

Big Data Analytics in the Management of Business

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**PEOPLE WHO SEE
THINGS BEFORE THEY
HAPPEN AND THEN
MAKE THEM HAPPEN.**

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

What is Business Analytics?

Describing....

- Statistics
- Computer Science
- Data Warehousing
- SAS Software
- Six Sigma
- Dashboard
- AI
- Mathematical Models
- Dashboards

Davenport – Competing on Analytics

“The extensive use of data, statistical and quantitative analysis, explanatory and predictive models, **and fact-based management to drive decisions and actions**”.

Re-quoted from Competing on Analytics

Enterprise Analytics. Thomas Davenport. Pearson Publishing. 2013. Page 9.

What is Business Analytics?

Analytics is the use of:

data,

information technology,

statistical analysis,

quantitative methods, and

mathematical or computer-based models

to help managers gain improved insight about their business operations and

make better, fact-based decisions.

What is Business Analytics?

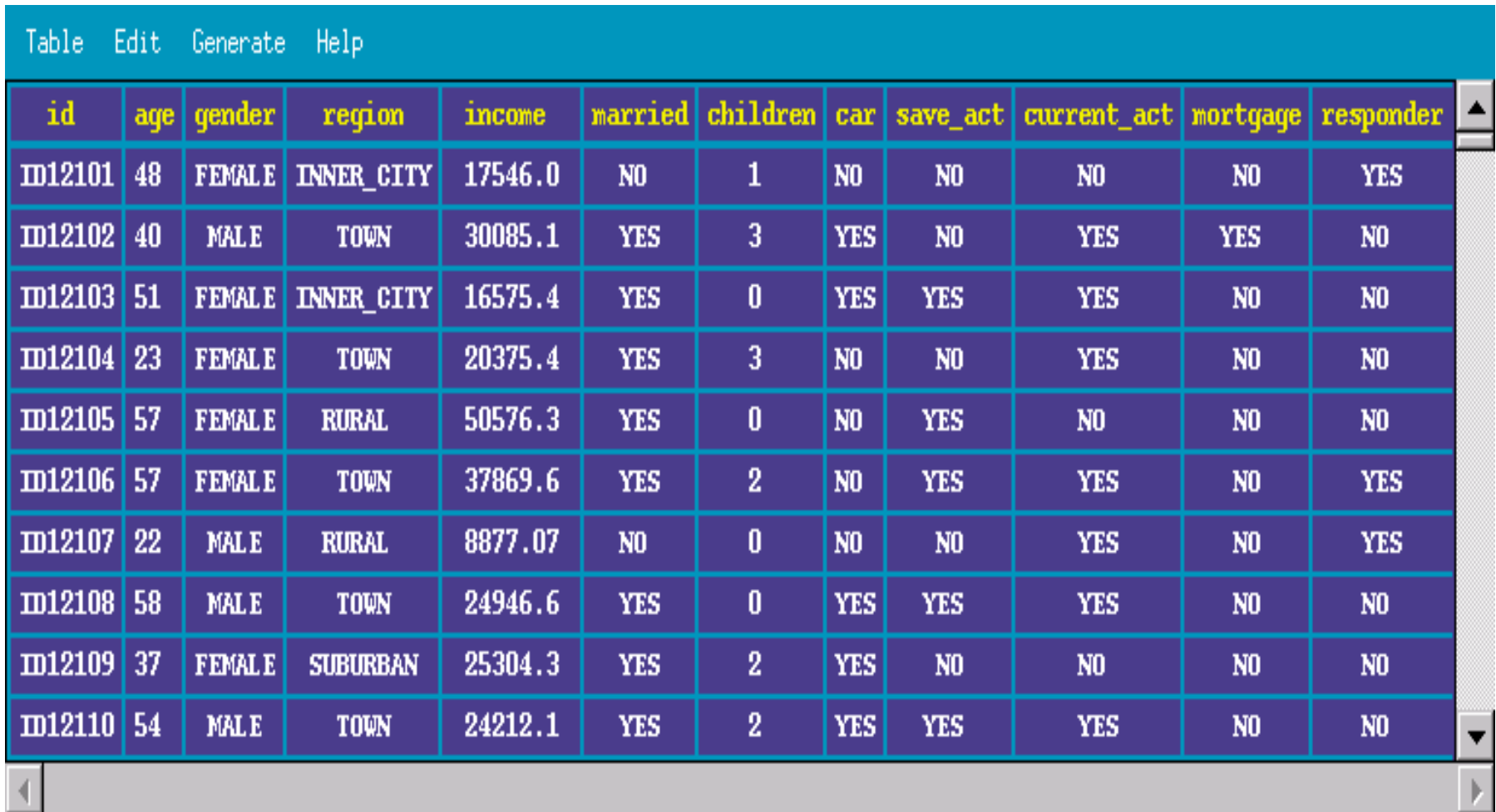
Importance of Business Analytics

- ▶ There is a strong relationship of BA with:
 - profitability of businesses
 - revenue of businesses
 - shareholder return
- ▶ BA enhances understanding of data
- ▶ BA is vital for businesses to remain competitive
- ▶ BA enables creation of informative reports

Evolution of Business Analytics

- Operations research
 - Management science
 - Business intelligence
 - Decision support systems
 - Personal computer software
- ++ Others

What is Data Mining?

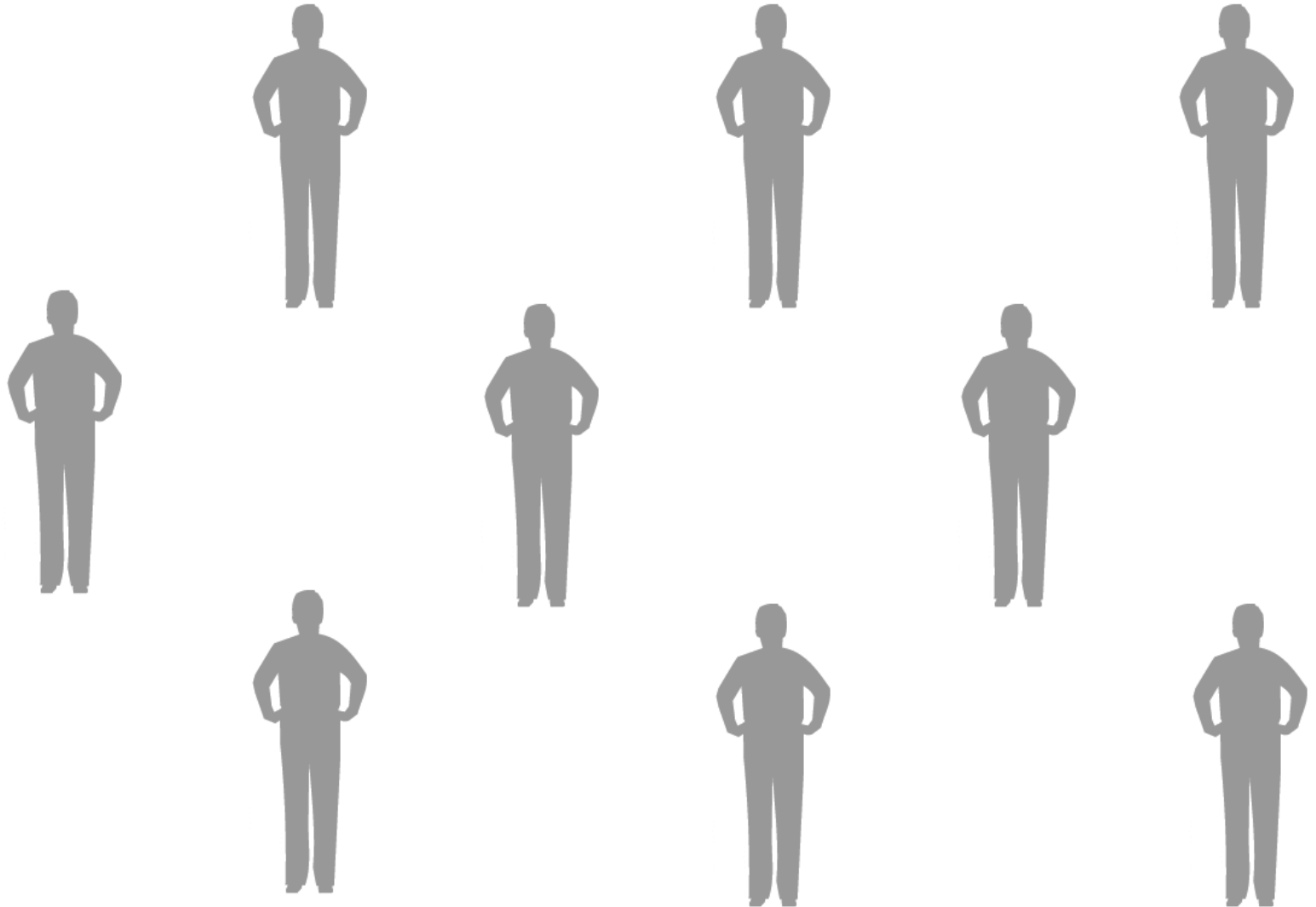


The image shows a screenshot of a data table interface. At the top, there is a menu bar with the options 'Table', 'Edit', 'Generate', and 'Help'. Below the menu bar is a table with 12 columns and 11 rows. The columns are labeled: 'id', 'age', 'gender', 'region', 'income', 'married', 'children', 'car', 'save_act', 'current_act', 'mortgage', and 'responder'. The rows contain numerical and categorical data for each of these attributes. The table is displayed in a window with a light blue header and a white background for the data cells. There are scroll bars on the right and bottom of the table area.

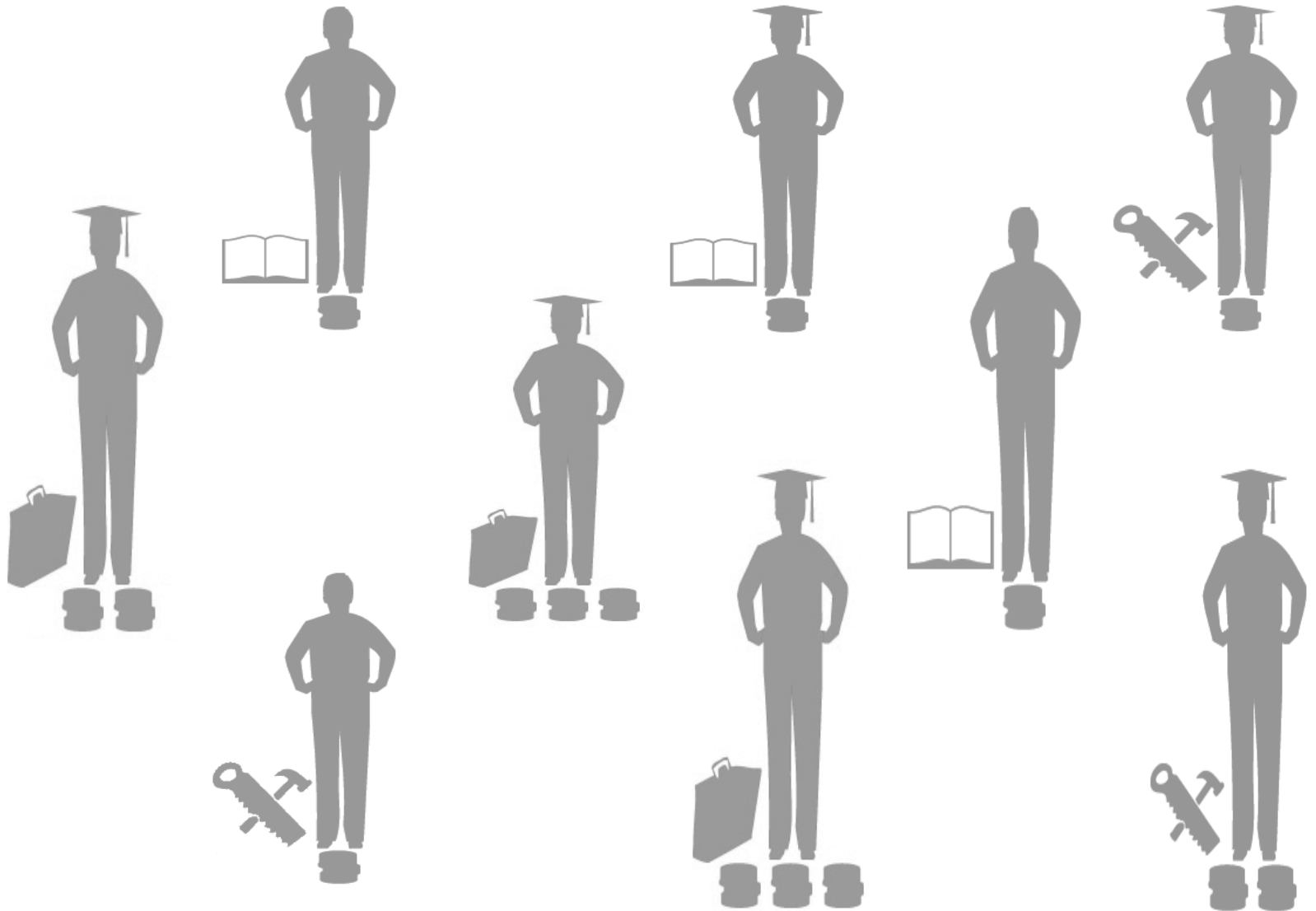
| id | age | gender | region | income | married | children | car | save_act | current_act | mortgage | responder |
|---------|-----|--------|------------|---------|---------|----------|-----|----------|-------------|----------|-----------|
| ID12101 | 48 | FEMALE | INNER_CITY | 17546.0 | NO | 1 | NO | NO | NO | NO | YES |
| ID12102 | 40 | MALE | TOWN | 30085.1 | YES | 3 | YES | NO | YES | YES | NO |
| ID12103 | 51 | FEMALE | INNER_CITY | 16575.4 | YES | 0 | YES | YES | YES | NO | NO |
| ID12104 | 23 | FEMALE | TOWN | 20375.4 | YES | 3 | NO | NO | YES | NO | NO |
| ID12105 | 57 | FEMALE | RURAL | 50576.3 | YES | 0 | NO | YES | NO | NO | NO |
| ID12106 | 57 | FEMALE | TOWN | 37869.6 | YES | 2 | NO | YES | YES | NO | YES |
| ID12107 | 22 | MALE | RURAL | 8877.07 | NO | 0 | NO | NO | YES | NO | YES |
| ID12108 | 58 | MALE | TOWN | 24946.6 | YES | 0 | YES | YES | YES | NO | NO |
| ID12109 | 37 | FEMALE | SUBURBAN | 25304.3 | YES | 2 | YES | NO | NO | NO | NO |
| ID12110 | 54 | MALE | TOWN | 24212.1 | YES | 2 | YES | YES | YES | NO | NO |

Data mining discovers meaningful patterns in your complex data

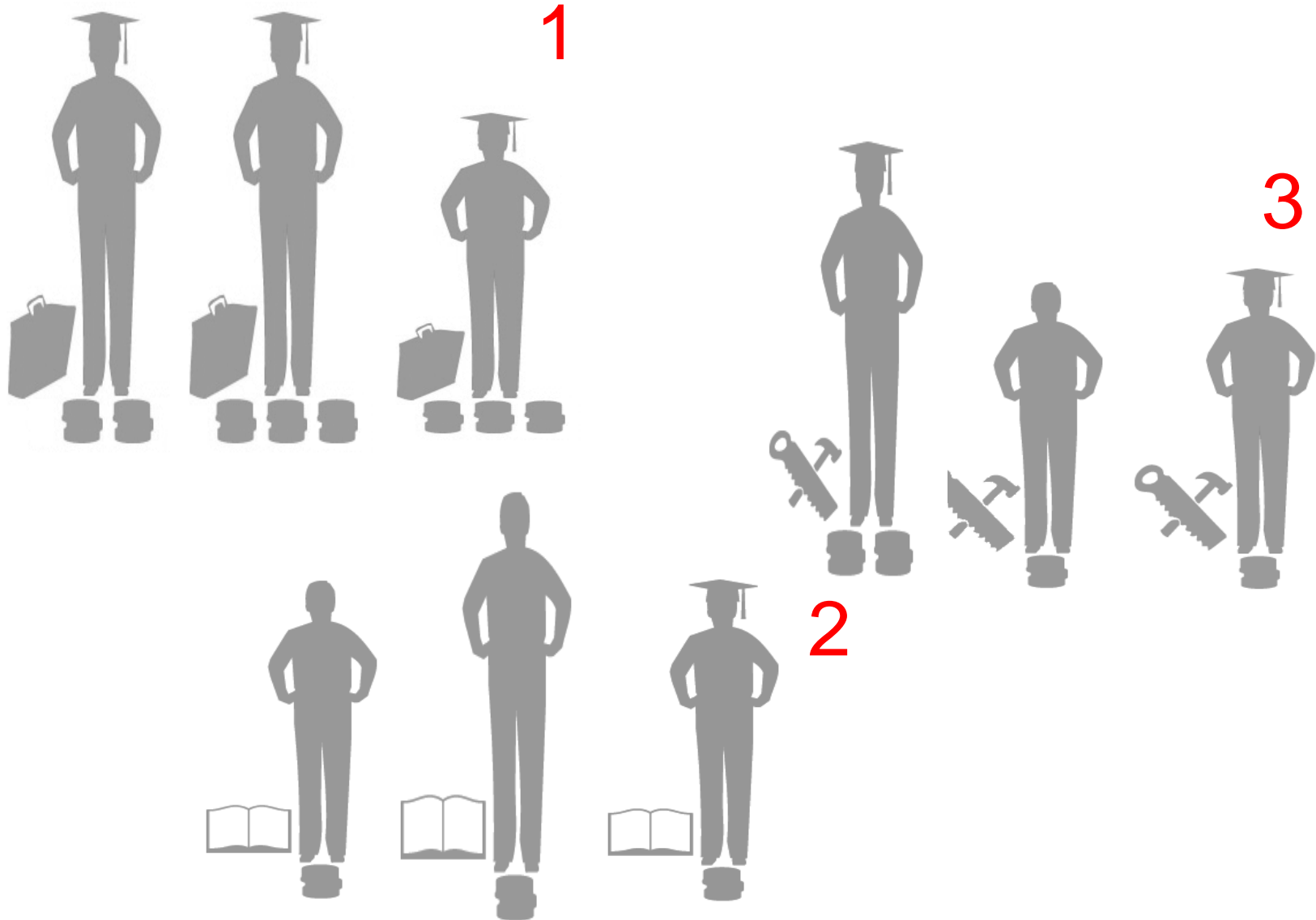
Clustering techniques



Clustering techniques



Clustering techniques



Association algorithms



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Association algorithms



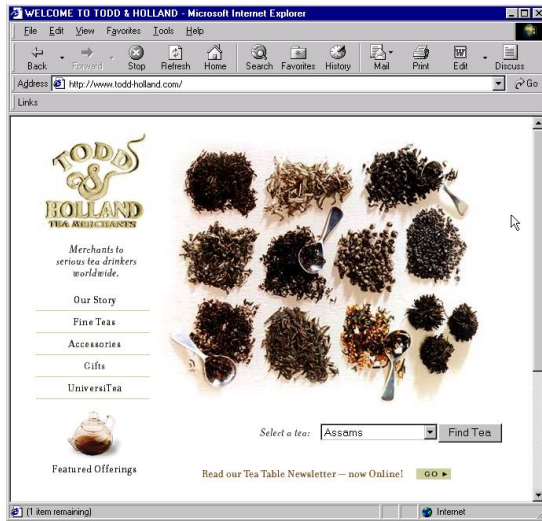
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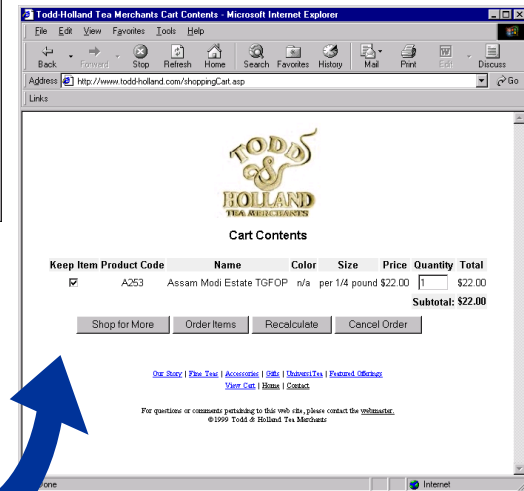
Sequence association



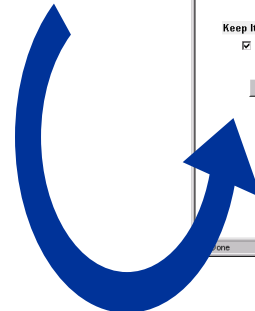
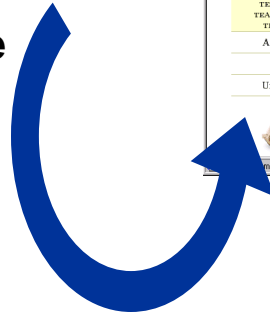
Home Page



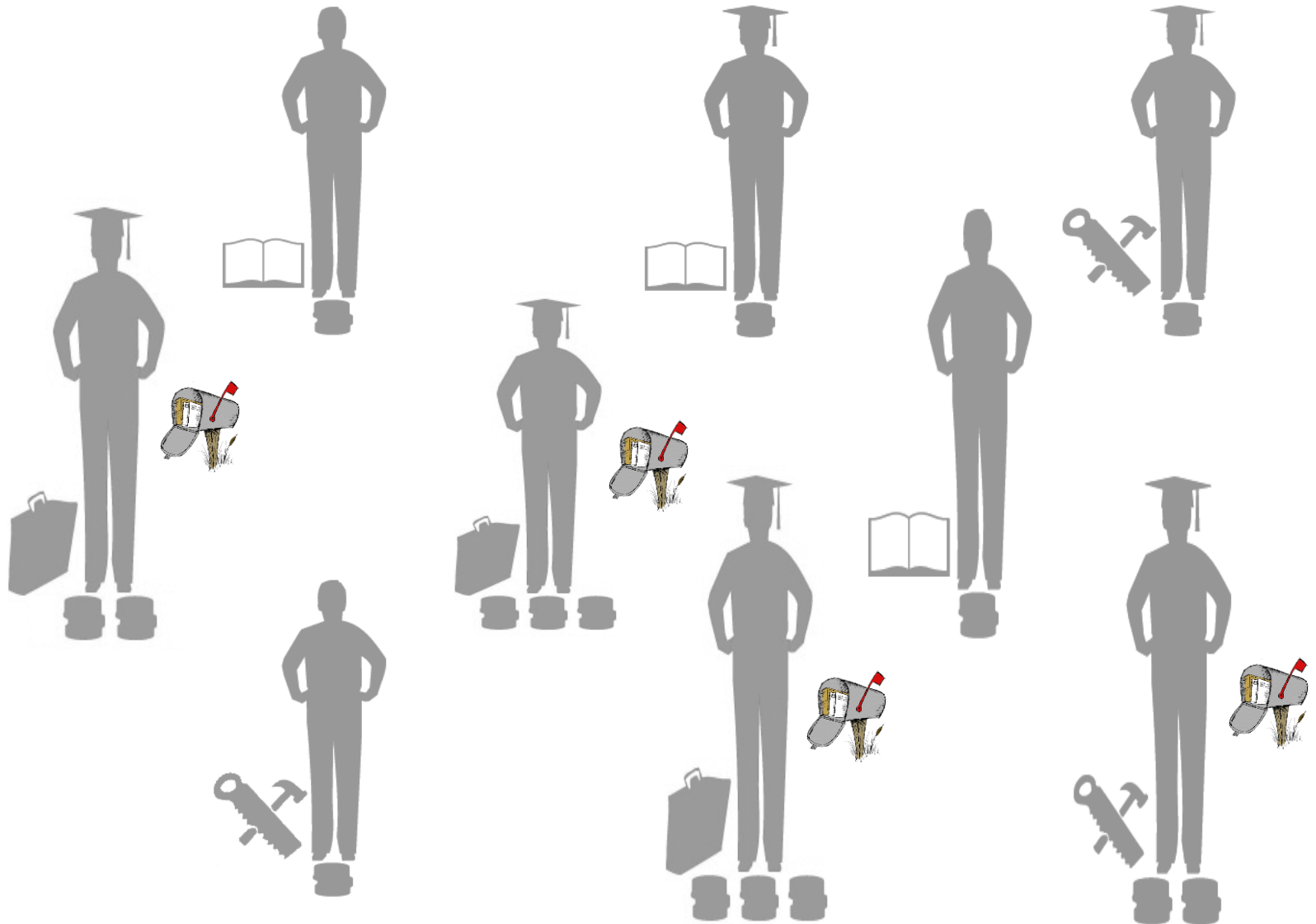
e-store



Check-out Page



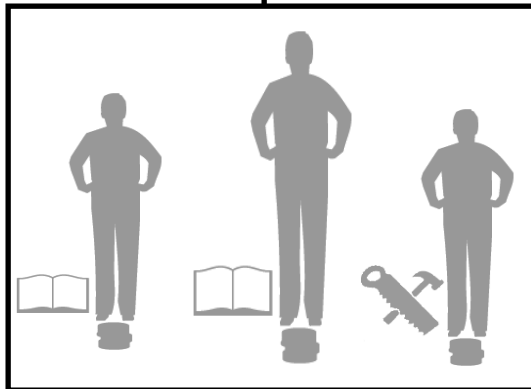
Prediction & Classification



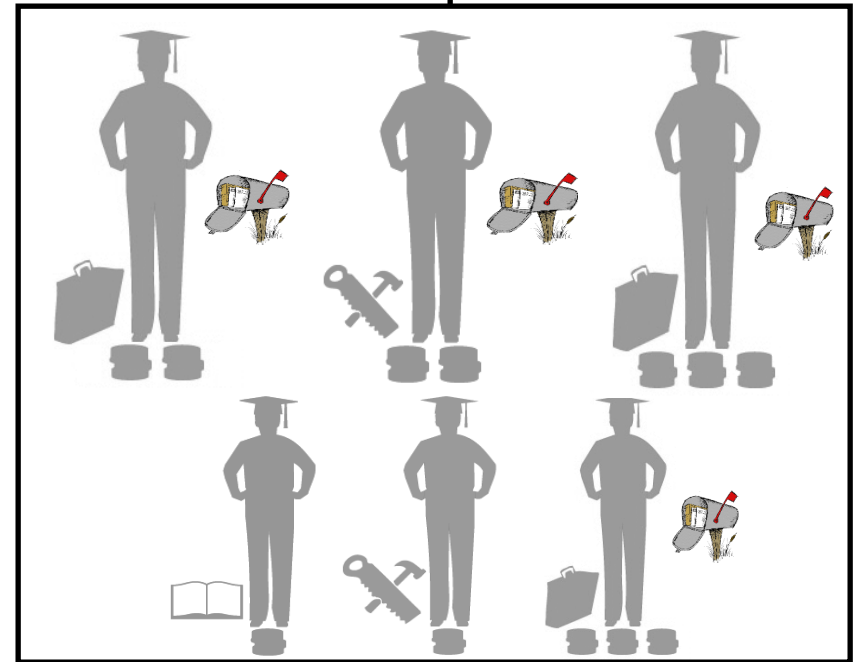
Prediction & Classification

Education

no college



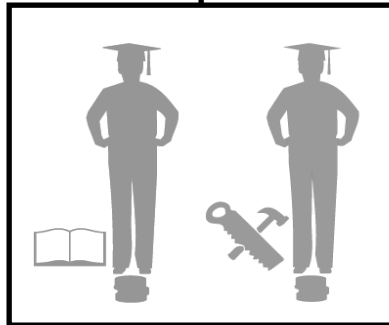
college grad



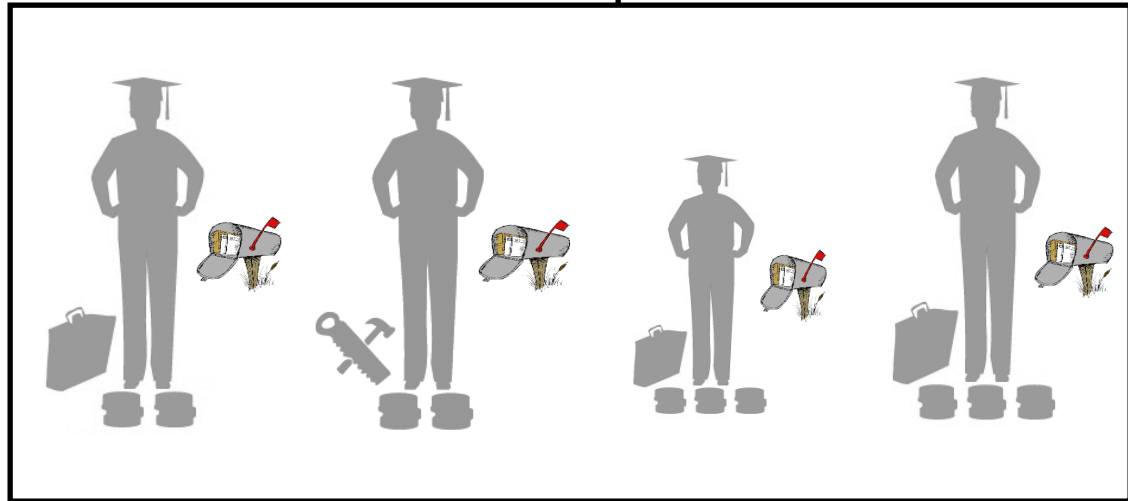
Prediction & Classification

Income

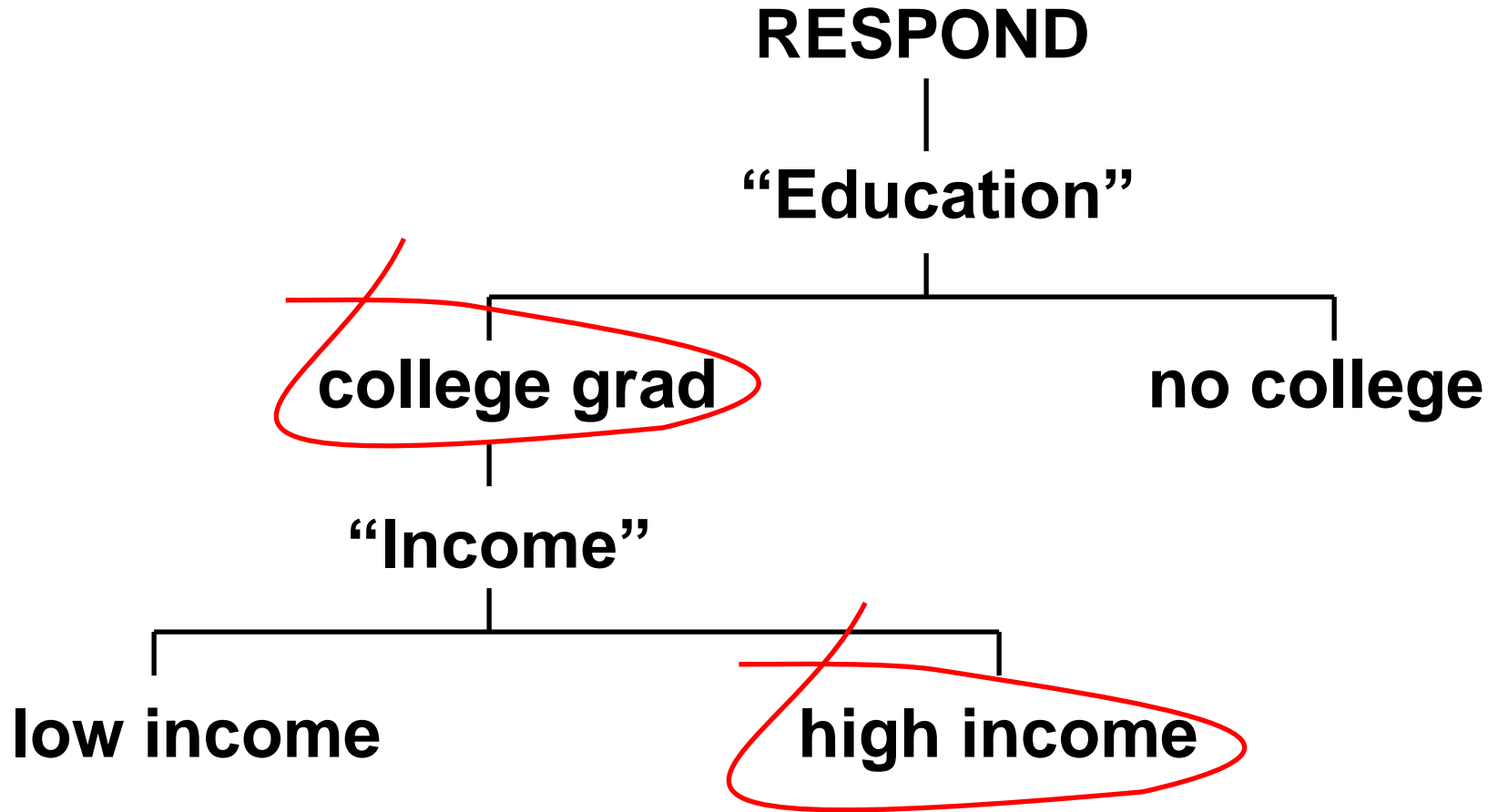
low income



high income



Prediction & Classification



Analytics Software.....

- SAS – BASE, Predictive Analytics, Visual Analytics, Enterprise Miner, Text Analytics.....
- Clementine
- Polyanalyst
- Answer Tree
- SPSS
- NNIVO
- Tableau
- Weka
- Programming – R
- Many many.....

Certifications

- SAS
- The Data Warehousing Institute (TDWI)
- Teradata
- Jigsaw Academy
- ADSA
- Analytics Training Institute.
- CPRE certification from International Requirements Engineering Board (IREB®), Germany
- CCBA®/CBAP® certifications from International Institute of Business Analysis (IIBA®), Canada
- PMI-PBA® certification from Project Management Institute, USA
- Google Analytics

- Ernst & Young certification
- MOOCs
- IBM

Resources

- Analytics India: Magazine, Job Portal
- Analytics Vidya
- TUN: Teradata University Network
- SAS
- IBM
- TDWI
- MOOCs

| SN | Type of Eco-System | Activity in Analytics |
|----|--|---|
| 1 | Data Generation Infrastructure Providers | Enable generating and collection of data that may be used for developing analytical insights |
| 2 | Data Management Infrastructure Providers | Provide hardware and software targeting the basic foundation for all data management solutions. |
| 3 | Data Warehouse Providers | Provides technology and services aimed towards integrating data from multiple sources, thus enabling organizations to derive and deliver value from its data assets. |
| 4 | Middleware Providers | To provide easy to use tools for reporting or descriptive analytics which forms a core part of BI or analytics employed at organizations. |
| 5 | Data Service Providers | External data sources – data collected by third parties. Typically focus on a specific industry sector and build upon their existing relationships in that industry through their niche platforms and services for data collection. |
| 6 | Analytics Focused Software Developers | Developed analytics software for general use with data that has been collected in a data warehouse or is available |

| SN | Type of Eco-System | Activity in Analytics |
|----|--|---|
| 7 | Application Developers: Industry Specific or General | Use their industry knowledge, analytical expertise, solutions available from the data infrastructure, data warehouse, middleware, data aggregators, and analytics software providers to develop custom solutions for a specific industry. |
| 8 | Analytics Industry Analysts and Influencers | Organizations or professionals that provide advice to the analytics industry providers and users. |
| 9 | Academic Institutions and Certification Agencies | Academic Institutions and Certification Agencies |
| 10 | Regulators and Policy Makers | Defining rules and regulations for protecting employees, customers and shareholders of the analytics organizations. |
| 11 | Analytics User Organizations | User organizations |