

Experiment 10

Student Name: Jatin

UID: 20BCS5951

Branch: BE-CSE

Section/Group:605-B

Semester: 6th

Date of Performance: 04/05/2023

Subject Name: Mobile Application Development Lab

Subject Code: 20CSP-356

1. **Aim:** Create an Android application for user registration that stores the user details in a database table.
2. **Objective:** How to Create and Add Data to SQLite Database in Android.
3. **Script and Output:**

Activity main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <ImageView
        android:id="@+id/db_img"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        android:src="@drawable/sqlite"
    />
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="vertical"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toBottomOf="@id/db_img"
    >
    <com.google.android.material.textfield.TextInputLayout
        app:layout_constraintTop_toBottomOf="@id/db_img"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
```

```
app:boxStrokeColor="#FF80AB"
android:layout_marginHorizontal="16dp"
android:layout_marginTop="20dp"
app:startIconTint="#FF80AB"
android:hint="Course Name "

style="@style/Widget.MaterialComponents.TextInputLayout.OutlinedBox"
>
<com.google.android.material.textfield.TextInputEditText
    android:id="@+id/ed_coursename"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:singleLine="true"
    android:inputType="text"
    android:maxLength="40"
/>
</com.google.android.material.textfield.TextInputLayout>

<com.google.android.material.textfield.TextInputLayout
    app:layout_constraintTop_toBottomOf="@id/ed_coursename"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    app:boxStrokeColor="#FF80AB"
    android:layout_marginHorizontal="16dp"
    android:layout_marginTop="20dp"
    app:startIconTint="#FF80AB"
    android:hint="Course Duration "

    style="@style/Widget.MaterialComponents.TextInputLayout.OutlinedBox"
    >
    <com.google.android.material.textfield.TextInputEditText
        android:id="@+id/ed_courseduration"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:singleLine="true"
        android:inputType="text"
        android:maxLength="40"
    />
</com.google.android.material.textfield.TextInputLayout>

<com.google.android.material.textfield.TextInputLayout
    app:layout_constraintTop_toBottomOf="@id/ed_courseduration"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    app:boxStrokeColor="#FF80AB"
    android:layout_marginHorizontal="16dp"
    android:layout_marginTop="20dp"
    app:startIconTint="#FF80AB"
    android:hint="Course Track "

    style="@style/Widget.MaterialComponents.TextInputLayout.OutlinedBox"
    >
    <com.google.android.material.textfield.TextInputEditText
        android:id="@+id/ed_coursetrack"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:singleLine="true"
        android:inputType="text"
        android:maxLength="40"
    />
</com.google.android.material.textfield.TextInputLayout>
```

```
<com.google.android.material.textfield.TextInputLayout
    app:layout_constraintTop_toBottomOf="@id/ed_coursetrack"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    app:boxStrokeColor="#FF80AB"
    android:layout_marginHorizontal="16dp"
    android:layout_marginTop="20dp"
    app:startIconTint="#FF80AB"
    android:hint="Course Description"

    style="@style/Widget.MaterialComponents.TextInputLayout.OutlinedBox"
>
<com.google.android.material.textfield.TextInputEditText
    android:id="@+id/ed_coursedescription"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:singleLine="true"
    android:inputType="text"
    android:maxLength="40"
/>
</com.google.android.material.textfield.TextInputLayout>
<Button
    android:id="@+id/idbtnaddcourse"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Submit"
    android:layout_marginTop="20dp"
    android:layout_gravity="center"/>
<Button

    android:id="@+id/idbtnviewcourse"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="View"
    android:layout_marginTop="20dp"
    android:layout_gravity="center"/>

</LinearLayout>

</androidx.constraintlayout.widget.ConstraintLayout>
```

DBHandler.java:

```
package com.yashendra.exp10;
import android.content.ContentValues;
import android.content.Context;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;

import java.util.ArrayList;
import java.util.List;
```

```
public class DBHandler extends SQLiteOpenHelper {

    // creating a constant variables for our database.
    // below variable is for our database name.
    private static final String DB_NAME = "coursedb";
    // below int is our database version55
    private static final int DB_VERSION = 1;
    // below variable is for our table name.
    private static final String TABLE_NAME = "mycourses";

    // below variable is for our id column.
    private static final String ID_COL = "id";
    // below variable is for our course name column
    private static final String NAME_COL = "name";
    // below variable id for our course duration column.
    private static final String DURATION_COL = "duration";
    // below variable for our course description column.
    private static final String DESCRIPTION_COL = "description";
    // below variable is for our course tracks column.
    private static final String TRACKS_COL = "tracks";

    // creating a constructor for our database handler.
    public DBHandler(Context context) {
        super(context, DB_NAME, null, DB_VERSION);
    }

    // below method is for creating a database by running a sqlite query
    @Override
    public void onCreate(SQLiteDatabase db) {

        // on below line we are creating an sqlite query and we are, setting
        // our column names, along with their data types.

        String query = "CREATE TABLE " + TABLE_NAME + " (" + ID_COL + " "
            + "INTEGER PRIMARY KEY AUTOINCREMENT, "
            + NAME_COL + " TEXT, " + DURATION_COL + " TEXT, " +
            DESCRIPTION_COL + " TEXT, " + TRACKS_COL + " TEXT)";

        // at last we are calling a exec sql// method to execute above sql
        // query
        db.execSQL(query);
    }

    // this method is use to add new course to our sqlite database.
    public void addNewCourse(String courseName, String courseDuration, String
        courseDescription, String courseTracks) {
        // on below line we are creating a variable for// our sqlite database
        // and calling writable method// as we are writing data in our database.
        SQLiteDatabase db = this.getWritableDatabase();
        // on below line we are creating a// variable for content values.
        ContentValues values = new ContentValues();
        // on below line we are passing all values// along with its key and
```

```
value pair.
    values.put(NAME_COL, courseName);
    values.put(DURATION_COL, courseDuration);
    values.put(DESCRIPTION_COL, courseDescription);
    values.put(TRACKS_COL, courseTracks);
    // after adding all values we are passing// content values to our
table.

    db.insert(TABLE_NAME, null, values);
    // at last we are closing our// database after adding database.
    db.close();

}

@Override
public void onUpgrade(SQLiteDatabase db, int oldVersion, int newVersion)
{
    // this method is called to check if the table exists already.
    db.execSQL("DROP TABLE IF EXISTS " + TABLE_NAME);
    onCreate(db);

}

public List<Course> getAllCourses() {
    // create an empty list to store all courses
    List<Course> courseList = new ArrayList<>();

    // select all columns from the mycourses table
    String selectQuery = "SELECT * FROM " + TABLE_NAME;

    // get a readable instance of the database
    SQLiteDatabase db = this.getReadableDatabase();

    // execute the query and store the result in a cursor
    Cursor cursor = db.rawQuery(selectQuery, null);

    // iterate through the cursor and create a new Course object for each
row
    if (cursor.moveToFirst()) {
        do {
            Course course = new Course();

            // get the column index for each column
            int idIndex = cursor.getColumnIndex(ID_COL);
            int nameIndex = cursor.getColumnIndex(NAME_COL);
            int durationIndex = cursor.getColumnIndex(DURATION_COL);
            int descriptionIndex =
cursor.getColumnIndex(DESCRIPTION_COL);
            int tracksIndex = cursor.getColumnIndex(TRACKS_COL);

            // check that the column index is valid before using it
            if (idIndex >= 0) {
                course.setId(cursor.getInt(idIndex));
            }
            if (nameIndex >= 0) {
```

```

        course.setName(cursor.getString(nameIndex));
    }
    if (durationIndex >= 0) {
        course.setDuration(cursor.getString(durationIndex));
    }
    if (descriptionIndex >= 0) {
course.setDescription(cursor.getString(descriptionIndex));
    }
    if (tracksIndex >= 0) {
        course.setTracks(cursor.getString(tracksIndex));
    }

    // add the course to the list
    courseList.add(course);
} while (cursor.moveToNext());
}

// close the cursor and database connection
cursor.close();
db.close();

// return the list of courses
return courseList;
}
}

```

activity viewdata base.xml

```

<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
xmlns:app="http://schemas.android.com/apk/res-auto"
xmlns:tools="http://schemas.android.com/tools"
android:layout_width="match_parent"
android:layout_height="match_parent"
tools:context=".ViewDatabaseActivity">
<LinearLayout
    android:id="@+id/ll_activity"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    android:background="#FF80AB">
<TextView
    android:id="@+id/id_number"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Id"
    android:textSize="18sp"
    android:textStyle="bold"

```

```
        android:layout_margin="5dp"
        android:layout_weight="1"/>
    <TextView
        android:id="@+id/name"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Name"
        android:textSize="18sp"
        android:textStyle="bold"
        android:layout_margin="5dp"
        android:layout_weight="1"
    />
    <TextView
        android:id="@+id/duration"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Duration"
        android:textSize="18sp"
        android:textStyle="bold"
        android:layout_margin="5dp"
        android:layout_weight="1"
    />
    <TextView
        android:text="Tracks"
        android:id="@+id/tracks"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textSize="18sp"
        android:textStyle="bold"
        android:layout_margin="5dp"
        android:layout_weight="1"
    />

</LinearLayout>

<androidx.recyclerview.widget.RecyclerView
    android:id="@+id/recyclerview"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@id/ll_activity"
    android:layout_marginTop="50dp"
/>

</androidx.constraintlayout.widget.ConstraintLayout>
```

CourseAdpter.java:

```
package com.yashendra.exp10;

import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
```

```
import android.widget.TextView;

import androidx.annotation.NonNull;
import androidx.recyclerview.widget.RecyclerView;

import java.util.List;

public class CourseAdapter extends
RecyclerView.Adapter<CourseAdapter.CourseViewHolder> {

    private List<Course> courseList;

    public CourseAdapter(List<Course> courseList) {
        this.courseList = courseList;
    }

    @NonNull
    @Override
    public CourseViewHolder onCreateViewHolder(@NonNull ViewGroup parent, int
viewType) {
        View itemView =
LayoutInflater.from(parent.getContext()).inflate(R.layout.item, parent,
false);
        return new CourseViewHolder(itemView);
    }

    @Override
    public void onBindViewHolder(@NonNull CourseViewHolder holder, int
position) {
        Course course = courseList.get(position);
        holder.nameTextView.setText(course.getName());
        holder.durationTextView.setText(course.getDuration());
        holder.descriptionTextView.setText(course.getDescription());
        holder.tracksTextView.setText(course.getTracks());
        holder.idtextView.setText(String.valueOf(position));
    }

    @Override
    public int getItemCount() {
        return courseList.size();
    }

    public static class CourseViewHolder extends RecyclerView.ViewHolder {
        public TextView nameTextView, durationTextView, descriptionTextView,
tracksTextView, idtextView;

        public CourseViewHolder(@NonNull View itemView) {
            super(itemView);
            idtextView=itemView.findViewById(R.id.id_number);
            nameTextView = itemView.findViewById(R.id.name);
            durationTextView = itemView.findViewById(R.id.duration);
            descriptionTextView = itemView.findViewById(R.id.description);
            tracksTextView = itemView.findViewById(R.id.tracks);
        }
    }
}
```



```
}  
}
```

item.xml

```
<?xml version="1.0" encoding="utf-8"?>  
<androidx.constraintlayout.widget.ConstraintLayout  
xmlns:android="http://schemas.android.com/apk/res/android"  
    android:layout_width="match_parent"  
    android:layout_height="wrap_content"  
    android:layout_marginBottom="10dp"  
    xmlns:app="http://schemas.android.com/apk/res-auto">  
    <LinearLayout  
        android:id="@+id/ll"  
        android:layout_width="match_parent"  
        android:layout_height="wrap_content"  
        app:layout_constraintStart_toStartOf="parent"  
        app:layout_constraintEnd_toEndOf="parent"  
        app:layout_constraintTop_toTopOf="parent"  
        android:background="#B9F6CA">  
        <TextView  
            android:id="@+id/id_number"  
            android:layout_width="wrap_content"  
            android:layout_height="wrap_content"  
            android:text="1."  
            android:textSize="18sp"  
            android:textStyle="bold"  
            android:layout_margin="5dp"  
            android:layout_weight="1"/>  
        <TextView  
            android:id="@+id/name"  
            android:layout_width="wrap_content"  
            android:layout_height="wrap_content"  
            android:text="Name"  
            android:textSize="18sp"  
            android:textStyle="bold"  
            android:layout_margin="5dp"  
            android:layout_weight="1"  
        />  
        <TextView  
            android:id="@+id/duration"  
            android:layout_width="wrap_content"  
            android:layout_height="wrap_content"  
            android:text="Duration"  
            android:textSize="18sp"  
            android:textStyle="bold"  
            android:layout_margin="5dp"  
            android:layout_weight="1"  
        />  
        <TextView  
            android:text="Trcaks"  
            android:id="@+id/tracks"  
            android:layout_width="wrap_content"  
            android:layout_height="wrap_content"
```

```
        android:textSize="18sp"
        android:textStyle="bold"
        android:layout_margin="5dp"
        android:layout_weight="1"
    />

</LinearLayout>
<TextView
    android:id="@+id/description"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Description"
    android:textSize="18sp"
    android:textStyle="bold"
    android:layout_margin="5dp"
    app:layout_constraintTop_toBottomOf="@id/l1"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    android:maxLines="3"

/>

</androidx.constraintlayout.widget.ConstraintLayout>
```

ViewDataBaseActivity.java:

```
package com.yashendra.exp10;

import androidx.appcompat.app.AppCompatActivity;
import androidx.recyclerview.widget.LinearLayoutManager;
import androidx.recyclerview.widget.RecyclerView;

import android.os.Bundle;

import java.util.List;

public class ViewDatabaseActivity extends AppCompatActivity {
    private RecyclerView recyclerView;
    private CourseAdapter courseAdapter;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_view_database);
        recyclerView = findViewById(R.id.recyclerview);
        recyclerView.setLayoutManager(new LinearLayoutManager(this));

        DBHandler dbHandler = new DBHandler(this);
        List<Course> courseList = dbHandler.getAllCourses();
        courseAdapter = new CourseAdapter(courseList);
        recyclerView.setAdapter(courseAdapter);
    }
}
```

MainActivity.java:

```
package com.yashendra.exp10;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    // creating variables for our edittext, button and dbhandler
    private com.google.android.material.textfield.TextInputEditText
courseNameEdt, courseTracksEdt, courseDurationEdt, courseDescriptionEdt;
    private Button addCourseBtn,viewcourse;
    private DBHandler dbHandler;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        courseNameEdt = findViewById(R.id.ed_coursename);
        courseTracksEdt = findViewById(R.id.ed_coursetrack);
        courseDurationEdt = findViewById(R.id.ed_courseduration);
        courseDescriptionEdt = findViewById(R.id.ed_coursedescription);
        addCourseBtn = findViewById(R.id.idbtnaddcourse);
        viewcourse=findViewById(R.id.idbtnviewcourse);
        dbHandler = new DBHandler(MainActivity.this);

        // below line is to add on click listener for our add course button.
        addCourseBtn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String courseName = courseNameEdt.getText().toString();
                String courseTracks = courseTracksEdt.getText().toString();
                String courseDuration =
courseDurationEdt.getText().toString();
                String courseDescription =
courseDescriptionEdt.getText().toString();

                if (courseName.isEmpty() && courseTracks.isEmpty() &&
courseDuration.isEmpty() && courseDescription.isEmpty()) {
                    Toast.makeText(MainActivity.this, "Please enter all the
data..", Toast.LENGTH_SHORT).show();
                    return;
                }
                dbHandler.addNewCourse(courseName, courseDuration,
courseDescription, courseTracks);
            }
        });
    }
}
```



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Discover. Learn. Empower.


```
        // after adding the data we are displaying a toast message.
        Toast.makeText(MainActivity.this, "Course has been added.",
Toast.LENGTH_SHORT).show();
        courseNameEdt.setText("");
        courseDurationEdt.setText("");
        courseTracksEdt.setText("");
        courseDescriptionEdt.setText("");
    }

});
viewcourse.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        Intent intent=new
Intent(MainActivity.this,ViewDatabaseActivity.class);
        startActivity(intent);
    }
});
}
}
```

Output:

12:16 62%

Exp10

android SQLite

Course Name

Course Duration

Course Track

Course Description

SUBMIT



VIEW

☰ □ ◀

Fig 1.1

12:20 62%

Exp10

android SQLite

Course Name
iot

Course Duration
6week

Course Track
monthly

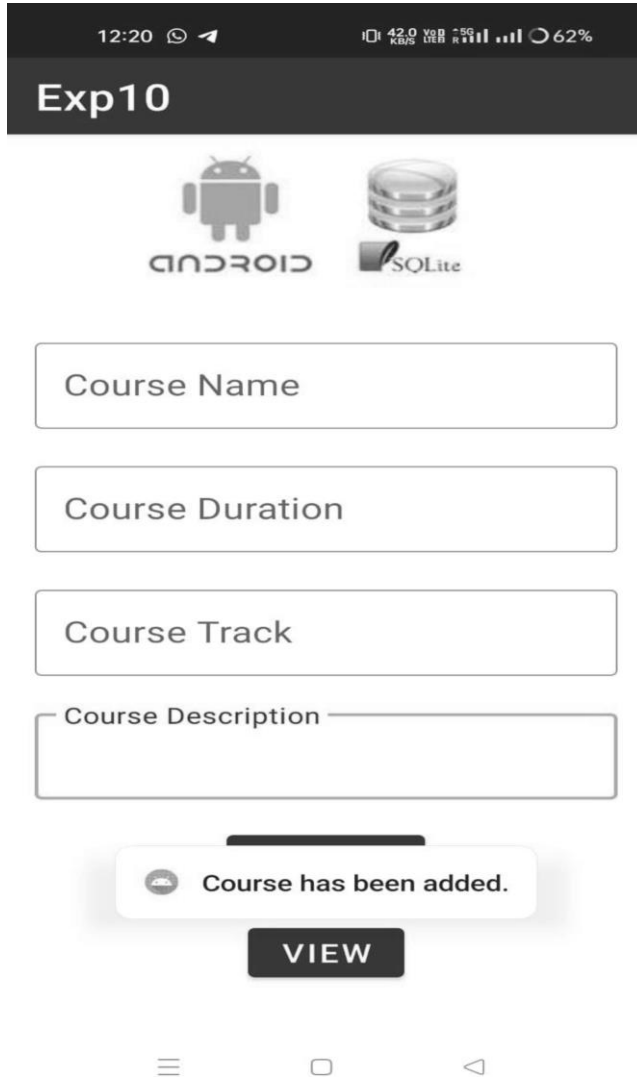
Course Description
basics of iot

SUBMIT

VIEW

☰ □ ◀

Fig 1.2



12:20 42.0 KB/s 62%

Exp10

Android SQLite

Course Name

Course Duration

Course Track

Course Description

Course has been added.

VIEW

Fig 1.3



12:20 10.0 KB/s 62%

Exp10

Id	Name	Duration	Trcaks
0	mad	2 week	weekly
1	html	20 day	per day
2	testing	3 week	day basis
3	iot	6week	monthly

all the android projects using java

basics of web development

abcsghssj

basics of iot

Fig 1.4

Outcomes:

1. Learn Handling of the database.
2. Learn about adding data from the text view to database and viewing data inside other activity.
3. Learn about recycler view and adapter.