**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)**
* 793291537745557
* 640098601550773
* 903542398467289
* 845571664198152
* 570261946301591
* **Theory that explains what triggered the bug**
* These numbers are the proper length, but have an invalid prefix for an American Express card, as well as an invalid check digit.
* **Bug 2**
* **Triggering credit card numbers (at least 5)**
* 373437957785176
* 373470208987812
* 373424574543386
* 373434223296104
* 373485127126219
* **Theory that explains what triggered the bug**
* These numbers all have the proper length, prefix and check digit for an American Express card. However, if a card has 3734 at the start it must be invalid as that is what all the numbers share. Perhaps it is because 34 is another valid prefix.
* **Bug 3**
* **Triggering credit card numbers (at least 5)**
* 344449749279430
* 377742037919778
* 378939360732500
* 340002234569080
* 378172664146660
* **Theory that explains what triggered the bug**
* The numbers have valid prefixes, length, and check digits for American Express cards. However, there are consectutive numbers (4444, 000, etc.) or repeated number patterns (9393) within the card number. This could be cause a kind of error in valid data with stuck keys or press multiple keys with rollover.
* **Bug 4**
* **Triggering credit card numbers (at least 5)**
* 240940926579824
* 089391116542808
* 015858024730901
* 321958322351732
* 698583948096269
* **Theory that explains what triggered the bug**
* These numbers have a valid length for an American Express, but an invalid prefix and check digit.
* **Bug 5**
* **Triggering credit card numbers (at least 5)**
* 4571286390876981
* 5598423767769822
* 371677698154867
* 5297698332938820
* 4167769898681631
* **Theory that explains what triggered the bug**
* The numbers have valid prefixes, length, and check digits, but have reapted digit patterns that could trigger an error in data validation.
* **Bug 6**
* **Triggering credit card numbers (at least 5)**
* 4898310487744542
* 4903276174393542
* 347497853394542
* 4948677122887542
* 4822087591390542
* **Theory that explains what triggered the bug**
* These numbers have valid lengths and check digits, but they all end in 542 which may trigger an error in data validation.
* **Bug 7**
* **Triggering credit card numbers (at least 5)**
* 33702547233756789
* 06484794595678
* 68394679956993456
* 023345290026789
* 3348548297611234
* **Theory that explains what triggered the bug**
* These numbers all have invalid lengths, prefixes, and check digits. The last four digits are all consectutive numbers (3456, 6789, 1234, etc.)
* **Bug 8**
* **Triggering credit card numbers (at least 5)**
* 8361072725874707
* 8521410987672109
* 8121430989236945
* 8343616345250129
* 8385854103050163
* **Theory that explains what triggered the bug**
* These numbers all have a valid length for a Visa or MasterCard, but an invalid prefix and check digit.