel)
    .addComponent(phoneNoLabel)
    .addComponent(CGPALabel)
    .addComponent(semesterLabel))

.addGroup(layout.createParallelGroup(GroupLayout.Alignment.LEADING).addComponent(first
nameTextfield)
    .addComponent(lastnameTextfield)
    .addComponent(emailIdTextfield)
    .addComponent(phoneNoTextfield)
    .addComponent(CGPATextfield)
    .addComponent(semesterTextfield))

.addGroup(layout.createParallelGroup(GroupLayout.Alignment.LEADING).addComponent(SaveB
utton)));

  layout.setVerticalGroup(layout.createSequentialGroup()

.addGroup(layout.createParallelGroup(GroupLayout.Alignment.BASELINE).addComponent(firs
tnameLabel)
    .addComponent(firstnameTextfield))

.addGroup(layout.createParallelGroup(GroupLayout.Alignment.BASELINE).addComponent(last
nameLabel)
```

```
    .addComponent(lastnameTextfield).addComponent(SaveButton))

.addGroup(layout.createParallelGroup(GroupLayout.Alignment.BASELINE).addComponent(emai
lIdLabel)
    .addComponent(emailIdTextfield))

.addGroup(layout.createParallelGroup(GroupLayout.Alignment.BASELINE).addComponent(phon
eNoLabel)
    .addComponent(phoneNoTextfield))

.addGroup(layout.createParallelGroup(GroupLayout.Alignment.BASELINE).addComponent(CGPA
Label)
    .addComponent(CGPATextfield))

.addGroup(layout.createParallelGroup(GroupLayout.Alignment.BASELINE).addComponent(seme
sterLabel)
    .addComponent(semesterTextfield))

.addGroup(layout.createParallelGroup(GroupLayout.Alignment.BASELINE).addComponent(Save
Button)));

  frame.getContentPane().setLayout(layout);
 }
 public JLabel getEmailIdLabel() {
       return emailIdLabel;
}
public void setEmailIdLabel(JLabel emailIdLabel) {
       this.emailIdLabel = emailIdLabel;
}
public JLabel getPhoneNoLabel() {
       return phoneNoLabel;
}
public void setPhoneNoLabel(JLabel phoneNoLabel) {
       this.phoneNoLabel = phoneNoLabel;
}
public JLabel getCGPALabel() {
       return CGPALabel;
}
public void setCGPALabel(JLabel cGPALabel) {
       CGPALabel = cGPALabel;
}
public JLabel getSemesterLabel() {
       return semesterLabel;
}
public void setSemesterLabel(JLabel semesterLabel) {
       this.semesterLabel = semesterLabel;
}
public JTextField getEmailIdTextfield() {
       return emailIdTextfield;
}
```

```
public void setEmailIdTextfield(JTextField emailIdTextfield) {
	this.emailIdTextfield = emailIdTextfield;
}
public JTextField getPhoneNoTextfield() {
	return phoneNoTextfield;
}
public void setPhoneNoTextfield(JTextField phoneNoTextfield) {
	this.phoneNoTextfield = phoneNoTextfield;
}
public JTextField getCGPATextfield() {
	return CGPATextfield;
}
public void setCGPATextfield(JTextField cGPATextfield) {
	CGPATextfield = cGPATextfield;
}
public JTextField getSemesterTextfield() {
	return semesterTextfield;
}
public void setSemesterTextfield(JTextField semesterTextfield) {
	this.semesterTextfield = semesterTextfield;
}
public JButton getSaveButton() {
	return SaveButton;
}
public void setSaveButton(JButton saveButton) {
	SaveButton = saveButton;
}
public JFrame getFrame() {
  return frame;
 }
 public void setFrame(JFrame frame) {
  this.frame = frame;
 }
 public JLabel getFirstnameLabel() {
  return firstnameLabel;
 }
 public void setFirstnameLabel(JLabel firstnameLabel) {
  this.firstnameLabel = firstnameLabel;
 }
 public JLabel getLastnameLabel() {
  return lastnameLabel;
 }
 public void setLastnameLabel(JLabel lastnameLabel) {
  this.lastnameLabel = lastnameLabel;
 }
 public JTextField getFirstnameTextfield() {
  return firstnameTextfield;
 }
 public void setFirstnameTextfield(JTextField firstnameTextfield) {
  this.firstnameTextfield = firstnameTextfield;
```

```
 }
 public JTextField getLastnameTextfield() {
  return lastnameTextfield;
 }
 public void setLastnameTextfield(JTextField lastnameTextfield) {
  this.lastnameTextfield = lastnameTextfield;
 }
```

Controller Component:

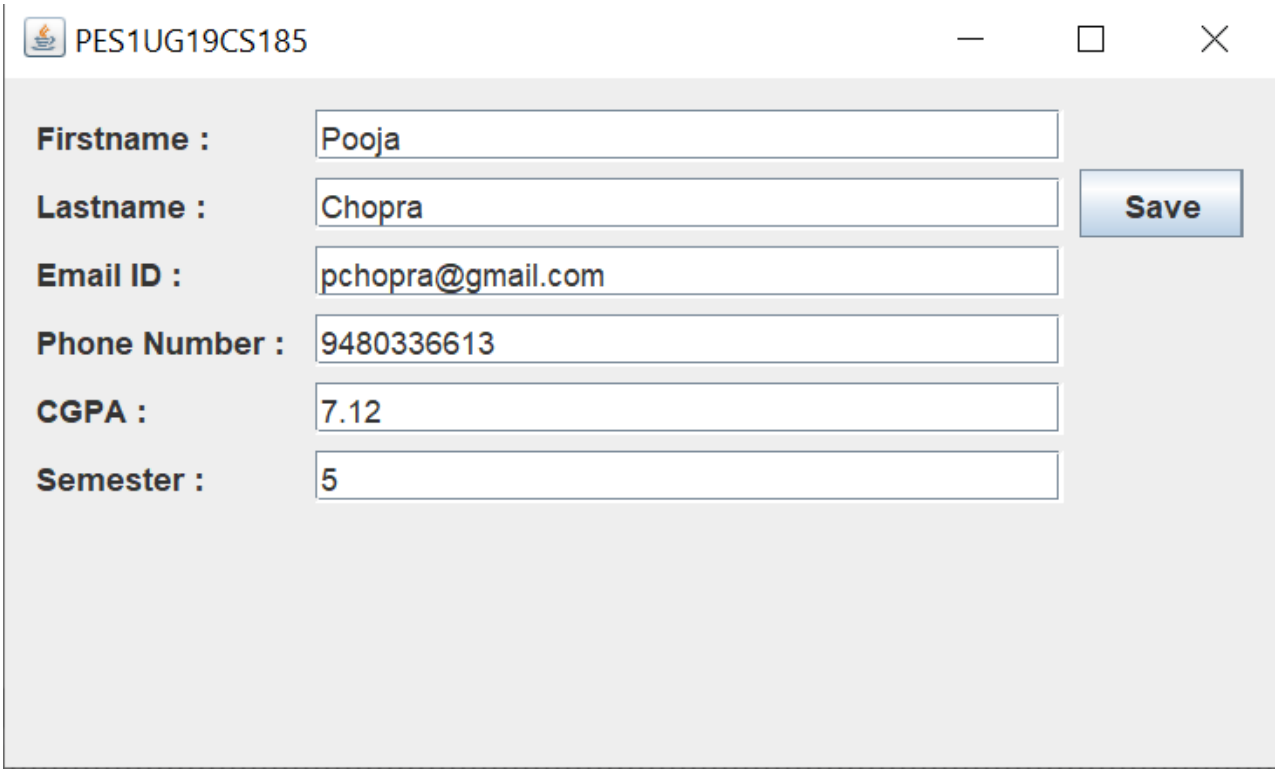
```
package mvc;

import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.Statement;

import javax.swing.JOptionPane;

public class Controller {
 private Model model;
 private View view;
 public Controller(Model m, View v) {
  model = m;
  view = v;
  initView();
 }
 public void initView() {
  view.getFirstnameTextfield().setText(model.getFirstname());
  view.getLastnameTextfield().setText(model.getLastname());
  view.getEmailIdTextfield().setText(model.getEmailId());
  view.getPhoneNoTextfield().setText(model.getPhoneNo());
  view.getCGPATextfield().setText(model.getCGPA());
  view.getSemesterTextfield().setText(model.getSemester());
 }
 public void initController() {
  view.getSaveButton().addActionListener(e -> SaveButton());
 }
 private void SaveButton() {

  model.setFirstname(view.getFirstnameTextfield().getText());
  model.setLastname(view.getLastnameTextfield().getText());
  model.setEmailId(view.getEmailIdTextfield().getText());
  model.setCGPA(view.getCGPATextfield().getText());
  model.setPhoneNo(view.getPhoneNoTextfield().getText());
  model.setSemester(view.getSemesterTextfield().getText());

  if(Float.parseFloat(model.getCGPA()) > 9.00){
```

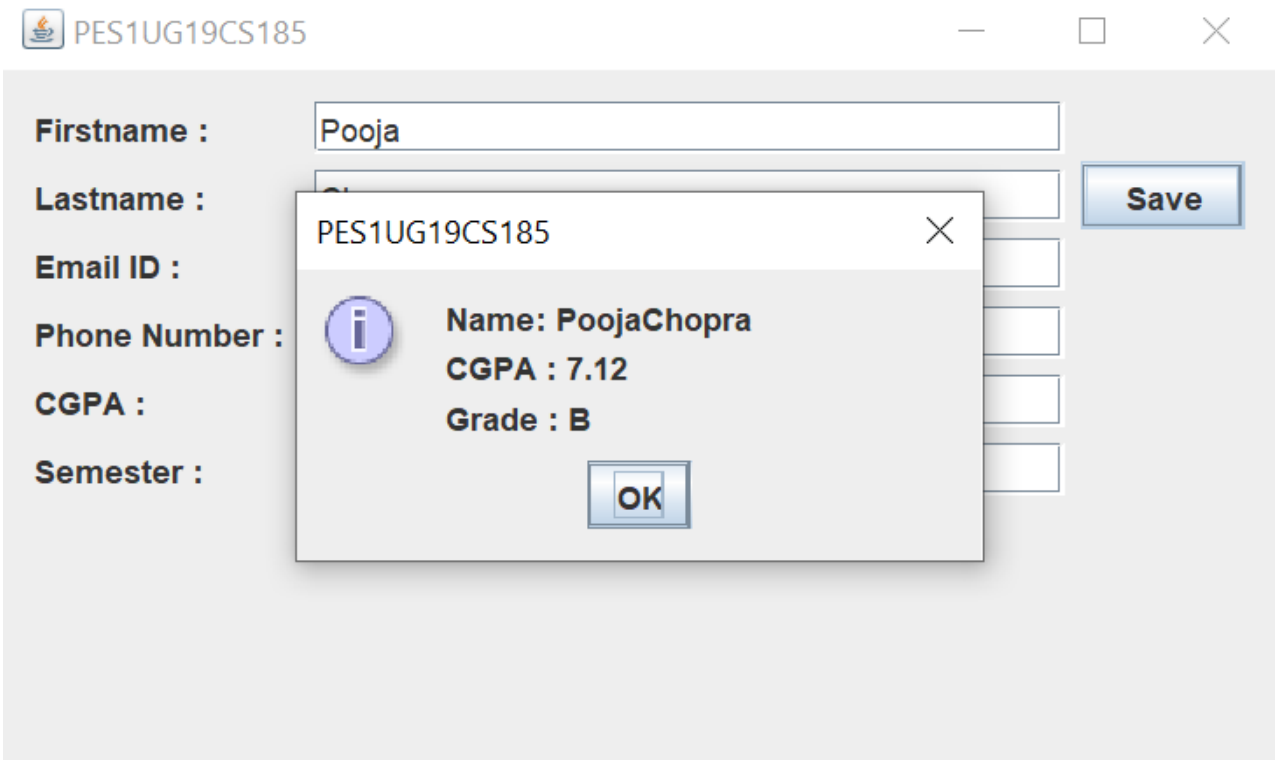
```
        JOptionPane.showMessageDialog(null,"Name: " + model.getFirstname() +
model.getLastname() +  "\nCGPA : " + model.getCGPA() + "\nGrade : S", "PES1UG19CS185",
JOptionPane.INFORMATION_MESSAGE);
  }
  else if(Float.parseFloat(model.getCGPA()) >= 8.00 &&
Float.parseFloat(model.getCGPA()) < 9.00){
        JOptionPane.showMessageDialog(null,"Name: " + model.getFirstname() +
model.getLastname() + "\nCGPA : " + model.getCGPA() + "\nGrade : A","PES1UG19CS185",
JOptionPane.INFORMATION_MESSAGE);
  }
  else if(Float.parseFloat(model.getCGPA()) >= 7.00 &&
Float.parseFloat(model.getCGPA()) < 8.00){
        JOptionPane.showMessageDialog(null,"Name: " + model.getFirstname() +
model.getLastname() + "\nCGPA : " + model.getCGPA() + "\nGrade : B","PES1UG19CS185",
JOptionPane.INFORMATION_MESSAGE);
  }
  else if(Float.parseFloat(model.getCGPA()) >= 6.00 &&
Float.parseFloat(model.getCGPA()) < 7.00){
        JOptionPane.showMessageDialog(null,"Name: " + model.getFirstname() +
model.getLastname() + "\nCGPA : " + model.getCGPA() + "\nGrade : C","PES1UG19CS185",
JOptionPane.INFORMATION_MESSAGE);
  }
  else {
        JOptionPane.showMessageDialog(null,"Name: " + model.getFirstname() +
model.getLastname() +"\nCGPA : " + model.getCGPA() + "\nGrade : D","PES1UG19CS185",
JOptionPane.INFORMATION_MESSAGE);
  }
  try {
        Connection conn =
DriverManager.getConnection("jdbc:mysql://localhost:3306/mvc", "root", "abcd1234");
        String query = "INSERT INTO details values('" + model.getFirstname() + "','" +
model.getLastname() + "','" + model.getEmailId() + "','" +
                     model.getPhoneNo() + "','" + model.getCGPA() + "','" +
model.getSemester() + "')";

        Statement sta = conn.createStatement();
      int x = sta.executeUpdate(query);
      if (x == 0) {
          JOptionPane.showMessageDialog(null, "This is already exists");
      } else {
          JOptionPane.showMessageDialog(null,"Your data has been sucessfully
uploaded");
      }
      conn.close();
       }
       catch (Exception exception) {
      exception.printStackTrace();
       }
 }
}
```

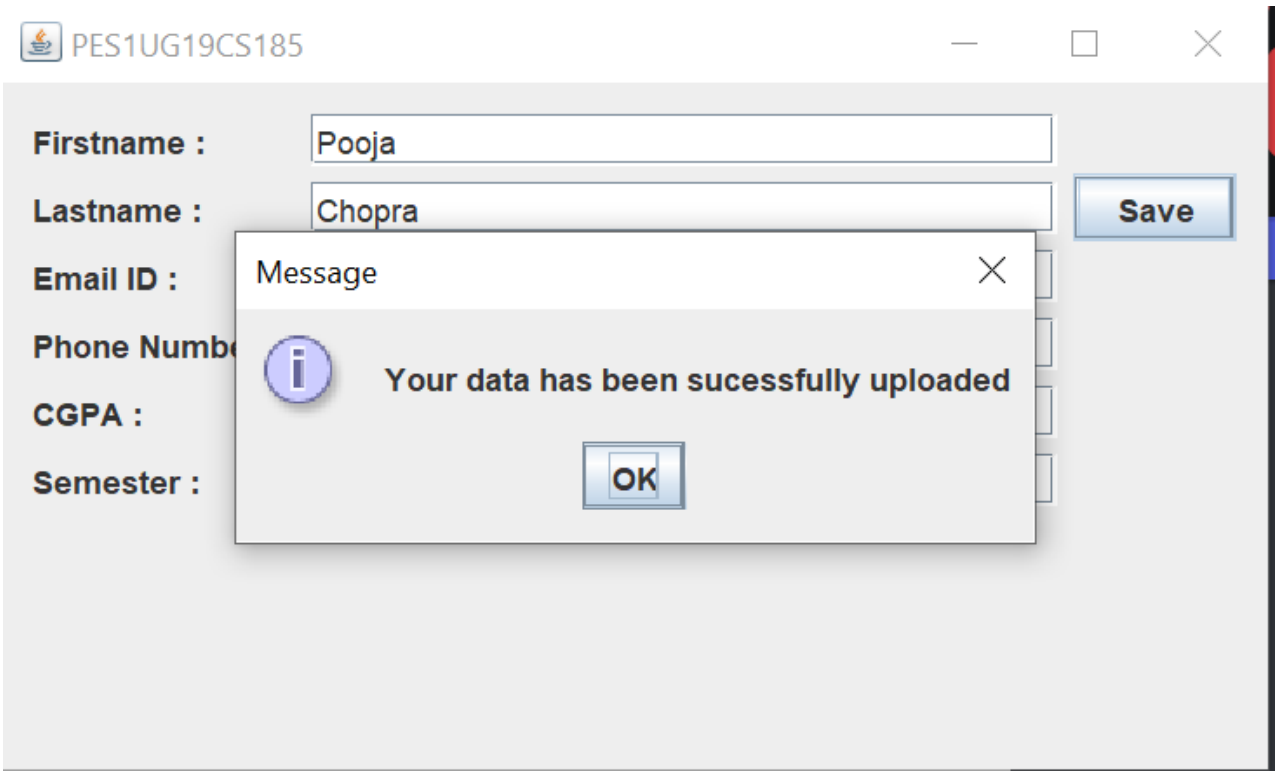
Main Component:

```
package mvc;

public class App {
 public static void main(String[] args) {
  // Assemble all the pieces of the MVC
  Model m = new Model("Harshita", "Vidapanakal", "harshita.vidapanakal@gmail.com",
"9000658884", "9.16", "6");
  View v = new View("PES1UG19CS185");
  Controller c = new Controller(m, v);
  c.initController();
 }
}
```

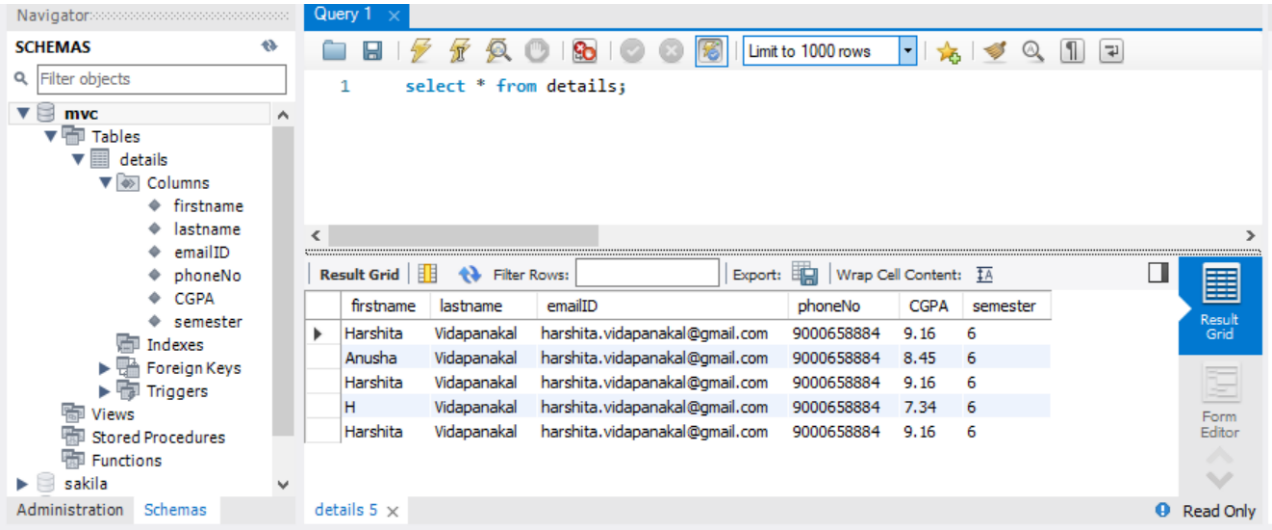
Output Screen Shots:



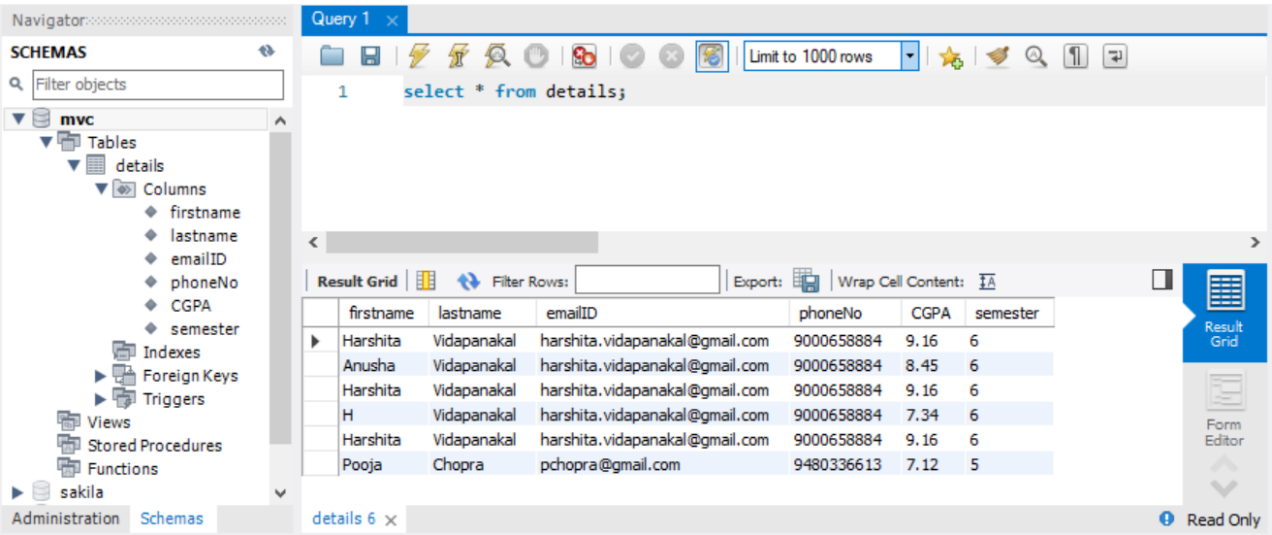

PES1UG19CS185
Firstname :
Pooja
Lastname :
Email ID :
Phone Number :
CGPA :
Semester :
Save
PES1UG19CS185
Name: PoojaChopra
CGPA : 7.12
Grade : B
OK


PES1UG19CS185
Firstname :
Pooja
Lastname :
Chopra
Email ID :
Phone Numb
CGPA :
Semester :
Save
Message
Your data has been sucessfully uploaded
OK

Database Before clicking Save:



Database after clicking Save:



Database:

Database Used: mySQL

To connect the program with the MySQL database, we use the JDBC driver which is a JAR file. The login credentials have to be passed in the program. The table and the database have been created prior.

Database: mvc

Table: details

Attributes: First name, Last name, Email Id, Phone No, CGPA and Semester

Technologies /Tools used:

- **Java 8**
- **MySQL**
- **Javax.Swing**
- **Java.sql**
- **Java.awt**
- **Jdbc**