High Level Design (HLD)

Investment Analytics

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HILAL P V

Document Version Control

Date Issued	Version	Description	Author
28th July 2022	1.0	First Version of Complete HLD	HILAL P V

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Abstract

Investment is a game of understanding historic data of investment objects under different events but it is still a game of chances to minimize the risk we apply analytics to find the equilibrium investment.

FDI is an important part of growth capital for the country especially in a globalized world. Here the study of the FDI trends from 2000-01 to 2016-17 period is demonstrated. Also the highest and lowest invested areas are mentioned and study the preferences have evolved since 2000-01.

1 Introduction

1.1 Why this High-Level Design Document?

The purpose of this High-Level Design (HLD) Document is to add the necessary detail to the current project description to represent a suitable model for coding. This document is also intended to help detect contradictions prior to coding, and can be used as a reference manualfor how the modules interact at a high level.

The HLD will:

- Present all of the design aspects and define them in detail
- Describe the user interface being implemented
- Describe the hardware and software interfaces
- Describe the performance requirements
- Include design features and the architecture of the project
- List and describe the non-functional attributes like:
  - Security
  - Reliability
  - Maintainability
  - Portability
  - Reusability
  - Application compatibility
  - Resource utilization
  - Serviceability

1.2 Scope

The HLD documentation presents the structure of the system, such as the database architecture, application architecture (layers), application flow (Navigation), and technology architecture. The HLD uses non-technical to mildly-technical terms which should be understandable to the administrators of the system.

2 General Description

2.1 Product Perspective & Problem Statement

FDI is an important reflection of the economy, and growth of any country in today's inter-linked world. So, FDI indicates sectors of the country whose growth is supported by other nations as well.

The goal of this project is to find the quantitative analysis of FDI investment from 2000-01 to 2016-17 and analyze the trends in which sector is growing or not. The objective of the project is to perform data visualization techniques to understand the insight of the data. This project aims apply various Business Intelligence tools such as Tableau or Power BI to get a visual understanding of the data.

2.2 Tools used

Business Intelligence tools and libraries works such as Numpy, Pandas, Excel, Tableau, Power BI are used to build the whole framework.

3 Design Details

4

4.1 Functional Architecture

4.2

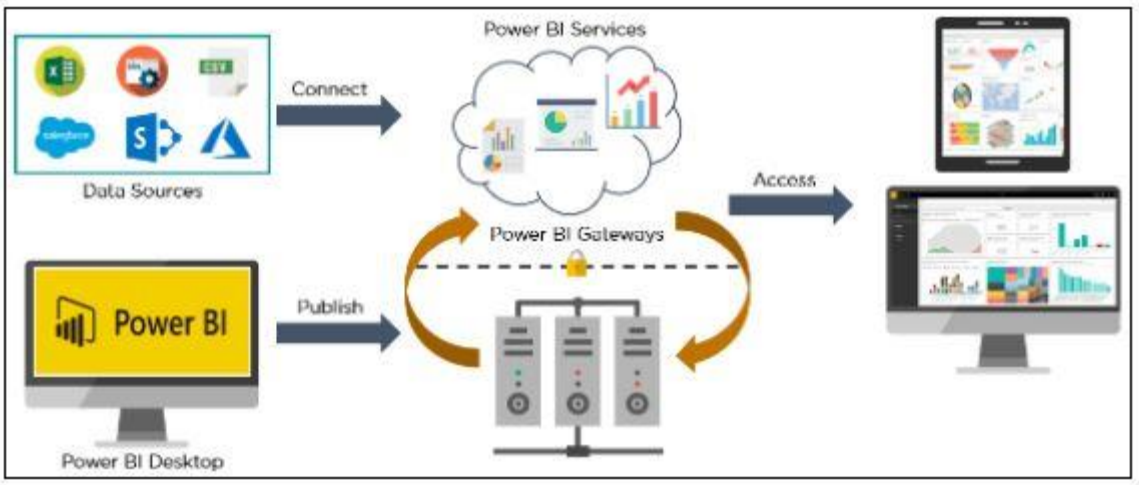


Figure 1: Functional Architecture of Business Intelligence

4.3 Optimization

Data strategy drives performance

- Minimize the number of fields
- Minimize the number of records
- Optimize extracts to speed up future queries by materializing calculations, removingcolumns and the use of accelerated views

Reduce the marks (data points) in the view

- Remove unneeded dimensions from the detail shelf.
- Explore and displaying the data in different types of views.

Limit filters by number and type

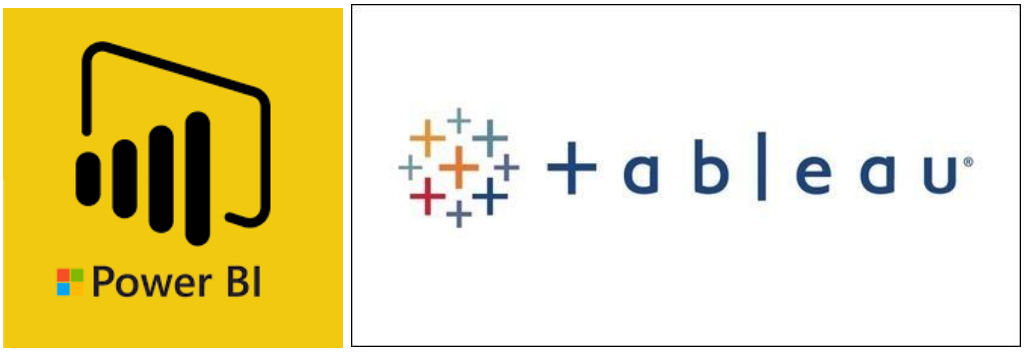
- Reduce the number of filters in use. Excessive filters on a view will create a more complex query, which takes longer to return results.
- Use a continuous date filter. Continuous date filters (relative and range-of-date filters)can take advantage of the indexing properties in database and are faster than discrete date filters.

Optimize and materialize calculations

- Perform calculations in the database
- Reduce the number of nested calculations.

5 KPIs

Dashboards will be implemented to display and indicate certain KPIs and relevant indicators for the Investment.



As and when, the system starts to capture the historical/periodic data for a user, the dashboards will be included to display charts over time with progress on various indicators orfactors

5.1 KPIs (Key Performance Indicators)

Key indicators displaying a summary of the Investment Analysis and its relationship with different metrics

1. Impact of Investments of FDI over 2000-01 to 2016-17.
2. Impact of Investments on different sectors.
3. Topmost five investment sectors

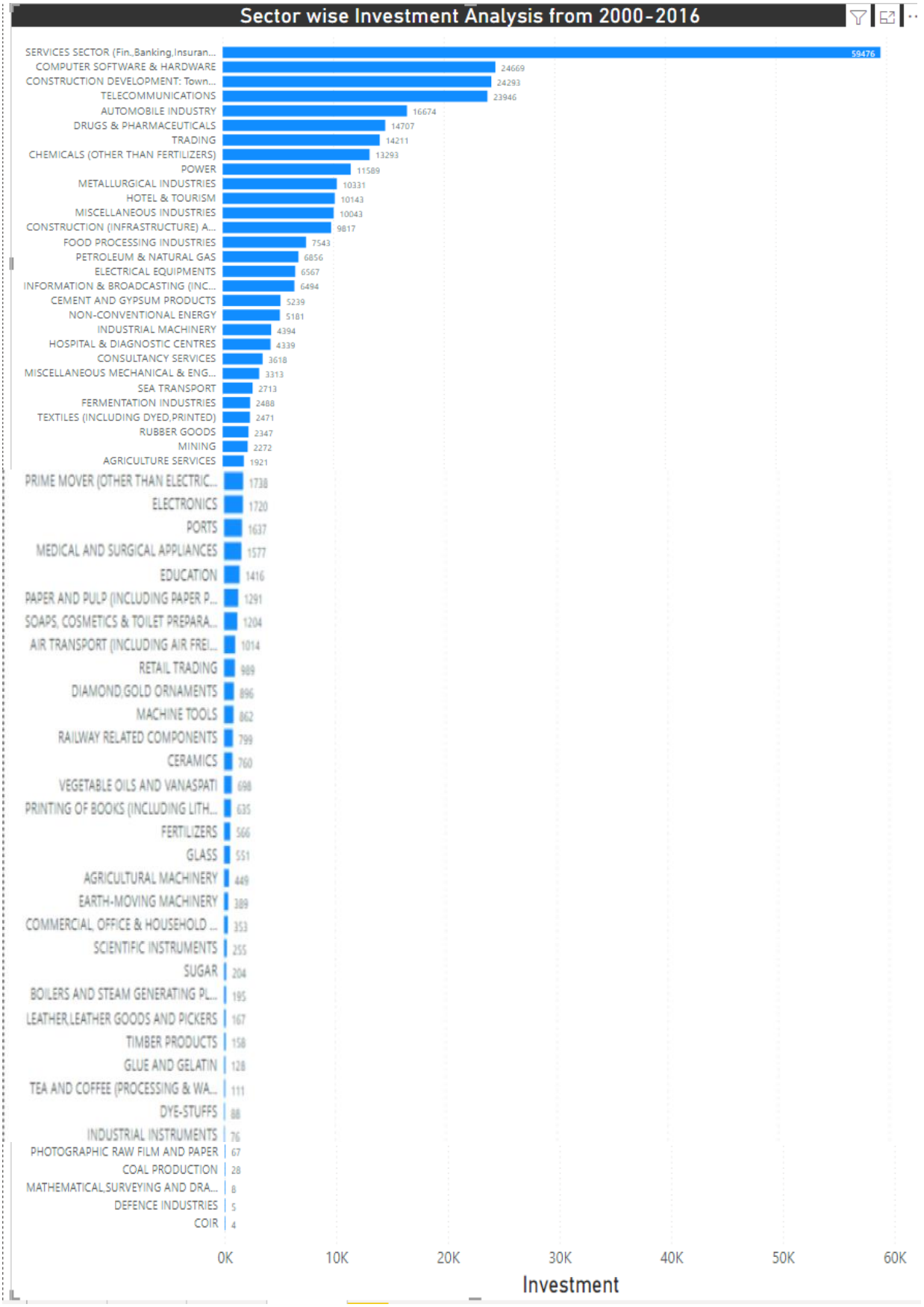
6 Deployment

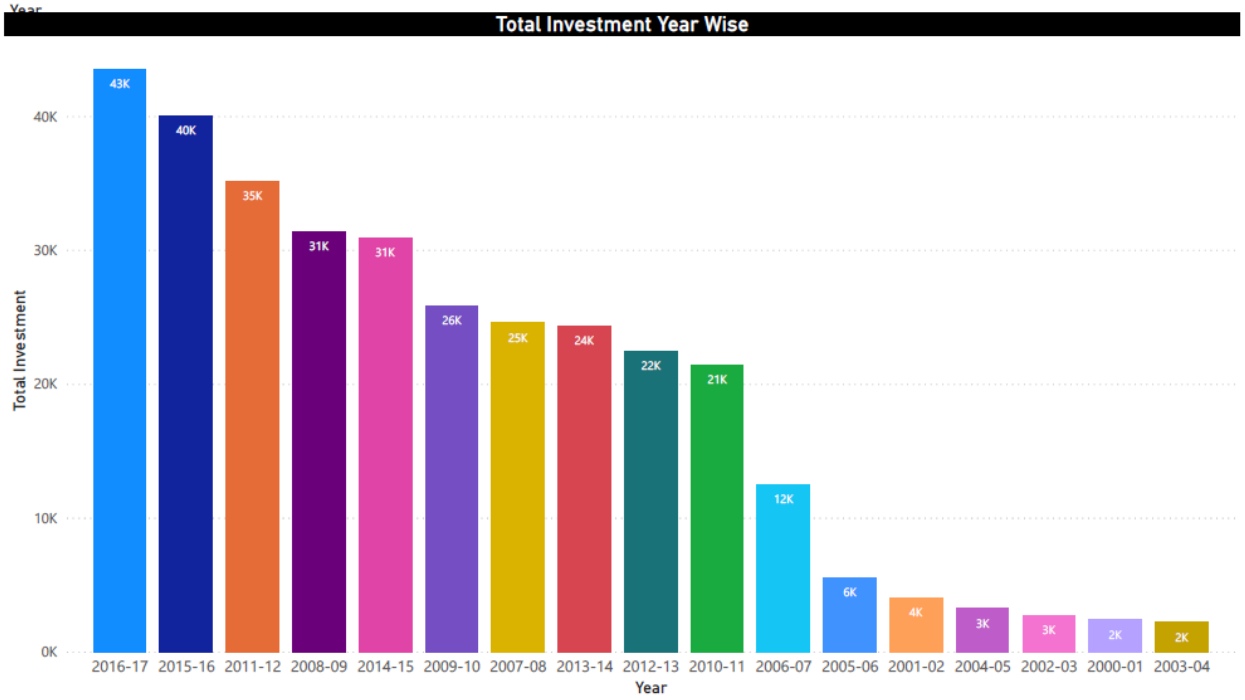
Tableau prioritizes choice in flexibility to fit, rather than dictate, your enterprise architecture. Tableau Server and Tableau Online leverage your existing technology investments and integrate into your IT infrastructure to provide a self-service, modern analytics platform for yourusers. With on-premises, cloud, and hosted options, there is a version of Tableau to match your requirements.

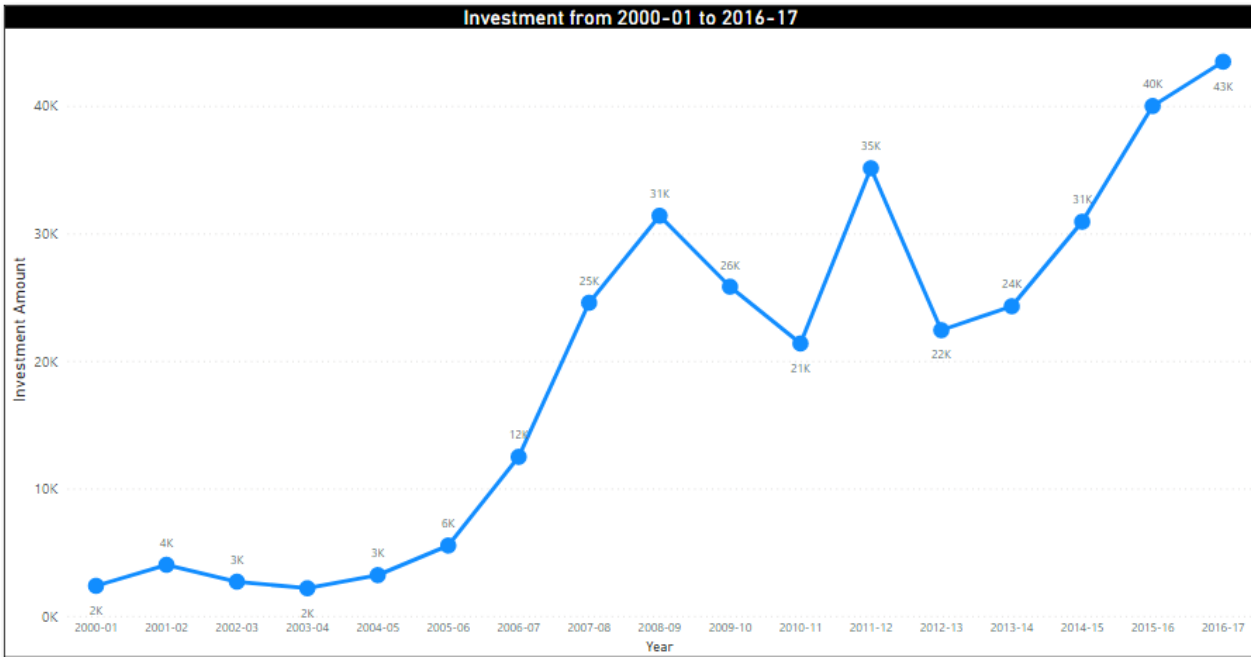
Sector Wise:

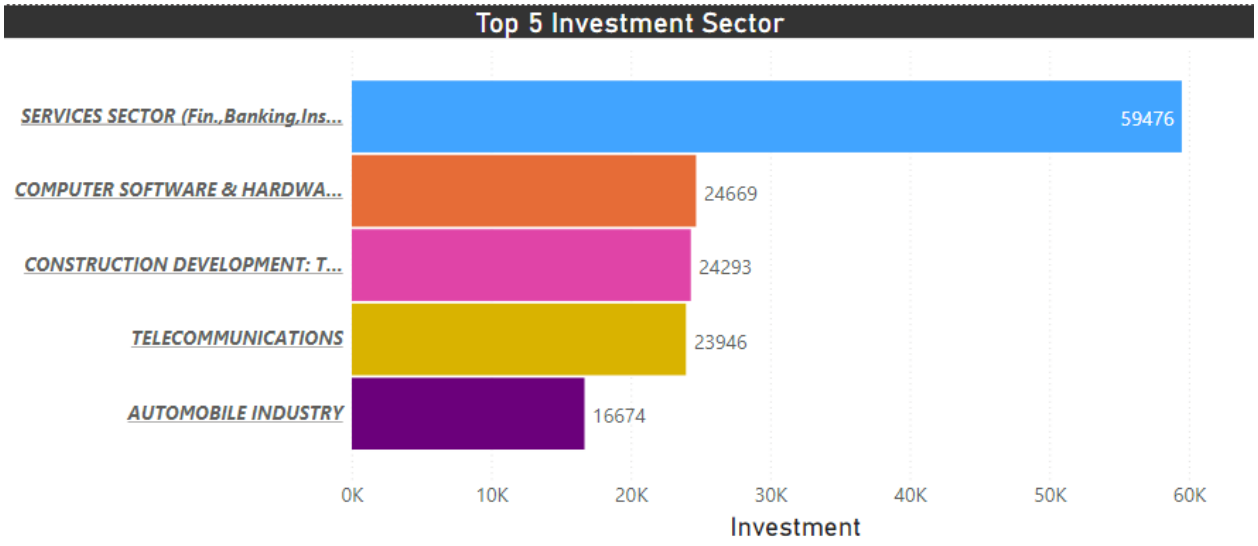
Sector Wise : This dashboard contains sector wise investment analytics on dataset like total sectors, sectors name and after choosing any sector and see the investment.

Year Wise : This dashboard shows year wise analytics on given dataset


Sector wise Investment Analysis from 2000-2016
SERVICES SECTOR (Fin.,Banking,Insuran... 59476
COMPUTER SOFTWARE & HARDWARE 24669
CONSTRUCTION DEVELOPMENT: Town... 24293
TELECOMMUNICATIONS 23946
AUTOMOBILE INDUSTRY 16674
DRUGS & PHARMACEUTICALS 14707
TRADING 14211
CHEMICALS (OTHER THAN FERTILIZERS) 13293
POWER 11589
METALLURGICAL INDUSTRIES 10331
HOTEL & TOURISM 10143
MISCELLANEOUS INDUSTRIES 10043
CONSTRUCTION (INFRASTRUCTURE) A... 9817
FOOD PROCESSING INDUSTRIES 7543
PETROLEUM & NATURAL GAS 6856
ELECTRICAL EQUIPMENTS 6567
INFORMATION & BROADCASTING (INC... 6494
CEMENT AND GYPSUM PRODUCTS 5239
NON-CONVENTIONAL ENERGY 5181
INDUSTRIAL MACHINERY 4394
HOSPITAL & DIAGNOSTIC CENTRES 4339
CONSULTANCY SERVICES 3618
MISCELLANEOUS MECHANICAL & ENG... 3313
SEA TRANSPORT 2713
FERMENTATION INDUSTRIES 2488
TEXTILES (INCLUDING DYED,PRINTED) 2471
RUBBER GOODS 2347
MINING 2272
AGRICULTURE SERVICES 1921
PRIME MOVER (OTHER THAN ELECTRIC... 1738
ELECTRONICS 1720
PORTS 1637
MEDICAL AND SURGICAL APPLIANCES 1577
EDUCATION 1416
PAPER AND PULP (INCLUDING PAPER P... 1291
SOAPS, COSMETICS & TOILET PREPARA... 1204
AIR TRANSPORT (INCLUDING AIR FREI... 1014
RETAIL TRADING 989
DIAMOND,GOLD ORNAMENTS 896
MACHINE TOOLS 862
RAILWAY RELATED COMPONENTS 799
CERAMICS 760
VEGETABLE OILS AND VANASPATI 698
PRINTING OF BOOKS (INCLUDING LITH... 635
FERTILIZERS 566
GLASS 551
AGRICULTURAL MACHINERY 449
EARTH-MOVING MACHINERY 389
COMMERCIAL, OFFICE & HOUSEHOLD ... 353
SCIENTIFIC INSTRUMENTS 255
SUGAR 204
BOILERS AND STEAM GENERATING PL... 195
LEATHER,LEATHER GOODS AND PICKERS 167
TIMBER PRODUCTS 158
GLUE AND GELATIN 128
TEA AND COFFEE (PROCESSING & WA... 111
DYE-STUFFS 88
INDUSTRIAL INSTRUMENTS 76
PHOTOGRAPHIC RAW FILM AND PAPER 67
COAL PRODUCTION 28
MATHEMATICAL,SURVEYING AND DRA... 8
DEFENCE INDUSTRIES 5
COIR 4
0K
10K
20K
30K
40K
50K
60K
Investment


Total Investment Year Wise
Total Investment
Year
43K
40K
35K
31K
31K
26K
25K
24K
22K
21K
12K
6K
4K
3K
3K
2K
2K
0K
10K
20K
30K
40K
2016-17
2015-16
2011-12
2008-09
2014-15
2009-10
2007-08
2013-14
2012-13
2010-11
2006-07
2005-06
2001-02
2004-05
2002-03
2000-01
2003-04


Investment from 2000-01 to 2016-17
Investment Amount
Year
0K
10K
20K
30K
40K
2K
4K
3K
2K
3K
6K
12K
25K
31K
26K
21K
35K
22K
24K
31K
40K
43K
2000-01
2001-02
2002-03
2003-04
2004-05
2005-06
2006-07
2007-08
2008-09
2009-10
2010-11
2011-12
2012-13
2013-14
2014-15
2015-16
2016-17


Top 5 Investment Sector
SERVICES SECTOR (Fin.,Banking,Ins...
59476
COMPUTER SOFTWARE & HARDWA...
24669
CONSTRUCTION DEVELOPMENT: T...
24293
TELECOMMUNICATIONS
23946
AUTOMOBILE INDUSTRY
16674
0K
10K
20K
30K
40K
50K
60K
Investment