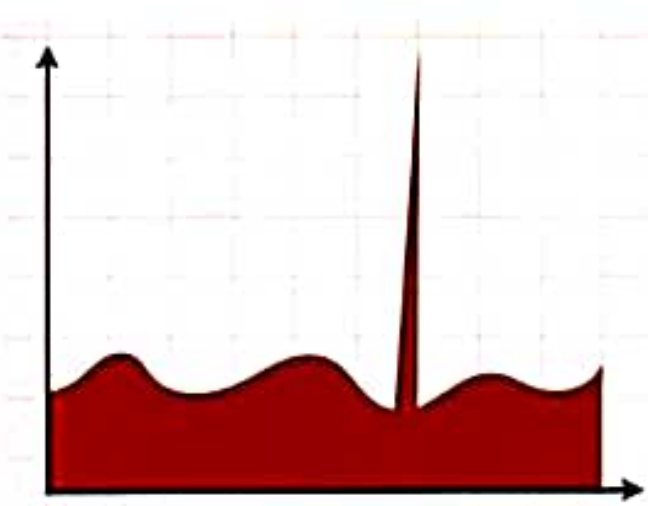
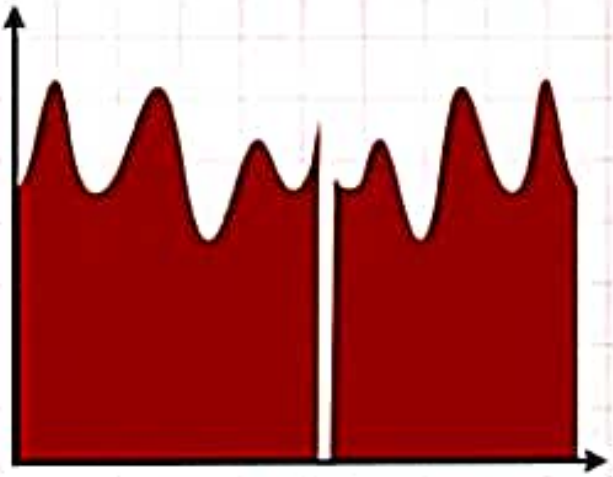
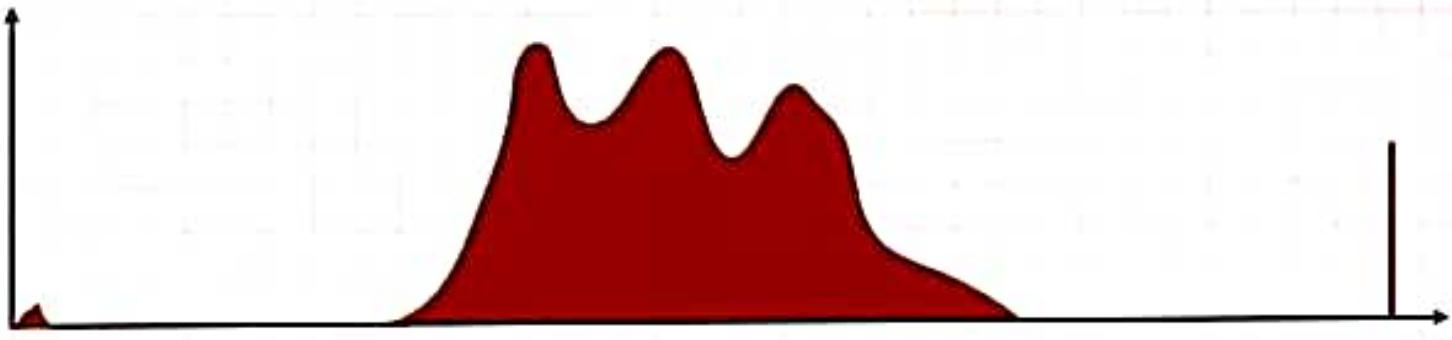
Abstract

Due to increase of fraud which results in loss of money across the globe, several methodologies and techniques developed for detecting frauds Fraud detection involves analysing the activities of users in order to understand the malicious behaviour of users. Malicious behaviour is a broad term including delinquency, fraud, intrusion, and account defaulting. This paper presents a survey of current techniques used in credit card fraud detection and evaluates a new hybrid approach to identify fraud detection. In the proposed work, we analyze credit card fraud detection using machine learning algorithm namely logistic regression and Decision Tree. To make the learning process efficient, we used Principal component for feature selection.

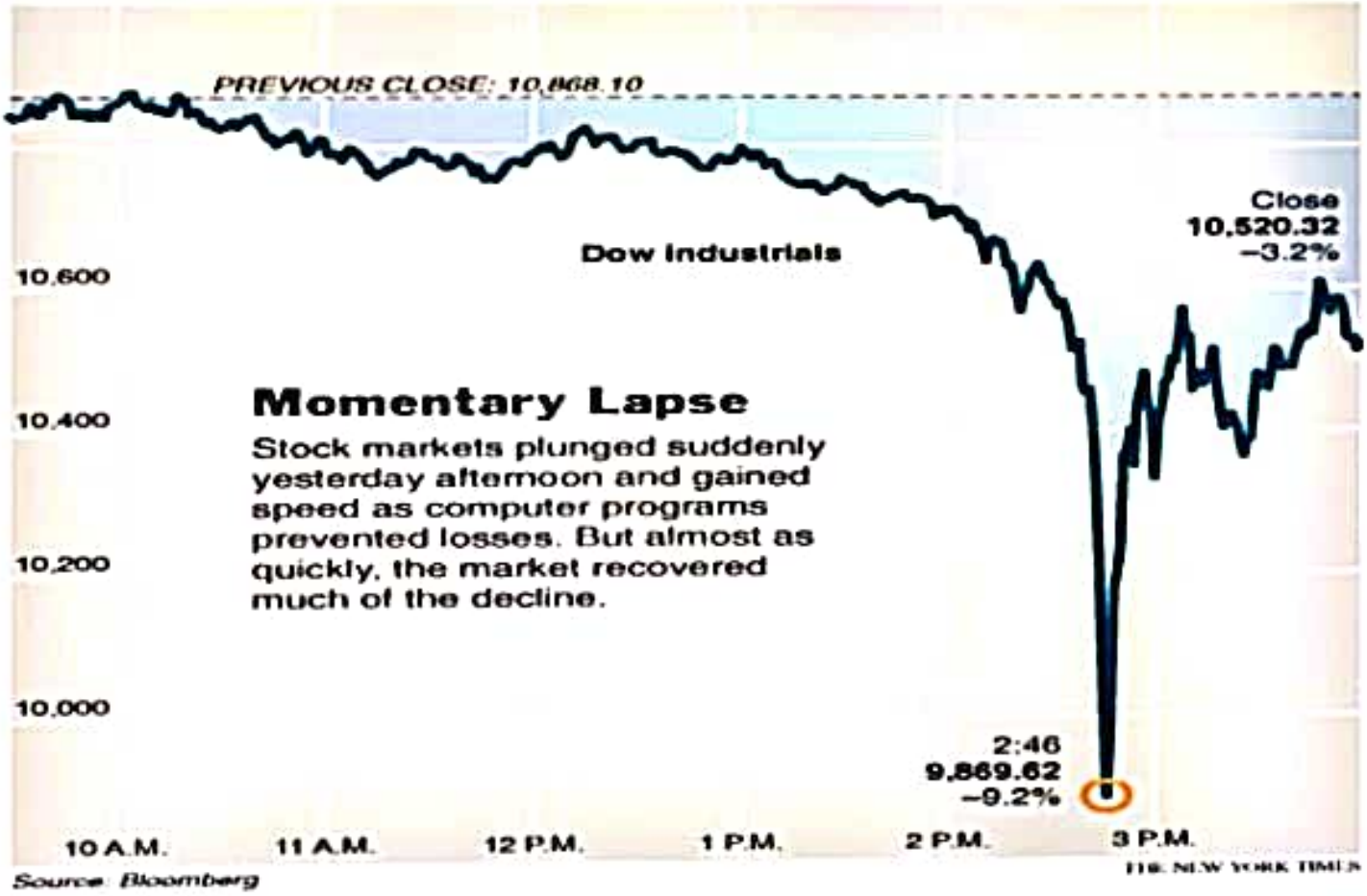
In one dimension: what anomalies look like?







Real Example: Stock market : The May 6, 2010, Flash Crash at 2:45 pm

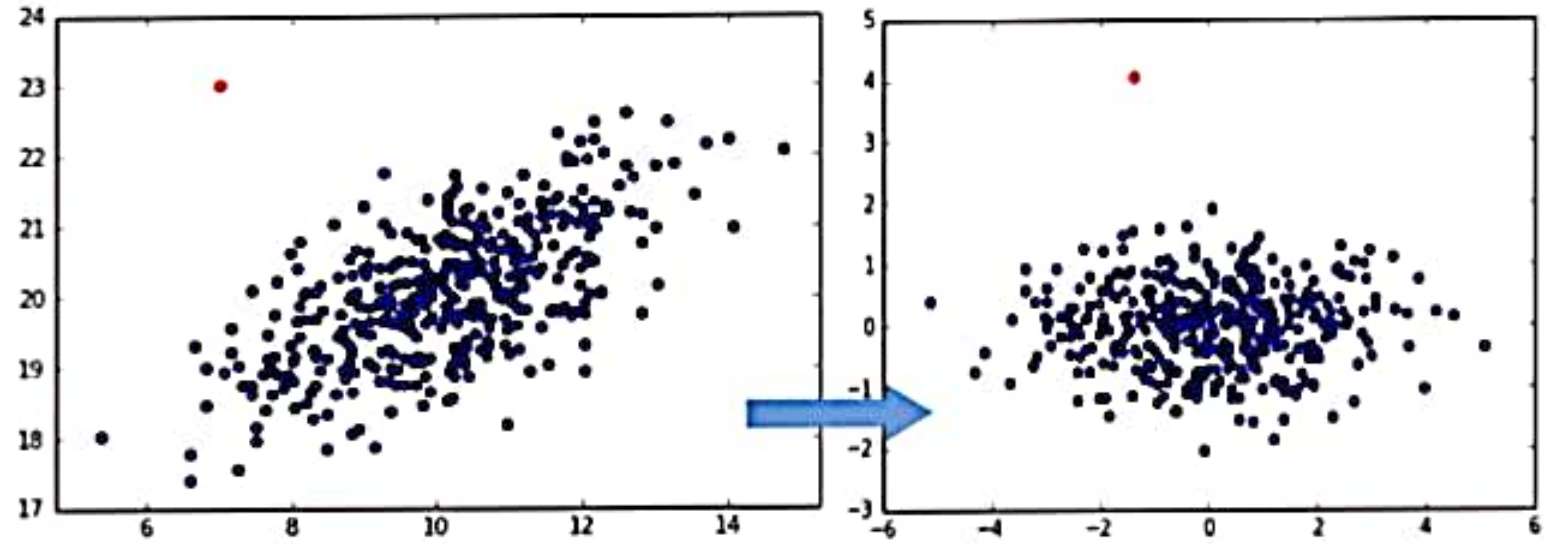


Real Example from the Stock market : A real financial fraud!

- On April 21, 2015, nearly five years after the incident, the U.S. Department of Justice laid "22 criminal counts, including fraud and market manipulation" against Navinder Singh Sarao, a trader. Among the charges included was the use of spoofing algorithms; just prior to the Flash Crash, he placed thousands of E-mini S&P 500 stock index futures contracts which he planned on canceling later.

Stock market : Flash Crash continues

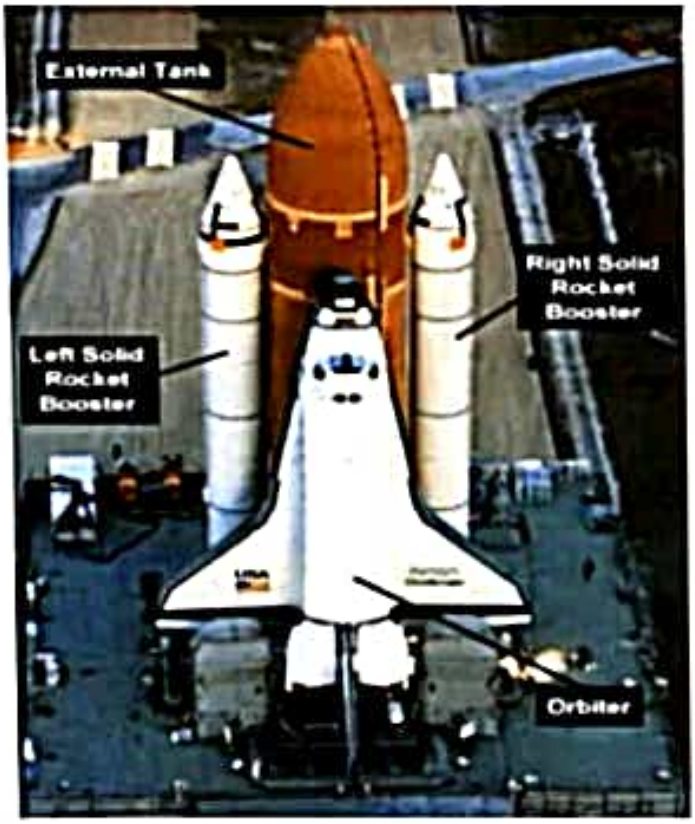
In two dimension: what anomalies look like?

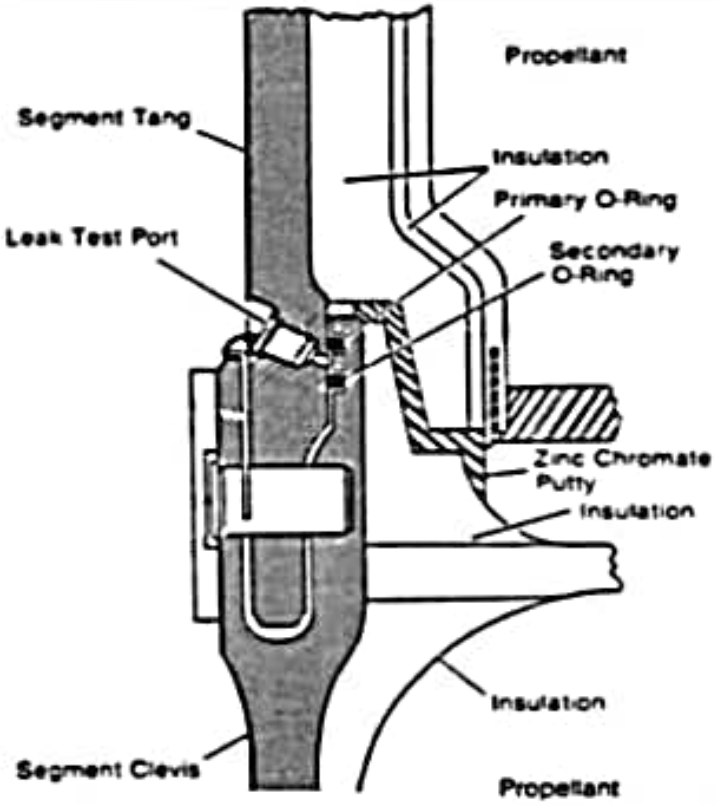


Results with 2D PCA method from sklear.decomposition
also you can do kernel PCA

Real Example: Rocket science

January 28 1986 Challenger spatial mission:
Dalal & al., 1989 Journal of the American Statistical Association





In two dimension: what anomalies look like?

Should have considered plot (b), which had data on 23 of the previous 24 flights.