

# **Power BI Project: Cyber Security**

**Project Description:** The U.S. Health and Human Services Department reportedly was targeted with a cyberattack, complicating its efforts to coordinate nationwide response to the mounting.

HHS has an IT infrastructure with risk-based security controls continuously monitored in order to detect and address cybersecurity threats and vulnerabilities.

Cybersecurity has of vital importance today ever since the world was networked. Many processes in organizations are enabled by interlinked technologies. However, the penetration of technology into normal lives and organizational processes has introduced people to cyber threats. With every improvement in technology, the threat of cyber-attacks increases.

A dashboard display aggregates all of the important and relevant risk information across the organization, helping Boards to make better-informed decisions that help balance cybersecurity efforts with operational efficiencies.

Project involves in creating a dashboard (report page) based on the supplied data set, the objective of the report is-

- Loading the datasets in the Power BI desktop.
- Perform data cleaning and data transformation if required.
- Creating the required table Using Power BI DAX.
- Building the data model and creating the relationship based on the key attribute.
- Creating multiple report page (Dashboard) based on the KPI's.
- Apply different type of formatting options if required.
- Publish the report into Power BI services.
- Configure for auto refresh.
- Create a dashboard based on the published report in Power Bi services.

**Data Set information:** Load the provided datasets into Power BI desktop and perform the following activities-

Make sure the following tables have been imported into the Power BI Desktop.

- Breach
- Location
- BreachType
- BreachCoveredEntity
- BreachInfoLocation

Perform data cleaning and transformation, make sure table is in the valid state (remove the redundant data from the tables).

Rename the table or columns, if required.

Change the column data type, if required.

Create a Date table with the following columns using DAX formula-

- DateKey (Int datatype, ex- 28-May-2021 20210528)
- Date (Date datatype, ex- 28-May-2021)
- Month (String datatype, ex- Jan, Feb, Mar, etc.)
- Year (Int datatype, ex- 2009, 2010, etc.)
- Quarter (String datatype, ex- Q1, Q2, etc.)
- Day (Int datatype, ex- 1, 2, 3, etc.)

Create the relationship based on the Key attributes-

- Location (LocationID) Breach (LocationID)
- BreachType (BreachTypeID) Breach (BreachTypeID)
- BreachCoveredEntity (EntityID) Breach (EntityID)
- BreachInfoLocation (BreachInfoLocationID) Breach (BreachInfoLocationID)
- Date (DateKey) Breach (BreachSubmissionDateKey)

**Report Page Information:** Create multiple report page information based on the following requirements-

**Landing page:** Create a landing page, when anyone browse this report landing page is the default page will be displayed. Landing page consists of the following objects-

- ✓ Information about the reports (related to the Cyber breached and the KPI's)
- ✓ Buttons contains a hyperlink to navigate to the different report pages.
- ✓ Buttons to link a website, where we can get some information related to the Cyber-breaches.
- ✓ Background image which is related to cyber security breaches.
- ✓ Also provide the project group name with individual information's.

**Report page1:** Create a report page which contains the following information's-

- ✓ Place the slicer for: CoveredEntityName, BreachInfoLocation, BreachType, State, and Date
- ✓ Report Title (Name of the Report Page)
- ✓ Report subtitle (Based on the selected CoveredEntityName from the slicer).
- ✓ Data Refreshed date
- ✓ Button top navigate to the Home page or Next page
- ✓ Card visual, which display the total based on the KPI's
- ✓ Bar chart visual, display the data based on the KPI's
- ✓ Pie Chart visual based on the KPI's
- ✓ Line chart visual which displays the trend based on the KPI's

**Report page2:** Create a report page which contains the following information's-

- ✓ Place the slicer for: CoveredEntityName, BreachInfoLocation, BreachType, State, and Date
- ✓ Report Title (Name of the Report Page)
- ✓ Report sub title (Based on the selected State from the slicer).
- ✓ Button top navigate to the Home page or Next page
- ✓ Card visual, which display the total based on the KPI's
- ✓ Map visual based on the KPI's
- ✓ Table visual to display the granular level information
- ✓ Data Refreshed date

**KPI's Information:** Calculate the KPI's value using DAX formula based on the following information's-

1. Currently State is in two-digit iso code, you need to write DAX function to compare different State like- If State= TX then Texas, If State=NC then North Carolina, and so on.
2. Calculate dynamic subtitle based on the slicer:
  - ✓ Report Page1 If single/multiple values selected from the slicer (CoveredEntityName), then it will display the values with a comma separated, if there is no value selected from the slicer then it should display All by default.
  - ✓ Report Page2 If single/multiple values selected from the slicer (State), then it will display the values with comma separated, if there is no value selected from the slicer then it should display All by default.

3. Total Number of Breaches: Count of Breach (ID)
4. Total Individual Affected: Sum of Breach (Individual Affected)
5. Average Individual affected per Day: Average of Breach (Individual Affected)
6. Total Entity Affected: Count of Breach (EntityID)
7. Total Location Affected: Count of Breach (LocationID)
8. Total Breach Category: Count of Breach (BreachTypeID)
9. Bar chart: Breach Type by Total Individual affected
10. Line Chart: Date (Year/Qtr/Month/Day) wise Total Individual affected in each Covered Entity.
11. Pie Chart: BreachInfoLocation wise Total Number of Breaches.
12. Gauge Chart: Display the Total Number of Breaches in different Stages (represented by different colors)
13. Map Visual: Display State wise Total Individual Affected, also display different measures like- Total Number of Breaches, Total Entity Affected, etc. on the tooltip.
14. Table Visual: display the granular level information's.
15. Pie Chart: Total Individual Affected in each Entity.
16. Line chart: Show the last 7 days trend (Date wise Total Individual Affected) based on the date selection.
17. Line chart: To display the last year vs current year trend based on the Date selection.
18. Also, you can add some more KPI's based on your analysis.

**Report formatting:** Format the individual reports based on the following information's-

1. All the slicer must be multi select option except Date slicer, Date slicer must be a slider.
2. Page background must be in black color for the individual report pages.
3. Use the following color combination to format the report pages-
  - ✓ #0090D4
  - ✓ #95C11F
  - ✓ #F39200
  - ✓ #93AEB9
  - ✓ #8B9C22
  - ✓ #DA5914
  - ✓ #957E5D
  - ✓ #C6C6C6
  - ✓ #1E4451
  - ✓ #286D29
  - ✓ #974008
  - ✓ #5C4530
  - ✓ #878787
  - ✓ #E3E3E3
  - ✓ #DFD5B4
  - ✓ #00abe4
  - ✓ #c8d400
4. Use Different color on the button action.
5. Use standard font and colors for the card, slicer and title visuals.

**Deployment and Scheduling:** Once this report is created, deploy this into the Power BI Services and perform the following activities-

1. Deploy the report into the Power BI services.

2. Configure the Refresh scheduled.
3. Create a Dashboard in the Power BI Services based on the following KPI's
  - Total Number of Breaches
  - Total Individual Affected
  - Total Location Affected
  - Total Breach Category
  - Bar chart
  - Line Chart
  - Map Visual
  - Pie Chart
  - Line Chart

**Generate the Public Links:** Once the report is available in the Power BI services, generate the Public link of the report and shared accordingly.