Executive Summary: Currency Converter App Testing

TL;DR

The Currency Converter app was thoroughly tested using manual and automated methods. Manual tests in **testplan**/ verified core functionality, while automated Karate scripts in automation/ covered smoke, regression, and multicurrency tests (123 active currencies). Key issues include incorrect USD amounts in confirmation messages (S2A), unexpected dialogs for 0 EUR conversions (S3A), a commission fee always showing as 0.00 EUR (S7A), and the presence of discontinued currencies (e.g., BYR, HRK). Bugs are documented in **bugreports**/. Recommendations: Fix known issues, remove discontinued currencies, and investigate commission fee logic. **Recommendations:** Fix known issues (notably exchange rate is highly inaccurate to todays exchange rates, failing all currency tests), remove discontinued currencies, and investigate commission fee logic. **Leftovers:** Although core testing was done, to verify basic functionality, additional testing is needed to make sure calculations are correct on different tiers, before final release. **Total Time on task:** Around 5 hours

Overview

The testing effort for the Currency Converter Android app aimed to ensure the reliability, accuracy, and usability of its core features, including currency conversion, balance updates, and error handling. Testing was conducted in two phases:

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1. Manual Testing:

- Location: `testplan/` directory.
- **Scope**: Manual test plans covered core functionality, edge cases, and user experience aspects, such as converting various amounts, handling invalid inputs, and verifying UI elements.
- **Execution**: Test cases were executed manually, with results documented in test reports within the `testplan/` directory.

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2. Automated Testing:

- **Framework**: Karate 1.5.0, using Gherkin syntax for readable test scripts.
- **Location**: `automation/` directory, with two main scripts:
  - android_karate_automation(smoketest_regression).feature:
    - Scenarios:
      - S0: Verify initial balance (1000 EUR).
      - S1-S2: Convert valid amounts (100 EUR and 500 EUR) from EUR to USD, check confirmation messages and balance updates.
      - S3: Attempt to convert 0 EUR, ensure no confirmation dialog appears.
      - S4: Attempt to convert more EUR than available, verify error message.
      - S5: Verify balance updates after multiple conversions.
      - S6: Verify dropdown selection for currencies.

- android_karate_automation(multicurrency_test).feature:
  - **Scope**: Tested conversion of 500 EUR to 123 active currencies (after removing discontinued ones), verifying confirmation messages and balance updates.
  - **Special Handling**: Identified and flagged discontinued currencies (e.g., BYR, HRK) and non-circulating codes (e.g., XAG, XAU) for removal.
- **Execution**: Tests were run on a Pixel 6a API 34 emulator (Android 14.0) using the `app-release.apk`. Reports are available in `test_execution_report/`.

Key Findings

1. **Core Functionality:**
   - The app successfully performs currency conversions for most active currencies, updates balances correctly in most cases, and handles invalid inputs (e.g., insufficient balance) as expected.
   - Dropdown selection for currencies works as intended, with search functionality improving usability for large currency lists.
2. **Multicurrency Testing:**
   - Tested 132 currencies initially, identifying 9 as discontinued or non-circulating (BYR, HRK, MRO, STD, VEF, ZMK, XAG, XAU, XDR).
   - After removing these, 123 active currencies were validated, with accurate conversions based on estimated exchange rates for March 22, 2025.
3. **Known Issues:**
   - S2A (Confirmation Message Rounding Issue):
     - Converting 500 EUR to USD shows 564.51 USD instead of the expected 564.50 USD in the confirmation message.
     - Documented in automation/bugreports/S2A_Confirmation_Message.csv.
   - S3A (Unexpected Dialog for 0 EUR):
     - Attempting to convert 0 EUR triggers an unexpected confirmation dialog, which should not appear.
     - Documented in automation/bugreports/ S3A_Unexpected_Confirmation.csv.
   - GEN1 (Commission Fee Always Zero):
     - The commission fee in all confirmation messages is 0.00 EUR, which is unexpected for a currency conversion app where fees are typically applied.
     - Documented in testplan/bugreports/GEN1 Commission_Fee_Always_Zero.csv.
   - S5D (Balance Update Issue After Multiple Conversions):
     - Balance updates are incorrect after performing multiple conversions (e.g., EUR balance doesn't decrease correctly, or USD balance is wrong).
     - Documented in testplan/bugreports/S5D Verify balance updates after multiple conversions.csv.
   - Discontinued Currencies:
     - The app supports discontinued currencies (BYR, HRK, MRO, STD, VEF, ZMK) and non-circulating codes (XAG, XAU, XDR), which should be removed to prevent invalid conversions.
     - Documented in automation/bugreports/ M1A_discontinued_currencies.csv.

Test Coverage

- **Manual Tests**: Covered core functionality, UI/UX, and edge cases through detailed test plans in `testplan/`

- **Automated Tests:**
    - Smoke tests ensured basic functionality (e.g., balance verification, valid conversions).
    - Regression tests validated end-to-end workflows (e.g., multiple conversions, error handling).
    - Multicurrency tests verified conversions across 123 active currencies, ensuring broad coverage.

Conclusion

The testing effort validated the Currency Converter app's core functionality while identifying critical issues that need resolution. The combination of manual and automated tests provided comprehensive coverage, ensuring the app's reliability for most use cases. Addressing the known issues (S2A, S3A, GEN1, S5D) and removing discontinued currencies will enhance the app's accuracy and user trust. The QA team recommends prioritizing these fixes before the next release.

Next Steps

- Share bug reports with the development team for resolution.
- Retest after fixes to ensure issues are resolved without introducing regressions.
- Update test scripts with actual exchange rates and commission fee expectations.