Data Integration

Assignment 2: Data Cleaning

Group BB

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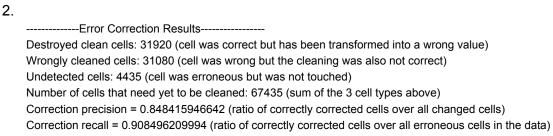
Task 1 - Error Detection:

1. To find error in cell we need to check if the cell is formated as is specified in the task. Probably most obvious errors are not capitalized characters or wrong length of **State**, **ZIP** or **SSN** column. More difficult is to check if City column contains real city name. For this we need external API. We use python module uszipcodes https://pypi.python.org/pypi/uszipcode and method search._find_city(cityName, best_match=True). This method get the most similar city name to the given city.

2.	
	Error Detection Results
	Number of detected cells: 415611 (Number of changed values)
	Number of Correctly Detected cells: 383691 (cell was correctly identified as an error)
	Detection precision: 0.923197412965 (ratio of correctly detected cells over all detected cells)
	Detection recall: 0.988573298362 (ratio of correctly detected cells over all erroneous cells in the data)
	Detection F1: 0.954767542119

Task 2 - Error Correction:

1. To change the cell to its correct value we again used the python module uszipcodes https://pypi.python.org/pypi/uszipcode with the methods to lookup for city and state if we know the correct zipcode, or use city/state to lookup for zipcode and/or city and state if the zipcode is not in right format, which is not really accurate because one city can have more zipcodes or even there can be two cities with same name in different state. To change SSN to the correct value is probably impossible because every person has the first 3 numbers in the SSN based on the stated they were born in and the rest is unknown to us, because there is no general rule to make this number.



Note: The module is really slow to lookup for best matched names for cities(it can take over 2 hours even on better laptops to finish) so I also added the corrected .csv file and jupyter notebook file that is faster to run than the .py file. And also we were using python3, so we needed to modify print method of web_client.py