Test Repository

* Unit Tests (White-box: Functions perform correct actions and return correct outputs)
  + LaunchApp
    - Sets current tab to Tab 1, sets focus on dollar entry textbox, and displays numpad.
  + SelectDate
    - Updates date to user-selected date on date selector and closes date selector.
  + SubmitEntry
    - Opens XML file, decrypts XML file, writes expense data to XML file, encrypts XML file, and closes XML file.
  + ConfirmPIN
    - Verifies user-entered PIN and closes PIN verification window if and only if correct.
  + DisplayLineChart
    - Draws colored line on canvas based on desired aggregated data and draws axis labels on canvas.
  + SelectTimeInterval
    - Aggregate data based on selected time interval and call DisplayLineChart.
  + SelectCategoryFilter
    - Aggregate data based on selected category filter and call DisplayLineChart.
  + DisplayPieChart
    - Draws colored pie slices with percentages on canvas based on desired aggregated data and draws axis labels on canvas.
  + SelectTimeType
    - Aggregate data based on selected time type and call DisplayPieChart.
  + SelectTimeValue
    - Aggregate data based on selected time value and call DisplayPieChart.
  + ChangeCategory
    - Opens XML file, decrypts XML file, erases former category tag, writes new category tag, encrypts XML file, and closes XML file.
* Integration Tests (Bottom-up Approach: Modules work together correctly)
  + Tab 1
    - Adding optional date widget correctly saves with amount and category.
    - Adding optional description correctly saves with amount, category, and date.
  + Tab 2
    - Adding chart type selector correctly switches between line and pie chart.
    - Adding time interval selector still allows switching chart type and displaying correct totals.
    - Adding category selector still allows selecting time interval, switching chart type, and displaying correct totals.
    - Adding time type selector still allows switching chart type and displaying correct totals.
    - Adding time value selector still allows selecting time type, switching chart type, and displaying correct totals.
    - Adding Tab 2 features do not affect Tab 1 features.
  + Tab 3
    - Adding Delete button and checkboxes do not affect correct display of entries.
    - Adding Delete feature correctly updates display of entries.
    - Adding Edit buttons do not affect correct display of entries, Delete button, and checkboxes.
    - Adding Edit feature correctly updates display of entries.
    - Adding Tab 3 features do not affect Tab 1 features.
    - Adding Tab 3 features do not affect Tab 2 features.
  + Settings
    - Adding Confirmation popup does not inadvertently erase data without confirmation.
    - Adding Manage PIN features do not affect Change Category features.
    - Adding PIN Setup and Security Setup still allow opt-out of PIN verification.
    - Adding Change PIN Setup and Forgot PIN still allow opt-out of PIN verification.
    - Adding Terms of Use tab does not affect Change Category features.
    - Adding Terms of Use tab does not affect Manage PIN features.
    - Adding Settings features do not affect Tab 1 features.
    - Adding Settings features do not affect Tab 2 features.
    - Adding Settings features do not affect Tab 3 features.
  + PIN Verification
    - Adding PIN Verification features do not affect Tab 1 features.
    - Adding PIN Verification features do not affect Tab 2 features.
    - Adding PIN Verification features do not affect Tab 3 features.
    - Adding PIN Verification features do not affect Settings features.
* Functional Tests (Black-box: Features result in expected outcomes)
  + Tab 1
    - Ensure screen is always visible upon app launch
    - Ensure that clicking Tab 1 when on a different page will always display Tab 1
    - Ensure all buttons on UI work correctly
    - Ensure that data stored in XML file is correctly formatted
  + Tab 2
    - Ensure that clicking Tab 2 will always display Tab 2
    - Ensure that charts are accurate
    - Ensure colors of categories always match total display and chart lines/pie slices
    - Ensure totals are mathematically correct
    - Ensure correct drop-down options display for respective chart type
    - Ensure selecting other drop-down options update chart and totals
  + Tab 3
    - Ensure that clicking Tab 3 will always display Tab 3
    - Ensure that scrollable list navigates all respective entries
    - Ensure that all entries display all available expense details
    - Ensure that deletion works for both single entries and multiple entries
    - Ensure entry is not changed until user confirms edits
    - Ensure that upon editing/deleting entries that clicking Tab 2 will update chart
  + Settings
    - Ensure tapping Settings button successfully opens Settings
    - Ensure category only changes if user taps Save Changes button and confirms
    - Ensure that category change completely erases old data
    - Ensure that category change truly changes category label
    - Ensure user can toggle PIN off or on
    - Ensure that PIN only changes once user confirms changed PIN
    - Ensure forgotten PIN only displays upon correct answer to security question
    - Ensure that user can safely exit Settings
  + PIN Verification
    - Ensure that PIN verification is only displayed if user opts-in for using a PIN
    - Ensure that incorrect PIN attempts are rejected
    - Ensure that correct PIN attempts are accepted
    - Ensure a correct PIN input proceeds to requested screen
* Acceptance Tests (User stories: Scenarios play out as expected)
  1. Rapid Addition of an Expense without Past Date and Description
     1. Launch app.
     2. Enter “5.00” into dollar amount textbox on Tab 1.
     3. Tap “Food” category button on Tab 1.
  2. Addition of an Expense with Past Date and Description
     1. Enter “999.99” into dollar amount textbox on Tab 1.
     2. Open date selector on Tab 1.
     3. Locate and Tap “March 19, 2020” in the date selector.
     4. Tap “OK” in the date selector.
     5. Enter “Suspicious” into description textbox on Tab 1.
     6. Tap “Entertainment” category button on Tab 1.
  3. View Various Analytics from Charts
     1. Tap “Analytics” tab or swipe right-to-left as to navigate to Tab 2.
     2. Ensure that selected options are: “Line”, “Daily”, and “Total”.
     3. Ensure that line chart only has one data point at far right of X-axis for today’s current day that has a Y-axis value of “5.00”.
     4. Ensure that totals at bottom of Tab 2 have following values:
        + Food = $ 5.00
        + Entertain. = $ 999.99
        + Transport. = $ 0.00
        + Total = $ 1,004.99
     5. Tap time interval selector drop-down.
     6. Tap “Monthly”.
     7. Ensure line chart has only one data point at far right of X-axis for current month with Y-axis value of “5.00” (or “1,004.00” if current month is March 2020).
     8. Tap time interval selector drop-down.
     9. Tap “Yearly”.
     10. Ensure that line chart has only one data point at far right of X-axis for current year that has a Y-axis value of “5.00” (or “1,004.00” if current year is 2020).
     11. Tap category selector drop-down.
     12. Tap “Food”.
     13. Ensure that line chart has only one data point at far right of X-axis for current year that has a Y-axis value of “5.00”.
     14. Tap category selector drop-down.
     15. Tap “Entertain.”.
     16. Ensure that line chart has only one data point at far right of X-axis for current year that has a Y-axis value of “999.99”.
     17. Tap category selector drop-down.
     18. Tap “Transport.”.
     19. Ensure line chart has no data points so line is constantly at zero on the Y-axis.
  4. View Expense History
     1. Tap “History” tab or swipe right-to-left twice as to navigate to Tab 3.
     2. Ensure that selected options are: “Date (New to Old)” and “All”.
     3. Ensure that only two entries are displayed on Tab 3 list.
     4. Ensure the “$ 5.00” entry is first on Tab 3 list.
     5. Tap the sorting selector drop-down.
     6. Tap “Date (Old to New)”.
     7. Ensure the “$ 999.99” entry is first on Tab 3 list.
     8. Tap the sorting selector drop-down.
     9. Tap “Price (Low to High)”.
     10. Ensure the “$ 5.00” entry is first on Tab 3 list.
     11. Tap the sorting selector drop-down.
     12. Tap “Price (High to Low)”.
     13. Ensure the “$ 999.99” entry is first on Tab 3 list.
     14. Tap the filter selector drop-down.
     15. Tap “Food”.
     16. Ensure the “$ 5.00” entry is the only displayed entry on Tab 3 list.
     17. Tap the filter selector drop-down.
     18. Tap “Entertain.”.
     19. Ensure the “$ 999.99” entry is the only displayed entry on Tab 3 list.
     20. Tap the filter selector drop-down.
     21. Tap “Transport.”.
     22. Ensure there are no entries displayed on Tab 3 list.
  5. Edit Previously Submitted Entry by Correcting Mistake
     1. Tap pencil icon of entry: “$ 999.99”, “Entertain.”, “Suspicious”, and “3/19/20”.
     2. Change description to “Scam”.
     3. Tap “Save Changes” button.
     4. Ensure displayed entry has new description “Scam” instead of “Suspicious”.
  6. Delete Erroneous Entry
     1. Tap checkbox of entry: “$ 999.99”, “Entertain.”, “Scam”, and “3/19/20”.
     2. Tap “Delete Selected” button.
     3. Tap “Yes” on confirmation popup.
     4. Ensure entry is no longer displayed on Tab 3 list.
  7. Edit Category to New Label
     1. Tap gear icon in top-right corner as to navigate to Settings window.
     2. Change “Food” to “Rent”.
     3. Tap “Save Changes”.
     4. Tap “Yes” on confirmation popup.
     5. Ensure category label changed.
     6. Tap gear icon in top-right corner to close Settings window.
     7. Tap “History” tab or swipe right-to-left twice as to navigate to Tab 3.
     8. Ensure that selected options are: “Date (New to Old)” and “All”.
     9. Ensure there are no entries displayed on Tab 3 list.
  8. Opt-in for PIN and Setup Security Question
     1. Tap gear icon in top-right corner as to navigate to Settings window.
     2. Tap “Manage PIN” tab or swipe right-to-left.
     3. Tap “PIN Protection” toggle switch as to enable PIN Verification.
     4. Enter “1 2 3 4” into “Create PIN” and “Confirm PIN” fields.
     5. Wait for window to display Security Question page.
     6. Enter “Seattle” into “Answer” textbox.
     7. Tap “Finish Setup” button.
  9. Utilize PIN Verification Feature
     1. Tap “Analytics” tab or swipe right-to-left as to navigate to Tab 2.
     2. Enter “1 2 3 4” into PIN Verification window.
     3. Ensure PIN Verification window closes and Tab 2 displays.
  10. Determine Forgotten PIN
      1. Tap gear icon in top-right corner as to navigate to Settings window.
      2. Tap “Manage PIN” tab or swipe right-to-left.
      3. Close the numpad if it is displayed.
      4. Tap the “Forgot PIN?” button.
      5. Enter “Seattle” into the “Answer” textbox.
      6. Tap the “Check Answer” button.
      7. Ensure the PIN “1 2 3 4” is displayed.
  11. Change PIN
      1. Tap “Terms of Use” tab or swipe right-to-left.
      2. Tap “Manage PIN” tab or swipe left-to-right.
      3. Enter “1 1 3 8” into “Change PIN” and “Confirm New PIN” fields.
      4. Ensure green “PIN Changed” status popup displays.
  12. Opt-out of PIN
      1. Tap “PIN Protection” toggle switch as to disable PIN Verification.
      2. Ensure “PIN Protection” toggle switch is set to disabled.
      3. Ensure “Create PIN” and “Confirm PIN” fields are disabled.
      4. Close the app.
* Release Tests (Deployment: App can be downloaded and installed successfully)
  + Optionally deploy installer APK for completed MVP on the Google Play Store