2023

HIGH LEVEL DESIGN DOCUMENT

AMAZON SALES DATA ANALYSIS

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Document Version Control:

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23-06-2023	1.0	First Version of HLD	Ishan Chaurasia
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Contents:

Abstract:

In the realm of E-commerce, organizations diligently strive to establish their core competencies by developing and maintaining a distinctive process for gathering personal information about customers as well as their purchasing habits. This report aims to provide a critical evaluation of how Amazon, a service-based organization, effectively employs Management Information Systems (MIS) as a powerful tool to gain a competitive advantage through efficient information management and acquisition. In today's market, effective sales management plays a pivotal role in predicting business performance and future prospects. Companies that successfully implement robust sales management systems have showcased notable growth and are strategically positioned to concentrate on key products and customer segments, ultimately resulting in enhanced customer retention, enticing offers, and minimized losses. In light of the escalating market competition posed by emerging companies with superior management systems, adopting effective sales management practices becomes imperative in order to maintain competitiveness.

1 Introduction:

1.1 Why this High-Level Design Document?

The primary objective of the High-Level Design (HLD) document is to augment the existing project description by providing essential details that will serve as a robust model for the coding process. This comprehensive document aims to identify and address potential contradictions in the early stages, before the actual coding commences. Moreover, it serves as a valuable reference manual, outlining the high-level interactions among modules within the system. By adopting a professional approach to this document, we ensure a well-structured and coherent foundation for the development phase.

The High-Level Design (HLD) document shall encompass the following key elements, meticulously presenting each design aspect with comprehensive detailing:

- Description of User Interface: A thorough depiction of the user interface being implemented, highlighting its functionality and user interaction.
- Hardware and Software Interfaces: Clear delineation of the interfaces between hardware components and software modules, elucidating how they interact with each other.
- Performance Requirements: Explicit definition of the performance criteria and expectations, outlining the system's responsiveness, throughput, and efficiency benchmarks.
- Design Features and Architecture: An in-depth portrayal of design features and the overall architecture of the project, elucidating the organization and relationships of its components.

Non-Functional Attributes: Comprehensive descriptions of various non-functional attributes, such as:

- Security:
- Reliability:
- Maintainability:
- Portability:
- Reusability:
- Application
- Resource Utilization:
- Serviceability:

By addressing these aspects in the HLD, we lay the groundwork for a robust and well-structured system that fulfills its objectives while adhering to high-quality standards.

1.2 Scope:

The HLD document describes the system's design components, such as the database architecture, the application architecture (layers), the application flow (Navigation), and the technology architecture1. The HLD employs terms that range from non-technical to moderately technical, which the system's administrators can comprehend.

2 General Description:

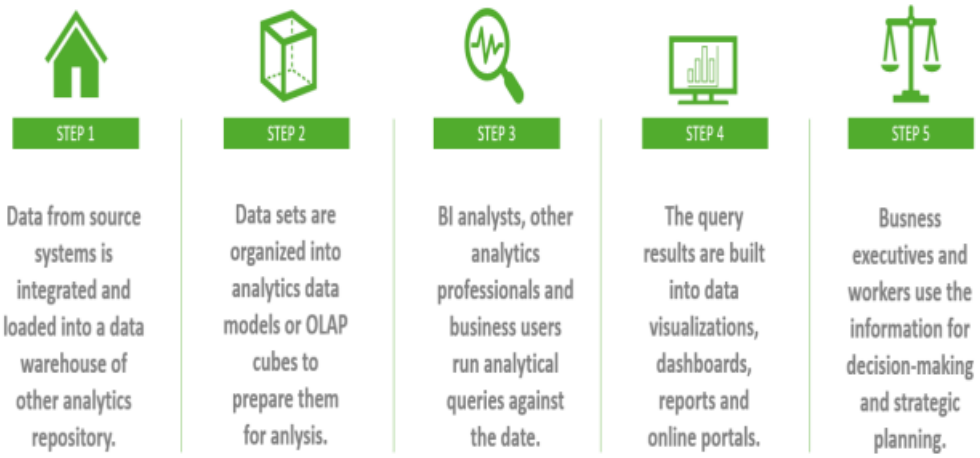
2.1 Product Perspective & Problem Statement

The project's objective is to examine Amazon sales data from 2017 to 2019 and gain deeper insights into the products that are in high demand, the products that are generating high profits, the products that have low demand or are not bought by the customers, and the amount of inventory that we need to keep for the future sales, etc.

2.2 Tools Used

3 Design Details:

3.1 Functional Architecture



Functional Architecture of Business Intelligence

Functionality of Power BI

3.2 Optimization

Use data strategy to improve performance:

- Reduce fields and records
- Optimize extracts with calculations, columns removal and accelerated views

Reduce marks in your view:

- Use guided analytics with action filter
- Remove unnecessary dimensions from detail shelf
- Try different types of views

Limit filters by number and type:

- Remove excessive filters
- Use include, continuous, Boolean or numeric filters
- Use parameters and action filters

Optimize and materialize your calculations:

- Perform calculations in database
- Reduce nested, LOD or table calculations
- Use MIN or MAX instead of AVG
- Make groups with calculations
- Use Boolean or numeric calculation instead of string calculations

4 KPI & Charts

4.1 Key Performance Indicators (KPIs)

A KPI, or a key performance indicator, is a quantifiable measure of how well an organization or a specific activity is achieving its goals or objectives. KPIs help organizations track their progress, identify strengths and weaknesses, and make data-driven decisions.

4.2 Charts

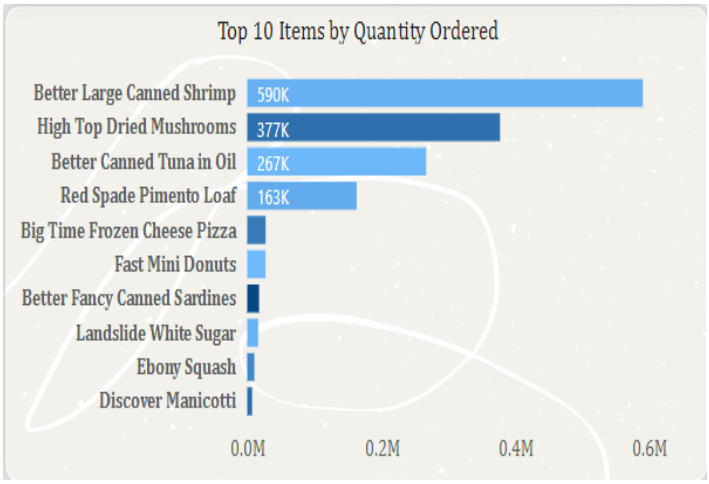
A chart is a graphical representation of data, such as a line chart, a bar chart, or a pie chart. Charts help to visualize data in an easy-to-understand way, and to reveal patterns, trends, and relationships that might not be obvious from numbers alone 4. Charts can also be used to display KPIs and compare them with targets or benchmarks.

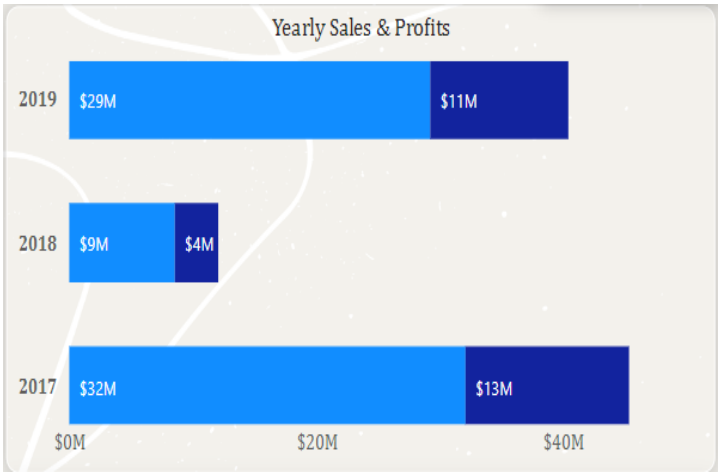
KPIs and charts can help you to analyze the data by showing you how your performance is changing over time, how you are doing compared to your goals or competitors, and what factors are influencing your results. By analyzing the data with KPIs and charts, you can gain insights into what is working well and what needs improvement, and take actions to optimize your performance.

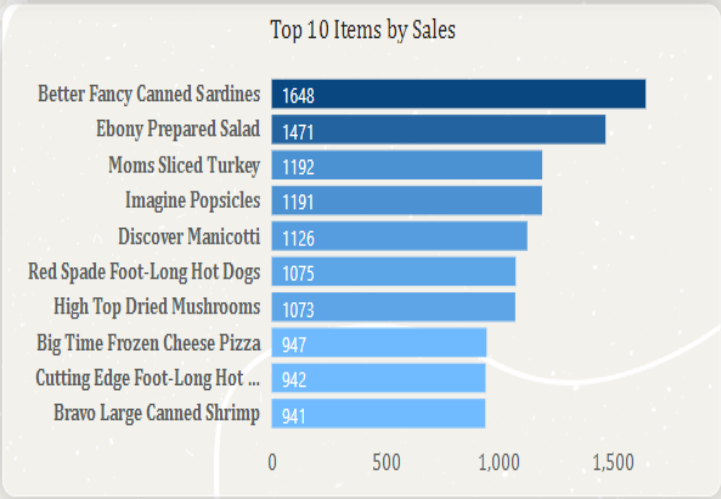
5 Deployment

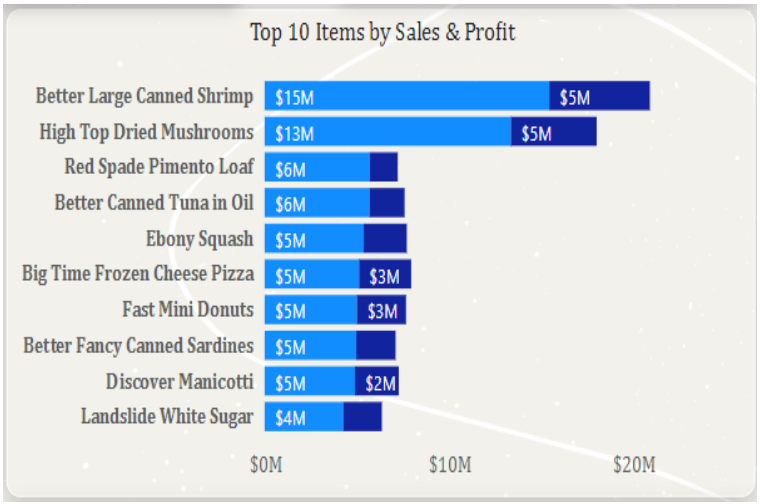
Data and analytics are essential for your company's success. You already have data and some analytical capabilities to solve business problems, gain competitive advantages, and drive enterprise transformation. But with the increasing volume and variety of enterprise data, database technologies, and analytical skills, you need to empower your users with self-service analytics by deploying and operating Power BI at scale, and by integrating, orchestrating, and unifying disparate data sources for content creation and consumption. Power BI offers choice and flexibility to align with your enterprise architecture. Power BI Desktop and Power BI Service leverage your existing technology investments and integrate them into your IT infrastructure to provide a self-service, modern analytics platform for your users. With on-premises, cloud, and hosted options, you can find a Power BI solution that meets your needs.

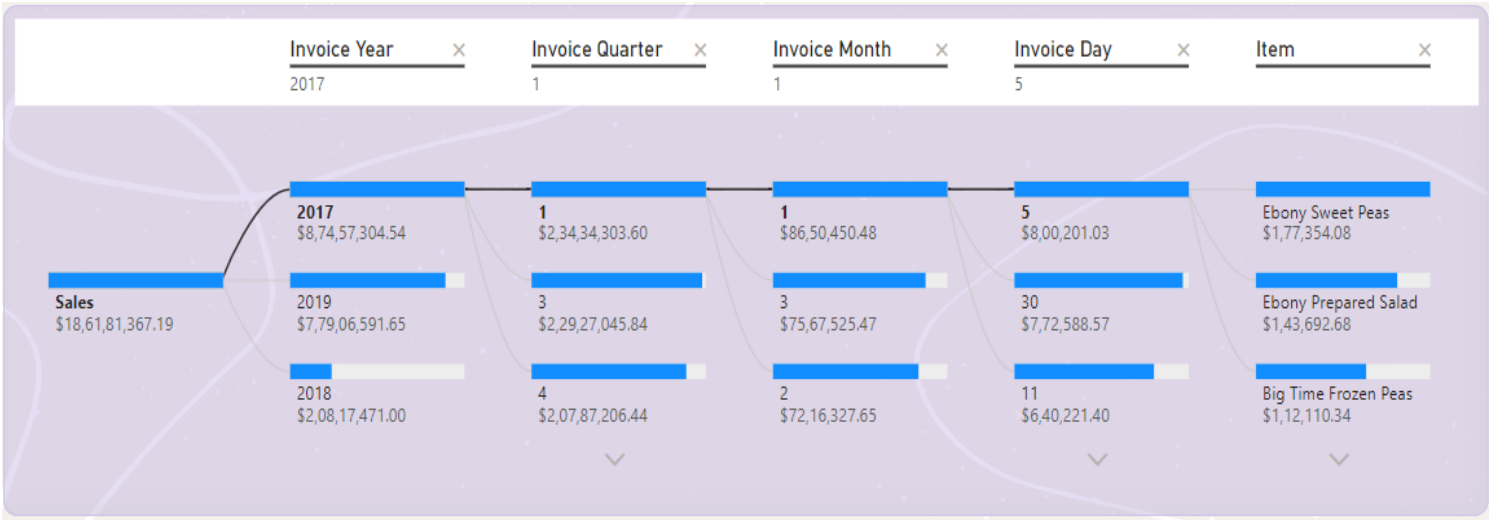

AMAZON SALES ANALYSIS DASHBOARD
Customers
615
Total Items
657
Total Sales
$186M
Total Profits
$78M
Select all
2017
2018
2019
Sales & Profits by Year & Quarter
Sales
Profits
$20M
$0M
Qtr 1
Qtr 2
Qtr 3
Qtr 4
2017
2018
2019
Sales & Profits by Months
January
February
March
April
May
June
July
August
September
October
November
December
Item
Quantity
Sales
Profits
Better Large Canned Shrimp 590343 $1,54,54,172.47 $54,59,826.26
High Top Dried Mushrooms 377259 $1,33,68,414.53 $46,59,800.16
Red Spade Pimento Loaf 163296 $57,11,486.45 $15,13,691.17
Better Canned Tuna in Oil 266996 $56,93,075.12 $19,03,351.46
Ebony Squash 10553 $53,80,727.75 $23,36,246.16
Big Time Frozen Cheese Pizza 27420 $51,27,171.17 $28,26,772.99
Fast Mini Donuts 27300 $50,09,499.08 $26,63,325.66
Better Fancy Canned Sardines 17594 $49,75,348.35 $21,31,933.94
Discover Manicotti 7228 $49,01,139.48 $23,81,667.84
Landslide White Sugar 16198 $42,82,290.62 $20,79,755.46
Tell Tale Red Delcious Apples 31120 $40,95,211.34 $19,77,923.42
Moms Turkey Hot Dogs 20680 $37,71,466.96 $17,75,374.21
Landslide French Roast Coffee 19763 $36,48,144.58 $16,93,181.93
Ebony Prepared Salad 9533 $35,23,251.51 $16,19,832.26
Moms Sliced Turkey 8121 $33,86,948.16 $13,85,972.90
Imagine Popsicles 5921 $33,47,066.54 $15,91,326.99
Cutting Edge Foot-Long Hot Dogs 12902 $33,40,837.52 $18,21,239.29
Total 2943195 $18,61,81,367.19 $7,77,49,321.25


Top 10 Items by Quantity Ordered
Better Large Canned Shrimp 590K
High Top Dried Mushrooms 377K
Better Canned Tuna in Oil 267K
Red Spade Pimento Loaf 163K
Big Time Frozen Cheese Pizza
Fast Mini Donuts
Better Fancy Canned Sardines
Landslide White Sugar
Ebony Squash
Discover Manicotti
0.0M
0.2M
0.4M
0.6M


Yearly Sales & Profits
2019
$29M
$11M
2018
$9M
$4M
2017
$32M
$13M
$0M
$20M
$40M


Top 10 Items by Sales
Better Fancy Canned Sardines
1648
Ebony Prepared Salad
1471
Moms Sliced Turkey
1192
Imagine Popsicles
1191
Discover Manicotti
1126
Red Spade Foot-Long Hot Dogs
1075
High Top Dried Mushrooms
1073
Big Time Frozen Cheese Pizza
947
Cutting Edge Foot-Long Hot ...
942
Bravo Large Canned Shrimp
941
0
500
1,000
1,500


Top 10 Items by Sales & Profit
Better Large Canned Shrimp
$15M
$5M
High Top Dried Mushrooms
$13M
$5M
Red Spade Pimento Loaf
$6M
Better Canned Tuna in Oil
$6M
Ebony Squash
$5M
Big Time Frozen Cheese Pizza
$5M
$3M
Fast Mini Donuts
$5M
$3M
Better Fancy Canned Sardines
$5M
Discover Manicotti
$5M
$2M
Landslide White Sugar
$4M
$0M
$10M
$20M


Invoice Year
2017
Invoice Quarter
1
Invoice Month
1
Invoice Day
5
Item
Sales
$18,61,81,367.19
2017
$8,74,57,304.54
2019
$7,79,06,591.65
2018
$2,08,17,471.00
1
$2,34,34,303.60
3
$2,29,27,045.84
4
$2,07,87,206.44
1
$86,50,450.48
3
$75,67,525.47
2
$72,16,327.65
5
$8,00,201.03
30
$7,72,588.57
11
$6,40,221.40
Ebony Sweet Peas
$1,77,354.08
Ebony Prepared Salad
$1,43,692.68
Big Time Frozen Peas
$1,12,110.34


Invoice Year
2019
Invoice Quarter
3
Invoice Month
8
Invoice Day
13
Item
Profits
$7,77,49,321.25
2017
$3,74,19,472.46
2019
$3,11,82,301.05
2018
$91,47,547.74
3
$86,82,999.99
4
$80,48,435.69
2
$74,65,466.06
9
$31,31,453.77
7
$28,59,859.85
8
$26,91,686.37
9
$52,360.41
13
$45,278.28
30
$41,409.78
Discover Manicotti
$7,512.78
Red Spade Pimento Loaf
$5,317.17
Bravo Large Canned S...
$3,613.53