**Test Report: Android Clock Application**

**1. Introduction**

This document outlines a basic test plan and test cases for the standard Android Clock application. The testing focused on verifying the core functionalities (World Clock, Alarm, Timer, Stopwatch), basic UI/UX elements (layout consistency), and a key performance aspect (alarm triggering reliability).

**2. Test Plan**

**1. Scope:**

- Core functionalities: World Clock, Alarm, Timer, Stopwatch.

- UI/UX elements: Layout of the main screens, basic design consistency (iconography, button placement).

- Performance-critical areas: Alarm triggering accuracy, basic app responsiveness (tab switching).

**2. Objectives:**

- Identify critical functional defects within the core features.

- Ensure basic usability and navigation are intuitive.

- Verify the reliability of alarm triggering.

- Check for basic UI layout consistency across the main tabs.

**3. Tools:**

- Android Emulator (Medium Phone API 35).

- Built-in Android system settings for verifying alarm times and app information.

- (Optional) Stopwatch app for timing, system "Developer options" for basic performance monitoring.

**4. Testing Environment:**

- Emulator: Medium Phone API 35

- System Image: Android 13 (API Level 35)

- Network: Connected to the host machine's network.

- App Version: (Determined by the emulator image)

**3. Test Cases**

**Test Case 1:**

Test Case ID: TC\_CLK\_001

Test Objective: Verify the functionality of setting and triggering a basic alarm.

Steps to Execute:

1. Open the Clock application.

2. Navigate to the "Alarm" tab.

3. Tap the "+" (add) button.

4. Set an alarm for 2 minutes in the future.

5. Ensure the alarm sound and vibration (if enabled) are selected.

6. Save the alarm.

7. Lock the device screen.

8. Wait for the set alarm time.

Expected Results: The device should play the selected alarm sound and vibrate (if enabled) at the set time, and a notification should appear.

Pass/Fail Criteria: Pass: The alarm triggers correctly at the set time with the selected sound and vibration. Fail: The alarm does not trigger, triggers late, or uses the wrong sound/vibration.

Pass/Fail: Pass

**Test Case 2:**

Test Case ID:TC\_CLK\_002

Test Objective: Verify basic navigation between the main tabs (World Clock, Alarm, Timer, Stopwatch).

Steps to Execute:

1. Open the Clock application.

2. Tap on the "World Clock" tab.

3. Tap on the "Alarm" tab.

4. Tap on the "Timer" tab.

5. Tap on the "Stopwatch" tab.

6. Navigate back to the "World Clock" tab.

Expected Results: The application should smoothly transition between each of the main tabs upon tapping. The content of each tab should load correctly.

Pass/Fail Criteria: Pass: All tabs are accessible and load their respective content without errors or significant delays. Fail: Tabs are unresponsive, content fails to load, or the app crashes during navigation.

Pass/Fail: Pass

**Test Case 3**

Test Case ID: TC\_CLK\_003

Test Objective: Verify the start, pause, resume, and reset functionality of the Stopwatch.

Steps to Execute:

1. Open the Clock application.

2. Navigate to the "Stopwatch" tab.

3. Tap the "Start" button.

4. Allow the stopwatch to run for approximately 10 seconds.

5. Tap the "Pause" button.

6. Wait for 5 seconds.

7. Tap the "Resume" button.

8. Allow the stopwatch to run for another 10 seconds.

9. Tap the "Stop" button (may be the same as pause or a separate "Stop/Reset" button).

10. Tap the "Reset" button.

Expected Results: The stopwatch should start counting accurately, pause and resume timing correctly, and reset the timer to zero.

Pass/Fail Criteria: Pass: Start, pause, resume, and reset functions operate as expected, and the time is displayed accurately. Fail: Buttons are unresponsive, timing is inaccurate, or the reset function fails.

Pass/Fail: Pass

**Test Case 4:**

Test Case ID: TC\_CLK\_004

Test Objective: Verify the layout consistency of the main screen headers across different tabs.

Steps to Execute:

1. Open the Clock application.

2. Navigate to the "World Clock" tab and observe the header (e.g., "World Clock" text, any icons).

3. Navigate to the "Alarm" tab and observe the header.

4. Navigate to the "Timer" tab and observe the header.

5. Navigate to the "Stopwatch" tab and observe the header.

Expected Results: The font style, size, color, and general placement of the main screen title (e.g., "World Clock," "Alarm") should be consistent across all main tabs. Any consistent icons (e.g., a settings icon) should also maintain their position and appearance.

Pass/Fail Criteria: Pass: The header text and consistent icons maintain a uniform style and placement across all main tabs. Fail: Inconsistencies in font, size, color, or placement of the header elements are observed.

Pass/Fail: Pass

**Test Case 5:**

Test Case ID: TC\_CLK\_005

Test Objective: Perform a basic check of the Alarm triggering reliability when the app is in the background.

Steps to Execute:

1. Open the Clock application.

2. Navigate to the "Alarm" tab.

3. Set an alarm for 1 minute in the future.

4. Save the alarm.

5. Switch to another application (e.g., the phone's home screen or a different app).

6. Lock the device screen.

7. Wait for the set alarm time.

Expected Results: The device should play the set alarm sound and vibrate (if enabled) at the scheduled time, even though the Clock app is not in the foreground.

Pass/Fail Criteria: Pass: The alarm triggers correctly at the set time with the selected sound and vibration while the app is in the background. Fail: The alarm does not trigger, triggers late, or fails to sound/vibrate when the app is in the background.

Pass/Fail: Pass

**4. Test Execution Summary**

\* Total Test Cases Executed: 5

\* Number of Test Cases Passed:

\* Number of Test Cases Failed:

\* Pass Rate:

5. Defects Found:

Emulator: Medium Phone API 35 was a little slow while testing

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6. Conclusion:

Basic functional, UI/UX, and performance testing of the Android Clock application, focusing on core features and alarm reliability, revealed no immediate critical defects within the scope of this limited assessment. Navigation was smooth, basic UI elements showed consistency, and alarm triggering was reliable in both foreground and background scenarios. Further, more comprehensive testing would be necessary to uncover edge-case issues and assess performance under various load conditions.