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**Project 1**

**Answers to Questions about Power BI:**

Power BI is a collection of software services, apps, and connectors that work together to turn your unrelated sources of data into coherent, visually immersive, and interactive insights. Your data may be an Excel spreadsheet, or a collection of cloud-based and on-premises hybrid data warehouses. Power BI lets you easily connect to your data sources, visualize and discover what's important, and share that with anyone or everyone you want.

Power BI consists of:

1. A Windows desktop application called Power BI Desktop.
2. An online SaaS (Software as a Service) service called the Power BI service.
3. Power BI mobile apps for Windows, iOS, and Android devices.

These three elements—Power BI Desktop, the service, and the mobile apps—are designed to let you create, share, and consume business insights in the way that serves you and your role most effectively.

How you use Power BI may depend on your role in a project or on a team. Other people, in other roles, might use Power BI differently.

For example, you might primarily use the Power BI service to view reports and dashboards. Your number-crunching, business-report-creating coworker might make extensive use of Power BI Desktop to create reports, then publish those reports to the Power BI service, where you view them. Another coworker, in sales, might mainly use their Power BI phone app to monitor progress on sales quotas, and to drill into new sales lead details. If you're a developer, you might use Power BI APIs to push data into datasets or to embed dashboards and reports into your own custom applications. Have an idea for a new visual? Build it yourself and share it with others. You also might use each element of Power BI at different times, depending on what you're trying to achieve or your role for a given project. How you use Power BI can be based on which feature or service of Power BI is the best tool for your situation. For example, you can use Power BI Desktop to create reports for your own team about customer engagement statistics and you can view inventory and manufacturing progress in a real-time dashboard in the Power BI service. Each part of Power BI is available to you, which is why it's so flexible and compelling.

A common flow of work in Power BI begins by connecting to data sources and building a report in Power BI Desktop. You then publish that report from Power BI Desktop to the Power BI service, and share it so end users in the Power BI service and mobile devices can view and interact with the report. This workflow is common, and shows how the three main Power BI elements complement one another.

**About this Project:**

Life expectancy is the key metric for assessing population health. Broader than the narrow metric of the infant and child mortality, which focus solely at mortality at a young age, life expectancy captures the mortality along the entire life course. It tells us the average age of death in a population.

Life expectancy has increased rapidly since the Age of Enlightenment. In the early 19th century, life expectancy started to increase in the early industrialized countries while it stayed low in the rest of the world. This led to a very high inequality in how health was distributed across the world. Good health in the rich countries and persistently bad health in those countries that remained poor. Over the last decades this global inequality decreased. No country in the world has a lower life expectancy than the countries with the highest life expectancy in 1800. Many countries that not long ago were suffering from bad health are catching up rapidly.

**Good Explanation of the Dashboard:**

Dashboard is a user interface and data visualization tool that shows, presents, and organizes the information in a way easy to understand. It allows users to understand the analytics that can be observed from the graphs and shapes that matters to the organization, a specific project, or department. It is even the best tool for non-technical users to understand the data and get insights from it.

To give a better visualization of our data about life expectancy of different countries in years from 1960 to 2019, I made two dashboards for this project. One to visualize life expectancy of all the countries and other to visualize it one by one. This way it makes it more easy and clear to the user to analyze the data.

I used many graphical representations for each dashboard, as listed below:

1. Area Chart: These visuals can be created and viewed in both Power BI Desktop and the Power BI service. The steps and illustrations in this article are from Power BI Desktop. The basic area chart (also known as layered area chart.) is based on the line chart. The area between axis and line is filled with colors to indicate volume.
2. Waterfall Charts: They show a running total as Power BI adds and subtracts values. They're useful for understanding how an initial value (like net income) is affected by a series of positive and negative changes. The columns are color coded so you can quickly notice increases and decreases.
3. Donut Chart: Power BI Donut Chart is similar to Pie Chart, which is useful to visualize the higher-level data. The sum of the doughnut chart values must add up to 100%. Too many categories make it difficult to read and interpret. Doughnut charts are best used to compare a particular section to the whole, rather than comparing individual sections with each other.
4. Animated Bar Chart Race: The animated bar chart race helps you visualize the change in trends over time, these type of charts are very popular on social media as they provide a holistic data story/insight in a concise and easy to understand chart.

This visual has two modes, a standalone mode with auto play for animation or use as a ranked bar chart visual that can be integrated on reports with other filters to loop through the selections. The chart also supports configurations for color, showing and hiding different graphical markings and labels, and animation related controls.

1. Play Axis: It works great for analysis. Working like a dynamic slicer, it animates your other power bi visuals without any user interaction. Play Axis it's perfect to show your reports without having to click every time you want to change the values of a filter, being ideal to use on wall displays.
2. Pie Chart: The purpose of a Pie chart is to illustrate the contribution of different values to a total. Pie charts in Power BI are mostly used for visualizing the percentage contribution for various categories in order to assess the performance of these categories. The pie charts are handy tools as they allow very quick and effective decision making owing to the insights they provide. Power BI provides an easy and quick approach to build pie charts.
3. Slicer: Power BI Slicers works like visual filters for visuals in the dashboard. you can visually filter the data displayed on reports. Power BI Desktop Power BI service Suppose you want your report readers to be able to look at overall sales metrics, but also highlight performance for individual district managers and different time frames.

**Explaining Insights Obtaining from Graphical Representation of the Data:**

Since the data visualization part has been done so perfectly in the dashboards, now it is easier to find insights from the data. As illustrated in the graphs we can say that:

Overall, since 1960 the global average life expectancy has more than doubled and is now above 70 years. The inequality of life expectancy is still very large across and within countries. in 2019 the country with the lowest life expectancy is the Central African Republic with 53 years, in Japan life expectancy is 30 years longer.

The decline of child mortality was important for the increase of life expectancy, but as we explain in our entry on life expectancy increasing life expectancy was certainly not only about falling child mortality – life expectancy increased at all ages.

Such improvements in life expectancy — despite being exclusive to particular countries — was a landmark sign of progress. It was the first time in human history that we achieved sustained improvements in health for entire populations.3 After millennia of stagnation in terrible health conditions the seal was finally broken.

Globally the life expectancy increased from less than 30 years to over 72 years; after two centuries of progress we can expect to live much more than twice as long as our ancestors. And this progress was not achieved in a few places. In every world region people today can expect to live more than twice as long.

Talking specifically, in 1996 Norway had the highest life expectancy of 74 among all the countries, and it increased by 83 in 2018.

China had a very low life expectancy of 44 in 1960 and now it has the highest life expectancy of 85 in 2018.

Cambodia had the lowest life expectancy of 18.907 in 1960 and increased to 70. Which is still lower than even the lowest value of Norway in 1960.

Afghanistan’s life expectancy was 32 in 1960 and increased to 64 in 2018 which is a very small improvement compare to other countries.

As we can see life expectancy is increasing day by day but it also depends on from which value they have started, and the economy health of a country.

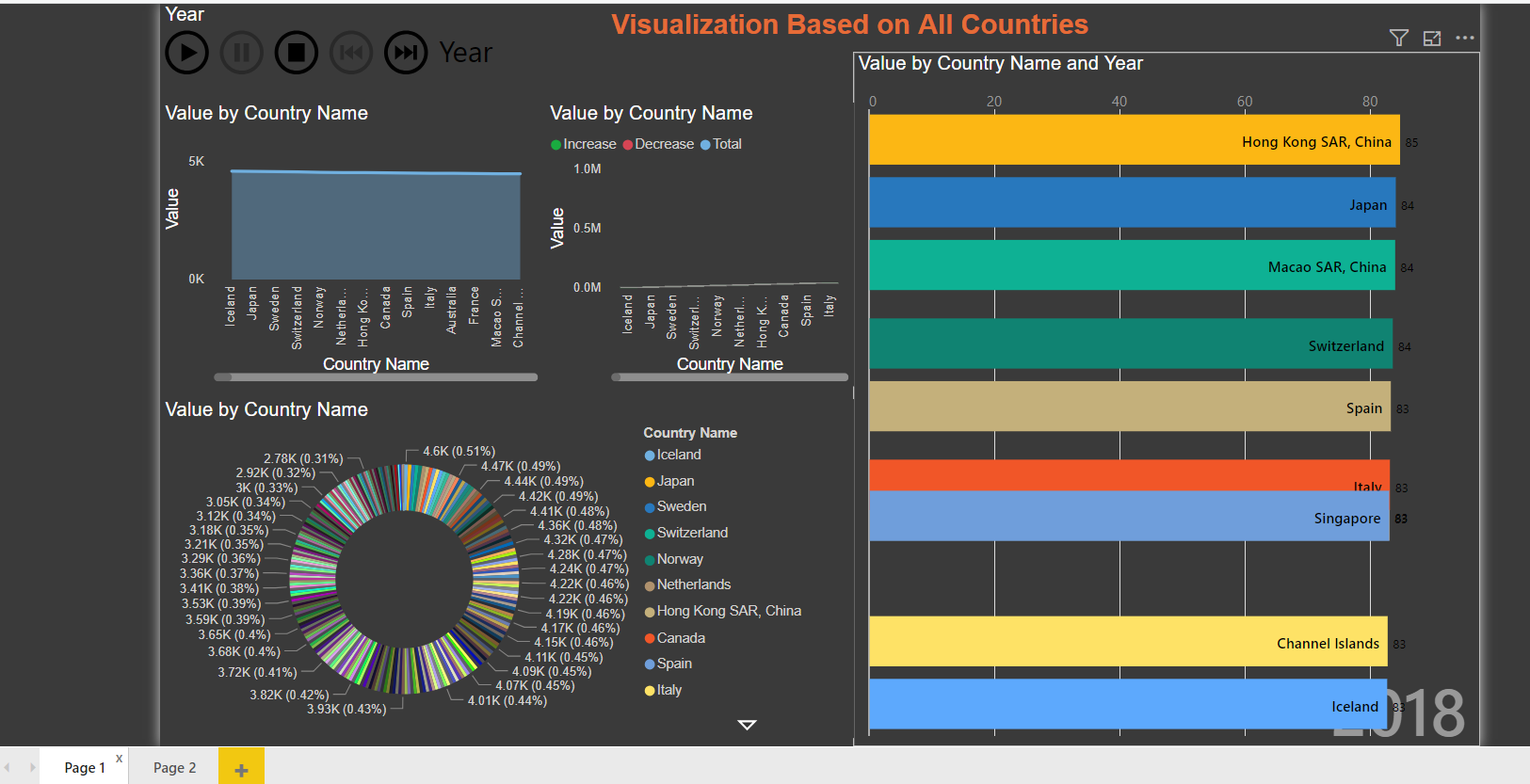
**Different Variables and Their Impact of Applying each Variable in Comparison to Another:**

In this Dataset we only had three variables for our data: Country name (Geographical Location), Year (1960-2018), and value of life expectancy for each country in all the years between 1960-2018.

Since life expectancy of a country can be affected by many variables like economic health and others, it is hard to analyze it just based on the geographical location and year. However, one of the main point that we can get from the overall data is that no matter how low is the life expectancy of a country, in increases by passage of time. For example, Columbia which had the lowest value still it’s value has increased by 2018. In addition, Afghanistan with so many problems, even it didn’t increase much compare to other countries, increased its value by 2018. So, time can be a very essential variable for countries in other for their life expectancy to be increased.

Another variable that we used was Country name that can represent a lot of other variables that effects on the life expectancy. For Example, Norway is incomparable to the Columbia or Afghanistan.

**Screenshots of the Dashboards:**

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