



Experiment 3.4

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Semester: 6th
Subject Name: MAD Lab

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Section/Group: 707/B
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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"
/>
```



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```
</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 DBHelper(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
```



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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);
```

row // iterate through the cursor and create a new Course object for each

```
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>
```

CourseAdppter.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;
```



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

```
<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/ll"
    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);  
  
        // 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);  
    }  
});  
}
```



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Output:

12:16

Exp10

ANDROID SQLite

Course Name

Course Duration

Course Track

Course Description

SUBMIT

VIEW

Fig 1.1

12:20

Exp10

ANDROID SQLite

Course Name
iot

Course Duration
6week

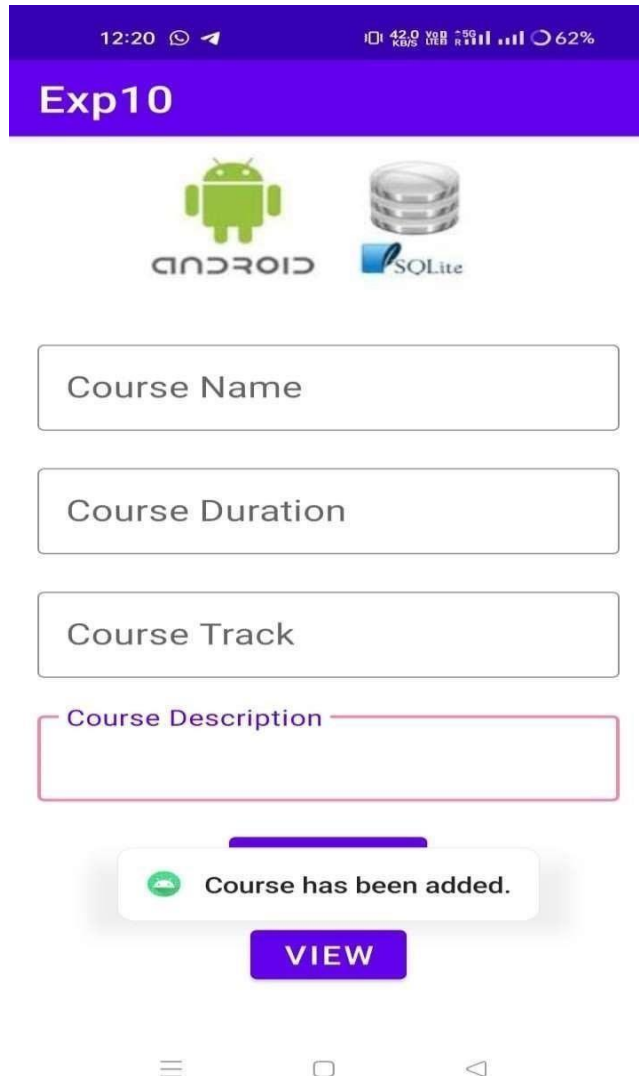
Course Track
monthly

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.