

# Low Level Design

BUDGET SALES ANALYSIS

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## DOCUMENT CONTROL

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## 1. Introduction

### 1.1 What is Low-level design 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

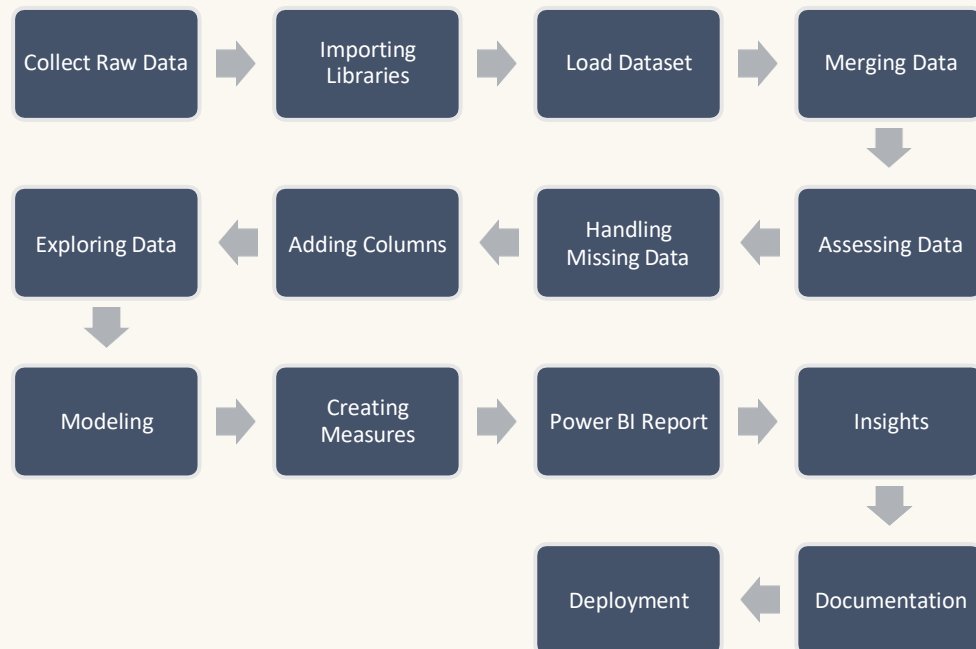
**UnitPrice:** Per unit sale price of the product

**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](https://powerbi.microsoft.com) site. Where they will be available publicly



## Sales Analysis

2014

2015

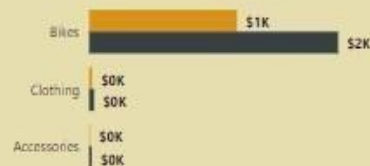
2016

### Total Sales

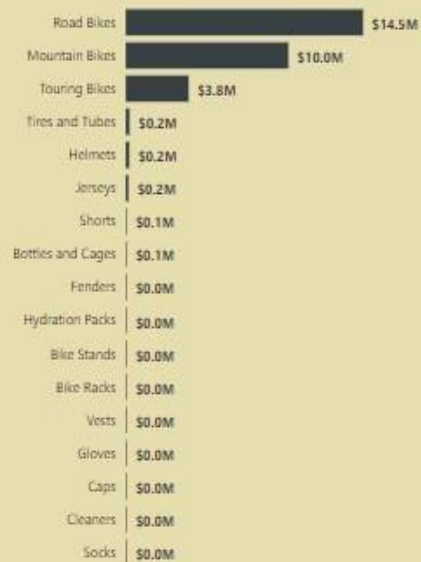


### Unit Cost Vs Price (Avg)

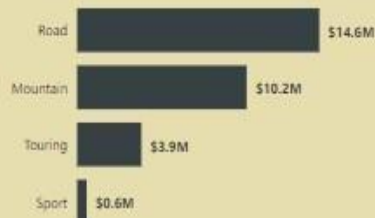
● Unit Cost ● Unit Price



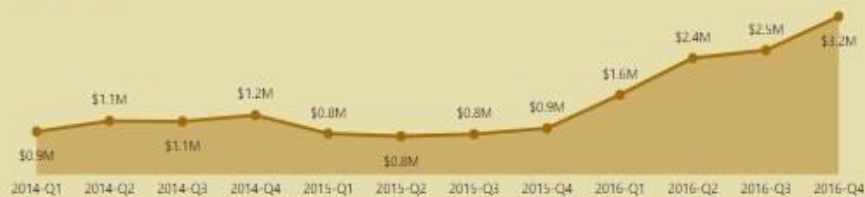
### Sales by SubCategory



### Sales by ProductLine



### Total Cost



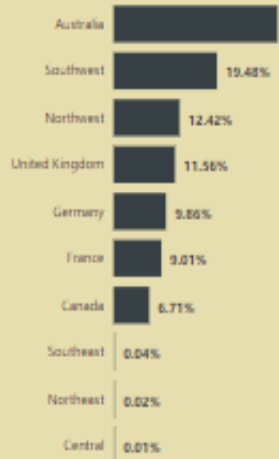
## Profit Analysis

2014

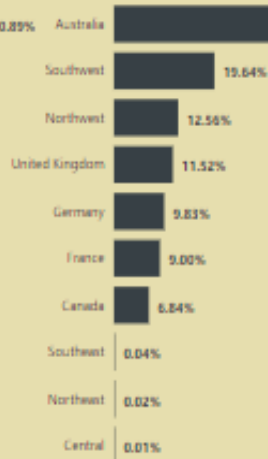
2015

2016

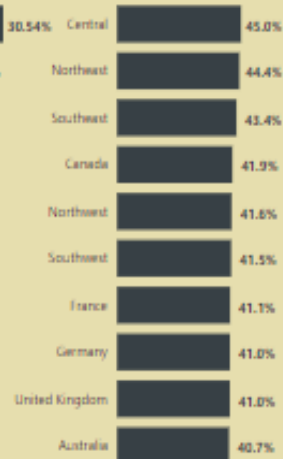
Revenue contribution % by Region



Profit Contribution % by Region

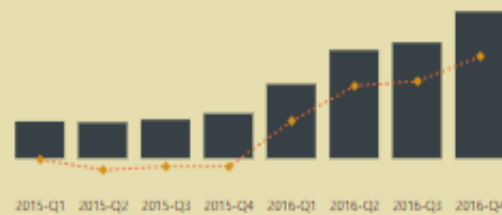


Profit % by Region



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
<b>Total</b>	<b>\$2,93,07,837</b>	<b>100.00%</b>	<b>100.00%</b>	<b>41.1%</b>	<b>\$1,28,34,219</b>	<b>\$1,72,55,319</b>

# Variance Analysis

Sales by Category & Variance to Target



Sales by Product & Variance to Target

Category	Sales	Target sales	Variance	Variance %
<b>Clothing</b>	<b>\$3,22,677</b>	<b>₹ 3,33,741</b>	<b>(\$11,064)</b>	<b>-3.3%</b>
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)	
<b>Bikes</b>	<b>\$2,83,18,145</b>	<b>₹ 1,58,48,226</b>	<b>\$1,24,69,919</b>	<b>78.7%</b>
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	
<b>Accessories</b>	<b>\$6,67,015</b>	<b>₹ 6,87,607</b>	<b>(\$20,592)</b>	<b>-3.0%</b>
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	
<b>Total</b>	<b>\$2,93,07,837</b>	<b>₹ 1,68,69,574</b>	<b>\$1,24,38,263</b>	<b>73.7%</b>

Variance by Months



# Customer Analysis

2014

2015

2016

Average Spend

Customers

Customers Retained %

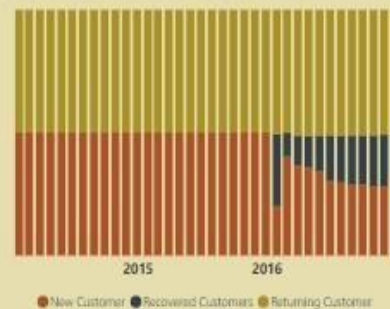
Customers by Cohort and Months after first purchase

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

Customer Retention



Customer Retention breakdown



Spend Trends by Month



Average Monthly Spend Distribution

