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20BCB0043

VIT VELLORE

Modern Application Development (Java Spring-Boot)

ASSIGNMENT – 3

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Q1(Using XAMPP and Eclipse)

(A) Create database of the student with the details such as (name, register-number, cgpa, age, day-scholar/hosteller).

(B) Create a class student with the needed attributes. Use array of objects to store 'n' number of students' details into the database.

Write a java program to fetch the following details from the database Student.

- List of students whose joined in 2018.
- List of students whose age is between 18-20.
- List of students with CGPA less than 5.
- List of students who stay in hostel.
- List of 2019 batch students who are day-scholars.

Code:

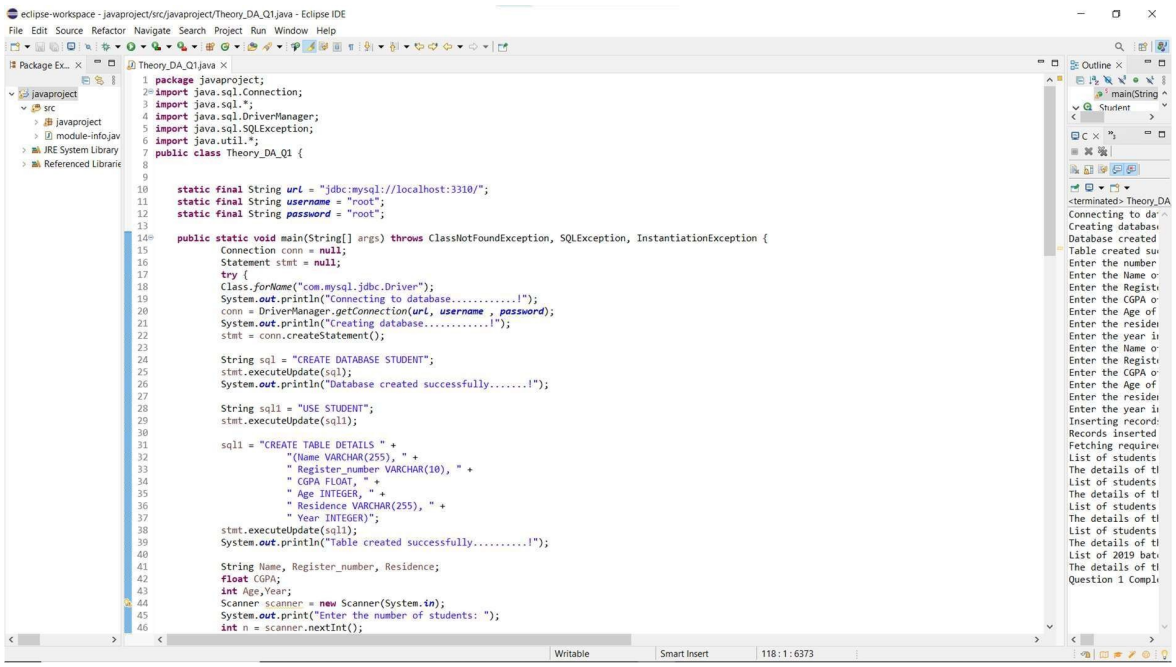
```
package  javaproject;
import java.sql.Connection;
import java.sql.*;
import java.sql.DriverManager;
import java.sql.SQLException;
import java.util.*;
public class Theory_DA_Q1 {


	static final String url = "jdbc:mysql://localhost:3310/";
	static final String username = "root";
	static final String password = "root";

	public static void main(String[] args) throws ClassNotFoundException,
SQLException, InstantiationException {
		Connection conn = null;
		Statement stmt = null;
		try {
		Class.forName("com.mysql.jdbc.Driver");
		System.out.println("Connecting to database.....!");
		conn = DriverManager.getConnection(url, username , password);
		System.out.println("Creating database.....!");
		stmt = conn.createStatement();

		String sql = "CREATE DATABASE STUDENT";
		stmt.executeUpdate(sql);
		System.out.println("Database created successfully.....!");

		String sql1 = "USE STUDENT";
		stmt.executeUpdate(sql1);

		sql1 = "CREATE TABLE DETAILS " +
				"(Name VARCHAR(255), " +
				" Register_number VARCHAR(10), " +
				" CGPA FLOAT, " +
				" Age INTEGER, " +
				" Residence VARCHAR(255), " +
				" Year INTEGER)";
		stmt.executeUpdate(sql1);
```

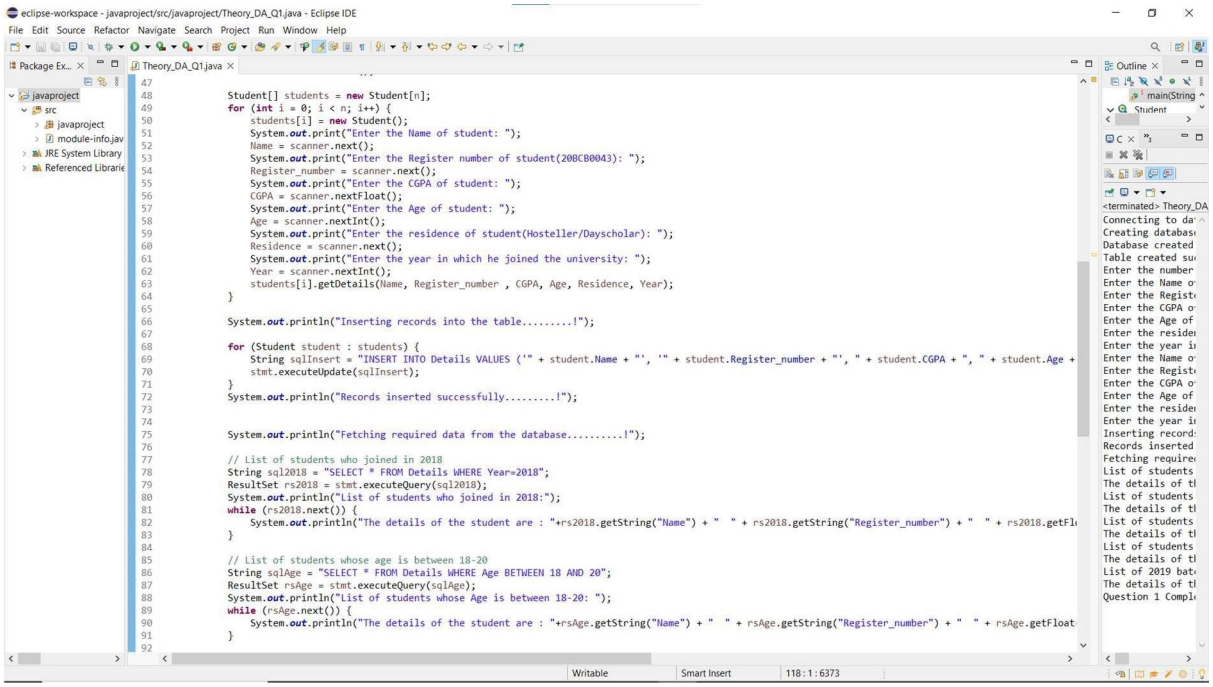
```
                System.out.println("Table created successfully.....!");

                String Name, Register_number, Residence;
                float CGPA;
                int Age,Year;
                Scanner scanner = new Scanner(System.in);
                System.out.print("Enter the number of students: ");
                int n = scanner.nextInt();

                Student[] students = new Student[n];
                for (int i = 0; i < n; i++) {
                   students[i] = new Student();
               System.out.print("Enter the Name of student: ");
               Name = scanner.next();
               System.out.print("Enter the Register number of student(20BCB0043):
");
               Register_number = scanner.next();
               System.out.print("Enter the CGPA of student: ");
               CGPA = scanner.nextFloat();
               System.out.print("Enter the Age of student: ");
               Age  =  scanner.nextInt();
               System.out.print("Enter the residence of
student(Hosteller/Dayscholar): ");
               Residence = scanner.next();
               System.out.print("Enter the year in which he joined the
university: ");
               Year = scanner.nextInt();
               students[i].getDetails(Name, Register_number , CGPA, Age,
Residence, Year);
                }

                System.out.println("Inserting records into the
table.....!");

            for (Student student : students) {
                String sqlInsert = "INSERT INTO Details VALUES ('" + student.Name
+ "', '" + student.Register_number + "', " + student.CGPA + ", " + student.Age +
", '" + student.Residence + "', " + student.Year + ")";
                stmt.executeUpdate(sqlInsert);
            }
            System.out.println("Records inserted successfully.....!");


            System.out.println("Fetching required data from the
database .....!");

            // List of students who joined in 2018
            String sql2018 = "SELECT * FROM Details WHERE Year=2018";
            ResultSet rs2018 = stmt.executeQuery(sql2018);
            System.out.println("List of students who joined in 2018:");
            while (rs2018.next()) {
                System.out.println("The details of the student are :
"+rs2018.getString("Name") + " " + rs2018.getString("Register_number") + " " +
rs2018.getFloat("CGPA") + " " + rs2018.getInt("Age") + " " +
rs2018.getString("Residence") + "  "+rs2018.getInt("Year"));
            }

            // List of students whose age is between 18-20
            String sqlAge = "SELECT * FROM Details WHERE Age BETWEEN 18 AND 20";
```

```
            ResultSet rsAge = stmt.executeQuery(sqlAge);
            System.out.println("List of students whose Age is between 18-20: ");
            while (rsAge.next()) {
                System.out.println("The details of the student are :
"+rsAge.getString("Name") + " " + rsAge.getString("Register_number") + " " +
rsAge.getFloat("CGPA") + " " + rsAge.getInt("Age") + " " +
rsAge.getString("Residence")+ " "+rsAge.getInt("Year"));
            }

            // List of students with CGPA less than 5
            String sqlCGPA = "SELECT * FROM Details WHERE CGPA < 5.0";
            ResultSet rsCGPA = stmt.executeQuery(sqlCGPA);
            System.out.println("List of students with CGPA less than 5: ");
            while (rsCGPA.next()) {
                System.out.println("The details of the student are :
"+rsCGPA.getString("Name") + " " + rsCGPA.getString("Register_number") + " " +
rsCGPA.getFloat("CGPA") + " " + rsCGPA.getInt("Age") + " " +
rsCGPA.getString("Residence")+ " "+rsCGPA.getInt("Year"));
            }

            // List of students who stay in hostel
            String sqlResidence = "SELECT * FROM Details WHERE Residence =
'Hosteller'";
            ResultSet rsResidence = stmt.executeQuery(sqlResidence);
            System.out.println("List of students who stay in hostel: ");
            while (rsResidence.next()) {
                System.out.println("The details of the student are :
"+rsResidence.getString("Name") + "  " + rsResidence.getString("Register_number")
+ " " + rsResidence.getFloat("CGPA") + " " + rsResidence.getInt("Age") + " " +
rsResidence.getString("Residence")+ " "+rsResidence.getInt("Year"));
            }

            // List of 2019 batch students who are day-scholars
            String sql2019 = "SELECT * FROM Details WHERE Year=2019 AND Residence
= 'Dayscholar'";
            ResultSet rs2019 = stmt.executeQuery(sql2019);
            System.out.println("List of 2019 batch students who are day
scholars:");
            while (rs2019.next()) {
                System.out.println("The details of the student are :
"+rs2019.getString("Name") + " " + rs2019.getString("Register_number") + " " +
rs2019.getFloat("CGPA") + " " + rs2019.getInt("Age") + " " +
rs2019.getString("Residence")+ " "+rs2019.getInt("Year"));
            }

            System.out.println("Question 1 Completed!");

                }
                catch(Exception ex) {
                   System.out.println(ex.getMessage());
                }

                finally {
                   stmt.close();
                       conn.close();
                }

               }
      }
```

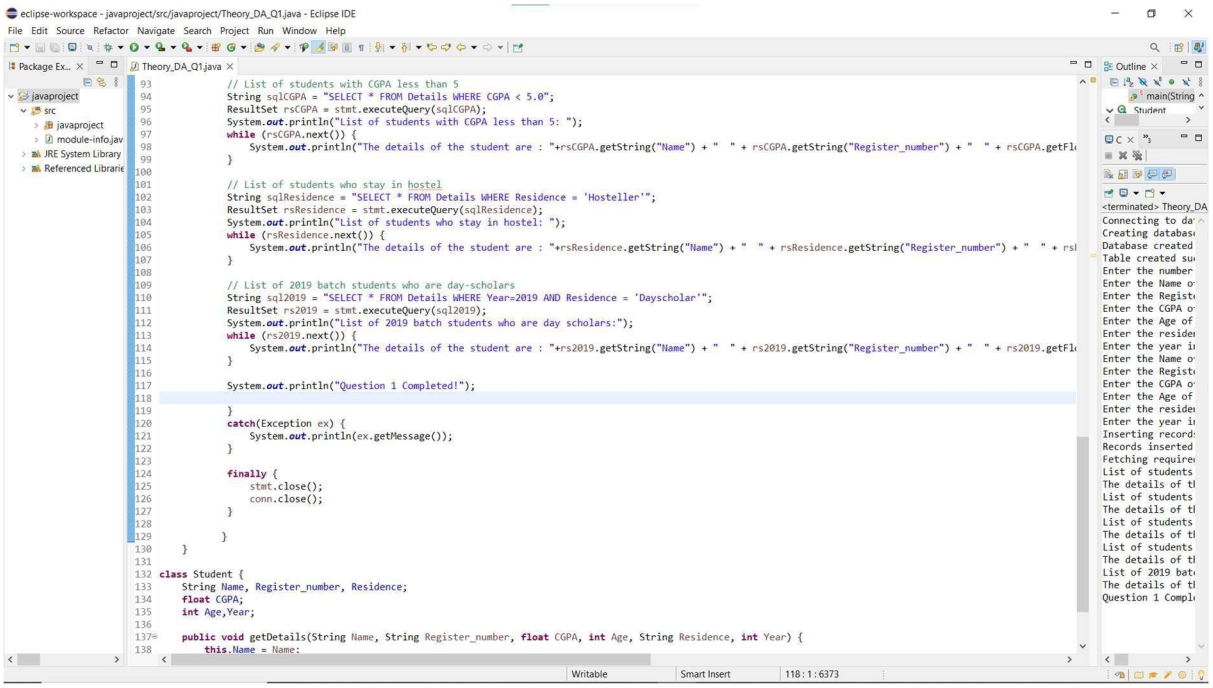
```java
class Student {
    String Name, Register_number, Residence;
    float CGPA;
    int Age,Year;

    public void getDetails(String Name, String Register_number, float CGPA, int
Age, String Residence, int Year) {
        this.Name = Name;
        this.Register_number = Register_number;
        this.CGPA = CGPA;
        this.Age = Age;
        this.Residence = Residence;
        this.Year = Year;
    }
}
```

Code Screenshots:





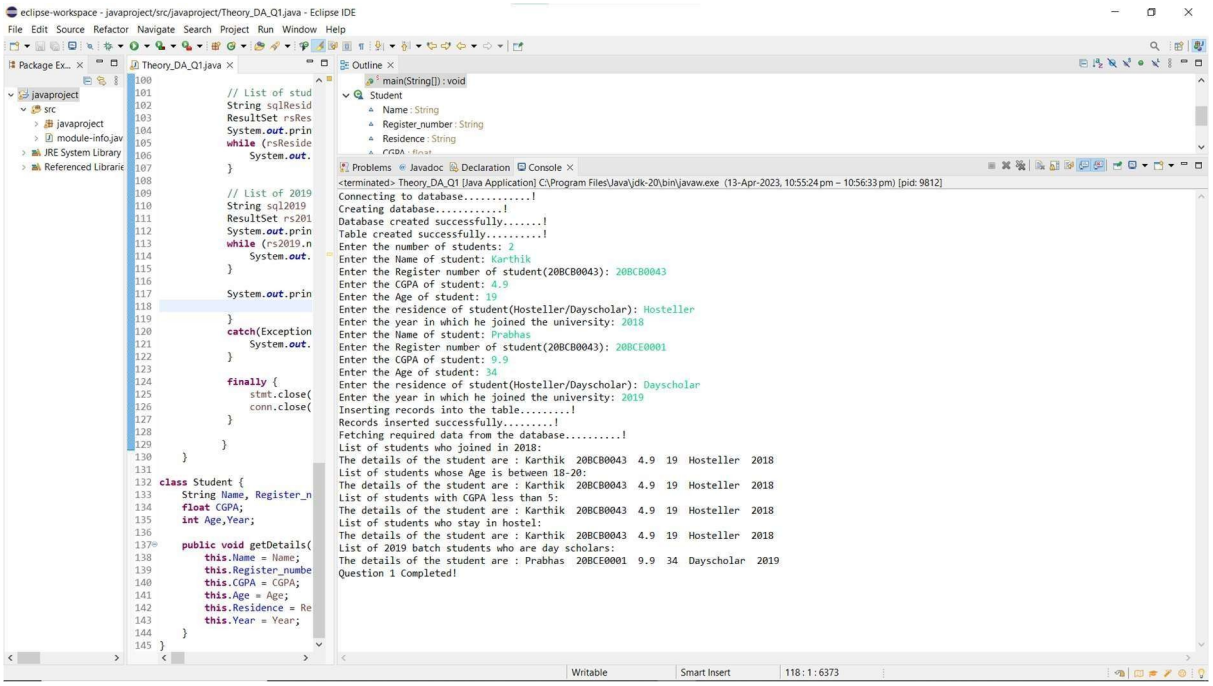

```
47
48              Student[] students = new Student[n];
49              for (int i = 0; i < n; i++) {
50                  students[i] = new Student();
51                  System.out.print("Enter the Name of student: ");
52                  Name = scanner.next();
53                  System.out.print("Enter the Register number of student(20BCB0043): ");
54                  Register_number = scanner.next();
55                  System.out.print("Enter the CGPA of student: ");
56                  CGPA = scanner.nextFloat();
57                  System.out.print("Enter the Age of student: ");
58                  Age = scanner.nextInt();
59                  System.out.print("Enter the residence of student(Hosteller/Dayscholar): ");
60                  Residence = scanner.next();
61                  System.out.print("Enter the year in which he joined the university: ");
62                  Year = scanner.nextInt();
63                  students[i].getDetails(Name, Register_number , CGPA, Age, Residence, Year);
64              }
65
66              System.out.println("Inserting records into the table.....!");
67
68              for (Student student : students) {
69                  String sqlInsert = "INSERT INTO Details VALUES ('" + student.Name + "', '" + student.Register_number + "', " + student.CGPA + ", " + student.Age +
70                  stmt.executeUpdate(sqlInsert);
71              }
72              System.out.println("Records inserted successfully.....!");
73
74
75              System.out.println("Fetching required data from the database.....!");
76
77              // List of students who joined in 2018
78              String sql2018 = "SELECT * FROM Details WHERE Year=2018";
79              ResultSet rs2018 = stmt.executeQuery(sql2018);
80              System.out.println("List of students who joined in 2018:");
81              while (rs2018.next()) {
82                  System.out.println("The details of the student are : "+rs2018.getString("Name") + "  " + rs2018.getString("Register_number") + "  " + rs2018.getFl
83              }
84
85              // List of students whose age is between 18-20
86              String sqlAge = "SELECT * FROM Details WHERE Age BETWEEN 18 AND 20";
87              ResultSet rsAge = stmt.executeQuery(sqlAge);
88              System.out.println("List of students whose Age is between 18-20: ");
89              while (rsAge.next()) {
90                  System.out.println("The details of the student are : "+rsAge.getString("Name") + "  " + rsAge.getString("Register_number") + "  " + rsAge.getFloat
91              }
92
```



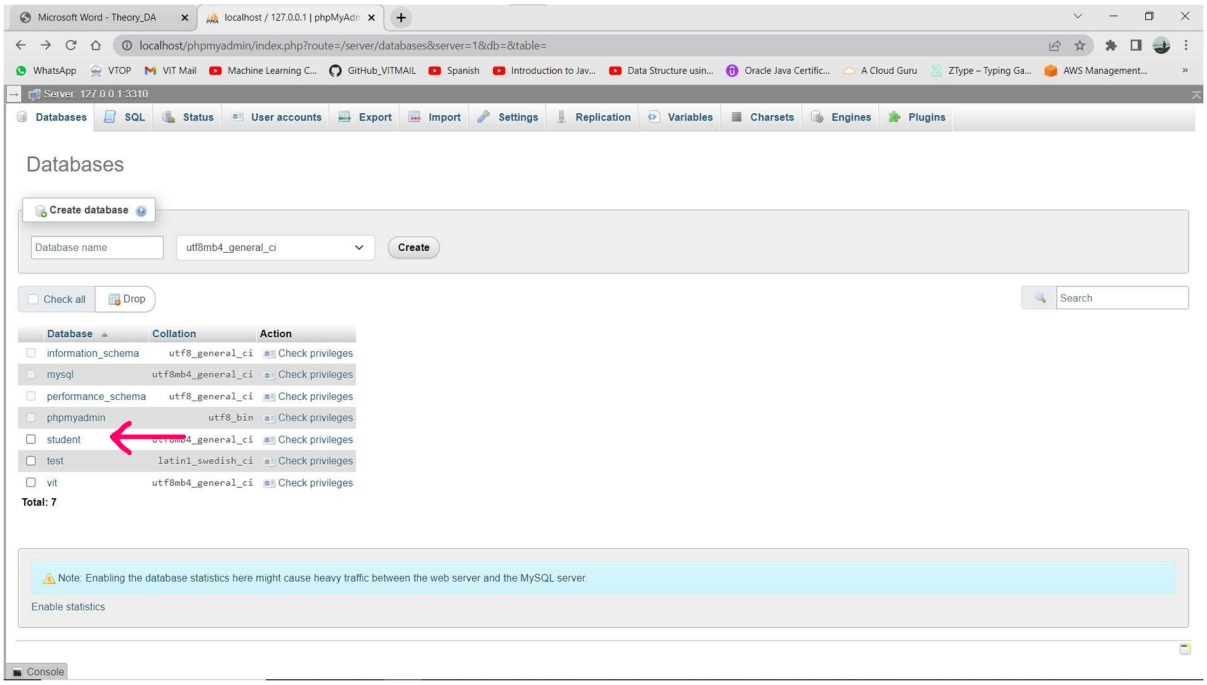

```
93              // List of students with CGPA less than 5
94              String sqlCGPA = "SELECT * FROM Details WHERE CGPA < 5.0";
95              ResultSet rsCGPA = stmt.executeQuery(sqlCGPA);
96              System.out.println("List of students with CGPA less than 5: ");
97              while (rsCGPA.next()) {
98                  System.out.println("The details of the student are : "+rsCGPA.getString("Name") + "  " + rsCGPA.getString("Register_number") + "  " + rsCGPA.getFl
99              }
100
101             // List of students who stay in hostel
102             String sqlResidence = "SELECT * FROM Details WHERE Residence = 'Hosteller'";
103             ResultSet rsResidence = stmt.executeQuery(sqlResidence);
104             System.out.println("List of students who stay in hostel: ");
105             while (rsResidence.next()) {
106                 System.out.println("The details of the student are : "+rsResidence.getString("Name") + "  " + rsResidence.getString("Register_number") + "  " + rsI
107             }
108
109             // List of 2019 batch students who are day-scholars
110             String sql2019 = "SELECT * FROM Details WHERE Year=2019 AND Residence = 'Dayscholar'";
111             ResultSet rs2019 = stmt.executeQuery(sql2019);
112             System.out.println("List of 2019 batch students who are day scholars:");
113             while (rs2019.next()) {
114                 System.out.println("The details of the student are : "+rs2019.getString("Name") + "  " + rs2019.getString("Register_number") + "  " + rs2019.getFl
115             }
116
117             System.out.println("Question 1 Completed!");
118
119             }
120             catch(Exception ex) {
121                 System.out.println(ex.getMessage());
122             }
123
124             finally {
125                 stmt.close();
126                 conn.close();
127             }
128
129         }
130     }
131
132 class Student {
133     String Name, Register_number, Residence;
134     float CGPA;
135     int Age,Year;
136
137     public void getDetails(String Name, String Register_number, float CGPA, int Age, String Residence, int Year) {
138         this.Name = Name;
```

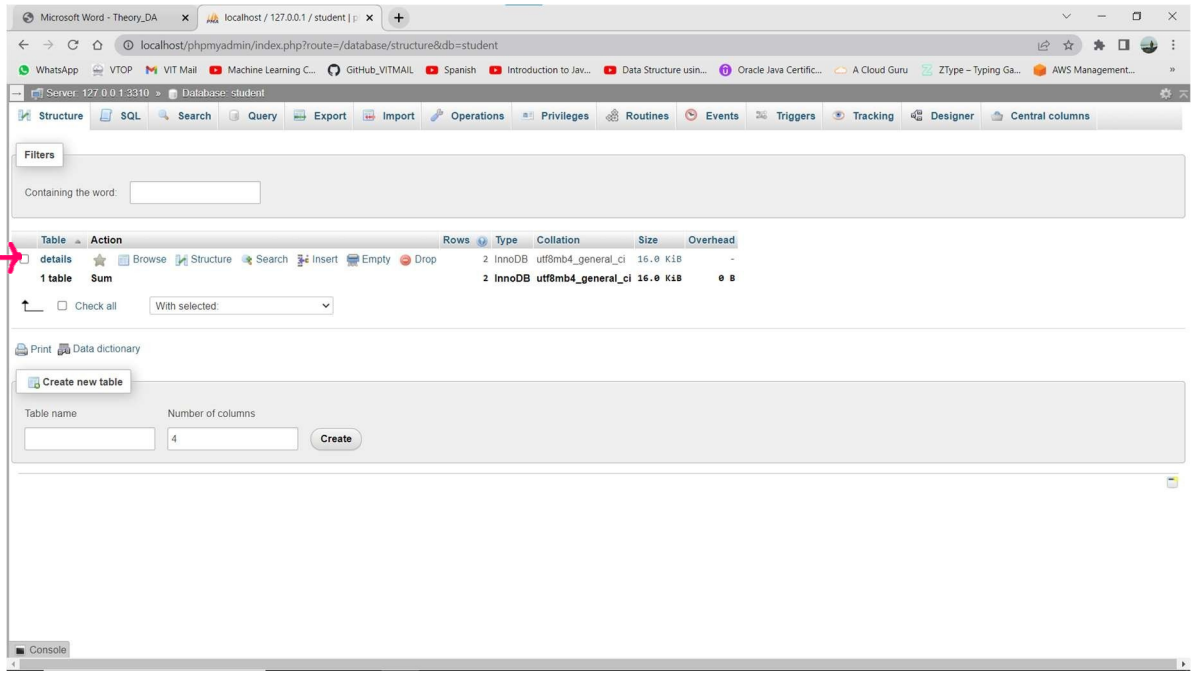
```
132 class Student {
133     String Name, Register_number, Residence;
134     float CGPA;
135     int Age,Year;
136
137     public void getDetails(String Name, String Register_number, float CGPA, int Age, String Residence, int Year) {
138         this.Name = Name;
139         this.Register_number = Register_number;
140         this.CGPA = CGPA;
141         this.Age = Age;
142         this.Residence = Residence;
143         this.Year = Year;
144     }
145 }
```

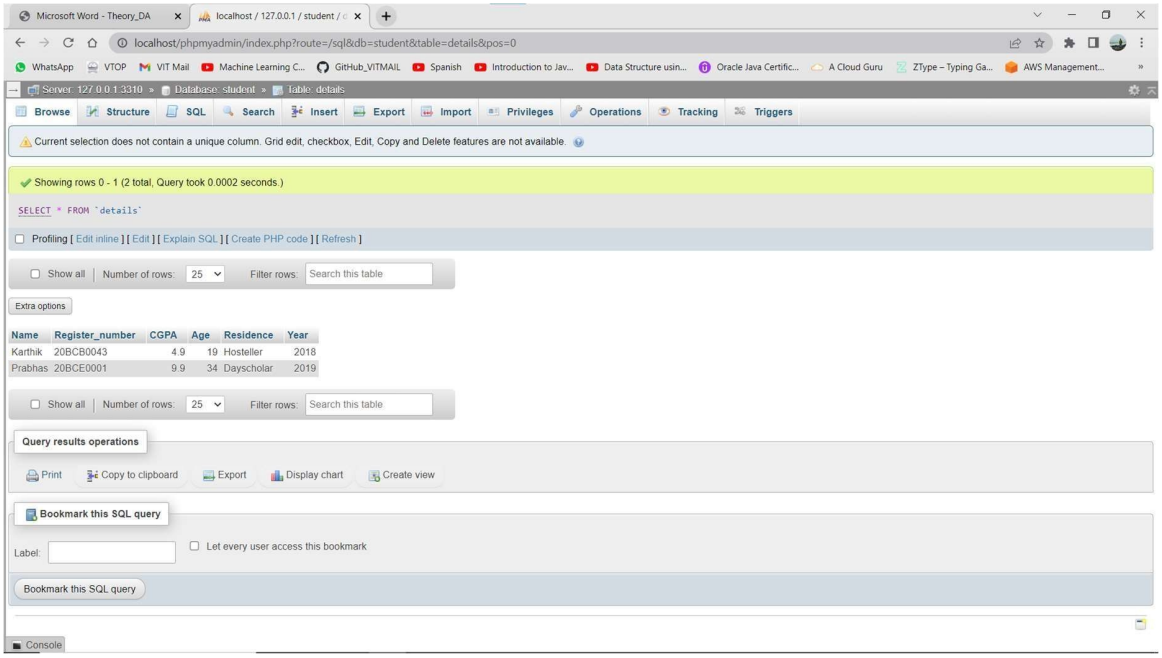
Output Screenshots:



Database (Student) & Table (Details) Screenshots:




Microsoft Word - Theory_DA
localhost / 127.0.0.1 / student
localhost/phpmyadmin/index.php?route=/database/structure&db=student
Server: 127.0.0.1:3310 » Database: student
Structure SQL Search Query Export Import Operations Privileges Routines Events Triggers Tracking Designer Central columns
Filters
Containing the word:
Table Action Rows Type Collation Size Overhead
details Browse Structure Search Insert Empty Drop 2 InnoDB utf8mb4_general_ci 16.0 KiB -
1 table Sum 2 InnoDB utf8mb4_general_ci 16.0 KiB 0 B
Check all With selected:
Print Data dictionary
Create new table
Table name
Number of columns
4
Create
Console


Microsoft Word - Theory_DA
localhost / 127.0.0.1 / student
localhost/phpmyadmin/index.php?route=/sql&db=student&table=details&pos=0
Server: 127.0.0.1:3310 » Database: student » Table: details
Browse Structure SQL Search Insert Export Import Privileges Operations Tracking Triggers
Current selection does not contain a unique column. Grid edit, checkbox, Edit, Copy and Delete features are not available.
Showing rows 0 - 1 (2 total, Query took 0.0002 seconds.)
SELECT * FROM `details`
Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]
Show all | Number of rows: 25 Filter rows: Search this table
Extra options
Name Register_number CGPA Age Residence Year
Karthik 20BCB0043 4.9 19 Hosteller 2018
Prabhas 20BCE0001 9.9 34 Dayscholar 2019
Query results operations
Print Copy to clipboard Export Display chart Create view
Bookmark this SQL query
Label:
Let every user access this bookmark
Bookmark this SQL query
Console