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CS 362 HW 3

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### Week 5 – Random Testing

For this document, you will need to fill out the information below. Ensure you have 5 triggering numbers for each bug or you will receive zero points for the bug. Your theory must fit the 5 provided numbers to receive any points. To receive full points, your theory must match the actual coded error, so you may need more than 5 data points for each bug to successfully determine the causes.

- **Bug 1**
  - **Triggering credit card numbers (at least 5)**
    - 9573527835829763
    - 5983750086107794
    - 6146827647283066
    - 7229579146171858
    - 1057347512704656
  - **Theory that explains what triggered the bug**
    - The theory is that the credit card contains the wrong prefix with the correct length, and the correct Luhn number.
- **Bug 2**
  - **Triggering credit card numbers (at least 5)**
    - 4052557556889259
    - 4052357634010857
    - 4052814684067757
    - 4052631394630652
    - 4052471340761081
  - **Theory that explains what triggered the bug**
    - The theory is that the Visa credit cards are invalid if the first four numbers of the credit card are 4052 of length 16, and the correct Luhn number.
- **Bug 3**
  - **Triggering credit card numbers (at least 5)**
    - 341643647575575
    - 347412138630263
    - 374496007825217
    - 376424497781821
    - 340343056348231
  - **Theory that explains what triggered the bug**
    - The theory is that American Express credit cards are invalid if they contain an odd number at the end of the credit card number with correct length and valid Luhn.

- **Bug 4**
  - **Triggering credit card numbers (at least 5)**
    - 4938228785944938
    - 5241786859765241
    - 2226807795202226
    - 8234321570538234
    - 7003798201047003
  - **Theory that explains what triggered the bug**
    - The theory is that the Visa cards do not have a valid Luhn number but contain a length of 16. So it appears to be only validating Visa and Master Credit Cards. It includes some correct prefixes.
- **Bug 5**
  - **Triggering credit card numbers (at least 5)**
    - 4623102311112828
    - 2311111517975616
    - 5138140287221111
    - 343482158111100
    - 2324994119911112
  - **Theory that explains what triggered the bug**
    - The theory is that the credit cards contain the correct prefixes, the correct length for the three type of credits cards. The credit cards show that if the number contains 4 “1” in a row that it is invalid.