Pothole Detection Application Development

# 1. Android Studio (Frontend Development)

• Use Java or Kotlin for the mobile application.  
• Implement a Login Screen with role-based access (Corporation, Reporter, Common People).  
 - Corporation: After login, they can view pothole reports specific to their area.  
 - Common People: They can upload pothole images, mark the location on Google Maps, and select depth severity.  
 - Reporter: They can view unresolved reports after warnings are issued.

# 2. PHP (Backend Development)

• Set up a REST API using PHP:  
 - POST /register: To allow users (Corporation, Reporter, Common People) to register.  
 - POST /login: To authenticate users and assign them roles.  
 - POST /upload-report: To handle the image, location, and depth severity uploads from common people.  
 - GET /view-reports: To fetch reports for corporations based on location.  
 - POST /issue-warning: To send warnings if a corporation hasn’t resolved a report.  
 - POST /notify-reporter: To escalate the issue to reporters after three warnings.

# 3. Database Design (MySQL)

• Users Table: Store user details, roles, and related areas (for corporations).  
• Reports Table: Store the image URL, GPS coordinates, depth severity, and status (resolved/unresolved).  
• Warnings Table: Keep track of how many warnings have been issued to a specific corporation.

# 4. Google Maps API Integration

• For Common People:  
 - Integrate Google Maps API to allow users to mark the location of the pothole when submitting a report.  
 - Use Android’s Location Services to fetch the current location of the user for easier report submission.  
• For Corporations:  
 - Show a map with all reported potholes marked in their area.

# 5. Image Upload

• Use Android’s camera and file storage functionality to capture and upload photos of potholes.  
• On the backend (PHP), store the images using Cloudinary or directly on your server.

# 6. Warning System

• Create backend logic to:  
 - Check the status of reports.  
 - Automatically issue a warning to corporations if no action is taken within a set timeframe.  
 - Notify the reporter after three warnings using push notifications or emails.

# 7. Push Notifications

• Use Firebase Cloud Messaging (FCM) to implement real-time notifications for corporations and reporters:  
 - Notify corporations when a new pothole report is submitted in their area.  
 - Send alerts to reporters if an issue is escalated after multiple warnings.

# 8. Media Reporting (For Reporters)

• Reporters can access unresolved issues and generate a news report.  
• Implement a feature for reporters to share the issue on social media or report it to relevant news agencies.

# 9. Testing and Deployment

• Test the Android app on multiple devices, focusing on image uploads, map functionality, and notifications.  
• Deploy the PHP backend on a hosting platform like cPanel or Heroku for PHP.