An Undergraduate Internship/Project

on topic **Microsoft Power BI**

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Dissertation submitted in partial fulfillment for the degree of Bachelor of Science in Computer Engineering Department of Computer Science & Engineering

Independent University, Bangladesh

Attestation

I understand the nature of plagiarism, and I am aware of the University's policy on this. I certify that this is an original work by me during my internship. However, following internationally accepted academic guideline of using others written work and / or software (in the form of code) in my University project is properly cited if used in any part of this work.

Signature: .....

Name: .....

ACKNOWLEDGEMENTS

First of all, I would like to thank almighty Allah for giving me the continuance and the capacity to do difficult work. It is to my benefit that I had the opportunity to do an internship in Desh Cloud, which is basically a business process automation solution for businesses. I would like to thank all the individuals on whom I carry out my internship. I express my profound gratitude to my internal supervisor Md.Fahad Monir Lecturer, Department of Computer Science & Engineering, Independent University Bangladesh (IUB), for his priceless enlightening, persistent direction, valuable reactions and mindful counsel amid seeking after this internship and planning of this report. I express my profound gratitude to my external supervisor, Mr. Mahtab Hossain (CEO & Owner of the company DeshCloud). Too, I express my profound gratitude to all representatives of DeshCloud. for their participation and making a difference for me to total this internship extension and report. Last but not least, I would like to thank my guardians and other family individuals for continuously giving me their unceasing back.

Tanbin Harun Al Rashid

ID: 1631271

20th May, 2021

Letter of Transmittal

1St May, 2021
To MD. Fahad Monir
Lecturer,
Department of Computer Science & Engineering,
Independent University, Bangladesh (IUB) ,
Baridhara Bashundhara, R/A Dhaka-1229
Subject: Submission of internship report, Spring 2021

It gives me pleasure to submit my report. I completed my internship in "DeshCloud" which is a Software, Cloud Service and Automation company. During my remote internship period, I have not only gained real-life work experience but understood the process of the department and its various aspects. Because of this pandemic situation I am doing my job from home. The following report is based on my experience and the work I did in this company. This report also includes a detailed review of the office as well as the functionalities of the department. As a document of my effort during the internship periods I have conducted all the project works that I have done during my internship periods, especially their requirements, functionalities, and technical specifications.

I pray and hope, this report will be quite interesting and fulfill your expectations. I have tried my best to avoid my deficiencies and hope that my report will satisfy you.

I also would like to thank you again for allowing me to submit this report.

Yours most obediently,

Tanbin Harun Al Rashid

ID:1631271

Evaluation Committee

Signature: .....

Name: .....

Supervisor: .....

Signature: .....

Name: .....

Internal Supervisor: .....

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External Supervisor: .....

Signature: .....

Name: .....

Convener: .....

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ABSTRACT

My work with power BI is as infrastructure network management, with help of power BI I have designed a custom software for Dhaka Bank, for loan Department that they can analysis the date and fine out their loan disbursement, I have collect their data from them and imported and stored in Power BI cloud this uses as an analytics engine for query processing, how it work I have explained in my below report then it connects to SQL azure and stored over there and in any queries is need then it come back to database to modify the report with the help of model relationship and DAX(Data Analysis Expression)which is use in power BI as their library function and to build formula and expression, with power BI you can connect excel files for personal management that need to have a connection to database which will only show you table content but won't show you infrastructure dashboard but as BI developer, I have worked in XMLA endpoints in Power BI support out-of-line bindings, an advanced Analysis Services capability to temporarily change the data bindings of certain metadata objects in a dataset for the duration of a refresh command, such as data sources, partitions, and expressions. Using OOL bindings in Power BI through XMLA endpoints, yet there are some restrictions. For like, you can override a table partition's M expression, a partition's query expression, or a named expression that might be shared across multiple tables or partitions, as explained later in the report, but you cannot directly override a data source definition when processing a partition or update the credentials or privacy settings for a data source that a Power BI dataset uses. For more details about data source dependencies, refer to the research paper post Using XMLA endpoints to change data sources in a Power BI dataset which I have attached in Bibliography. This is basic how a Microsoft power BI works,

Introduction

The project I have been working is Microsoft Power BI, Microsoft power BI is huge software Business automation tools which is categories into many other feature products like, Microsoft Power BI Desktop, Power BI pro, Power BI Premium, Power BI Mobile, Power BI Embedded, Power BI Report Server. Power BI is one of most demanding and automation tools for business and networking site and for banking IT sector, the use of Power Bi had increased due to Covid-19 right now in global IT industries tis business automation tool is in huge demand, the work of power is it easily get connect to, model, and visualize your data, creating memorable reports personalized with the help of KPIs and brand. Get fast, AI-powered answers to your business questions even when asking with conversational language. It can make and gain Insight the largest Bi deployment make the most of big data investments by connecting to all the data sources with the scale to analyze, share, and promote insights across the organization while maintaining data accuracy, consistency, and security. It can help the organization for making decision with confidence it can also work together easily on the same data, collaborate on reports, and share insights across popular Microsoft Office applications such as Microsoft Teams and Excel empowering everyone in the organization to quickly make data-driven decisions that drive strategic actions.

Working with Power BI was very new to me ,as I haven't had about this Software tools before and the work of it but it was quite challenging for me ,but later I have learn and work uses of this software and work for it ,as there is a lot of categories in Microsoft Power BI the product I have work is power BI report server , I collect the data from the user source and create the relation diagram and use and stored in Report Server gives users access to rich, interactive reports, and the enterprise reporting capabilities of SQL Server Reporting Services. And then Explore visual data and quickly discover patterns to make better, faster decisions for the user. At the same time, generate pixel-perfect paginated reports the business needs. I can also can confidently scale to thousands of users because Power BI Report Server is based on a proven, enterprise-grade platform.

1.1 Background of the work

Power BI is a business analytics service by Microsoft. It aims to provide interactive visualizations and business intelligence capabilities with an interface simple enough for end users to create their own reports and dashboards. It is part of the Microsoft Power Platform
Power BI can provide end-to-end data protection for any organization and cooperative company like its can give better protection for data across Power BI reports, dashboards, and data sets with persistent protection that keeps working even when shared outside the organization or exported to other formats such as Excel, PowerPoint, and PDF
when the organization use Power BI with Azure and Office, it can extract maximum value from the user technology and user data. Because Power BI interoperates with the Microsoft technology that can already trust and can use the user all data productively.

With Power BI, the organization can connect to many of the services that use to run their business, example as Salesforce, Microsoft Dynamics, and Google Analytics. Power BI starts by using the credentials to connect to the service. Connect directly to hundreds of on-premises and cloud data sources such as Dynamics 365, Azure SQL Database, Salesforce, Excel, and SharePoint. It creates a Power BI workspace with a dashboard and a set of Power BI reports that automatically show the data and provide visual insights about the business.

1.2. Objectives

The main objectives of our system are to make a user-friendly interface getting more comfortable with our software tools. System aims to provide simple, easy access for their products, accessories, and services, from their zone of comfort. The most beneficial thing is that the company owner does not need to travel or waste his/her valuable time. We make them too easy they can find everything under one umbrella which is our companies provides. As we know this Software is an online-based system, the company owner can use it from his /her, computers/laptops and phones, at any time. Aims to provide interactive visualizations and business

intelligence capabilities with an interface simple enough for end users to create their own reports and dashboards.

1.3. Scopes

After introduced to Microsoft power BI is a leader among other BI tools. It is a cloud-based platform used to consolidate data from varied sources into a single data set. These data sets are used for data visualization, evaluation, and analysis by making shareable reports, dashboards, and apps. Microsoft offers three types of Power BI platforms, Power BI Desktop (Desktop Application) It proves to be an efficient and user-friendly tool for any data analysis. It enables users to consolidate data from multiple sources, make interactive dashboards, create informative reports, and share it with other users.

Author beautiful reports with Power BI Desktop. Visually explore data with a freeform drag-and-drop canvas and modern data visualizations Embedding for the organization allows to extend the Power BI service. This type of embedding requires the application's users sign into the Power BI service to view the content. Once someone in the organization signs in, they only have access to dashboards and reports that they own or that someone shared with them in the Power BI service.

Publish reports directly to Power BI Report Server. Organize the reports in folders, manage access, and update as necessary and can share the reports for the organization users to consume on the web and across mobile devices to meet a range of business needs.

2.Literature Review

2.1. Relationship with Undergraduate Studies

The relationship is too deep with my Undergraduate studies, it is such a pleasure for me that university have a course like Cloud computing and Database Management (Course code: CSC472 & CEN401). This course helped me a lot to understand database design and the use of database management systems and cloud computing helped me data storage and computing power, without direct active management by the user. And grew up my ability & knowledge to do this type of project as implantation. In this course we learn about basic detailed coverage of the development process, database architectural principles, relational algebra and SQL using Oracle or SQL Server. Other key database topics covered are data modelling (E-R model, relational data model, integrity constraints, data model operations, normalization, and data modelling), database security, administration, and distributed systems. Which was very helpful for me when I starting of my journey. This gives me an extra advantage and gave me an extra confidence to work in company as an internship student.

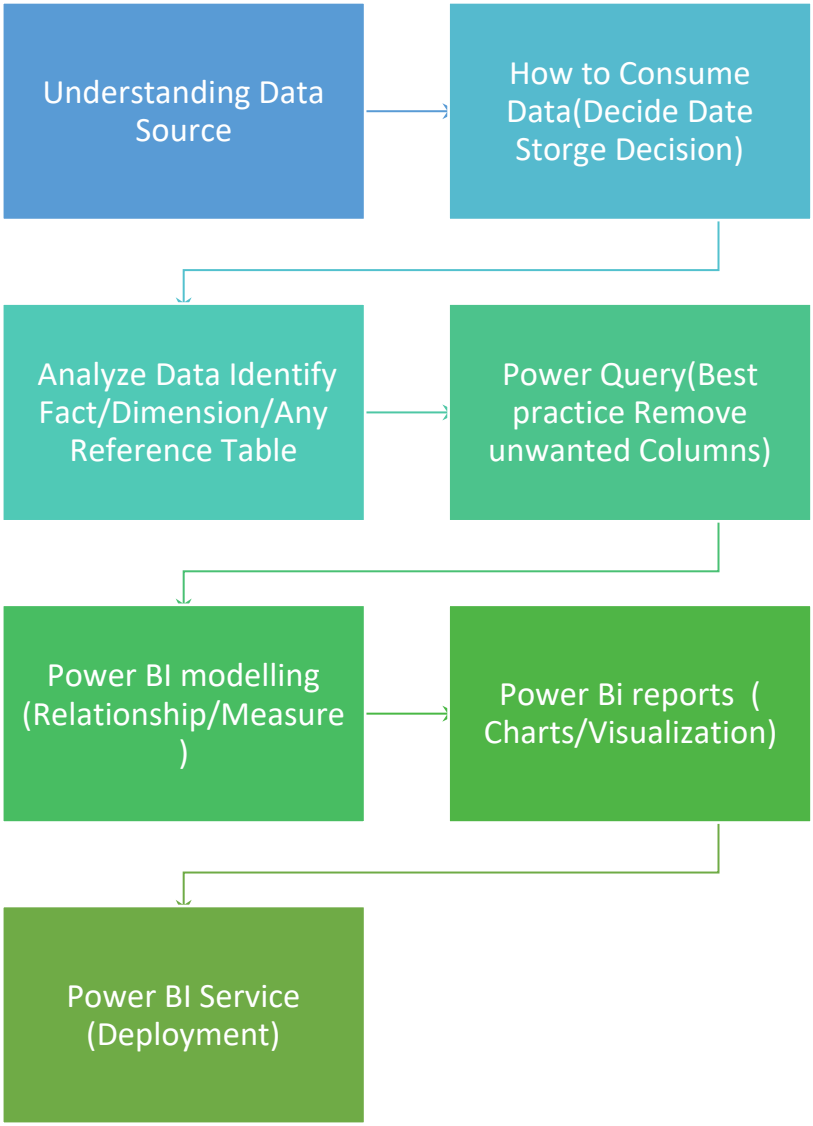
2.2. Related Works

Before working on our project, actually we are surveying with some well-known company and banks and gather knowledge about our project. It becomes easy for us to make with idea of another well-known company sites. How they look and how it is works. As a result, we can develop our site with basic needs and conditions.

We searched top five company in Bangladesh, then we found them and gather basic knowledge from them the link is in the reference. This gives a premium idea how they use to work and store there data in Microsoft Excel.

3. Project Management

3.1. WBS (Work Break Down Structure)



3.2 Process Wise time Distribution

When anyone join a company as a developer or software implementation, He or She do not have a vast time to complete their projects. Clients give us a specific time to do our work not more than 2 weeks as usual. So, you have to complete it before deadline otherwise clients give some poor rating to the company which might be danger in future projects.

So, process wise time distribution is very important. where Group communication and group work is so important if anyone late to submit their own work, the project must be delayed. As a software implementation and software solution, I have done my work between 15 days as much otherwise project became delay.

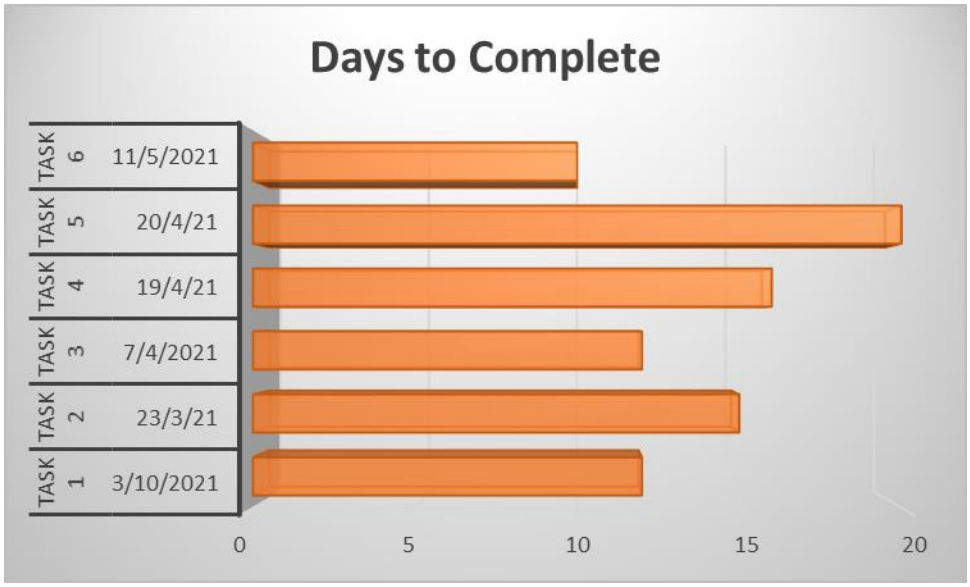
At first, we distribute our individual work and make a group meeting on google meet to describe about project that what to do? And how to do? After successful group meeting, we are working our part that's minimize our time and we can done any schedule project easily.

3.3 Gantt Chart

Now talking about my Gantt Chart. My Gantt chat is given below. There is my task combination I always want to do submit my work on time but sometimes project need times too and as sudden there was a lockdown during April month my work distribution with my team took time.

Task	Start Date	Days to Complete
Task 1	10-3-21	12
Task 2	23-3-21	15
Task 3	7-4-21	12
Task 4	19-4-21	16

Task 5	20-4-21	20
Task 6	11-5-21	10

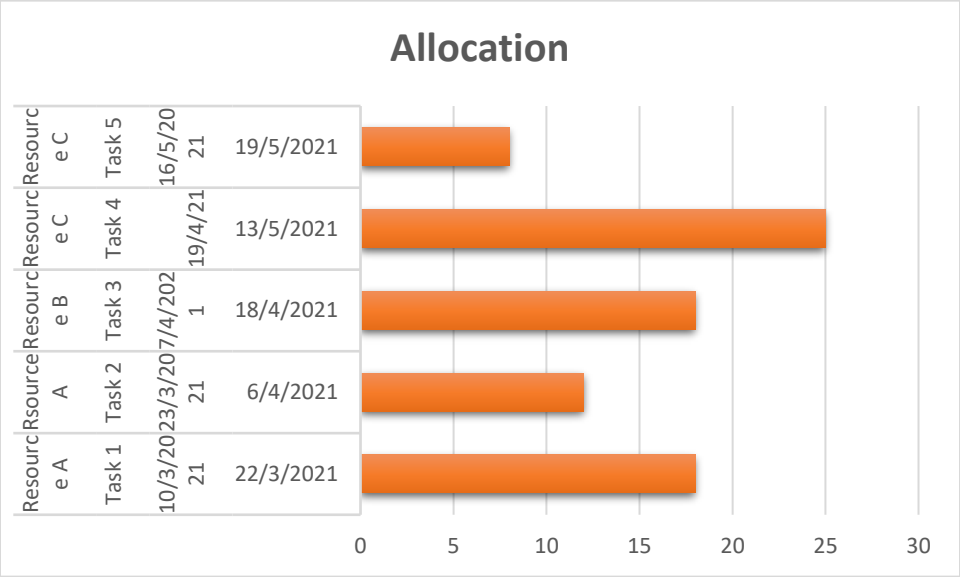


3.4 Process/Activity wise Resource Allocation

I have a table it called allocation which contain of Resource, Assignment, Allocation, Allocation Start Date, Allocation End Date As you can see below, resource can have more than 1 assignment and the period cloud overlap

Resource	Task	Start	End	allocation
Resource A	Task 1	10/3/2021	22/3/2021	18
Resource A	Task 2	23/3/2021	6/4/2021	12
Resource B	Task 3	7/4/2021	18/4/2021	18
Resource C	Task 4	19/4/21	13/5/2021	25
Resource C	Task 5	16/5/2021	19/5/2021	8

What I would like to achieve is a sort of "timeline" where for a given time period (it could be a day, a week or a month). In summary, I would need to be able to select time buckets (DAYS, WEEKS mainly), which I understand in Power BI can be done using a DATE table.



3.5 Estimated Costing

This power BI is this divided into four different prices:

Power BI Desktop	Power BI Pro	Power BI premium	Power Bi Embedded
Creating and editing customizes report for every level of expertise	Self-service BI in the cloud	Enterprise BI both on-premises and in the cloud	Reports, dashboards and visual analytics embedded into application
Data ingestion form hundred of supported data source	Creating, editing and sharing report and dashboards among user	Dedicated storage (100TB) and compute resources.	An extensive library of data connectors APIs and fully documented SDKs
Data transformation cleaning, data model creation with built in power Query Editor	Collaboration in personal and term workspace	Consumption of power Bi Content without individual licensing	

Al-driven Analytics	10 GB of storage per user	Maintaining BI assets on-premises with the power Bi report server	
Interactive reporting with pre-built or custom visual		Paginated reporting	
		Multi-geo capability.	
Free	$9.99 user/month	$4,995 dedicated cloud storage and compute resources/month with an annual subscription	Pay-as-you-go, from $1.0081/hour to $32.2506/hour

4.Methodology

Power BI security and information protection capabilities enable enterprises and governments to drive accelerated digital transformation and cloud adoption while protecting their sensitive data and meeting a growing of geographical and industry regulatory requirements. Power BI is a suite of business analytics tools to analyze data and share insights. Monitor your business and get answers quickly with rich dashboards available on every device.

Power BI is most important and powerful software tools which not use for KPI but can let use for Security and information also, which allows the organization to determine the threat and revenue for the organization around the global, Power Bi is also in Azure for the cloud solution and Analytic Like it can Create an engine for business-changing insights with Power BI and Azure Synapse Analytics.

- Accelerate performance with industry-leading BI and data management solutions on the market.
- Power BI and Azure Synapse are natively integrated so users can seamlessly and analyze petabyte-scale data in seconds.
- Bring data into every part of your organization in a simple, unified, and scalable experience.

- Be confident your data is more secure with holistic and compliant data platform.

5.Body of the Project

5.1 Work Description

In our project we have simple things on it. First of all, we visit the client user interface and see how it looks. Create responsible and speak about our software tools home button and give the main description. Add services of our company which gives user a vast knowledge about our company.

Then normal things every website have like about us, Career, Blog, Case studies. Gives the basic contact us, location of our company, social media icon (so, consumer can use our Facebook page and communicate with us 24 hrs.), email address. Then the basic Privacy policy and terms and conditionn

5.2 System Analysis

Power BI is a cloud-based analysis service that provides rapid insight and is used to extract and visualize data. Power BI brings together data from multiple sources to give you a comprehensive view of your company's information assets.

This means that with Power BI you can see all your data through a single pane of glass and quickly create an analytical environment for monitoring data and sharing reports. Live dashboards and reports show metrics and performance indicators based on data that resides both locally and in the cloud. This gives you a consolidated view of your entire business, regardless of architectural concepts and where you are located.

Power BI maintains security-related data source information such as credentials and privacy settings outside the dataset, whereas Azure Analysis Services and SQL

Server Analysis Services maintain these settings in the data model. This can be seen in Power BI Desktop when you open the File menu, click Options and settings, and then Data source settings, as shown in the following screenshot. When you edit the credentials or change the privacy settings for a data source, the updated settings will be used by all your Power BI Desktop (PBIX) files that use this data source when you refresh them on the current computer. It might seem that you're updating these parameters in the context of a single PBIX file, but this isn't really the case because the data source settings are separate from the PBIX file.

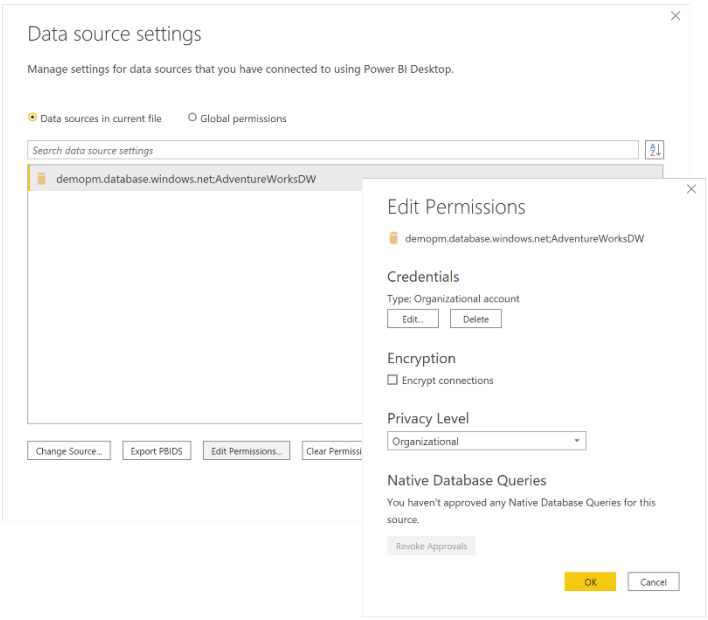


Figure. Editing a data source of Power Bi Desktop

you can also verify this by opening one of your PBIX files on a second computer. Because the security-related data source settings aren't part of the PBIX file, they don't travel with it. Accordingly, Power BI Desktop will prompt you for credentials and privacy settings again when you try to connect to the data source on the second computer. When provided, all your PBIX files on the second computer can use these settings to connect to that data source without having to prompt you yet again. Power BI Desktop stores this security-sensitive information encrypted in your local user context and locates these settings for each data source based on its connection parameters, such as server name and database, or URL, or any other connector-specific connection parameters.

5.2.1 Six Elements Analysis

Get Data

Easily Connect

Clean

Mashup data

Analyze

Build powerful models

Flexible Measures

Visualize

Create stunning interactive report

Collaborate

Empower Your organization with self – service analytics

Publish

Share insight with others

Datasets

Datasets can be renamed

5.2.2 Feasibility Analysis

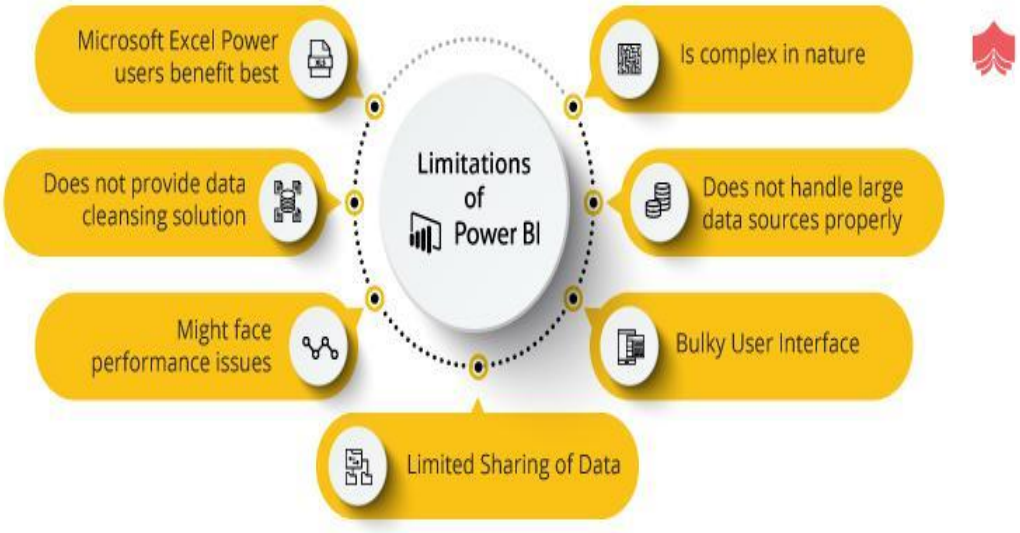
1. Power BI does not support export to .pdf. Power BI's reports and dashboards are meant to be visually consumed. It can print but only print 1 page at a time . It can export to excel/csv but if sub or grand totaling within the Power BI report, those sub or grand totals do not export.
2. Power BI does not allow TEXT on dashboard tiles.
3. Power BI doesn't work well with TEXT on tooltips.

4.Power BI doesn’t natively work with duration/time. If you’re dealing with seconds and duration.

5.2.3 Problem Solution Analysis

This Microsoft power BI can help in load problem analysis is recent days company and corruptive company got many benefits using this power BI tools likes its helps company to understand financial analytics like its can create financial KPI dashboards , revenue cost and performance analysis, and it can also help sales and marketing analytics if a company want to promote their marketing products with help of power BI a company can customer profiling and segmentation and lead analytics in near real-time, its can also use in the form of IoT analytics for monitoring and tracking , and can connected devices and monitoring and analytics. With the help of power BI a company can performance predication and forecasting

5.2.4 Effect and Constraints Analysis



Apart of using this software tools there are advantage but there are some effect and constraints or limitation using this software tools like:

Microsoft Excel Power users benefits best

It can be noted that most of the business users that will come across will not be a power user of Microsoft Excel. In case the end-users of the business intelligence

model are business users, then it should be noted that Microsoft Power BI will be very challenging to use.

Complex in nature

This is one of the major drawbacks as Microsoft has designed Power BI in a very complex manner. Power BI has a long list of components, and it is difficult to understand which component may be need. To name a few, there's Power BI Desktop, the Power BI Gateway, the Power BI Services, there are no moving parts available for this software, which might make to spend a lot of time and energy trying to figure out the function of each part. This makes the product even more challenging to troubleshoot, which leads to an increase in the total cost of ownership.

Data quality

Microsoft Power BI does not provide with any data cleansing solution. Meaning, it can take that the data that are pulling has been cleaned up well in advance and is of high quality. So, in case if needed data cleansing aptitude, there might be need to look for an alternate solution to cleanse the data.

Does not handle large data source properly

If there is a large data set which needs to be analyzed, Microsoft Power BI will not be the best option for this data source. It might face trouble in connecting and importing large datasets, as well as problems such as slow performance and time-outs.

Performance Issues

Sometimes Power BI might face performance issues as it has been observed that it has not been able to process more than 20000-30000 rows without running into issues for some queries. It might just timeout during the processing.

Bulky User Interface

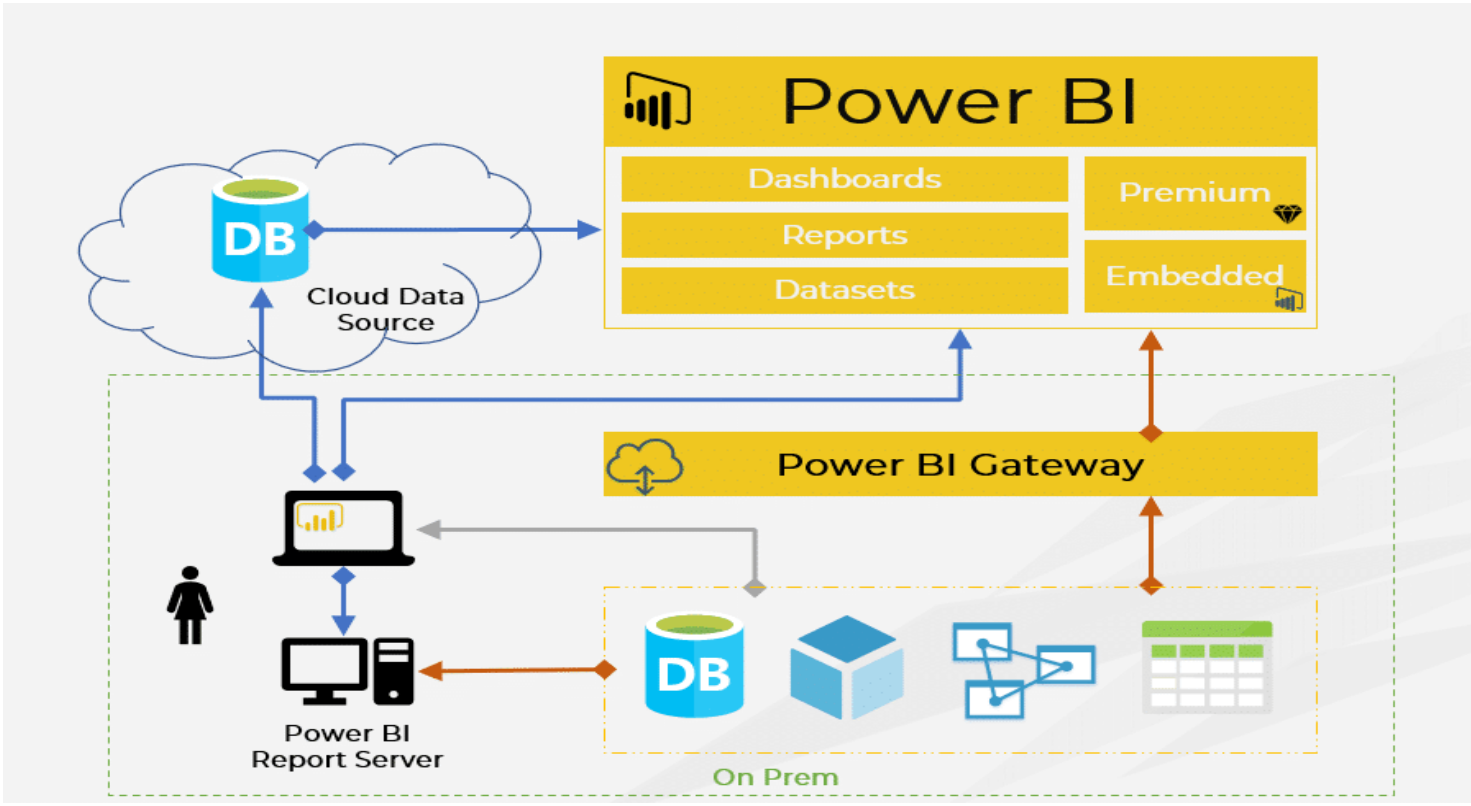
The formula helps window and side par often block the view of vital, making the user interface of Power BI to be very bulky. The making of scrolling dashboard will require a lot of efforts since it is not a native feature

Limited Sharing of Data

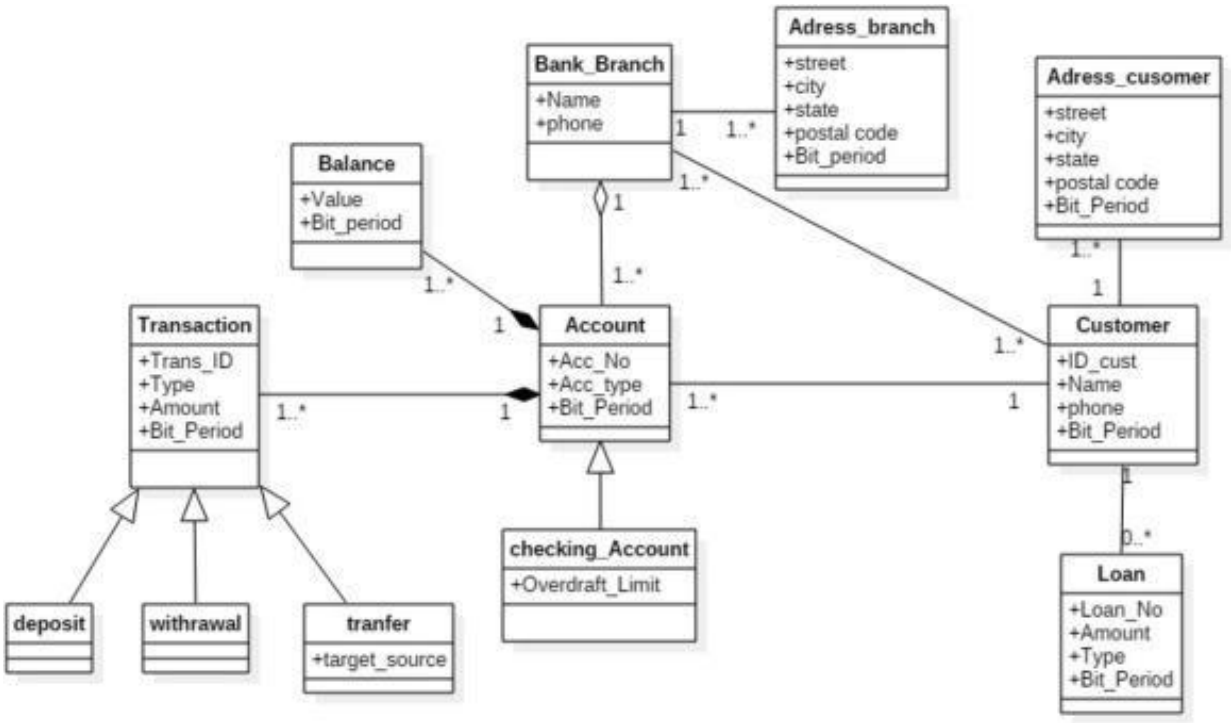
Reports and dashboards can be shared only with those users who have the same email domains or the ones who have their email domains listed in your Office 365

5.3 System Design

5.3.1 Rich Picture



5.3.2 UML Diagram



5.3.3 Functional and Non-Functional Requirements

The functional and non-functional requirement for this power BI project

1)By clicking a cell in Table visual, we need to see details for that cell. For example, if the Table contains # of customers who purchased umbrella and pen in Bangladeshi cities, we want to see list of customer names in who bought pen, Dhaka if user clicks on that cell

2) Slicer Scope: We need slicers on the first page to have scope of entire dashboard not only that page.

3) Customer Profile Access: By clicking on a Table row, we want to call our API to show detail information about a customer (not only their name) by passing customer ID

4) Incremental Updates: Our current data source is AWS Redshift. I know that we can use Direct Query to access data on Redshift, but it is very slow.

5) Single Sign on: We need to be able to have our customers authenticated on our system first and automatically authenticated on Power BI using SSO. Is this possible

5.4 Product Features

5.4.1 Input

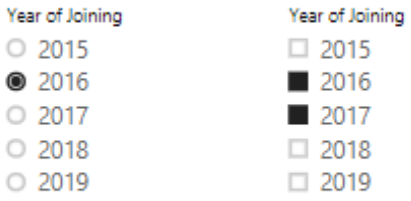
A user should have the flexibility to enter the input number and that number should filter the data. In Power BI reports, we can create slicer with input number and we have options to choose either single-select or multi-select but we do not have the option to enter the number. This is an example for the input for Employee Details using power BI input.

1. Open Power BI desktop
2. Click on Get Data, select Excel and Load the employee details file into power bi desktop
3. Create a simple tabular report with all employee details

Employee Details

Emp ID	Emp Name	Department	Gender	Year of Joining
1	John	Sales	Male	2015
2	Peter	Finance	Male	2016
3	Mark	Accounting	Male	2017
4	Mike	Product	Male	2018
5	Campbell	Sales	Male	2019
6	Alister	Finance	Male	2015
7	Kohli	Accounting	Male	2016
8	Arvind	Sales	Male	2017
9	Root	Finance	Male	2018
10	Roy	Sales	Male	2019
11	Saaho	Finance	Male	2015
12	Chris	Accounting	Male	2016
13	Arnold	Product	Male	2017
14	Rose	Product	Female	2018
15	Jerman	Product	Female	2019
16	Richa	Accounting	Female	2015
17	Hasini	Sales	Female	2016
18	Ellyse	Finance	Female	2017
19	Perry	Sales	Female	2018
20	Mithali	Finance	Female	2019

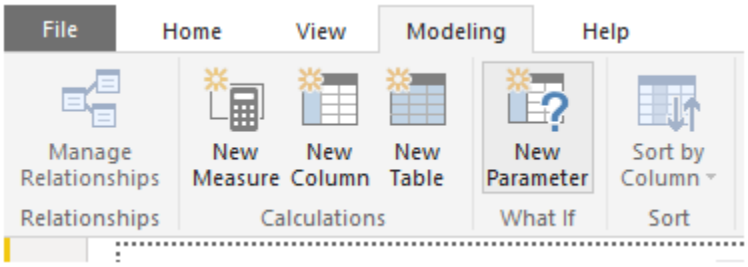
4.Using slicer visual, we can create either single select or multi select year filter. See the below image



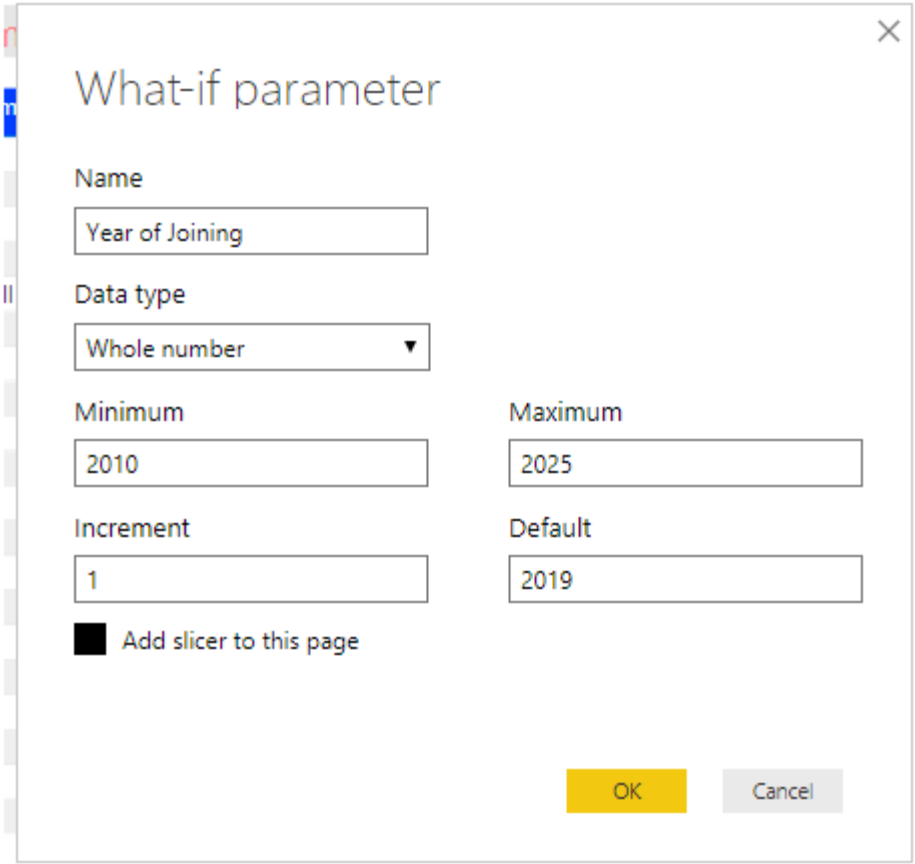
5.But the requirement is to create a single user input parameter which can be used to enter input value like below

To create like this, follow below steps

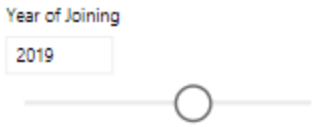
6.In top header ribbon, choose Modeling and click on “What If” parameter



7. New window will open, here we have entered few details like parameter name, data type, minimum and maximum number, increment value and default value. Select add slicer to the page and Click on OK

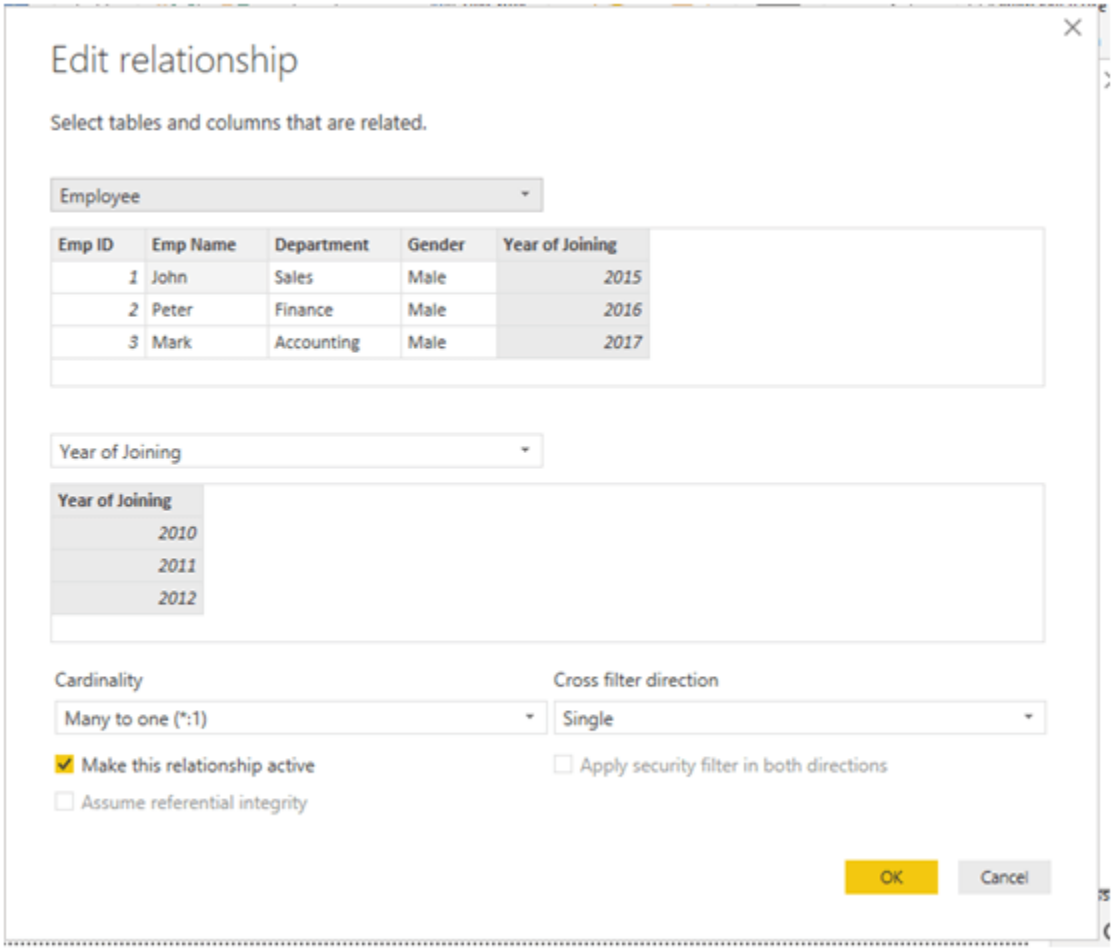


8.Above step will create new table in the report and will add slicer to the report page. Here we can enter the values within that range and we can also use the slicer to change the value. We have the option to remove slicer also



9.Now we have the slicer and report but when the slicer value change report will not get affect as there is no relationship between these two

10. Click on “Manage Relationships” in Home ribbon. Add the relationship between these two tables



11.Click on OK. Now report will show data for default value selected. Change the slider on filter or enter value to check the data for that year

12.We can see in the above images that employee details were shown for the selected year and if there is no data for the selected year it will show blank.

	A	B	C	D	E
1	**Emp ID**	**Emp Name**	**Department**	**Gender**	**Year of Joining**
2	1	John	Sales	Male	2015
3	2	Peter	Finance	Male	2016
4	3	Mark	Accounting	Male	2017
5	4	Mike	Product	Male	2018
6	5	Campbell	Sales	Male	2019
7	6	Alister	Finance	Male	2015
8	7	Kohli	Accounting	Male	2016
9	8	Arvind	Sales	Male	2017
10	9	Root	Finance	Male	2018
11	10	Roy	Sales	Male	2019
12	11	Saaho	Finance	Male	2015
13	12	Chris	Accounting	Male	2016
14	13	Arnold	Product	Male	2017
15	14	Rose	Product	Female	2018
16	15	Jerman	Product	Female	2019
17	16	Richa	Accounting	Female	2015
18	17	Hasini	Sales	Female	2016
19	18	Ellyse	Finance	Female	2017
20	19	Perry	Sales	Female	2018
21	20	Mithali	Finance	Female	2019
22					

5.4.2 Output

1.Enter the unique identifier for the Azure Active Directory tenant associated with the Power BI instance. For instructions on obtaining the Azure Active Directory Tenant ID

2.In the Client ID field, enter the Application ID for the application created

3.Enter the Client secret key for the application created.

4.Select Refresh token or Persist credentials.

- When Refresh token is selected, you will need to enter your user e-mail and password for Power BI in the Username and Password fields that display under the Authentication drop-down. This will allow the tool to remain logged in on your behalf until the Refresh token expires or is revoked.
- When Persist credentials is selected, you will need to enter your user e-mail and password for Power BI in the Username and Password fields that display under the Authentication type drop down. This will allow the tool to remain logged in on your behalf until your user credentials change.

5.After entering the authentication configuration, click the Log in button.

6.Select the workspace you would like to create the dataset in from the workspaces you have access to.

7.Enter the name of the dataset you would like to create or overwrite (depending on your existing (dataset and table behavior).

8.Enter the name of the table to which you would like to create or append rows.

9.Enter how many rows of the table you would like to write to Power BI per network request. Default batch size is 500.

10.For an existing dataset, select from one of the following options:

- Append rows to table
  1.Creates the specified dataset and table if they do not exist
  2.If the dataset and table exist, rows are appended to the table
  3.If the dataset exists, but does not contain the table, the workflow will abort with an error message
- Create new dataset
  1.Creates the specified dataset and table if they do not exist
  2.If the dataset exists, the workflow will rename the dataset on your behalf
- Replace existing dataset
  1.Creates the specified dataset and table if they do not exist
  2.If the dataset exists, the dataset and all its tables will be deleted and a new dataset/table with the same name will be created

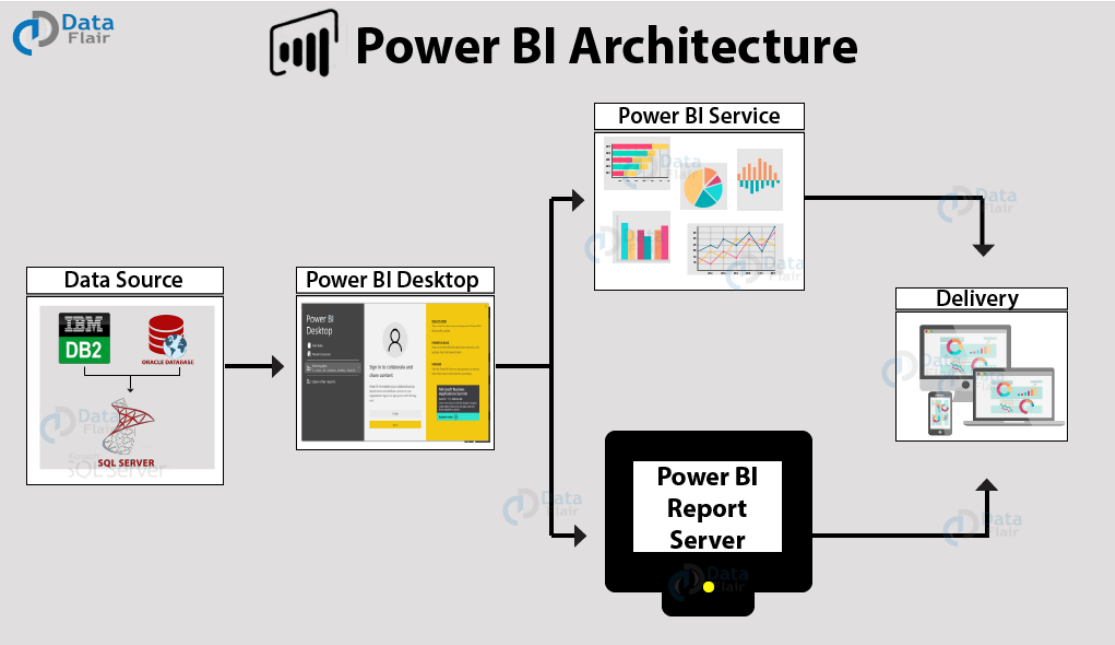
11.Select the Apply checkbox on the configuration UI. This allows the configurations to be used in the current workflow but does not save the actual workflow.

12.Click onto the canvas to save the configurations.

5.4.3 Architecture

Power BI architecture is a service built on top of Azure. There are multiple data sources that Power BI can connect to. Power BI Desktop allows you to create

reports and data visualizations on the dataset. Power BI services refer to the cloud services that are used to publish Power BI reports and data visualizations



An important component of Power BI is its vast range of data sources. It can import data from files in the system, cloud-based online data sources or connect directly to live connections. If it import from data on-premise or online services there is a limit of 1 GB. Some commonly used data sources in Power BI are:

- Excel
- Text/CSV
- XML
- JSON
- Oracle Database
- IBM DB2 Database
- MySQL Database
- PostgreSQL Database
- Sybase Database
- Teradata Database
- SAP HANA Database
- SAP Business Warehouse server
- Amazon Redshift
- Impala

- Google Big Query (Beta)
- Azure SQL Database
- Salesforce Reports
- Google Analytics
- Facebook
- GitHub

Data Integration

An organization needs to work with data which comes from different sources which can be in various file formats. The data should be extracted from a different source which can be from different servers or databases. This data is integrated into one standard format in a common staging area.

Data processing

In this stage, the integrated data is still not prepared for visualization as the data needs processing. This data is pre-processed. For example, redundant values, missing values will be removed from the data set. The business rule should be applied to the data when the data is cleaned. You can load that data back to Data Warehouse.

Data Presentation

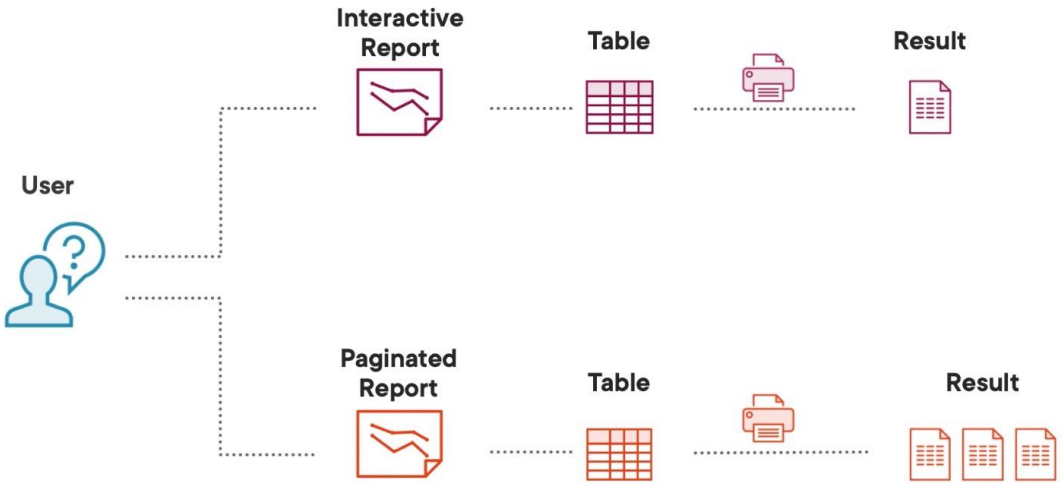
Once the data is loaded and processed, it can be visualized much better with use of various visualization that Power Bi has to offer. Use of dashboard and report helps one represent data more intuitively. This visual report helps business end users to take business decision based on the insights.

6. Result and Analysis

Power BI aggregates the data into groups, based on the values that it finds in the underlying data. It can refine how those default groups are presented. And can also create new groups by grouping two or more data points in a visual or putting values into equal-sized groups.

Grouping is used for categories of data. Binning is like grouping, but it is used for grouping continuous fields, such as numbers and dates.

It can use the grouping and binning features to ensure that the visuals in your reports display your data according to your preference. Using these features will help you to clearly view, analyze, and explore the data and trends in your visuals. Additionally, will be able to identify clusters, patterns of behavior, data averages, and more. The results of this analysis will provide your users with more specific insights on their data, which can help drive business decisions.



7. Project as Engineering problem Analysis

7.1 Sustainability of the Project /Work

One of the primary scenarios for OOL bindings is adding data to an existing table partition. The basic idea is to issue a refresh command of type “add”, also known as a Process Add command, together with a custom M expression or source query that fetches a few new rows from an existing database table to add these new rows to the data that is already in the table partition, as in the following figure. In the depicted example, the new transactions are added based on an Order Date Key of 20201231, but it could be any timestamp or other filter criteria, of course. This “Process Add with OOL bindings” approach enables fine-grained incremental refresh scenarios without having to alter the dataset metadata. It can open the door for advanced refresh patterns that go beyond the incremental refresh capabilities that Power BI provides out of the box.

7.2 Social and Environmental Effects and Analysis

With the help of this software tools a company can increased their business and can again socially recognize

- Power BI self-service tools, intuitive interface and collaboration capabilities improve business users' productivity and lead to the average time saving of 1.75 h per week.
- The automation of data wrangling activities, analytics accelerated with AI-driven engines lead to the self-sufficiency of non-technical business users in conducting data analysis and allows analytics professionals to concentrate on such activities as data management, complex data modeling, advanced data analysis.
- Reduce paper works
- Help environment to reduce to cut down the tree for paper

7.3 Addressing Ethics and Ethical Issues

Being a Software Program engineer and infrastructure implantation in Desh Cloud I have some ethics and I some ethical issues, I have Privacy, accuracy, property, accessibility, and effects on quality of life, are all issues that must be considered in developing and delivering computer software systems. Choosing a particular approach to system development can either hinder or facilitate addressing these issues in an ethical manner. By addressing the Ethical Issues you can will know better.

- Identify the problem as you see it.
- Get the story straight - gather relevant data. (Local regulations, professional practice documents, Code of Ethics)
- Ask yourself if the problem is a regulatory issue or a process issue related to regulatory requirements.
- Determine if rules the Code of Ethics apply to the problem and can help develop a course of action for the to pursue.
- Identify who has the power and control in the situation.
- Identify what is in the control and what is not.
- Identify the resources. These can be a supervisor, special education director, or colleague. Ask to need more information, clarification, or ideas from others who have had a similar problem.

- Make a list of possible actions and their positive and negative consequences.
- Make a plan that can defend professionally and ethically and that meets the requirements of the regulations.
- Act and evaluate the plan as the proceeds. Determine next steps.

8.Lesson Learned

8.1 Problem Faced During This project

During my internship I had to faced lots of problem as there was sudden lockdown and could get access to the server as it was work from and had less communication with our client and could get connect with and had no access to their cloud

9.Future work and Conclusion

9.1 Future Work

No other BI tool is going to overcome Power BI's dominance in the next ten years. Also, Power BI is easy to use and excellent for data visualization. This is product of Microsoft as we know that Microsoft is a global leader. integration with Power BI is not only essential but also it augurs well for its users as the brand ensures it is here to stay with adding features every week at a random pace.

Today, Power BI provides the users to create reports and interactive cloud-based visual dashboards without the help of an administrator or any information analyst. The service is available for both desktop and cell phones Power BI has as just another cloud option to Microsoft Excel's Pivot tables/charts or a mere data visualization function. As a user, you can slice data into various analytics with the help of Power BI. Microsoft over time has strived to bring many of their features of various programs under one superior data visualization platform.

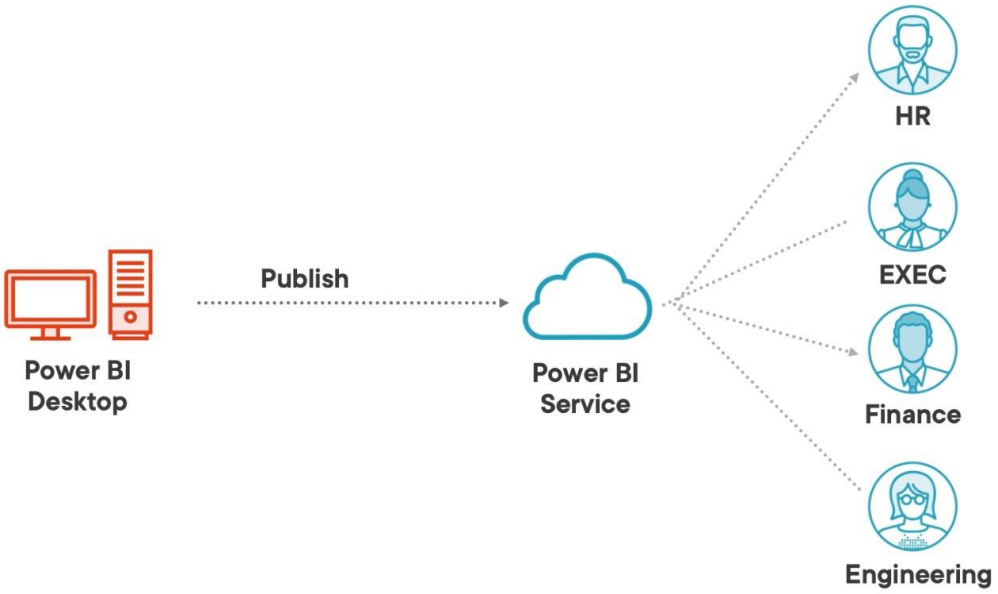
Power BI actually enhances the functionality of Microsoft Excel manifold. It not only analyses and represents the data visually but also it makes the sharing process smoother across all devices.

Unlike the Excel analytics tools, where you connect outside its domain to functions like Power Query, Power Pivot and Power view in separate windows. And then take the help of tools like Excel, HTML5, SharePoint to share these complex data. Wit Power BI you can avoid these unnecessary steps with one cohesive application.

Today it has nearly a million users at more than 50000 companies around the globe. Because of its speed every week new features added to this powerful platform

9.2 Conclusion

Microsoft Power BI is one of the most demanding software business tools around the globe. It has the most efficient and precautionary software tool. Most user friendly for data analytic software tools. Power BI helps and protect your Data it has been Certifications Power BI has more than 119 different certifications power BI security meets the most stringent security and compliance requirements meeting, it has Governance, approved All the governance capabilities within the service that allow you to maintain and govern users service over your data across all access point. It gives great service Network security; The network security ensure only certain clients or computer can connect to a particular endpoint. capabilities in case for Data encryption is available it ensures all your data stays secure while at rets and in motion. It also protect you from Data loss prevention, protect your information with inherited sensitivity labels .



Bibliography

https://www.questia.com/library/journal/1G1-618128609/power-bi-an-analytical-view-if-a-picture-is-worth

http://www.scielo.org.za/scielo.php?script=sci_arttext&pid=S2410-972X2020000100007

https://search.bvsalud.org/global-literature-on-novel-coronavirus-2019-ncov/resource/en/covidwho-902835

https://www.researchgate.net/profile/Serhii_Hlibko/publication/344874534_Power_BI_in_ICT_for_Monitoring_of_Insurance_Activity_Based_on_Indicators_of_Insurance_Portfolios/links/5f95a23692851c14bce5b21e/Power-BI-in-ICT-for-Monitoring-of-Insurance-Activity-Based-on-Indicators-of-Insurance-Portfolios.pdf

https://www.tandfonline.com/doi/abs/10.1080/00987913.2019.1644891

https://www.tandfonline.com/doi/full/10.1080/24751448.2018.1497381

https://www.quaestus.ro/en/wp-content/uploads/2012/02/Viorel-NEGRUT.pdf

https://link.springer.com/chapter/10.1007/978-1-4842-6008-1_16

https://ir.inflibnet.ac.in/handle/1944/2116

https://dl.acm.org/doi/abs/10.5555/3208458

https://dl.acm.org/doi/abs/10.1145/3170427.3174367?casa_token=Pk9o5qMHy8cAAAAA:7z19vYwq1d4WIFycrExpdER7XkeEz_2KEb674arI6PfbP3nm9p7pyaXqIzVO36J2ZclUw06o05MMWQ

https://dl.acm.org/doi/abs/10.1145/3027385.3029458?casa_token=G70NxGRh6REAAAAA:Jf8_j5J2kuyp9xvY7YUn6buevteb3Yb17UHK_oosyV6nm9bO05Bbq0SktEgOcMEQU5-hQvoaz2roHA

https://link.springer.com/content/pdf/10.1007/978-1-4842-2577-6.pdf

http://www.infoware.sg/retail_system/power_bi.pdf

https://dspace.uii.ac.id/handle/123456789/12400

https://www.worldscientific.com/doi/abs/10.1142/S0219649219500023

https://run.unl.pt/handle/10362/94475

http://www.rmci.ase.ro/ro/no20vol2/09.pdf

http://dspace.pdaa.edu.ua:8080/jspui/bitstream/123456789/8852/1/MMU%20Conference%20Proceedings.pdf#page=40http://dspace.pdaa.edu.ua:8080/jspui/bitstream/123456789/8852/1/MMU%20Conference%20Proceedings.pdf#page=40

[1] J. Wu, M. Carlisle, S. Souissi, S. Kim, and G. H. You, “Method and apparatus for loading landing page,” May 28 2013. US Patent 8,452,858. 12

[2] T. Ash, M. Ginty, and R. Page, Landing page optimization: The definitive guide to testing and tuning for conversions. John Wiley & Sons, 2012. 12, 13

[3] S. Islam, S. Chowdhury, and A. Islam, “Lis education in e-learning environment: problems and proposal for bangladesh,” in Asia-Pacific Conference on Library & Information Education & Practice. Retrieved from http://www. slis. tsukuba. ac. jp/a-liep2009/proceedings/Papers/a27. pdf, 2009. 13

[4] C.-S. Li and B. Irby, “An overview of online education: Attractiveness, benefits, challenges, concerns and recommendations.,” College Student Journal

[5] H. Degen and X. Yuan, UX Best Practices How to Achieve More Impact with User Experience. McGraw-Hill Osborne Media, 2011. 14

[6] Y.-M. Chen, “A comparison of ui/ux and process for major e-commerce platforms,” in Proceedings of the international conference on e-Business, e-Commerce, e-Management, e-Learning, and e-Government, 2014.(IC5E 2014). 16