Assignment Option (B) – Fraud Detection Requirement. This assignment surrounds fraud detection and asks you to investigate the application of Benford Law as a tool to detect financial reporting fraud. A list of 45 companies has been provided for you. These companies have been determined by Audit Analytics (available through WRDS) to have not only misrepresented their accounts; but have done so in a fraudulent manner. The details of each fraud and the account-years which are affected are provided.5 Using financial data, your task is to provide empirical analysis and establish whether these fraudulent accounts could have been predicted by Benford Law. In particular, you should analyse these fraudulent reports and compare the results to companies that are deemed to be clean. The clean companies can be any of your choosing, but the clean sample must be comparable to those which are fraudulent (e.g. in terms of size, industry, profitability). 6 Your analysis should include a comparison of MAD, KS and Chi-squared test for both groups – including tests of difference. You are also required to perform separate analyses, not only on the financial data as a whole, but according to type of information i.e. Balance sheet, Income Statement, and Cashflow items. Comparisons should be made to the findings of Amiram et al (2015). You may also wish to take the type of fraud being committed into account when performing any analysis. No financial data is provided – you will need to manually collect this yourselves through, for example, Compustat (WRDS). Using your python skills acquired within this module (and elsewhere), your report should seek to provide (but not limited to): An introduction – Discussion of Benford Law, the potential application to fraudulent account detection, what your research goals are, and what you hope to achieve through your analysis. A literature review – You have two strands of literature to discuss, namely Benford Law, and fraud detection. Remember that a literature review should be a cohesive discussion of extant literature, how it relates to your research, and is the main indicator of whether you understand the subject area or not. Utilise the skills that you have learned within BEAM068 to paint a rounded picture of the subject area. Methodology - What statistical tests/models are you going to perform and why? Data – A description of the data and its origin, including summary statistics of the key variables. Univariate analysis – The inclusion of (but not limited to) tests of difference between the two groups of firms in terms of the financial data acquired, along with separate analysis of balance sheet, income and cashflow statement items. Multivariate analysis – No multivariate analysis is required but you may wish to investigate Amiram et al’s proposition that misstatements are more likely to occur in smaller, younger, more volatile, growing firms. This may be done by using key independent variables in order to explain your Benford conformity measures by way of a regression. Remember that the companies I have given you represent fraudulent misstatements only, and therefore may not adhere to the findings of Amirim et al (2015). You may wish to uncover evidence as to the type of companies that fraudulent misstatements are more likely to occur. Conclusion – What are your key findings and what are the implications? Python code – A code (\*.py) file which documents each stage of your analysis (uploaded as a separate file). You may expand or explore this topic in any way you feel appropriate - provided that the key areas highlighted above are covered.