To Note

- **Functionality bug:**
    - Behavior differs from UG
    - Legitimate user behavior not handled like incorrect commands/extra parameters
    - Behavior not specified and differs from normal expectation like error message does not match error
- **Feature flaw:**
    - Does not solve the stated problem of the intended user
    - Hard-to-test features
    - Features that don't fit well with the product
    - Features that are not optimized enough for fast-typists or target users
    - Violations of given project constraints
- **Documentation bugs:**
    - Use of visuals
        - Not enough visuals, screenshots/diagrams
        - Visuals not well integrated to the explanation
        - Visuals are unnecessarily repetitive, same visual repeated with minor changes
    - Use of examples
        - Not enough or too many examples, sample inputs/outputs
    - Explanations
        - Target user for the product and/or value proposition is not specific clearly
        - Explanation is too brief or unnecessarily long
        - Information is hard to understand for the target audience, using terms that the reader might not know
    - Neatness/correctness
        - Looks messy
        - Not well-formatted
        - Broken links, typos
        - Hard to read/understand
        - Unnecessary repetitions
- Good bug report format
    - Descriptive title
    - Enough details, steps to reproduce, expected, actual, and screenshots
    - Severity/type labels chosen are not too far off
    - Written in a non-confrontational tone

- Points out potentially problematic behavior or good way to improve product

- Assign exactly one `severity.*` label to the bug report. Bug reports without a severity label are considered `severity.Low` (lower severity bugs earn lower credit)

  Bug Severity labels:

  - `severity.VeryLow` : A flaw that is purely cosmetic and does not affect usage e.g., a typo/spacing/layout/color/font issues in the docs or the UI that doesn't affect usage. Only cosmetic problems should have this label.
  - `severity.Low` : A flaw that is unlikely to affect normal operations of the product. Appears only in very rare situations and causes a minor inconvenience only.
  - `severity.Medium` : A flaw that causes occasional inconvenience to some users but they can continue to use the product.
  - `severity.High` : A flaw that affects most users and causes major problems for users. i.e., only problems that make the product almost unusable for most users should have this label.

  ℹ When applying for documentation bugs, replace *user* with *reader*.

- Assign exactly one `type.*` label to the issue.

  Type labels:

  - `type.FunctionalityBug` : A functionality does not work as specified/expected.
  - `type.FeatureFlaw` : Some functionality missing from a feature delivered in v1.4 in a way that the feature becomes less useful to the intended target user for *normal* usage. i.e., the feature is not 'complete'. In other words, an acceptance-testing bug that falls within the scope of v1.4 features.
    These issues are counted against the *product design* aspect of the project. Therefore, other design problems (e.g., low testability, mismatches to the target user/problem, project constraint violations etc.) can be put in this category as well.
    Features that work as specified by the UG but *should have been designed to work differently* (from the end-user's point of view) fall in this category too.
  - `type.DocumentationBug` : A flaw in the documentation e.g., a missing step, a wrong instruction, typos

- Choose lower severity if contentious

Potential Inputs

1. Strings
    a. Empty string
    b. Really long strings (> 9999): view how the UI shows it, does it crash, how is the file saved (see below)
    c. Exact minimum length
    d. Exact maximum length
    e. 1 less than minimum length
    f. 1 less than maximum length
    g. 1 more than minimum length
    h. 1 more than maximum length
    i. Invalid characters: read UG
    j. Non ASCII characters: ¢¬¡
    k. Emojis: 👁👁👁👁👁👁👁
2. Integers
    a. 2147483647 (INT_MAX)
    b. -2147483648 (INT_MIN)
    c. Exactly minimum/maximum (both user defined and INT_MIN/INT_MAX)
    d. 1 more than minimum/maximum
    e. 1 less than minimum/maximum
    f. Negative numbers
    g. Zero
    h. Overflows
3. Doubles
    a. Raw string: 4.9E-324 (DOUBLE_MIN)
    b. Raw string: 1.7976931348623157E308 (DOUBLE_MAX)
    c. INT_MAX + 1 should be supported if stored to double
    d. INT_MAX * INT_MAX < DOUBLE_MAX
    e. LONG_MAX * LONG_MAX < DOUBLE_MAX
    f. 0
    g. Negative
4. Longs
    a. 9223372036854775807 (MAX)
    b. -9223372036854775808 (MIN)
5. Float

    a. Raw string: 1.4E-45 (MIN)
    b. 3.4028235E38 (MAX)
    c. INT_MAX * INT_MAX < FLOAT_MAX
    d. LONG_MAX * LONG_MAX < FLOAT_MAX
6. Prefix system
    a. Empty prefix like prefix/
    b. Prefix with different type, e.g. string give int, int give string
    c. Invalid prefix
    d. Extra prefixes (outside of fixed ones)
    e. Index errors
    f. Using different delimiters
    g. Different ordering
    h. Duplicate prefixes
    i. Missing prefixes
7. File storage
    a. Verify that commands save after changes
    b. Try destroying the storage file and seeing how the app recovers
    c. Manually adding entries to storage file and seeing how the app reacts to that
    d. Close the app immediately after running and view storage file
    e. Change file name and see if duplicates work
    f. Delete file while app is running
8. UI charts
    a. Blank data handling
    b. Handling too much data
    c. Deleting data while UI charts are active
    d. Changing data while UI charts are active
9. Help window
    a. MacOS only: open help, shift a little, close and re-open, should move randomly to the bottom

Menace Inputs

- Really large number: 9999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999
- 200 length string: aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa
- 500 length string: aaa
- 1000 length string: aaa
- 9999 length string: aaa

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