Visualizing Multi-dimensional Clusters, Trends, and Outliers using Star Coordinates

Eser Kandogan
Student: Hazrat Ali

IBM Almaden Research Center - 26 references

About article

- **Title** : Visualizing Multi-dimensional Clusters, Trends, and Outliers
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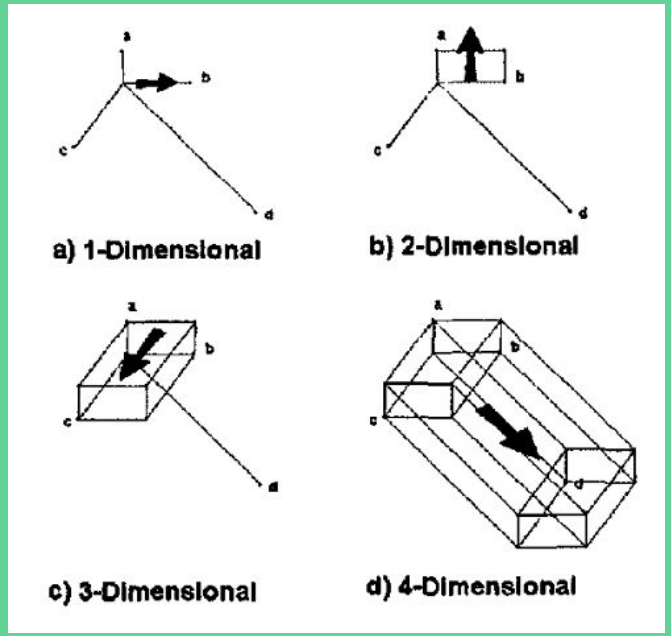
Multidimensional visualization

- Engineering and business data has many dimensions
- Interactive visualizations technique to get insight
- Star Coordinates
  - Arrange into 2 dimensional surface
  - Finding vector sum of all axes

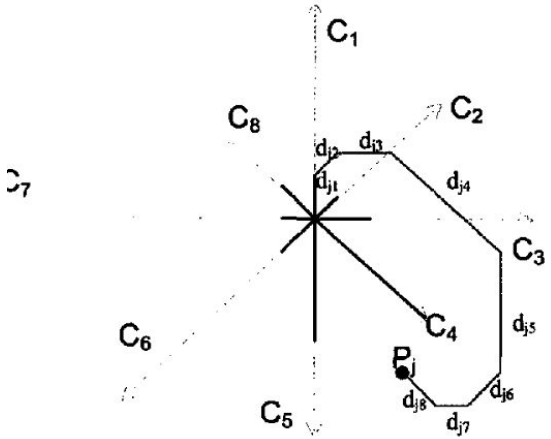
Star coordinates

- Nth dimensional space
  - Represented by n-1 sweep
  - Vector sum of all axes
  - Ambiguities
  - Use of interaction techniques



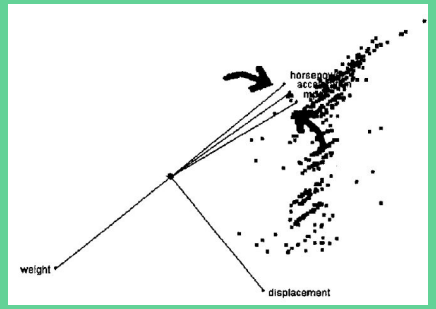
Vector sum

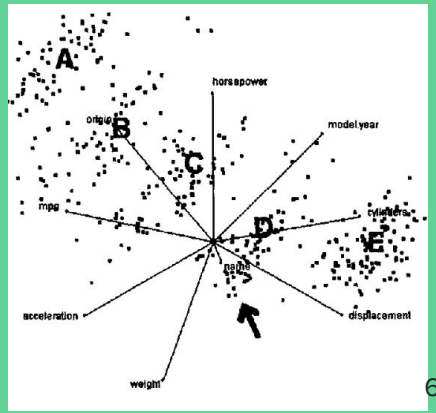
- Point Pj represents one point
- It is composed of 8 data points Dj1 - Dj8
- There are 7 Coordinates C1-C7



Interaction Techniques

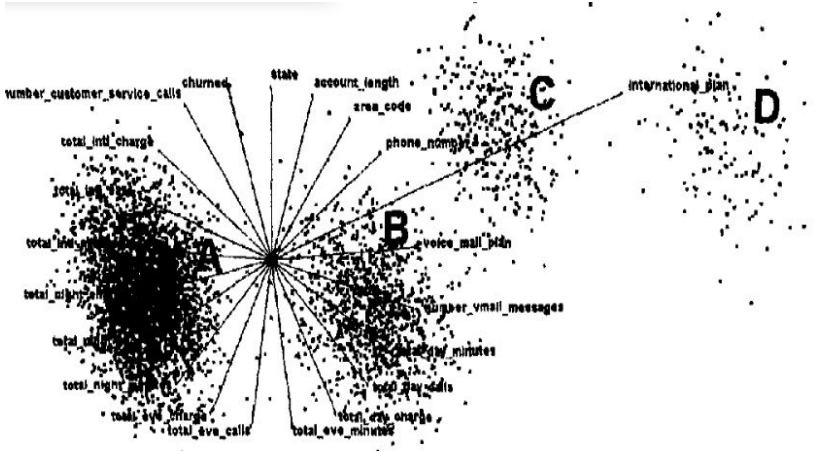
- Scaling
- Rotation
- Marking
- Range selection
- Footprints





Churn Analysis

- Cancel services
- Clustering to predict interesting patterns
  - customers that exhibit
  - similar patterns in advance
  - so that new services,
  - promotions, etc. can be offered



Conclusion

Customers are clustered into two main groups

- customers with an international plan are more likely to churn
- voice plan membership makes them less likely to churn

Thanks

Questions ?