

LOW LEVEL DESIGN

BUDGET SALES ANALYSIS

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Document Version	1.0
Last Revised Date	

DOCUMENT CONTROL

Change Record:

Version	Date	Author	Comments

Reviews:

Version	Date	Reviewer	Comments

Approval Status:

Version	Review Date	Reviewed By	Approved By	Comments

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1.Introduction

1.1 What is Low-Level Document?

The goal of the Low-level design document (LLDD) is to give the internal logic design of the actual program code for the Sales Budget Analysis dashboard. LLDD describes the class diagrams with the methods and relations between classes and programs specs. It describes the modules so that the programmer can directly code the program from the document.

1.2 Scope

Low level design (LLD) is a component-level design process that follows a step-by-step refinement process. The process can be used for designing data structures, required software architecture, source code and ultimately, performance algorithms. Overall, the data organization may be defined during requirement analysis and then refined during data design work.

1.3 Project Introduction

The growth of manufacturing and reselling business in most populated cities are increasing and market competitions are also high. The dataset is one of the historical sales of a company named Adventure Works which has records for 3 years. Good data driven systems for analysing sales can improve the performance of the company and generate more ROI to the stakeholders.

2. Problem Statement

Our "Domain Sale" process is structured to help potential buyers purchase the domain they want immediately without the hassle of contacting the seller directly.

A seller lists a domain for sale at a specific price in our Marketplace. An interested buyer sees this domain for sale and decides to buy it.

3. Dataset Information

CustomerKey: Primary key for customer dataset

Birthdate: Birthdate of the customer

MaritalStatus: M- Married / S - Single

Gender: M – Male / F – Female

TotalChildren: Total number of children

NumberChildrenAtHome: Number of children staying along with their parents

Education: Education qualification

Occupation: Present occupation

HouseOwnerFlag: 1– Owns house / 0- Doesn't have a permanent address

NumberCarsOwned: Number of cars owned by the customer

DateFirstPurchase: First date of order by the customer

ProductKey: Primary Key for the product dataset

ProductName: Product name with colour of the product

Subcategory: Sub category name of the product

Category: Category name of the product

ListPrice: Sale price of the product

DaysToManufacture: Days to manufacture the product after receiving the order

ProductLine: Product line name

ModelName: Model name of the product

ProductDescription: more details about the product

SalesTerritoryKey: Primary Key of the Territory dataset

Region: Region name of the order

Country: Country name of the order

OrderDate: Date of the order received

ShipDate: Date when the order left the factory for export

SalesOrderNumber: Invoice number of the order

OrderQuantity: Number of quantities ordered for a product

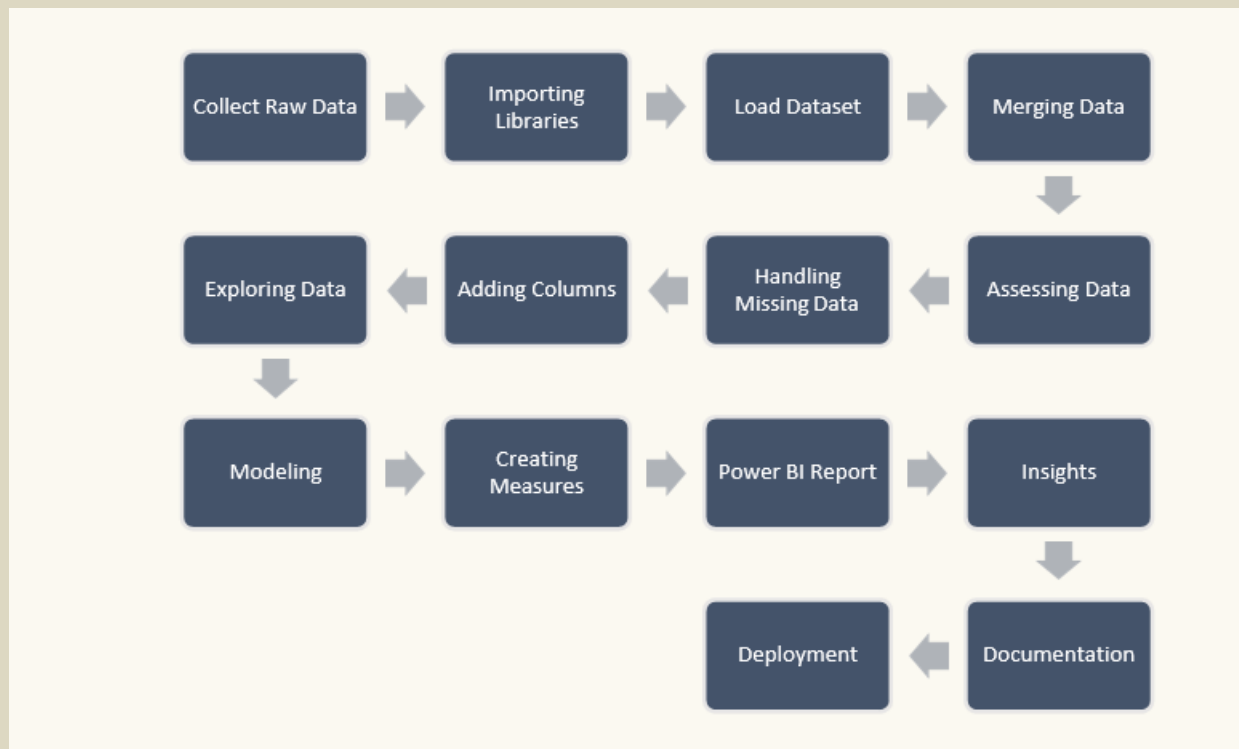
UnitPrice: Per unit sale price of the product

TotalProductCost: Cost of the product

SalesAmount: Total sales price of the product

TaxAmt: Tax collected for the product sold

4. Architecture



Collect Raw Data - This step involves extracting the data from different sources relevant to the problem statement or obtaining data from the client

Importing Libraries – Import analysis related python libraries example – Pandas, Numpy, Plotly, datetime etc

Data Wrangling – Contains following steps gathering data, assessing data, handling missing data and adding columns

Exploring Data – Once the data is loaded and pre-processed, we perform data analysis using python libraries and Business Intelligence tools like Power BI

Data Modelling - Data Modelling is one of the features used to connect multiple data sources in BI tool using a relationship. A relationship defines how data sources are connected with each other and you can create interesting data visualizations on multiple data sources

Deployment - The prepared visualizations are deployed on the powerbi.microsoft.com site. Where they will be available publicly

Sales Analysis

2014

2015

2016

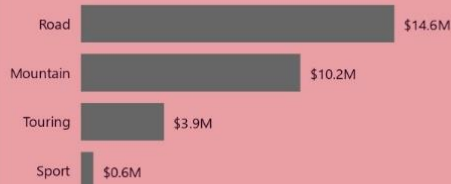
Total Cost



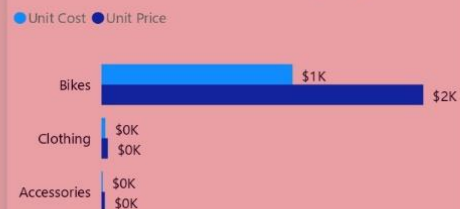
Sales by SubCategory



Sales by ProductLine

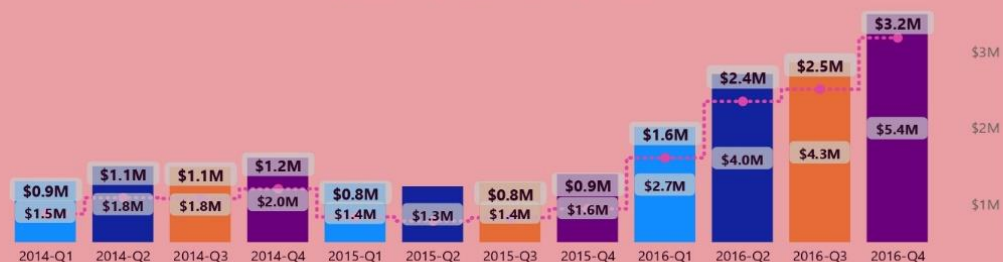


Unit Cost Vs Price (Avg)



Total Sales

Quarter ● Q1 ● Q2 ● Q3 ● Q4 ● Cost



Profit Analysis

2014

2015

2016

CY Profit margin and Diff in profit margin compared to LY

● CY Profit margin ▲ Diff in profit margin compared to LY



41.1%

Profit Margin %

\$12M

Profit Margin

\$29M

Total Revenue

91K

Total Orders

Revenue details by Customers

Customer	Revenue	Revenue contribution %	Profit margin contribution %	Profit Margin %	LAST YEAR REVENUE	Cost
Morgan	\$1,44,745	0.49%	0.49%	41.2%	\$77,415	\$85,129
Ian	\$1,37,933	0.47%	0.48%	41.8%	\$66,657	\$80,295
Jennifer	\$1,34,594	0.46%	0.46%	41.4%	\$60,196	\$78,805
Kaitlyn	\$1,32,035	0.45%	0.45%	41.0%	\$45,469	\$77,961
Chloe	\$1,31,420	0.45%	0.45%	41.2%	\$60,205	\$77,262
Isabella	\$1,28,174	0.44%	0.44%	41.3%	\$56,717	\$75,292
Total	\$2,93,07,837	100.00%	100.00%	41.1%	\$1,28,34,219	\$1,72,55,319

Revenue contribution % by Region



Profit Contribution % by Region



Profit % by Region



Variance Analysis

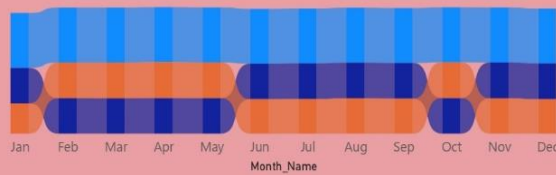
2014

2015

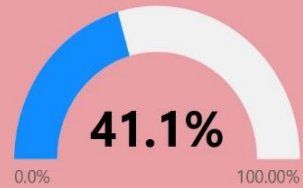
2016

Profit Margin % by Month_Name and Category

Category ● Accessories ● Bikes ● Clothing



Profit Margin % compared to Revenue %



Category	Sales	Target sales	Variance	Variance %
Clothing	\$3,22,677	₹ 3,33,741	(\$11,064)	-3.3%
Vests	\$33,465	₹ 34,565	(\$1,101)	
Socks	\$4,882	₹ 5,449	(\$567)	
Shorts	\$67,050	₹ 68,453	(\$1,403)	
Jerseys	\$1,65,066	₹ 1,70,938	(\$5,872)	
Gloves	\$33,380	₹ 33,965	(\$585)	
Caps	\$18,834	₹ 20,371	(\$1,537)	
Bikes	\$2,83,18,145	₹ 1,58,48,226	\$1,24,69,919	78.7%
Touring Bikes	\$38,44,801	₹ 40,55,965	(\$2,11,164)	
Road Bikes	\$1,45,20,584	₹ 52,57,897	\$92,62,687	
Mountain Bikes	\$99,52,760	₹ 65,34,364	\$34,18,396	
Accessories	\$6,67,015	₹ 6,87,607	(\$20,592)	-3.0%
Tires and Tubes	\$2,31,300	₹ 2,42,777	(\$11,477)	
Hydration Packs	\$38,823	₹ 39,803	(\$980)	
Helmets	\$2,15,923	₹ 2,21,905	(\$5,982)	
Fenders	\$44,268	₹ 43,670	\$598	
Cleaners	\$6,869	₹ 6,465	\$404	
Bottles and Cages	\$55,031	₹ 57,369	(\$2,338)	
Bike Stands	\$37,842	₹ 38,757	(\$915)	
Bike Racks	\$36,960	₹ 36,861	\$99	
Total	\$2,93,07,837	₹ 1,68,69,574	\$1,24,38,263	73.7%

Profit Margin LY and Profit Margin % by Quarter

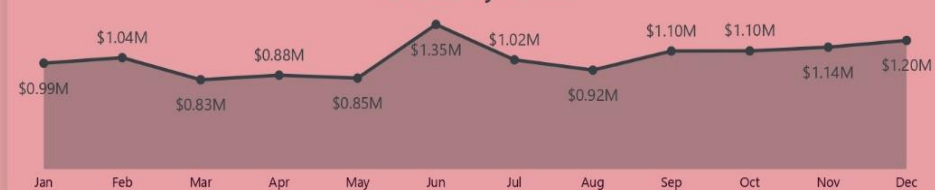
\$1.5M ✓

Goal: 0.0M% (+362929846.82%)

Sales to Revenue comparison on different countries



Variance by Months



Customer Analysis

2014

2015

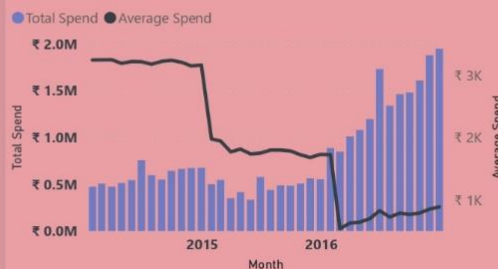
2016

Average Spend

Customers

Customers
Retained %

Spend Trends by Month



Average Monthly Spend Distribution



Customer Retention



Customer Retention breakdown



Customers by Cohort and Months after first purchase

Cohort	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
31-01-2014	146																								17	4	12	9	23	23
28-02-2014	156																							15	12	13	11	6	14	14
31-03-2014	146																						8	2	2	3	3	18	22	16
30-04-2014	161																					18	7	7	6	1	26	25	17	16
31-05-2014	169																				39	17	8	11	5	14	11	10	12	22
30-06-2014	235																		13	23	25	14	14	26	12	17	12	22	21	
31-07-2014	188																	18	8	30	18	3	16	29	15	14	19	19		
31-08-2014	171																	16	14	7	20	14	17	4	17	5	15	9		
30-09-2014	199																		23	31	30	13	27	23	24	7	26	12	11	
31-10-2014	207																9	39	17	5	17	60	16	14	19	7	20			
30-11-2014	214														2	21	41	17	2	11	57	28	8	19	20					
31-12-2014	214													3	4	29	36	5	14	25	52	16	22	14						
31-01-2015	253												7	7	18	60	8	12	15	40	45	28	22							

