

Churn Analytics

Architecture Design

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1. Introduction

1.1 What is Architecture Design Document?

Any software that depicts software design must have an architectural design. "The process of identifying a collection of hardware and software components and their interfaces to provide the foundation for the creation of a computer system," according to IEEE, is what architectural design is. One of these numerous architectures may be displayed by software created for computer-based systems.

Each style will outline a group of systems that includes:

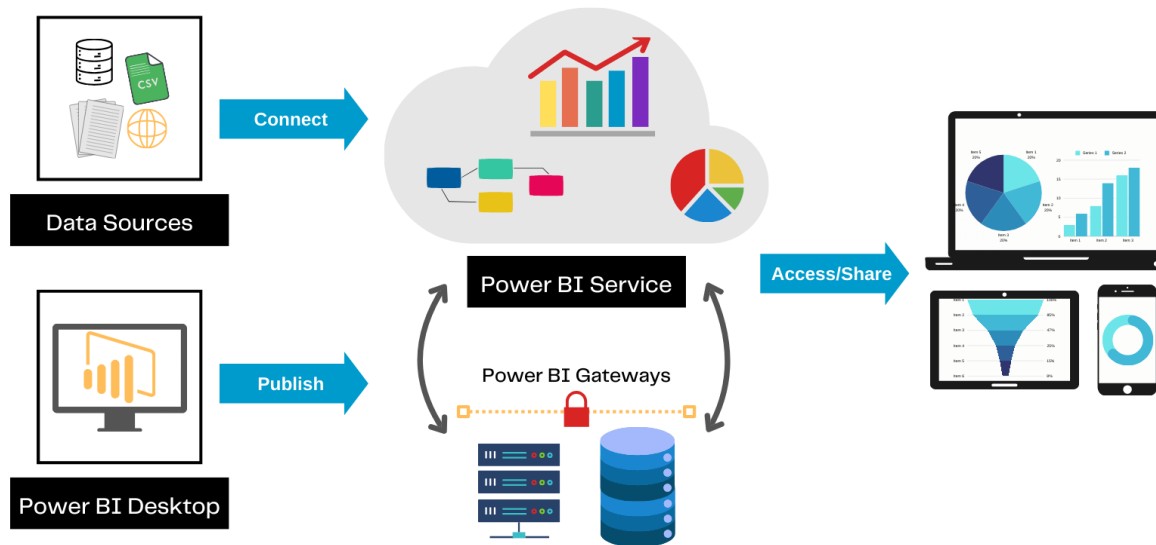
A collection of parts (such as a database or computing modules) that work together to carry out a specific task for the system.

- The set of connectors will support component cooperation, coordination, and communication.
- Requirements for integrating components into the system.
- Semantic models that aid in the designer's comprehension of the system's general characteristics.

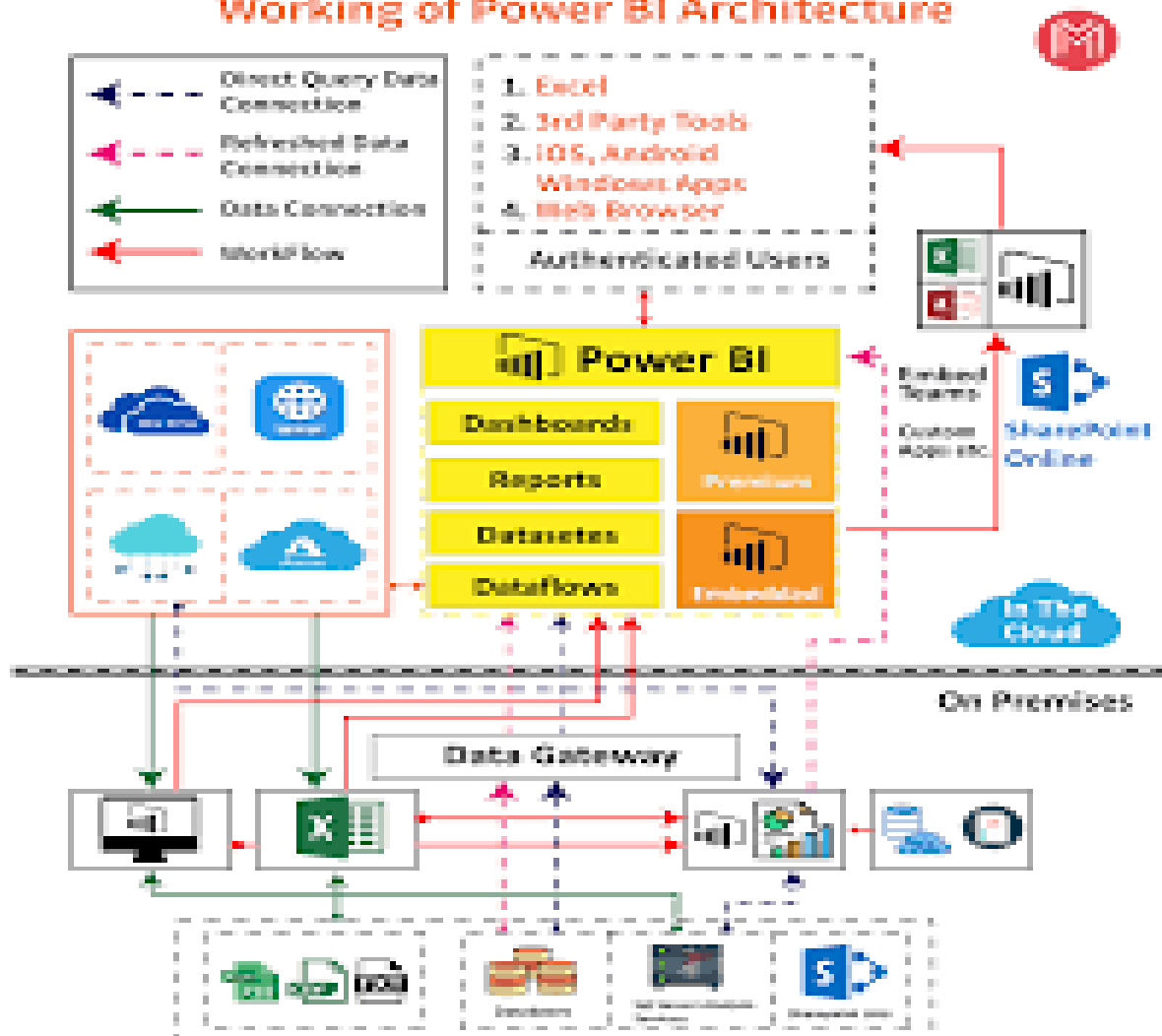
1.2 Scope

An architecture design method that incorporates an iterative refinement process is called an Architecture Design Document (ADD). Data structures, necessary software architecture, source code, and finally performance algorithms can all be designed using this method. Overall, during requirement analysis, the design concepts may be established, and then they may be improved upon throughout architectural design work.

Power BI Architecture



Working of Power BI Architecture



2.1 Power BI

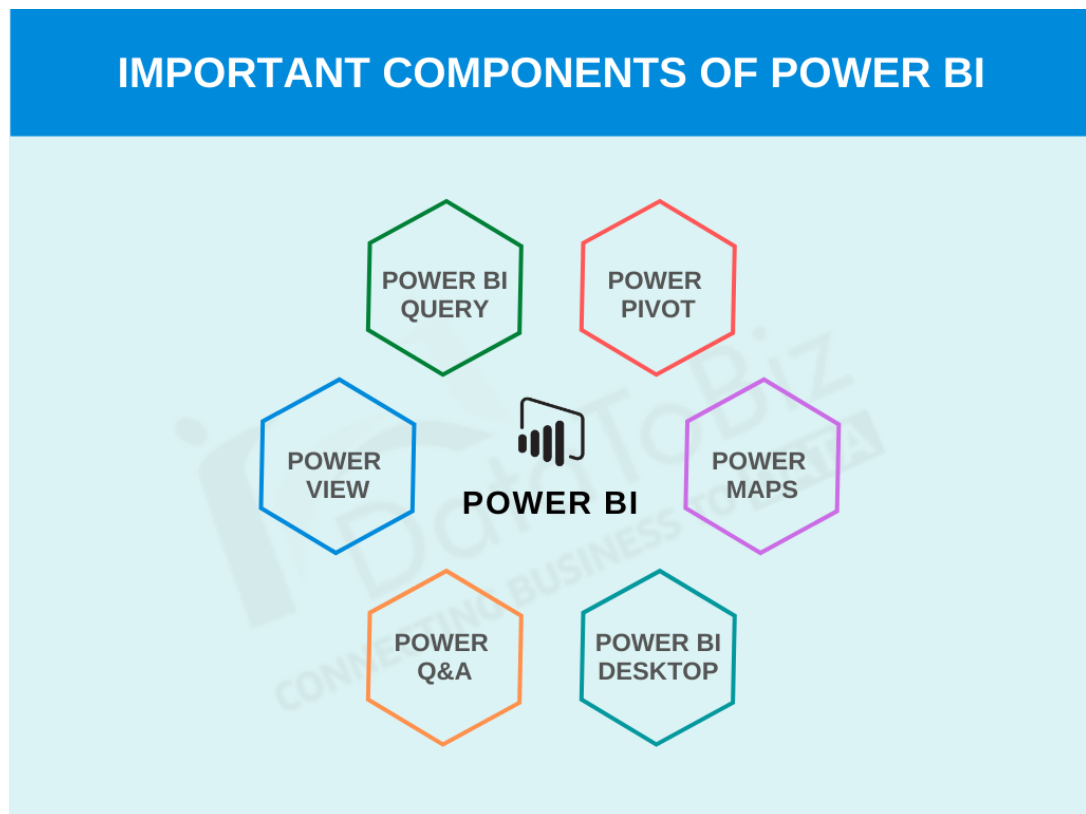
Microsoft Power BI is a business intelligence (BI) platform that offers capabilities for data aggregation, analysis, visualisation, and sharing to nontechnical business users. With its strong interaction with other Microsoft products, Power BI is a versatile self-service tool that requires little initial training. Its user interface is fairly intuitive for Excel users.

For businesses that must maintain their data and reports on-site, there is also Power BI Report Server. Power BI Desktop for Power BI Report Server is the specific desktop application that is needed for that version of Power BI.

Common applications of Power BI

Data from an organization's sources are analysed using Microsoft Power BI. Power BI may assist in fusing separate data sets together, transforming and cleaning the data into a data model, and producing charts or graphs to show the data visually. Other Power BI users within the company can access and use all of this information.

Organizations can use the data models produced by Power BI in a variety of ways, including the following: In order to ensure that departments achieve business metrics, it is important to tell stories using charts and data visualisations, explore "what if" scenarios within the data, and create reports that may provide real-time answers and assist with forecasting. Executive dashboards from Power BI can also be provided to administrators or managers, giving management additional understanding of how departments operate



Power Query: A tool for searching, gaining access to, and altering internal or external data sources.

Power Pivot: Used to execute analytics on data models retrieved from in-memory.

Power View: A tool for graphical data representation. **Power Map:** A tool for geographical visualisation that models geographical data on a map.

The Power Bi Service makes it possible to share workbooks and data visualisations

power BI FAQs: This can be used to ask queries and get answers right away with Natural Language Query.

Power BI Data Catalog: It allows for query searching and reuse.

Power BI Data Management: This can be used to inspect data fields, expose tables, and receive recurring data refreshers

2.3 Python

Once you have a clear project management plan, you still need a python framework that will help you apply the guidelines previously defined smoothly.

I am not going to give you turnkey python structure project as I think this is will definitely not help you designing your own framework. Indeed, each framework must always be adapted to the size and the timeline of the project. For example, on my side I have recently tried to use which is the framework of Quantum Black to design a python pipeline for analytics. After studying it, while being very interesting, it turns out that it was far too complex for my use and I recreated a python template specifically for this project.

That being said, some guidelines are common to any project and this is the ones you should care as they will help you respect all the principles we have seen above and avoid the pitfalls.

3. Deployment

customer_churn_analysis_project • Last saved: 9/29/2024 at 2:52 PM

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Name of

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Manage relationships

New measure

Quick measure column

New table

Structure

Calendars

Relationships

Calculations

Agency	Complaint or Complaint	Subject Matter	Subject Detail	Issue Detail	Year	Quarter	Branch/Line/Route
NVC Buses	Complaint	Employees	Bus Operator / Driver	Flagging / Failed To Stop	2015	3	M4
NVC Buses	Complaint	Employees	Bus Operator / Driver	Flagging / Failed To Stop	2015	3	X10
NVC Buses	Complaint	Employees	Bus Operator / Driver	Flagging / Failed To Stop	2015	3	B49
NVC Buses	Complaint	Employees	Bus Operator / Driver	Flagging / Failed To Stop	2015	3	Q7
NVC Buses	Complaint	Employees	Bus Operator / Driver	Flagging / Failed To Stop	2015	3	X17
NVC Buses	Complaint	Employees	Bus Operator / Driver	Flagging / Failed To Stop	2015	3	B82
NVC Buses	Complaint	Employees	Bus Operator / Driver	Flagging / Failed To Stop	2015	3	Q65
NVC Buses	Complaint	Employees	Bus Operator / Driver	Flagging / Failed To Stop	2015	3	M9
NVC Buses	Complaint	Employees	Bus Operator / Driver	Flagging / Failed To Stop	2015	3	B41
NVC Buses	Complaint	Employees	Bus Operator / Driver	Flagging / Failed To Stop	2015	3	Q53
NVC Buses	Complaint	Employees	Bus Operator / Driver	Flagging / Failed To Stop	2015	3	No Value
NVC Buses	Complaint	Employees	Bus Operator / Driver	Flagging / Failed To Stop	2015	3	M106
NVC Buses	Complaint	Employees	Bus Operator / Driver	Flagging / Failed To Stop	2015	3	B3
NVC Buses	Complaint	Employees	Bus Operator / Driver	Flagging / Failed To Stop	2015	3	M15
NVC Buses	Complaint	Employees	Bus Operator / Driver	Flagging / Failed To Stop	2015	3	M57
NVC Buses	Complaint	Employees	Bus Operator / Driver	Flagging / Failed To Stop	2015	3	Q77
NVC Buses	Complaint	Employees	Bus Operator / Driver	Flagging / Failed To Stop	2015	3	B9
NVC Buses	Complaint	Employees	Bus Operator / Driver	Flagging / Failed To Stop	2015	3	QM18
NVC Buses	Complaint	Employees	Bus Operator / Driver	Flagging / Failed To Stop	2015	3	M22
NVC Buses	Complaint	Employees	Bus Operator / Driver	Flagging / Failed To Stop	2015	3	BxM2
NVC Buses	Complaint	Employees	Bus Operator / Driver	Flagging / Failed To Stop	2015	3	B52
NVC Buses	Complaint	Employees	Bus Operator / Driver	Flagging / Failed To Stop	2015	3	Q21
NVC Buses	Complaint	Employees	Bus Operator / Driver	Flagging / Failed To Stop	2015	3	M20
NVC Buses	Complaint	Employees	Bus Operator / Driver	Flagging / Failed To Stop	2015	3	Q38
NVC Buses	Complaint	Employees	Bus Operator / Driver	Flagging / Failed To Stop	2015	3	M101
NVC Buses	Complaint	Employees	Bus Operator / Driver	Flagging / Failed To Stop	2015	3	B63
NVC Buses	Complaint	Employees	Bus Operator / Driver	Flagging / Failed To Stop	2015	3	B67
NVC Buses	Complaint	Employees	Bus Operator / Driver	Flagging / Failed To Stop	2015	2	Q3

Table of 16 (86,715 rows)

Refresh available (click to do)

Power Bi


```
import pandas as pd
```

```
df=pd.read_csv(r"C:\Users\omsin\OneDrive\Documents\mta-customer-feedback-data-beginning_project-2014-1.csv")
```

REPLACE MISSING VALUES IN ISSUE DETAIL WITH UNSPECIFIED

```
df.fillna({'Issue Detail':'unspecified'},inplace=True)
```

```
df.head(5)
```

	Agency	Commendation or Complaint	Subject Matter	Subject Detail	Issue Detail	Year	Quarter	Branch/Line/Route
0	Long Island Rail Road	Commendation	Employees	CSR - Ambassador	Very Helpful/Friendly	2015	2	No Value
1	Long Island Rail Road	Commendation	Employees	CSR - Ambassador	Very Helpful/Friendly	2015	2	Port Jefferson
2	Long Island Rail Road	Commendation	Employees	CSR - Customer Service Office	unspecified	2015	1	No Value
3	Long Island Rail Road	Commendation	Employees	CSR - Customer Service Office	Other	2015	2	Far Rockaway
4	Long Island Rail Road	Commendation	Employees	CSR - Customer Service Office	Very Helpful / Friendly	2015	2	No Value

```
df['Issue Detail'].value_counts().get('unspecified',0)
```

```
np.int64(10134)
```

MySQL

