AN ANDROID APPLICATION FOR KEEPING UP WITH LATEST HEADLINES

PROJECT PRESENTED BY

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1. Introduction

1.1 Overview

The app’s main feature is a list of news articles, each with a title, image, and brief description. Users can scroll through the list of articles and tap on an article to view more details. The app uses the Jetpack Compose UI toolkit to build the UI and It uses the coil library to load images. The app fetches data from a remote server using Retrofit library and demonstrates how to use the Jetpack Compose UI toolkit for Android development.

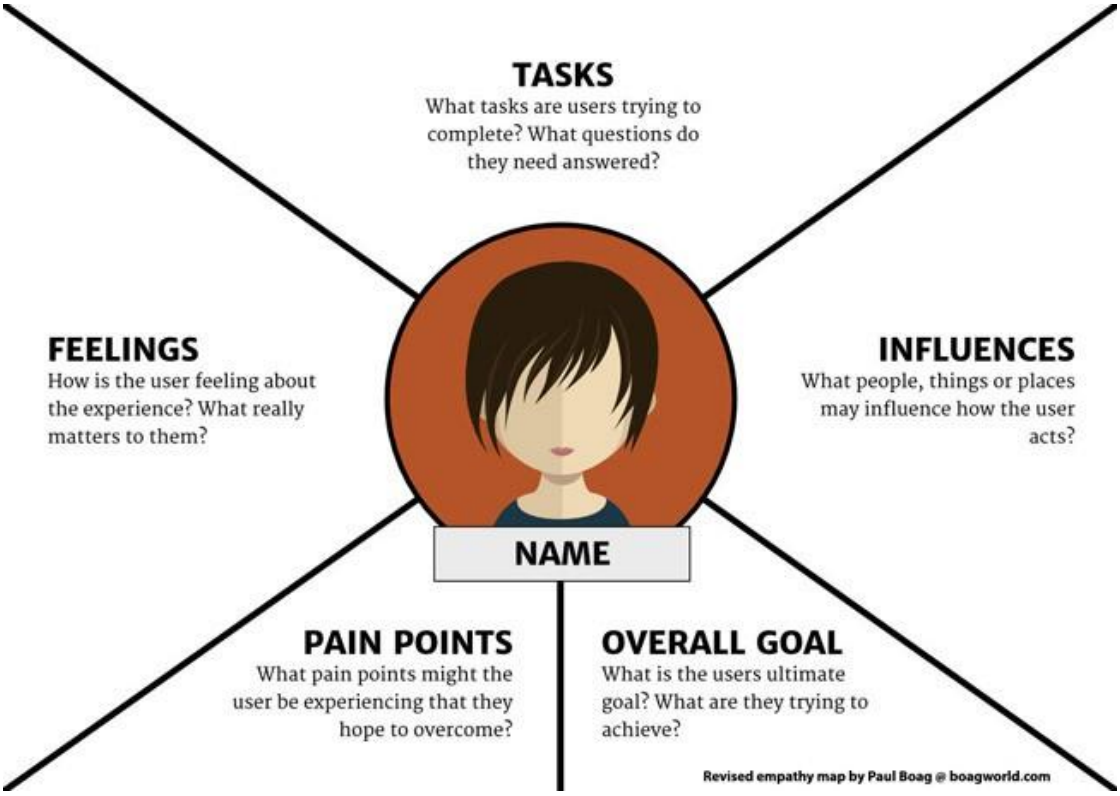
1.2 Purpose

A news application is a big interactive database that tells a news story. Think of it like you would any other piece of journalism. It just uses software instead of words and pictures.

A news app should tell a story, and just like any good news story, it needs a headline, a byline, a lead, and a nut graph. Some of these concepts can be hard to distinguish in a piece of interactive software, but they’re there if you look closely.

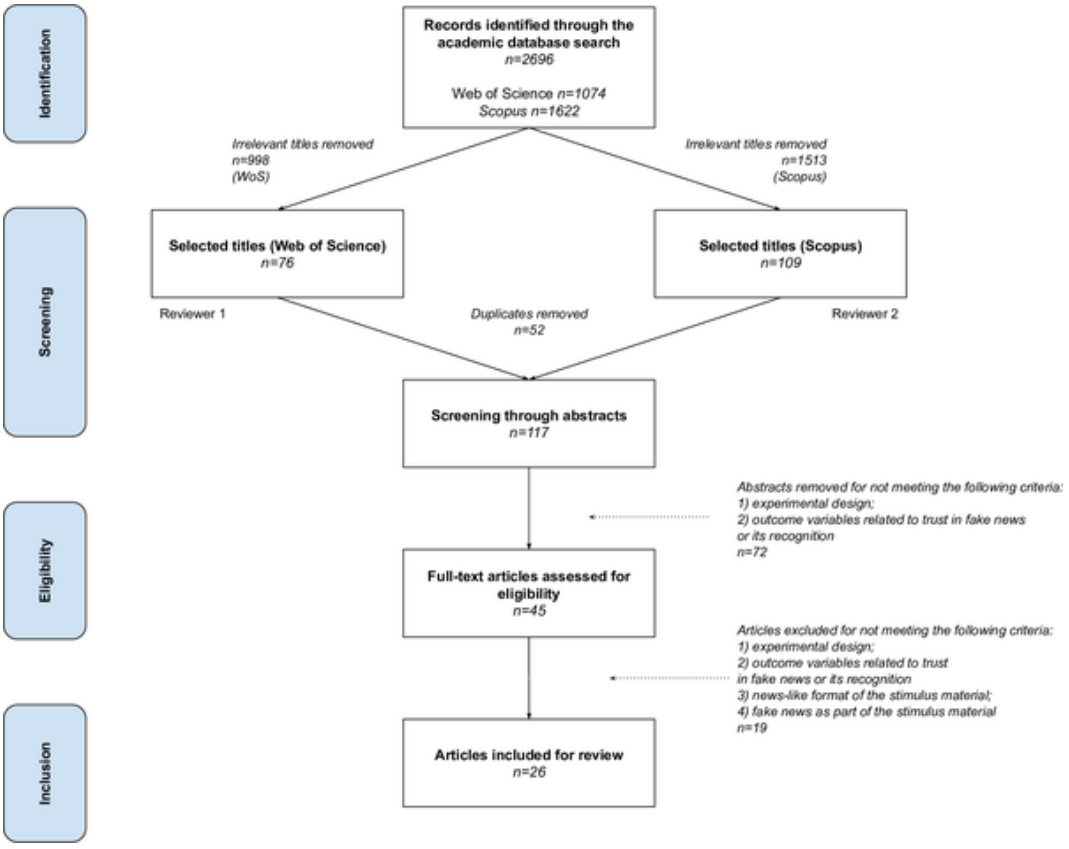
2. Problem Definition & Design Thinking

2.1 Empathy Map

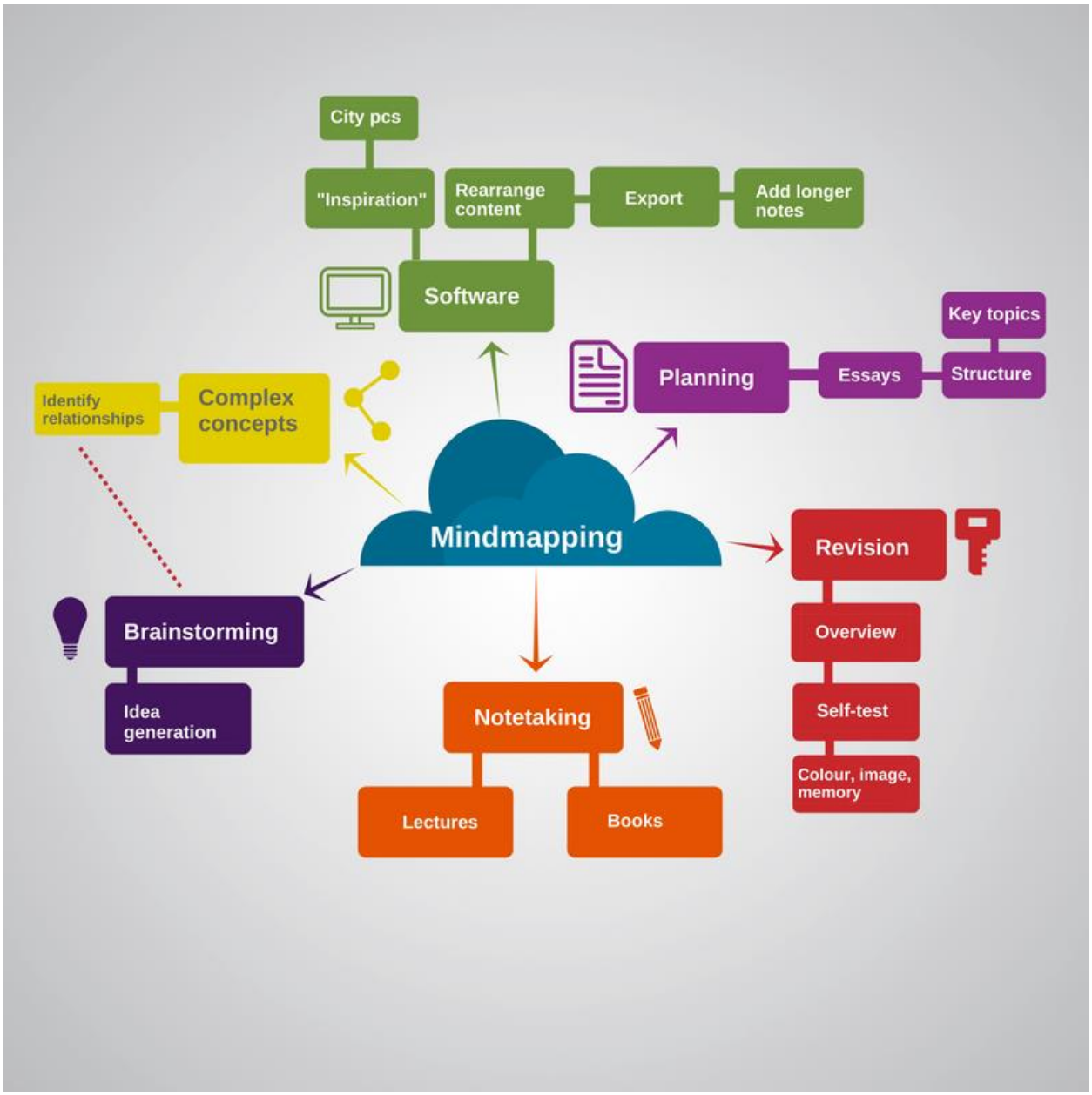


2.2 Ideation & Brainstorming Map

Ideation Map



Brainstorming Map



3. Result

4. Advantages & Disadvantages

Advantages

- Quicker to collect story segment
- More personal stories
- More exclusive stories
- Physically safer to use
- Better visual storytelling and unique perspective

Disadvantages

- Required data\Wi-Fi to get online
- Technical issues

5. Application:

Newspapers and other conventional media are losing their appeal in this digital age because of the abundance of online streaming platforms, whether you're just starting out or have been running a news channel for some time: You need to have a news app.

It's everything here for you with Shouter's news app builder: all the steps and tricks you need to become a new media magnate. To learn how, keep on reading.

6. Conclusion

The news app project is now complete! We have designed, developed, and tested a fully functional and user-friendly app that provides users with up to date news from all over the world. From the initial idea, to market research, coding, design and testing – we have successfully created a product that meets our users' needs.

7. Future scope

If mobile is the future, newspapers should be ready to be read on smartphones, Smart tablets and whatever other smart rectangle-shaped thing comes next.

8. Appendix

Source Code

An Android Application for Keeping Up with the Latest Headlines

AndroidManifest.xml

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools">
    <uses-permission android:name="android.permission.INTERNET"/>
    <uses-permission android:name="android.permission.ACCESS_WIFI_STATE"/>
    <application
        android:allowBackup="true"
        android:dataExtractionRules="@xml/data_extraction_rules"
        android:fullBackupContent="@xml/backup_rules"
        android:icon="@drawable/news_app_icon"
        android:label="@string/app_name"
        android:supportsRtl="true"
        android:theme="@style/Theme.NewsHeadlines"
        tools:targetApi="31">
        <activity
```

```
            android:name=".DisplayNews"
            android:exported="false"
            android:label="@string/title_activity_display_news"
            android:theme="@style/Theme.NewsHeadlines" />
        <activity
            android:name=".RegistrationActivity"
            android:exported="false"
            android:label="@string/title_activity_registration"
            android:theme="@style/Theme.NewsHeadlines" />
        <activity
            android:name=".MainPage"
            android:exported="false"
            android:label="@string/title_activity_main_page"
            android:theme="@style/Theme.NewsHeadlines" />
        <activity
            android:name=".LoginActivity"
            android:exported="true"
            android:label="@string/app_name"
            android:theme="@style/Theme.NewsHeadlines">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>

</manifest>
```

Color.kt

```
package com.example.newsheadlines.ui.theme

import androidx.compose.ui.graphics.Color

val Purple200 = Color(0xFFBB86FC)
val Purple500 = Color(0xFF6200EE)
val Purple700 = Color(0xFF3700B3)
val Teal200 = Color(0xFF03DAC5)
```

Shape.kt

```
package com.example.newsheadlines.ui.theme

import androidx.compose.foundation.shape.RoundedCornerShape
import androidx.compose.material.Shapes
```

```
import androidx.compose.ui.unit.dp

val Shapes = Shapes(
    small = RoundedCornerShape(4.dp),
    medium = RoundedCornerShape(4.dp),
    large = RoundedCornerShape(0.dp)
)
```

Theme.kt

```
package com.example.newsheadlines.ui.theme

import androidx.compose.foundation.isSystemInDarkTheme
import androidx.compose.material.MaterialTheme
import androidx.compose.material.darkColors
import androidx.compose.material.lightColors
import androidx.compose.runtime.Composable

private val DarkColorPalette = darkColors(
    primary = Purple200,
    primaryVariant = Purple700,
    secondary = Teal200
)

private val LightColorPalette = lightColors(
    primary = Purple500,
    primaryVariant = Purple700,
    secondary = Teal200

    /* Other default colors to override
    background = Color.White,
    surface = Color.White,
    onPrimary = Color.White,
    onSecondary = Color.Black,
    onBackground = Color.Black,
    onSurface = Color.Black,
    */
)

@Composable
fun NewsHeadlinesTheme(
    darkTheme: Boolean = isSystemInDarkTheme(),
    content: @Composable () -> Unit
) {
    val colors = if (darkTheme) {
        DarkColorPalette
    } else {
        LightColorPalette
    }
```

```
    MaterialTheme(
        colors = colors,
        typography = Typography,
        shapes = Shapes,
        content = content
    )
}
```

Type.kt

```
package com.example.newsheadlines.ui.theme

import androidx.compose.material.Typography
import androidx.compose.ui.text.TextStyle
import androidx.compose.ui.text.font.FontFamily
import androidx.compose.ui.text.font.FontWeight
import androidx.compose.ui.unit.sp

// Set of Material typography styles to start with
val Typography = Typography(
    body1 = TextStyle(
        fontFamily = FontFamily.Default,
        fontWeight = FontWeight.Normal,
        fontSize = 16.sp
    )
    /* Other default text styles to override
    button = TextStyle(
        fontFamily = FontFamily.Default,
        fontWeight = FontWeight.W500,
        fontSize = 14.sp
    ),
    caption = TextStyle(
        fontFamily = FontFamily.Default,
        fontWeight = FontWeight.Normal,
        fontSize = 12.sp
    )
    */
)
```

ApiService.kt

```
package com.example.newsheadlines

import retrofit2.Retrofit
import retrofit2.converter.gson.GsonConverterFactory
import retrofit2.http.GET
```

```
interface ApiService {

    //@GET("movielist.json")
    @GET("top-
headlines?country=us&category=business&apiKey=684cb893caf7425abeffad82ac1d0f4
e")
    ///@GET("search?q=chatgpt")
    suspend fun getMovies() :News

    companion object {
        var apiService: ApiService? = null
        fun getInstance() : ApiService {
            if (apiService == null) {
                apiService = Retrofit.Builder()
                    // .baseUrl("https://howtodoandroid.com/apis/")
                    .baseUrl("https://newsapi.org/v2/")
                    //.baseUrl("https://podcast-episodes.p.rapidapi.com/")

                    .addConverterFactory(GsonConverterFactory.create())
                    .build().create(ApiService::class.java)
            }
            return apiService!!
        }
    }

}
```

Articles.kt

```
package com.example.example

import com.google.gson.annotations.SerializedName


data class Articles (

  @SerializedName("title"       ) var title       : String? = null,
  @SerializedName("description" ) var description : String? = null,
  @SerializedName("urlToImage"  ) var urlToImage  : String? = null,

  )
```

DisplayNews.kt

```
package com.example.newsheadlines

import android.content.Intent
import android.os.Bundle
import android.util.Log
import android.widget.TextView
import androidx.activity.ComponentActivity
```

```
import androidx.activity.compose.setContent
import androidx.compose.foundation.Image
import androidx.compose.foundation.background
import androidx.compose.foundation.layout.Arrangement
import androidx.compose.foundation.layout.Column
import androidx.compose.foundation.layout.fillMaxSize
import androidx.compose.foundation.layout.padding
import androidx.compose.material.MaterialTheme
import androidx.compose.material.Surface
import androidx.compose.material.Text
import androidx.compose.runtime.Composable
import androidx.compose.ui.Alignment
import androidx.compose.ui.Modifier
import androidx.compose.ui.graphics.Color
import androidx.compose.ui.tooling.preview.Preview
import androidx.compose.ui.unit.dp
import androidx.compose.ui.unit.sp
import androidx.compose.ui.viewinterop.AndroidView
import androidx.core.text.HtmlCompat
import coil.compose.rememberImagePainter
import com.example.newsheadlines.ui.theme.NewsHeadlinesTheme

class DisplayNews : ComponentActivity() {
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContent {
            NewsHeadlinesTheme {
                // A surface container using the 'background' color from the
theme
                Surface(
                    modifier = Modifier.fillMaxSize(),
                    color = MaterialTheme.colors.background
                ) {

                    var desk = getIntent().getStringExtra("desk")
                    var title = getIntent().getStringExtra("title")
                    var uriImage = getIntent().getStringExtra("urlToImage")
                    Log.i("test123abc", "MovieItem: $desk")

                    Column(Modifier.background(Color.Gray).padding(20.dp),
horizontalAlignment = Alignment.CenterHorizontally, verticalArrangement =
Arrangement.Center) {
                        Text(text = ""+title, fontSize = 32.sp)
                        HtmlText(html = desk.toString())
                        /*  AsyncImage(
                              model = "https://example.com/image.jpg",
                              contentDescription = "Translated description of
what the image contains"
                            )*/
                        Image(
                            painter = rememberImagePainter(uriImage),
                            contentDescription = "My content description",
```

```
                        )
                    }
                    //   Greeting(desk.toString())
                }
            }
        }
    }
}

@Composable
fun Greeting(name: String) {
    // Text(text = "Hello $name!")
}

@Preview(showBackground = true)
@Composable
fun DefaultPreview() {
    NewsHeadlinesTheme {
        //   Greeting("Android")
    }
}
@Composable
fun HtmlText(html: String, modifier: Modifier = Modifier) {
    AndroidView(
        modifier = modifier,
        factory = { context -> TextView(context) },
        update = { it.text = HtmlCompat.fromHtml(html,
HtmlCompat.FROM_HTML_MODE_COMPACT) }
    )
}
```

LoginActivity.kt

```
package com.example.newsheadlines

import android.content.Context
import android.content.Intent
import android.os.Bundle
import androidx.activity.ComponentActivity
import androidx.activity.compose.setContent
import androidx.compose.foundation.Image
import androidx.compose.foundation.background
import androidx.compose.foundation.layout.*
import androidx.compose.foundation.shape.RoundedCornerShape
import androidx.compose.material.*
import androidx.compose.material.icons.Icons
import androidx.compose.material.icons.filled.Lock
import androidx.compose.material.icons.filled.Person
import androidx.compose.runtime.*
import androidx.compose.ui.Alignment
```

```
import androidx.compose.ui.Modifier
import androidx.compose.ui.graphics.Color
import androidx.compose.ui.res.painterResource
import androidx.compose.ui.text.font.FontWeight
import androidx.compose.ui.text.input.PasswordVisualTransformation
import androidx.compose.ui.tooling.preview.Preview
import androidx.compose.ui.unit.dp
import androidx.compose.ui.unit.sp
import androidx.core.content.ContextCompat
import androidx.core.content.ContextCompat.startActivity
import com.example.newsheadlines.ui.theme.NewsHeadlinesTheme

class LoginActivity : ComponentActivity() {
    private lateinit var databaseHelper: UserDatabaseHelper
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        databaseHelper = UserDatabaseHelper(this)
        setContent {

            LoginScreen(this, databaseHelper)
        }
    }
}
@Composable
fun LoginScreen(context: Context, databaseHelper: UserDatabaseHelper) {
    var username by remember { mutableStateOf("") }
    var password by remember { mutableStateOf("") }
    var error by remember { mutableStateOf("") }

    Column(
        Modifier
            .fillMaxHeight()
            .fillMaxWidth()
            .padding(28.dp),
        horizontalAlignment = Alignment.CenterHorizontally,
        verticalArrangement = Arrangement.Center)

    {
        Image(
            painter = painterResource(id = R.drawable.news),
            contentDescription = "")

        Spacer(modifier = Modifier.height(10.dp))


        Row {
            Divider(color = Color.LightGray, thickness = 2.dp, modifier =
Modifier
                .width(155.dp)
                .padding(top = 20.dp, end = 20.dp))
            Text(text = "Login",
```

```
                color = Color(0xFF6495ED),
                fontWeight = FontWeight.Bold,
                fontSize = 24.sp,style = MaterialTheme.typography.h1)
            Divider(color = Color.LightGray, thickness = 2.dp, modifier =
Modifier
                .width(155.dp)
                .padding(top = 20.dp, start = 20.dp))

        }

        Spacer(modifier = Modifier.height(10.dp))

        TextField(
            value = username,
            onValueChange = { username = it },
            leadingIcon = {
                Icon(
                    imageVector = Icons.Default.Person,
                    contentDescription = "personIcon",
                    tint = Color(0xFF6495ED)
                )
            },
            placeholder = {
                Text(
                    text = "username",
                    color = Color.Black
                )
            },
            colors = TextFieldDefaults.textFieldColors(
                backgroundColor = Color.Transparent
            )

        )


        Spacer(modifier = Modifier.height(20.dp))

        TextField(
            value = password,
            onValueChange = { password = it },
            leadingIcon = {
                Icon(
                    imageVector = Icons.Default.Lock,
                    contentDescription = "lockIcon",
                    tint = Color(0xFF6495ED)
                )
            },
            placeholder = { Text(text = "password", color = Color.Black) },
            visualTransformation = PasswordVisualTransformation(),
            colors = TextFieldDefaults.textFieldColors(backgroundColor =
Color.Transparent)
```

```
        )



        Spacer(modifier = Modifier.height(12.dp))
        if (error.isNotEmpty()) {
            Text(
                text = error,
                color = MaterialTheme.colors.error,
                modifier = Modifier.padding(vertical = 16.dp)
            )
        }

        Button(
            onClick = {
                if (username.isNotEmpty() && password.isNotEmpty()) {
                    val user = databaseHelper.getUserByUsername(username)
                    if (user != null && user.password == password) {
                        error = "Successfully log in"
                        context.startActivity(
                            Intent(
                                context,
                                MainPage::class.java
                            )
                        )
                        //onLoginSuccess()
                    } else {
                        error = "Invalid username or password"
                    }
                } else {
                    error = "Please fill all fields"
                }
            },
            shape = RoundedCornerShape(20.dp),
            colors = ButtonDefaults.buttonColors(backgroundColor =
Color(0xFF77a2ef)),
            modifier = Modifier.width(200.dp)
            .padding(top = 16.dp)
        ) {
            Text(text = "Log In", fontWeight = FontWeight.Bold)
        }

        Row(modifier = Modifier.fillMaxWidth()) {
            TextButton(onClick = {
                context.startActivity(
                    Intent(
                        context,
                        RegistrationActivity::class.java
                    ))})
            { Text(text = "Sign up",
                color = Color.Black
            )}
```

```
            Spacer(modifier = Modifier.width(100.dp))

            TextButton(onClick = { /* Do something! */ })
            { Text(text = "Forgot password ?",
                color = Color.Black
            )}
        }




    }
}
private fun startMainPage(context: Context) {
    val intent = Intent(context, MainPage::class.java)
    ContextCompat.startActivity(context, intent, null)
}
```

MainPage.kt

```
package com.example.newsheadlines

import android.content.Context
import android.content.Intent
import android.content.Intent.FLAG_ACTIVITY_NEW_TASK
import android.os.Bundle
import android.util.Log
import android.widget.TextView
import androidx.activity.ComponentActivity
import androidx.activity.compose.setContent
import androidx.activity.viewModels
import androidx.compose.foundation.Image
import androidx.compose.foundation.background
import androidx.compose.foundation.clickable
import androidx.compose.foundation.layout.*
import androidx.compose.foundation.lazy.LazyColumn
import androidx.compose.foundation.lazy.itemsIndexed
import androidx.compose.foundation.selection.selectable
import androidx.compose.foundation.shape.RoundedCornerShape
import androidx.compose.material.Card
import androidx.compose.material.MaterialTheme
import androidx.compose.material.Surface
import androidx.compose.material.Text
import androidx.compose.runtime.*
import androidx.compose.ui.Modifier
import androidx.compose.ui.graphics.Color
import androidx.compose.ui.text.font.FontWeight
import androidx.compose.ui.text.style.TextAlign
```

```
import androidx.compose.ui.unit.dp
import androidx.compose.ui.unit.sp
import androidx.compose.ui.viewinterop.AndroidView
import androidx.core.text.HtmlCompat
import coil.compose.rememberImagePainter
import coil.size.Scale
import coil.transform.CircleCropTransformation
import com.example.example.Articles
import com.example.newsheadlines.ui.theme.NewsHeadlinesTheme

class MainPage : ComponentActivity() {
    val mainViewModel by viewModels<MainViewModel>()
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContent {
            NewsHeadlinesTheme {
                // A surface container using the 'background' color from the
theme
                Surface(color = MaterialTheme.colors.background) {
                    Column() {



                        Text(text = "Latest NEWS", fontSize = 32.sp, modifier
= Modifier.fillMaxWidth(), textAlign = TextAlign.Center)

                        MovieList(applicationContext, movieList =
mainViewModel.movieListResponse)
                        mainViewModel.getMovieList()
                    }
                }
            }
        }
    }
}

@Composable
fun MovieList(context: Context, movieList: List<Articles>) {
    var selectedIndex by remember { mutableStateOf(-1) }
    LazyColumn {

        itemsIndexed(items = movieList) {
                index, item ->
            MovieItem(context,movie = item, index, selectedIndex) { i ->
                selectedIndex = i
            }
        }
    }

}

@Composable
```

```
fun MovieItem(context: Context) {
    val movie = Articles(
        "Coco",
        "",
        " articl"
    )


    MovieItem(context,movie = movie, 0, 0) { i ->
        Log.i("wertytest123abc", "MovieItem: "
                +i)
    }
}

@Composable
fun MovieItem(context: Context, movie: Articles, index: Int, selectedIndex:
Int,
              onClick: (Int) -> Unit)
{

    val backgroundColor = if (index == selectedIndex)
MaterialTheme.colors.primary else MaterialTheme.colors.background

    Card(
        modifier = Modifier
            .padding(8.dp, 4.dp)
            .fillMaxSize()
            .selectable(true, true, null,
                onClick = {
                    Log.i("test123abc", "MovieItem: $index/n$selectedIndex")
                })
            .clickable { onClick(index) }
            .height(180.dp), shape = RoundedCornerShape(8.dp), elevation =
4.dp
    ) {
        Surface(color = Color.White) {

            Row(
                Modifier
                    .padding(4.dp)
                    .fillMaxSize()


            )
            {
                Image(
                    painter = rememberImagePainter(
                        data = movie.urlToImage,
                        builder = {
                            scale(Scale.FILL)
                            placeholder(R.drawable.placeholder)
                            transformations(CircleCropTransformation())
```

```
                        }
                    ),
                    contentDescription = movie.description,
                    modifier = Modifier
                        .fillMaxHeight()
                        .weight(0.3f)
                )


                Column(
                    verticalArrangement = Arrangement.Center,
                    modifier = Modifier
                        .padding(4.dp)
                        .fillMaxHeight()
                        .weight(0.8f)
                        .background(Color.Gray)
                        .padding(20.dp)
                        .selectable(true, true, null,
                            onClick = {
                                Log.i("test123abc", "MovieItem:
$index/n${movie.description}")
                                context.startActivity(
                                    Intent(context, DisplayNews::class.java)

.setFlags(Intent.FLAG_ACTIVITY_NEW_TASK)
                                        .putExtra("desk",
movie.description.toString())
                                        .putExtra("urlToImage",
movie.urlToImage)
                                        .putExtra("title", movie.title)
                                )
                            })
                ) {

                    Text(
                        text = movie.title.toString(),
                        style = MaterialTheme.typography.subtitle1,
                        fontWeight = FontWeight.Bold
                    )

                    HtmlText(html = movie.description.toString())
                }
            }
        }
    }
    @Composable
    fun HtmlText(html: String, modifier: Modifier = Modifier) {
        AndroidView(
            modifier = modifier
                .fillMaxSize()
                .size(33.dp),
            factory = { context -> TextView(context) },
```

```
            update = { it.text = HtmlCompat.fromHtml(html,
HtmlCompat.FROM_HTML_MODE_COMPACT) }
        )
    }
}
```

MainViewModel.kt

```
package com.example.newsheadlines

import android.util.Log
import androidx.compose.runtime.getValue
import androidx.compose.runtime.mutableStateOf
import androidx.compose.runtime.setValue
import androidx.lifecycle.ViewModel
import androidx.lifecycle.viewModelScope
import com.example.example.Articles
import kotlinx.coroutines.launch

class MainViewModel : ViewModel() {
    var movieListResponse:List<Articles> by mutableStateOf(listOf())
    var errorMessage: String by mutableStateOf("")
    fun getMovieList() {
        viewModelScope.launch {
            val apiService = ApiService.getInstance()
            try {
                val movieList = apiService.getMovies()
                movieListResponse = movieList.articles
            }
            catch (e: Exception) {
                errorMessage = e.message.toString()
            }
        }
    }
}
```

Model.kt

```
package com.example.newsheadlines


data class Movie(val name: String,
                 val imageUrl: String,
                 val desc: String,
                 val category: String)
```

News.kt

```
package com.example.newsheadlines

import com.example.example.Articles
import com.google.gson.annotations.SerializedName


data class News (
  @SerializedName("status") var status:String?= null,
  @SerializedName("totalResults") var totalResults : Int?                =
null,
  @SerializedName("articles") var articles     : ArrayList<Articles> =
arrayListOf()
)
```

RegistrationActivity.kt

```
package com.example.newsheadlines

import android.content.Context
import android.content.Intent
import android.os.Bundle
import androidx.activity.ComponentActivity
import androidx.activity.compose.setContent
import androidx.compose.foundation.Image
import androidx.compose.foundation.background
import androidx.compose.foundation.layout.*
import androidx.compose.foundation.shape.RoundedCornerShape
import androidx.compose.material.*
import androidx.compose.material.icons.Icons
import androidx.compose.material.icons.filled.Email
import androidx.compose.material.icons.filled.Lock
import androidx.compose.material.icons.filled.Person
import androidx.compose.runtime.*
import androidx.compose.ui.Alignment
import androidx.compose.ui.Modifier
import androidx.compose.ui.graphics.Color
import androidx.compose.ui.res.painterResource
import androidx.compose.ui.text.font.FontWeight
import androidx.compose.ui.text.input.PasswordVisualTransformation
import androidx.compose.ui.tooling.preview.Preview
import androidx.compose.ui.unit.dp
import androidx.compose.ui.unit.sp
import androidx.core.content.ContextCompat
import com.example.newsheadlines.ui.theme.NewsHeadlinesTheme

class RegistrationActivity : ComponentActivity() {
    private lateinit var databaseHelper: UserDatabaseHelper
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        databaseHelper = UserDatabaseHelper(this)
```

```
        setContent {


                    RegistrationScreen(this,databaseHelper)
                }
            }
        }



@Composable
fun RegistrationScreen(context: Context, databaseHelper: UserDatabaseHelper)
{
    var username by remember { mutableStateOf("") }
    var password by remember { mutableStateOf("") }
    var email by remember { mutableStateOf("") }
    var error by remember { mutableStateOf("") }

    Column(
        Modifier
            .background(Color.White)
            .fillMaxHeight()
            .fillMaxWidth(),
        horizontalAlignment = Alignment.CenterHorizontally,
        verticalArrangement = Arrangement.Center)

    {
        Row {
            Text(
                text = "Sign Up",
                color = Color(0xFF6495ED),
                fontWeight = FontWeight.Bold,
                fontSize = 24.sp, style = MaterialTheme.typography.h1
            )
            Divider(
                color = Color.LightGray, thickness = 2.dp, modifier =
Modifier
                    .width(250.dp)
                    .padding(top = 20.dp, start = 10.dp, end = 70.dp)
            )

        }

        Image(
            painter = painterResource(id = R.drawable.sign_up),
            contentDescription = "",
            modifier = Modifier.height(270.dp)
        )

        TextField(
            value = username,
```

```
            onValueChange = { username = it },
            leadingIcon = {
                Icon(
                    imageVector = Icons.Default.Person,
                    contentDescription = "personIcon",
                    tint = Color(0xFF6495ED)
                )
            },
            placeholder = {
                Text(
                    text = "username",
                    color = Color.Black
                )
            },
            colors = TextFieldDefaults.textFieldColors(
                backgroundColor = Color.Transparent
            )

        )

        Spacer(modifier = Modifier.height(8.dp))

        TextField(
            value = password,
            onValueChange = { password = it },
            leadingIcon = {
                Icon(
                    imageVector = Icons.Default.Lock,
                    contentDescription = "lockIcon",
                    tint = Color(0xFF6495ED)
                )
            },
            placeholder = { Text(text = "password", color = Color.Black) },
            visualTransformation = PasswordVisualTransformation(),
            colors = TextFieldDefaults.textFieldColors(backgroundColor =
Color.Transparent)
        )



        Spacer(modifier = Modifier.height(16.dp))



        TextField(
            value = email,
            onValueChange = { email = it },
            leadingIcon = {
                Icon(
                    imageVector = Icons.Default.Email,
                    contentDescription = "emailIcon",
                    tint = Color(0xFF6495ED)
                )
```

```
            },
            placeholder = { Text(text = "email", color = Color.Black) },
            colors = TextFieldDefaults.textFieldColors(backgroundColor =
Color.Transparent)
        )

        Spacer(modifier = Modifier.height(8.dp))

        if (error.isNotEmpty()) {
            Text(
                text = error,
                color = MaterialTheme.colors.error,
                modifier = Modifier.padding(vertical = 16.dp)
            )
        }

        Button(
            onClick = {
                if (username.isNotEmpty() && password.isNotEmpty() &&
email.isNotEmpty()) {
                    val user = User(
                        id = null,
                        firstName = username,
                        lastName = null,
                        email = email,
                        password = password
                    )
                    databaseHelper.insertUser(user)
                    error = "User registered successfully"
                    // Start LoginActivity using the current context
                    context.startActivity(
                        Intent(
                            context,
                            LoginActivity::class.java
                        )
                    )

                } else {
                    error = "Please fill all fields"
                }
            },
            shape = RoundedCornerShape(20.dp),
            colors = ButtonDefaults.buttonColors(backgroundColor =
Color(0xFF77a2ef)),
            modifier = Modifier.width(200.dp)
                .padding(top = 16.dp)
        ) {
            Text(text = "Register", fontWeight = FontWeight.Bold)
        }

        Row(
            modifier = Modifier.padding(30.dp),
```

```
            verticalAlignment = Alignment.CenterVertically,
            horizontalArrangement = Arrangement.Center
        ) {


            Text(text = "Have an account?")

            TextButton(onClick = {
                context.startActivity(
                    Intent(
                        context,
                        LoginActivity::class.java
                    )
                )
            }) {
                Text(text = "Log in",
                    fontWeight = FontWeight.Bold,
                    style = MaterialTheme.typography.subtitle1,
                    color = Color(0xFF4285F4)
                )}

        }
    }
}
private fun startLoginActivity(context: Context) {
    val intent = Intent(context, LoginActivity::class.java)
    ContextCompat.startActivity(context, intent, null)
}
```

Source.kt

```
package com.example.example

import com.google.gson.annotations.SerializedName


data class Source (

  @SerializedName("id"   ) var id   : String? = null,
  @SerializedName("name" ) var name : String? = null

)
```

User.kt

```kotlin
package com.example.newsheadlines

import androidx.room.ColumnInfo
import androidx.room.Entity
import androidx.room.PrimaryKey

@Entity(tableName = "user_table")
data class User(
    @PrimaryKey(autoGenerate = true) val id: Int?,
    @ColumnInfo(name = "first_name") val firstName: String?,
    @ColumnInfo(name = "last_name") val lastName: String?,
    @ColumnInfo(name = "email") val email: String?,
    @ColumnInfo(name = "password") val password: String?,

    )
```

UserDao.kt

```kotlin
package com.example.newsheadlines

import androidx.room.*

@Dao
interface UserDao {

    @Query("SELECT * FROM user_table WHERE email = :email")
    suspend fun getUserByEmail(email: String): User?

    @Insert(onConflict = OnConflictStrategy.REPLACE)
    suspend fun insertUser(user: User)

    @Update
    suspend fun updateUser(user: User)

    @Delete
    suspend fun deleteUser(user: User)
}
```

UserDatabase.kt

```kotlin
package com.example.newsheadlines

import android.content.Context
import androidx.room.Database
import androidx.room.Room
import androidx.room.RoomDatabase
```

```
@Database(entities = [User::class], version = 1)
abstract class UserDatabase : RoomDatabase() {

    abstract fun userDao(): UserDao

    companion object {

        @Volatile
        private var instance: UserDatabase? = null

        fun getDatabase(context: Context): UserDatabase {
            return instance ?: synchronized(this) {
                val newInstance = Room.databaseBuilder(
                    context.applicationContext,
                    UserDatabase::class.java,
                    "user_database"
                ).build()
                instance = newInstance
                newInstance
            }
        }
    }
}
```

UserDatabaseHelper.kt

```
package com.example.newsheadlines

import android.annotation.SuppressLint
import android.content.ContentValues
import android.content.Context
import android.database.Cursor
import android.database.sqlite.SQLiteDatabase
import android.database.sqlite.SQLiteOpenHelper

class UserDatabaseHelper(context: Context) :
    SQLiteOpenHelper(context, DATABASE_NAME, null, DATABASE_VERSION) {

    companion object {
        private const val DATABASE_VERSION = 1
        private const val DATABASE_NAME = "UserDatabase.db"

        private const val TABLE_NAME = "user_table"
        private const val COLUMN_ID = "id"
        private const val COLUMN_FIRST_NAME = "first_name"
        private const val COLUMN_LAST_NAME = "last_name"
        private const val COLUMN_EMAIL = "email"
        private const val COLUMN_PASSWORD = "password"
    }
```

```
    override fun onCreate(db: SQLiteDatabase?) {
        val createTable = "CREATE TABLE $TABLE_NAME (" +
                "$COLUMN_ID INTEGER PRIMARY KEY AUTOINCREMENT, " +
                "$COLUMN_FIRST_NAME TEXT, " +
                "$COLUMN_LAST_NAME TEXT, " +
                "$COLUMN_EMAIL TEXT, " +
                "$COLUMN_PASSWORD TEXT" +
                ")"

        db?.execSQL(createTable)
    }

    override fun onUpgrade(db: SQLiteDatabase?, oldVersion: Int, newVersion:
Int) {
        db?.execSQL("DROP TABLE IF EXISTS $TABLE_NAME")
        onCreate(db)
    }

    fun insertUser(user: User) {
        val db = writableDatabase
        val values = ContentValues()
        values.put(COLUMN_FIRST_NAME, user.firstName)
        values.put(COLUMN_LAST_NAME, user.lastName)
        values.put(COLUMN_EMAIL, user.email)
        values.put(COLUMN_PASSWORD, user.password)
        db.insert(TABLE_NAME, null, values)
        db.close()
    }

    @SuppressLint("Range")
    fun getUserByUsername(username: String): User? {
        val db = readableDatabase
        val cursor: Cursor = db.rawQuery("SELECT * FROM $TABLE_NAME WHERE
$COLUMN_FIRST_NAME = ?", arrayOf(username))
        var user: User? = null
        if (cursor.moveToFirst()) {
            user = User(
                id = cursor.getInt(cursor.getColumnIndex(COLUMN_ID)),
                firstName =
cursor.getString(cursor.getColumnIndex(COLUMN_FIRST_NAME)),
                lastName =
cursor.getString(cursor.getColumnIndex(COLUMN_LAST_NAME)),
                email =
cursor.getString(cursor.getColumnIndex(COLUMN_EMAIL)),
                password =
cursor.getString(cursor.getColumnIndex(COLUMN_PASSWORD)),
            )
        }
        cursor.close()
        db.close()
        return user
```

```
    }
    @SuppressLint("Range")
    fun getUserById(id: Int): User? {
        val db = readableDatabase
        val cursor: Cursor = db.rawQuery("SELECT * FROM $TABLE_NAME WHERE
$COLUMN_ID = ?", arrayOf(id.toString()))
        var user: User? = null
        if (cursor.moveToFirst()) {
            user = User(
                id = cursor.getInt(cursor.getColumnIndex(COLUMN_ID)),
                firstName =
cursor.getString(cursor.getColumnIndex(COLUMN_FIRST_NAME)),
                lastName =
cursor.getString(cursor.getColumnIndex(COLUMN_LAST_NAME)),
                email =
cursor.getString(cursor.getColumnIndex(COLUMN_EMAIL)),
                password =
cursor.getString(cursor.getColumnIndex(COLUMN_PASSWORD)),
            )
        }
        cursor.close()
        db.close()
        return user
    }

    @SuppressLint("Range")
    fun getAllUsers(): List<User> {
        val users = mutableListOf<User>()
        val db = readableDatabase
        val cursor: Cursor = db.rawQuery("SELECT * FROM $TABLE_NAME", null)
        if (cursor.moveToFirst()) {
            do {
                val user = User(
                    id = cursor.getInt(cursor.getColumnIndex(COLUMN_ID)),
                    firstName =
cursor.getString(cursor.getColumnIndex(COLUMN_FIRST_NAME)),
                    lastName =
cursor.getString(cursor.getColumnIndex(COLUMN_LAST_NAME)),
                    email =
cursor.getString(cursor.getColumnIndex(COLUMN_EMAIL)),
                    password =
cursor.getString(cursor.getColumnIndex(COLUMN_PASSWORD)),
                )
                users.add(user)
            } while (cursor.moveToNext())
        }
        cursor.close()
        db.close()
        return users
    }

}
```

ExampleInstrumentedTest.kt

```
package com.example.newsheadlines

import androidx.test.platform.app.InstrumentationRegistry
import androidx.test.ext.junit.runners.AndroidJUnit4

import org.junit.Test
import org.junit.runner.RunWith

import org.junit.Assert.*

/**
 * Instrumented test, which will execute on an Android device.
 *
 * See [testing documentation](http://d.android.com/tools/testing).
 */
@RunWith(AndroidJUnit4::class)
class ExampleInstrumentedTest {
    @Test
    fun useAppContext() {
        // Context of the app under test.
        val appContext =
InstrumentationRegistry.getInstrumentation().targetContext
        assertEquals("com.example.newsheadlines", appContext.packageName)
    }
}
```

ExampleUnitTest.kt

```
package com.example.newsheadlines

import org.junit.Test

import org.junit.Assert.*

/**
 * Example local unit test, which will execute on the development machine
(host).
 *
 * See [testing documentation](http://d.android.com/tools/testing).
 */
class ExampleUnitTest {
    @Test
    fun addition_isCorrect() {
        assertEquals(4, 2 + 2)
```

```
        }
    }
```