

Power BI Easy Button

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Abstract:

This project aims to develop Power BI Easy Button. Power BI is an interactive data visualization software product that turns unrelated sources of data into coherent, visually immersive, and interactive insights. The reports generated by Power BI can be accessed by both internal and external users on requesting for it. The existing IT team manually creates users in Azure Active Directory every time a new request comes in for Power BI External Access. Power BI team further takes the guest user account and adds them to respective security based on the request. Instead of being carried out manually, these activities need to be automated. As a solution for the mentioned problem, easy button URL is created using Power Portal to raise a request to create guest users and provision the necessary License along with adding into requested AD group. This project automates the user creation, deletion and license provisioning. The application is to create and manage request for Power BI External Access. There are two Entitlement roles namely User and Admin. User can be able to create requests and manage their respective requests. Admin can be able to create, manage requests and remove inactive users. This project will be carried out using Power portal (HTML, JS, and CSS) and Data verse to implement the system.

I. INTRODUCTION

Power BI is a collection of software services, apps, and connectors that work together to turn unrelated sources of data into coherent, visually immersive, and interactive

Insights. The data might be an Excel spreadsheet, or a collection of cloud-based and on-premises hybrid data warehouses. Power BI lets to easily connect to the data sources, visualize and discover what's important, and share that with anyone or everyone we want. One common workflow in Power BI begins by connecting to data sources in Power BI Desktop and building a report. The report can then be published from Power BI Desktop to the Power BI service, and share it so business users in the Power BI service and on mobile devices can view and interact with the report. Power BI has both internal and external users. If a user does not have Microsoft 365 account, he/she has to reach out to IT team which will then add him/her into Azure Active Directory to authorize and provide access to the user. The power bi team will have to raise the ticket to the IT team, each and every time and check if any access request has been made. The Power BI Easy Button has been developed to override the problems prevailing in the practicing manual system. This software is supported to eliminate and, in some cases, reduce the hardships faced by this existing system. Moreover, this system is designed for the particular need of the company to carry out operations in a smooth and effective manner. The application is reduced as much as possible to avoid errors while entering the data. It also provides error message while entering invalid data. No formal knowledge is needed for the user to use this system. Thus, it is user-friendly. This system can lead to error-free, secure, reliable and fast management system. System analysis is a process of gathering and interpreting facts, diagnosing problems and the information to recommend improvements to the system.

It is a problem-solving activity that requires

intensive communication between the system users and system developer. System analysis or study is an important phase of any development process. The system is studied to the minutest detail and analysed+. The system analyst plays the role of the interrogator and dwells deep into the working of the present system. The system is viewed as a whole and the input to the system is identified. The outputs from the organizations are traced to the various processes. System analysis is concerned with becoming aware of the problem, identifying the relevant and decisional variables, analysing and synthesizing the various factors and determining an optimal or at least a satisfactory solution or program of action. The current process for granting external access to Power BI involves the IT team manually creating new users in Azure Active Directory upon receiving requests and assigns them to the relevant security group based on the request to access the Power BI reports. If a user does not have an account, then he will have to approach the IT team which will then manually create new users in Azure Active Directory. Each time the Power BI team will have to raise a ticket and check if any users have been newly created and access requests have been made and the access will be granted/rejected upon verification. Organization. Moreover, such manual processes will be very complex and tedious. In order to overcome the problem in the existing system, this project automates all the processes that were done manually earlier. It is a problem-solving activity that requires intensive communication between the system users and system developer. This project uses Power Portal to raise a request to create guest users and provision the necessary License along with adding them into requested AD group. Power Automate Workflow is developed to automate the user creation, deletion and license provisioning in Azure AD without IT team help.

Every functionality that was done by the IT team earlier, is now done automatically at the backend, just by a click of a button in the Power BI portal and requesting through the web application developed. Using the details provided by the user in the create request form, the request can be easily processed by the

Power BI team within few minutes. The user can access the report within a shorter period of time after the request has been approved. In case if the request is rejected, then the rejection comments will be provided, this will help the user while requesting any reports in the future.

II. LITERATURE SURVEY

[1] Power BI Blog: The Power BI Blog provides updates and insights on the latest features and functionalities related to Power BI user access and security. You can access the blog at: <https://powerbi.microsoft.com/en-us/blog/>

[2] Power BI User Groups: Power BI User Groups provide a platform for users to share their experiences and knowledge on user access and security. You can find a Power BI User Group near you at: <https://www.pbusergroup.com/home>

[3] Power BI YouTube Channel: The Power BI YouTube Channel provides video tutorials on various topics related to Power BI user access and security. You can access the channel at: <https://www.youtube.com/user/mspowerbi>

[4] "Securing Power BI Reports and Dashboards with Row-level Security" by Chris Webb (2019): This article provides an in-depth overview of Power BI's row-level security feature and explains how it can be used to secure reports and dashboards.

III. METHODOLOGY

Power BI automation works by using a variety of tools and technologies to automate data processing and reporting. One of the most popular tools for Power BI automation is Microsoft Power Automate, which allows businesses to create custom workflows that automate repetitive tasks.

Power Automate can be used to automate data processing, such as extracting data from multiple sources and transforming it into a

format that is compatible with Power BI. It can also be used to automate the creation and distribution of reports, ensuring that stakeholders receive the information they need in a timely manner.

Power BI automation can also be achieved through the use of PowerShell scripts and Azure Logic Apps. PowerShell scripts can be used to automate various tasks such as data refreshes, report generation, and publishing. Azure Logic Apps provide a graphical interface for creating workflows that integrate Power BI with other services such as SharePoint, Salesforce, and Dynamics 365. With Power BI automation, businesses can schedule data refreshes at regular intervals, ensuring that reports always reflect the latest data. This is particularly useful for businesses that rely on real-time data to make decisions. Automation also allows businesses to create and distribute reports automatically, freeing up time for analysts to focus on more strategic tasks such as data analysis. Power BI automation also enables businesses to scale their operations by automating repetitive tasks. For instance, a business with multiple departments can automate report creation and distribution for each department, reducing the workload on IT teams. This ensures that stakeholders receive the information they need in a timely manner, without having to rely on manual processes. Validation of input data is done.

1. EXISTING SYSTEM:

Currently, many businesses use Power BI to analyse data and gain valuable insights. However, data processing and reporting can be time-consuming and require manual effort. This can be inefficient and prone to human error, resulting in delays and inaccuracies in decision making.

2. PROPOSED SYSTEM:

The proposed system is an automated Power BI workflow that streamlines data processing and reporting. The system will use a combination of tools and technologies such as Microsoft Power Automate, PowerShell scripts, and Azure Logic Apps to automate tasks such as data refreshes,

report generation, and publishing. The system will also allow businesses to customize reports to their specific needs and schedule data refreshes at regular intervals. This ensures that reports always reflect the latest data and are delivered to stakeholders in a timely manner. The proposed system will also integrate with other Microsoft products such as SharePoint, Teams, and Dynamics 365, allowing businesses to share reports and dashboards with stakeholders across their organization. This promotes collaboration and ensures that everyone has access to the information they need to make informed decisions. The system will also provide real-time data monitoring and proactive issue identification, allowing businesses to respond quickly to changing conditions and address potential problems before they become major issues.

3. BENEFITS OF POWER BI AUTOMATION

Power BI automation offers several benefits to businesses, including:

1. Improved Efficiency: Automation streamlines the process of data processing and reporting, reducing the time and effort required for these tasks. This allows businesses to focus on more strategic tasks, such as analysing data and making informed decisions.

2. Increased Accuracy: Automation eliminates the risk of human error, ensuring that data is processed accurately and consistently. This helps businesses make informed decisions based on reliable data.

3. Real-time Data: Automation allows businesses to access real-time data, enabling them to make informed decisions based on the most up-to-date

4. Cost-effective: Automation reduces the need for manual labor, saving businesses time and money.

HOW POWER BI AUTOMATION WORKS:

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IV. RESULTS AND OUTPUT

Create Request:

In Create Requests, the admin and internal/external users can be able to create requests for access to the reports that they require. The admin can edit, update, copy and delete the requests before submission. The admin can choose the user group while creating the requests. The user can edit, copy and delete the request- user can be able to duplicate the record by clicking on the "Copy" button and can be able to edit and update the created duplicate record. The user can select the reports that they require.

Manage Approvals:

Once the request is raised the admin will be able to view the following status in Manage Approvals Grid – Pending, Approved or Rejected. Admin can be able to approve/reject the request. In the Manage Approvals grid, the admin can apply an advance filter using the AD Group, Date Range, and Approval status. The admin can also search for any request that is there in the grid.

Inactive users:

The admin has the ability to remove inactive users (single user or multiple users at a time) who are not active for a long period of time.

Manage Requests:

Once the request is created user can view the following status in Manage Request Grid Pending, Approved or Rejected. The users can edit, update, and delete their individual requests. In the Manage Requests grid, the user can apply an advance filter using the AD Group, Category, and Approval status.

The office and management used to. Computer output is the most important and direct source of information to the user. Efficient, intelligible output design should improve the systems relationships with the user and help in decision making.

Output requirements are designed during system analysis. A good starting point for the output design is the Data Flow Diagram (DFD). Human factors reduce issues for design involves addressing internal controls to ensure readability.

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The objectives of output design are:

- To develop output design that serves the intended purpose and eliminates the production of unwanted output.
- To develop the output design that meets the end users' requirements.
- To deliver the appropriate quantity of output.
- To form the output in appropriate format and direct it to the right person.
- To make the output available on time for making good decisions.

TABLE DESIGN

Table name: user Details,
Primary key: User Id

NAME	CONSTRAINT	DESCRIPTION
UserId (int)	Primary key	ID of the user(unique id)
FirstName (varchar)	Not null	First name of the user
LastName (varchar)	Not null	Last Name of the user
Email (varchar)	Not null	Email of the user

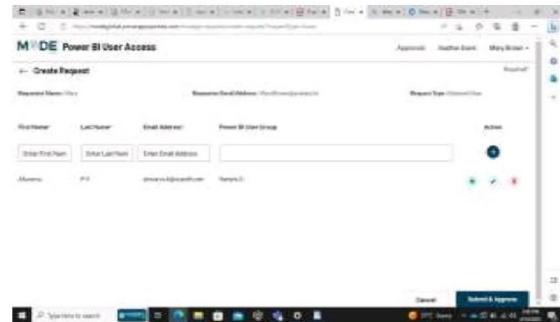
The input design is the process of entering data to the system. The input design goal is to enter to the computer as accurate as possible. Here inputs are designed effectively so that errors made by the operations are minimized. The inputs to the system have been designed in such a way that manual forms and the inputs are coordinated where the data elements are common to the source document and to the input. The input is acceptable and understandable by the users who are using it.

Table name: PowerBIUserGroups,
Primary key: PowerBIUserGroupId

NAME	CONSTRAINT	DESCRIPTION
PowerBI UserGroupsId	Primary key	To store Id for PowerBI user Group
PowerBIUser Group	Not null	To store the Name of the user groups
PowerBIUser Group Description	Not null	To store the description about the user group

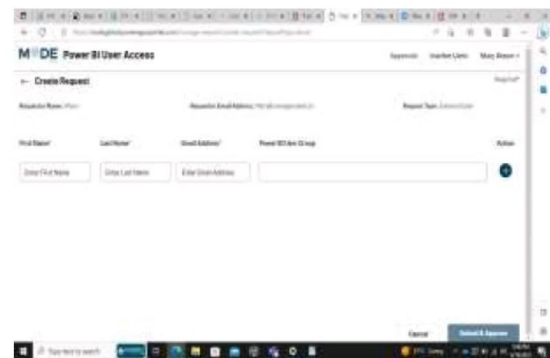
The quality of the system input determines the quality for system output. Input specification describes the manner in which data entered the system processing. Input design is the process of converting user-originated inputs to a computer-based format input data are collected and organized into group of similar data. identified,

Once identified, appropriate input media are selected for processing.

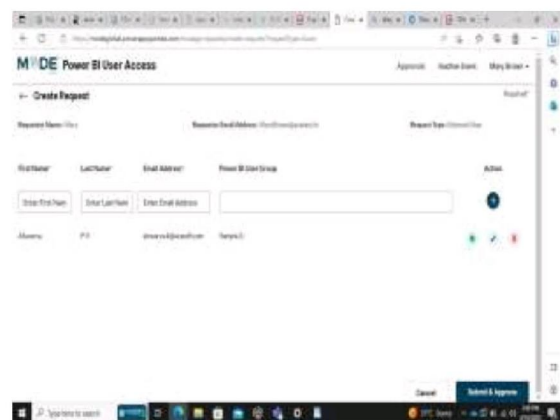


• **CREATE REQUEST FORM -USER**

1. External User:



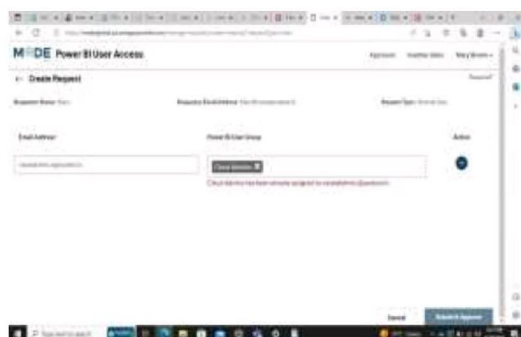
2. Internal user:



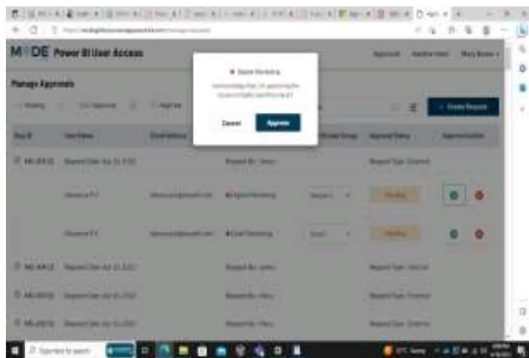
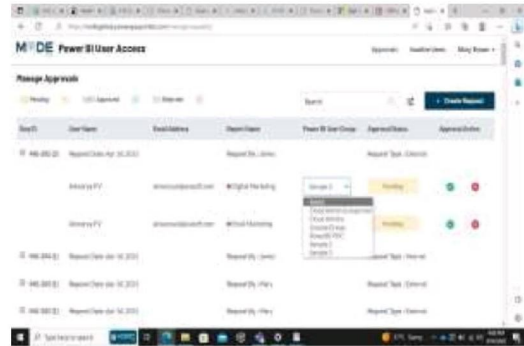
• **SIGN IN**



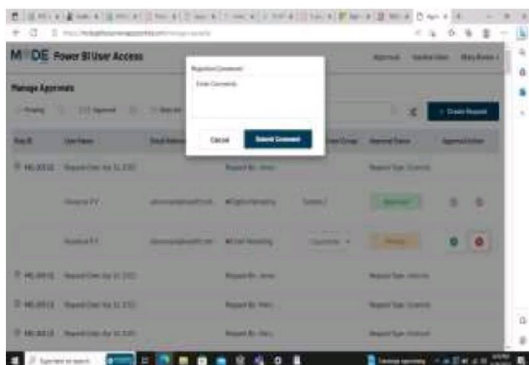
• **CREATE REQUEST FORM-ADMIN**



• **Admin approving the request by providing the user group:**



• **Rejection comments to be given by admin**



V.OBSERVATION

It is a confirmation that all are correct and opportunity to show the users that the system must be tested with the text data and show that the system will operate successfully and

produce expected results under expected conditions. Before implementation, the proposed system must be tested with raw data to ensure that the modules of the system work correctly and satisfactorily. The system must be tested with valid data to achieve its objective. System implementation is the stage of the project when the theoretical design is turned into a working system. If the implementation stage is not correctly planned and controlled, it can be choice.

Planning plays an important role in the implementation. The planning should face any practical problems of controlling various activities of people out their own data processing department. Successful implementation needs trained computer staff.

So some staff can teach them about the computer implementation, which only then becomes a well- designed system. Maintenance involves recovery on crash such as the backups and the end user should be given only executable format of the system.

VI. FUTURE WORKS

Improved auditing and reporting Power BI offers user access to auditing and reporting functionalities. The ability to give more specific information about user access, such as unsuccessful login attempts, successful logins, and data exports, may be improved in the future. Data loss prevention (DLP) system integration: DLP systems work to keep sensitive data inside an organization's network. It would be possible to create restrictions that forbid users from sharing sensitive data using Power BI by integrating Power BI with DLP solutions.

Enhanced row-level security is now supported by Power BI. There is a chance that this functionality will someday be improved to include more sophisticated choices like dynamic row-level security, which would enable the construction of security rules depending on data values or parameters.

VII. REFERENCE

[1] "Power BI Security: What You Need to Know" by Pragmatic Works (2019): This article provides a comprehensive overview of Power BI security and user access features, including row-level security, role-based access control, and data classification.

[2] "An Overview of Power BI Security" by Kasper de Jonge (2018): This article provides an overview of Power BI security features and explains how they can be used to secure reports and dashboards.

[3] "Using Power BI Row-level Security to Restrict Data Access" by Daniel Calbimonte (2019): This article provides a step-by-step guide to implementing row-level security in Power BI and explains how it can be used to restrict data access.

[4] "Power BI Security and Compliance Best Practices" by Microsoft (2020): This article provides best practices for securing Power BI reports and dashboards, including recommendations for user access management, data classification, and compliance.

[5] Microsoft Power BI documentation: Microsoft provides comprehensive documentation on Power BI security and user access features. You can access the documentation at: <https://docs.microsoft.com/en-us/power-bi/fundamentals/security-what-is-power-bi-security>

[6] Power BI community: The Power BI community is a great resource for learning about user access and security best practices. You can access the community at: <https://community.powerbi.com/>

[7] Power BI Blog: The Power BI Blog provides updates and insights on the latest features and functionalities related to Power BI user access and security. You can access the blog at: <https://powerbi.microsoft.com/en-us/blog/>

[8] Power BI User Groups: Power BI User Groups provide a platform for users to share their experiences and knowledge on user access and security. You can find a Power BI User Group near you at: <https://www.pbusergroup.com/home>

[9] Power BI YouTube Channel: The Power BI YouTube Channel provides video tutorials on various topics related to Power BI user access and security. You can access the channel at: <https://www.youtube.com/user/mspowerbi>