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| **BAHRIA UNIVERSITY (KARACHI CAMPUS)**    Open Ended Lab II – SPRING SEMESTER – 2023    **Software Application for Mobile Devices**      Class: **BSE****-6B**    Course Instructor: **Engr. Adnan Rehman** Morning  Lab Instructor: **Engr. Muhammad Rehan Baig** **Max Marks: 6**    Student’s Name: Ibrahim Ahmed Shaikh Reg. No: 70002  Note : Probability of similarity is 0% copied and similar solutions will be marked as zero. |

**Scenario**

**Govt** has started a **KPak** project based on city situation. **KPak** which is working on a new mobile application for **Crime and Disaster Management**. The application aims to provide a comprehensive set of features for both citizens and emergency response teams. Main roles in this application: Citizen and Emergency Responder.

**Roles:**

1. Login/Signup for both roles

**Citizen Functionalities:**

1. The citizen can report crimes or disasters by sending a distress signal through the application.
2. Whenever a citizen sends a distress signal, the emergency responders will be notified through the application and receive the citizen's location.
3. The citizen can view nearby emergency services, such as police stations, fire stations, and hospitals, on a map within the application.
4. The citizen can also access safety tips and guidelines in case of emergencies.

**Emergency Responder Functionalities:**

1. Emergency responders, such as police officers, firefighters, and paramedics, can access real-time distress signals from citizens on a dedicated dashboard within the application.
2. When a distress signal is received, the responder will receive the citizen's location and relevant details to provide immediate assistance.
3. The responder can update the status of the distress signal, such as "En route," "On the scene," or "Resolved."
4. The application also provides emergency responders with access to a database of crime and disaster-related information, including previous incident reports, response protocols, and contact information for other agencies.

These functionalities are all included within a single application. Citizens can download and install the application on their mobile devices, while emergency responders will have their dedicated access.

*Imp Note: Create Dummy Data where needed Also add validations where needed.*

**Every point is important. Read the given scenario carefully to perform this Open-Ended Lab.**

GitHub Link:

<https://github.com/dumbibu/KPakOEL>

Login Activity:

package com.example.oel;  
  
import android.content.Intent;  
import android.os.Bundle;  
import android.view.View;  
import android.widget.Button;  
import android.widget.EditText;  
import android.widget.Toast;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
public class LoginActivity extends AppCompatActivity {  
 private EditText etUsername;  
 private EditText etPassword;  
 private Button btnLogin;  
  
 private UserManager userManager;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_login*);  
  
 userManager = new UserManager();  
  
 etUsername = findViewById(R.id.*etUsername*);  
 etPassword = findViewById(R.id.*etPassword*);  
 btnLogin = findViewById(R.id.*btnLogin*);  
 btnLogin.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 String username = etUsername.getText().toString();  
 String password = etPassword.getText().toString();  
  
 boolean isAuthenticated = userManager.login(username, password);  
 if (isAuthenticated) {  
 String userRole = userManager.getUserRole(username);  
  
 if (userRole.equals("User")) {  
  
 Intent intent = new Intent(LoginActivity.this, UserDashboard.class);  
 startActivity(intent);  
 } else if (userRole.equals("Responder")) {  
  
 Intent intent = new Intent(LoginActivity.this, ResponderDashboard.class);  
 startActivity(intent);  
 }  
  
 etUsername.setText("");  
 etPassword.setText("");  
 } else {  
  
 Toast.*makeText*(LoginActivity.this, "Invalid credentials", Toast.*LENGTH\_SHORT*).show();  
 }  
 }  
 });  
  
  
 }  
}

Main Activity:

package com.example.oel;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.content.Intent;  
import android.os.Bundle;  
import android.view.View;  
import android.widget.Button;  
  
public class MainActivity extends AppCompatActivity {  
 private Button button;  
 private Button button2;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
 button2=(Button) findViewById(R.id.*button2*);  
 button2.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 openRegister();  
 }  
 });  
  
 button=(Button) findViewById(R.id.*button*);  
 button.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 openLogin();  
 }  
  
 });  
  
 }  
 public void openLogin()  
 {  
 Intent intent=new Intent(this, LoginActivity.class);  
 startActivity(intent);  
 }  
 public void openRegister()  
 {  
 Intent intent=new Intent(this, SignupActivity.class);  
 startActivity(intent);  
 }  
  
  
}

ResponderDashboard:

package com.example.oel;  
  
import androidx.appcompat.app.AppCompatActivity;  
import androidx.core.app.ActivityCompat;  
import androidx.core.content.ContextCompat;  
import com.google.android.libraries.places.api.Places;  
  
import android.annotation.SuppressLint;  
import android.content.pm.PackageManager;  
import android.os.Bundle;  
  
import com.google.android.gms.maps.GoogleMap;  
import com.google.android.gms.maps.MapView;  
import com.google.android.gms.maps.OnMapReadyCallback;  
  
import android.Manifest;  
import android.content.pm.PackageManager;  
import android.os.Bundle;  
  
import androidx.annotation.NonNull;  
import androidx.appcompat.app.AppCompatActivity;  
import androidx.core.app.ActivityCompat;  
import androidx.core.content.ContextCompat;  
  
import com.google.android.gms.location.FusedLocationProviderClient;  
import com.google.android.gms.location.LocationServices;  
import com.google.android.gms.maps.GoogleMap;  
import com.google.android.gms.maps.OnMapReadyCallback;  
import com.google.android.gms.maps.SupportMapFragment;  
import com.google.android.gms.maps.model.LatLng;  
import com.google.android.gms.maps.model.MarkerOptions;  
import com.google.android.libraries.places.api.Places;  
import com.google.android.libraries.places.api.model.Place;  
import com.google.android.libraries.places.api.model.PlaceLikelihood;  
import com.google.android.libraries.places.api.net.FindCurrentPlaceRequest;  
import com.google.android.libraries.places.api.net.FindCurrentPlaceResponse;  
import com.google.android.libraries.places.api.net.PlacesClient;  
import com.google.android.gms.tasks.Task;  
  
import java.util.Arrays;  
import java.util.List;  
  
  
public class ResponderDashboard extends AppCompatActivity implements OnMapReadyCallback {  
 private MapView mapView;  
 private GoogleMap googleMap;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_responder\_dashboard*);  
  
 // Initialize the MapView  
 mapView = findViewById(R.id.*mapView3*);  
 mapView.onCreate(savedInstanceState);  
 mapView.onResume();  
 mapView.getMapAsync(this);  
 }  
  
 @Override  
 public void onResume() {  
 super.onResume();  
 mapView.onResume();  
 }  
  
 @Override  
 public void onPause() {  
 super.onPause();  
 mapView.onPause();  
 }  
  
 @Override  
 public void onDestroy() {  
 super.onDestroy();  
 mapView.onDestroy();  
 }  
  
 @Override  
 public void onLowMemory() {  
 super.onLowMemory();  
 mapView.onLowMemory();  
 }  
  
 @Override  
 public void onMapReady(GoogleMap map) {  
 googleMap = map;  
 // Customize the map and add markers for nearby emergency services  
  
 }  
}

SignupActivity:

package com.example.oel;  
  
import android.content.Intent;  
import android.os.Bundle;  
import android.view.View;  
import android.widget.ArrayAdapter;  
import android.widget.Button;  
import android.widget.EditText;  
import android.widget.Spinner;  
import android.widget.Toast;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
public class SignupActivity extends AppCompatActivity {  
 private EditText etUsername;  
 private EditText etEmail;  
 private EditText etPassword;  
 private Spinner spRole;  
 private Button btnSignup;  
  
 private UserManager userManager;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_signup*);  
  
 userManager = new UserManager();  
  
 etUsername = findViewById(R.id.*etUsername*);  
 etEmail = findViewById(R.id.*etEmail*);  
 etPassword = findViewById(R.id.*etPassword*);  
 spRole = findViewById(R.id.*spRole*);  
 btnSignup = findViewById(R.id.*btnSignup*);  
 String[] roleOptions = {"User", "Responder"};  
  
 ArrayAdapter<String> adapter = new ArrayAdapter<>(this, android.R.layout.*simple\_spinner\_dropdown\_item*, roleOptions);  
  
 spRole.setAdapter(adapter);  
  
  
 btnSignup.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 String username = etUsername.getText().toString();  
 String email = etEmail.getText().toString();  
 String password = etPassword.getText().toString();  
 String role = spRole.getSelectedItem().toString();  
  
 User user = new User(username, email, password, role);  
 boolean isSignupSuccessful = userManager.signup(user);  
 if (isSignupSuccessful) {  
  
 Toast.*makeText*(SignupActivity.this, "Signup successful", Toast.*LENGTH\_SHORT*).show();  
  
 Intent intent = new Intent(SignupActivity.this, LoginActivity.class);  
 startActivity(intent);  
 finish();  
 } else {  
  
 Toast.*makeText*(SignupActivity.this, "Signup failed", Toast.*LENGTH\_SHORT*).show();  
 }  
 }  
 });  
 }  
}

User:

package com.example.oel;  
  
public class User {  
 public User(String username, String email, String password, String role) {  
 this.username = username;  
 this.email = email;  
 this.password = password;  
 this.role = role;  
 }  
  
 private String username;  
 private String email;  
 private String password;  
 private String role;  
  
 public String getUsername() {  
 return username;  
 }  
  
 public void setUsername(String username) {  
 this.username = username;  
 }  
  
 public String getEmail() {  
 return email;  
 }  
  
 public void setEmail(String email) {  
 this.email = email;  
 }  
  
 public String getPassword() {  
 return password;  
 }  
  
 public void setPassword(String password) {  
 this.password = password;  
 }  
  
 public String getRole() {  
 return role;  
 }  
  
 public void setRole(String role) {  
 this.role = role;  
 }  
}

User Dashboard:

package com.example.oel;  
  
import androidx.appcompat.app.AppCompatActivity;  
import androidx.core.app.ActivityCompat;  
import androidx.core.content.ContextCompat;  
import com.google.android.libraries.places.api.Places;  
  
import android.annotation.SuppressLint;  
import android.content.pm.PackageManager;  
import android.os.Bundle;  
  
import com.google.android.gms.maps.GoogleMap;  
import com.google.android.gms.maps.MapView;  
import com.google.android.gms.maps.OnMapReadyCallback;  
  
import android.Manifest;  
import android.content.pm.PackageManager;  
import android.os.Bundle;  
  
import androidx.annotation.NonNull;  
import androidx.appcompat.app.AppCompatActivity;  
import androidx.core.app.ActivityCompat;  
import androidx.core.content.ContextCompat;  
  
import com.google.android.gms.location.FusedLocationProviderClient;  
import com.google.android.gms.location.LocationServices;  
import com.google.android.gms.maps.GoogleMap;  
import com.google.android.gms.maps.OnMapReadyCallback;  
import com.google.android.gms.maps.SupportMapFragment;  
import com.google.android.gms.maps.model.LatLng;  
import com.google.android.gms.maps.model.MarkerOptions;  
import com.google.android.libraries.places.api.Places;  
import com.google.android.libraries.places.api.model.Place;  
import com.google.android.libraries.places.api.model.PlaceLikelihood;  
import com.google.android.libraries.places.api.net.FindCurrentPlaceRequest;  
import com.google.android.libraries.places.api.net.FindCurrentPlaceResponse;  
import com.google.android.libraries.places.api.net.PlacesClient;  
import com.google.android.gms.tasks.Task;  
  
import java.util.Arrays;  
import java.util.List;  
  
  
public class UserDashboard extends AppCompatActivity implements OnMapReadyCallback {  
 private MapView mapView;  
 private GoogleMap googleMap;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_user\_dashboard*);  
  
 // Initialize the MapView  
 mapView = findViewById(R.id.*mapView*);  
 mapView.onCreate(savedInstanceState);  
 mapView.onResume();  
 mapView.getMapAsync(this);  
 }  
  
 @Override  
 public void onResume() {  
 super.onResume();  
 mapView.onResume();  
 }  
  
 @Override  
 public void onPause() {  
 super.onPause();  
 mapView.onPause();  
 }  
  
 @Override  
 public void onDestroy() {  
 super.onDestroy();  
 mapView.onDestroy();  
 }  
  
 @Override  
 public void onLowMemory() {  
 super.onLowMemory();  
 mapView.onLowMemory();  
 }  
  
 @Override  
 public void onMapReady(GoogleMap map) {  
 googleMap = map;  
 // Customize the map and add markers for nearby emergency services  
  
 }  
}

User Manager:

package com.example.oel;  
  
import java.util.ArrayList;  
import java.util.List;  
  
public class UserManager {  
 public List<User> userList;  
  
 public UserManager() {  
 userList = new ArrayList<>();  
 User user1 = new User("ibrahimUser", "ibrahim@gmail.com", "Ibrahim","User");  
 User user2 = new User("ibrahimResponder", "ibrahim1@gmail.com", "Ibrahim","Responder");  
 userList.add(user1);  
 userList.add(user2);  
 }  
  
 public boolean login(String username, String password) {  
 for (User user : userList) {  
 if (user.getUsername().equals(username) && user.getPassword().equals(password)) {  
 return true;  
 }  
 }  
 return false;  
 }  
  
 public boolean signup(User user) {  
 for (User existingUser : userList) {  
 if (existingUser.getUsername().equals(user.getUsername()) ||  
 existingUser.getEmail().equals(user.getEmail())) {  
 return false;  
 }  
 }  
  
  
 userList.add(user);  
 return true;  
 }  
  
 public String getUserRole(String username) {  
 for (User user : userList) {  
 if (user.getUsername().equals(username)) {  
 return user.getRole();  
 }  
 }  
 return null;  
 }  
}

Output:

A screenshot of a phone

Description automatically generated with medium confidence

A screenshot of a black screen

Description automatically generated with low confidence

A screenshot of a computer screen

Description automatically generated with medium confidence

A screenshot of a computer

Description automatically generated with medium confidence

A screenshot of a computer

Description automatically generated with medium confidence

A screenshot of a map

Description automatically generated with medium confidence

A screenshot of a black screen

Description automatically generated with low confidence

A screenshot of a cell phone

Description automatically generated with medium confidence