University of Reading Department of Computer Science

Computer Science Undergraduate Report

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Declaration:

I, Karan Patel, of the Department of Computer Science, University of Reading, confirm that this is my own work and figures, tables, equations, code snippets, artworks, and illustrations in this report are original and have not been taken from any other person's work, except where the works of others have been explicitly acknowledged, quoted, and referenced. I understand that failing to do so will be considered a case of plagiarism. Plagiarism is a form of academic misconduct and will be penalised accordingly.

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Karan Patel April 20, 2024

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CHAPTER 1 INTRODUCTION

1.1 Background:

Background of the Project:

The main goal of this project is to create an interactive data visualisation website that focuses on data from four major European topics: death rates, environmental emissions, children's health, and goods trafficking. The project's driving force is the need to provide an engaging, user-friendly platform that enables a broad audience including academics, politicians, and the general public to comprehend and use complicated statistics. The project aims to be accessible to all users despite their academic background

1.1.2 Major Theories and Applications:

Data Visualisation Theory: The project makes use of the ideas of data visualisation theory, which highlights the value of graphical data representations for effective and clear communication. The website facilitates users in more efficiently identifying trends, patterns, and outliers by converting raw data into user-friendly visual forms.

User-Centred Design: This approach makes sure that the platform is user-friendly, accessible, and adaptable to changing demands. It guides the creation of the website. This strategy aids in developing a captivating user interface that promotes data exploration and engagement.

Interactive Technology: Users may personalise their data views using the website's interactive features, which include drop-down menus, sliders, and clickable maps. This interactive feature makes it possible to explore data practically, which increases user engagement.

Applications in Education and Policy: By including some historical background and analytical insights with the data, the website acts as a teaching tool. This feature makes the data easier to grasp, which makes it a useful tool for educators, students, and legislators. By highlighting important data patterns that may guide trade, health, environmental, and demographic policy and strategy, it also promotes evidence-based decision-making.

Big Data and Analytics: The website effectively processes and delivers massive amounts of data by using big data technology and analytical algorithms. This feature guarantees that the platform can manage intricate data processes and provide users with real-time information.

1.1.3 Products and Applications:

Tableau: This robust technology, which is renowned for its capacity to generate intricate and dynamic visual representations of huge datasets, was used in the creation of the project's visualisations. This programme was essential to the project's visual design since it made it possible to create dynamic and captivating images that improve user understanding.

Tableau Public: Tableau Public was used to host and distribute the visualisations online. With the help of this platform, interactive visualisation components may be seamlessly integrated into websites, making them available to a wider audience without the need for specialised software.

1.1.4 Sources of Data:

World Development Indicators on Kaggle: The "World Development Indicators" dataset on Kaggle, which is accessible via the link in references. Is provided as the main dataset used for my visualisations. It shows A vast range of international organisations' compilations of data on global development that are included in this extensive collection. I required data that was sufficiently extensive and free of incomplete components. Because of this I selected an older global dataset with a large number of subcategories and indicators compared to a new one that may be incomplete or have missing factors.

Data Filtering and Utilisation: While the dataset includes information from all around the world, we only utilised data related to Europe for our project. We took the bigger dataset and separated out the European-specific data using filters and data manipulation tools. We were able to customise the visualisations to represent regional patterns and insights pertinent to our target audience, which consists of academics, politicians, and members of the general public with an interest in European politics, thanks to this selective approach.

Particular Sections Used: The dataset sections selected for this project were chosen because they were pertinent to the four primary subject areas of the website, which are: death rates, merchandise commerce, environmental emissions, and children's health. This deliberate selection guarantees that the visualisations are meaningful and powerful, giving users tailored insights into important problems facing Europe.

Analytical Approach: The dataset was split based on several metrics and time periods that show noteworthy trends and advances, in addition to being filtered for geographic relevance. This analytical approach made it possible to analyse the data more thoroughly and provide dynamic, interactive visualisations that improve user comprehension and engagement. showing the raw data would have been too complicated for the end user to view as the indicators applied to all countries in the world.

1.1.5 Project Motivation:

This project's main goal is to close the gap between sophisticated data analytics and general public access. Through a visually attractive and interactive platform, the project seeks to democratise access to essential European data and promote a greater knowledge of major challenges impacting Europe. Additionally, it aims to facilitate data-driven decision-making across a range of industries and encourage knowledgeable dialogues.

My goal for this project goes beyond making the website's design. It comes from the belief that open access to data can give people, researchers, and lawmakers more power, creating a world where smart decisions are the rule rather than the exception. My dream world is one where open data is the basis for public debate and the creation of policies. To get people

interested in actual proof that drives social progress, I want to bridge the gap between complicated data reports and regular people. One of my goals with this project is to help build an educated society where everyone can use data not just as an idea but as a real tool to understand and change the world around them. This project is my addition to that goal. It's a tool that turns numbers and facts into stories that are relevant to modern Europe and encourages people to do more than just look at them.

1.2 Problem statement:

Europe is a continent which is a mixing pot of different cultures and languages whilst its rich history is commendable it also subsequently homes a vast varying list of concerning problematic issues. This study focuses on four of the concerns from this complex list; the populations health, the individual countries overall health statistics, the environmental health of the country and the respective European countries economic status. This project helps to clarify these concern topics by providing its users an in-depth analysis on Europe's health, environmental and economic indicators.

The system is primarily concerned with the health of children in Europe. This field is very significant since it acts as a gauge for the population's long-term health and well-being. The analysis of the health sector focuses on: the socioeconomic circumstances, the influence of public health policies, and the efficiency of the respective healthcare system. This research intends to emphasise the differences and achievements of various European nations by looking at factors including immunisation rates, nutritional status, and prevalent childhood disorders.

The second topic of the systems analysis is emissions. The system's close analysis and examination of the emissions in Europe gauges on the effectiveness of emission policies and provides an overall view of a country's environmental health. Europe is at the forefront of tackling greenhouse gas emissions through its implementations of initiatives which work to address emission concerns. This section looks at how various nations are handling their environmental obligations and how their actions are affecting public health and climate change. Furthermore, the system also analyses the death rates and causes of death in Europe. This analysis provides a tool in determining health trends, public health emergencies and provides an overall understanding of the efficiency of the current health systems through the respective death rates of European countries. Hence, the system not only critically assesses the success of public health programs and the results of their successful implementation but also gives the user an in-depth insight into the primary concerns of immortality, respective age groups, and socioeconomic sectors.

Finally, the system analyses European goods commerce. Trade is a vital part of evaluating the state of a nation's economy as a result of its big impact on growth rates, available employment, and economic stability. The system's analysis of import and export statistics poses an important factor in assessing not only the economic health but also an in depth review of how geopolitical dynamics and economic factors influence the European markets. Each of these areas not only offers a summary of the current situation, but also projects future challenges and opportunities. By merging data from these different but connected fields, the initiative aims to present a comprehensive image that can direct public policy and discourse.

1.3 Aims and objectives:

The purpose of this project was to design an online application that is both user-friendly and interactive, with the intention of facilitating a more in-depth knowledge of important developmental indicators at the European level. The goal of the project was to integrate Tableau with web technologies such as HTML, CSS, and JavaScript in order to make complicated data sets accessible and interesting for a large audience. This was accomplished by harnessing the power of data visualisation using Tableau.

Specifically, the goals were to:

It would be beneficial to provide users with an immersive experience that allows them to engage with and investigate European data on important themes such as the health of children, the conditions of the environment, and economic activity.
Make advantage of sophisticated visualisation technologies to show data in a style that is easy to understand, enabling people to easily and quickly make relevant conclusions.
To ensure that a wide variety of users, including those with impairments, are able to browse and comprehend the visualisations, the interface should be optimised via the process of accessibility optimisation. I should make sure that the platform follows the best practices in terms of data privacy and security, and that it respects the ethical and legal requirements that are linked with the sharing and display of data. After some consideration, I came to the realisation that in order to accomplish these goals, I needed to possess both technical expertise and the ability to think creatively about how to solve problems. The approach of development included iterative design, which enabled continual improvement based on the input and testing provided by users. Furthermore, it was essential to place a high priority on user engagement, which required the creation of features that would keep consumers interested and encourage them to explore the platform.

In terms of enhancements, there is the possibility of broadening the data set to include information that is more specific and localised, as well as improving the application's performance across a variety of devices and internet speeds. Despite the fact that the project achieved substantial progress in presenting statistics on European development, continuous improvements have the potential to make the tool even more effective for practitioners of education, policymakers, and members of the general public who are interested in European politics.

Conclusively, the project's objective was to bridge the gap between complicated data and public comprehension by offering a platform that enables everyone with internet access to investigate significant European problems in greater detail, regardless of whether or not they had a background in data analysis. The goal was not just to provide information to users, but also to empower them by giving a tool that may lead to debates and choices about European development that are better informed.

1.3.2 Base Objectives of the Project:

Enhancement of Education: The provision of an effective educational resource which utilises current statistical and historical data, to successfully assist scholars, policymakers and

students, in recognising specific trends and data patterns specific to the continent of Europe.

Data interaction: To give consumers a personalised analytical experience by allowing them to interact with the data by selecting specific countries, data ranges, and indicators. This allows the system to adapt to varying information needs and interest levels.

Data Interaction: To provide a customised analytical experience that can adjust to different informational demands and interest levels by letting users engage with the data by choosing certain nations, data ranges, and indicators.

Comprehensive Analysis: By directly combining some historical context and research results with the data, this approach aims to provide a better understanding of the causes underlying data patterns which can be seen as peaks and troughs in visualisations.

Engagement and Accessibility: By providing a visually attractive and user-friendly interface that makes complicated data more approachable and comprehensible for a wide range of users and the main goal is to enhance public engagement with European data.

Assistance with Decision-Making:To facilitate decision-making by offering thorough analyses of economic, environmental, and health policies, as well as by pointing out problem areas and potential avenues for policy interventions.

1.3.3 Possible improvements that can be implemented :

After successfully implementing the base objectives of the project, the plan is to implement and develop my project further to improve and upgrade things.

These goals point out possible areas for growth and improvement. This will make sure that the project keeps changing and staying useful as a whole for learning about the social and economic situations in Europe.

Adaptability and Customisation: Adding a platform that can change based on the level of knowledge of users, with designs that are suited to both newbies and professionals, could make users much more interested.

Inclusive Design: Making the design of an open platform for disabled users a top priority would make sure that all visualisations and engaging features can be used by everyone.

Real-Time Data Integration: Adding real-time data feeds where they are available would keep the visualisations up to date, making the site more useful as a source of current information.

Educational Outreach: Making educational programmes or courses based on the data visualisations could make it easier for them to be used in schools, where they could help students learn how to understand data and think about social and economic problems.

Impact Measurement: Adding data and tools to the platform that allow users to figure out how certain socio economic policies affect people could help us learn a lot about how well these policies are working.

Support for Multiple Languages: If the website had support for multiple languages, it could be used by more people across Europe, making it easier for people to have informed conversations.

1.4 Solution approach:

To make a solution for European health, pollution, mortality, and trade data that has the engagement and analytical depth of a data visualisation website, the method needs a complex strategy that carefully ties together different technologies and design theories.

The first step in the answer strategy is to choose a strong and adaptable data visualisation tool, like Tableau, which is known for its ability to handle complex data sets gracefully and create a wide range of engaging and useful visualisations. The main part of the project is this tool, which makes it easy to look at different datasets in more detail and lets users find deeper insights by interacting with it.

There is a lot of HTML and CSS used to build the website. HTML gives it a strong structure, and CSS gives it style. When these technologies are used together, they create a user experience that is both nice to look at and easy to use. JavaScript is also used to add dynamic parts and engaging features that make the user experience even better.

During the development process, the goal WAS to keep the user in mind at all times and make sure that every part of the site helps the user understand and progress. This is done by carefully thinking about UI/UX design concepts, testing regularly, and making small changes based on what users say over and over again.When I was making a complete answer for a website that displays data, it was helpful to think of a number of options before deciding on the best one.

Using open-source tools to make the data visualisations could be one possible answer. It might be easy and cheap to use these tools to make a variety of plots and maps that people can interact with. But these kinds of tools might not have the advanced analytics and strong customer service that you can find in more well-known software like Tableau.

I was also thinking of using JavaScript tools like D3.js or Three.js to make your own custom data visualisation engine. These tools give you a lot of power over how data is represented and let you make it your own, but they also take a lot of time and skill to use correctly. The risk here is that the project could get stuck in too many technical details, which would make it harder for people to use and get involved.

One more option is to use a mix of different data visualisation services and build them into the website to make a platform with many uses. This might give users a better experience, but keeping track of and synchronising many services could be hard to do and cause the user interface to become less consistent.

But the answer that was picked for this job is not one of these options. Instead, it was a more combined approach. The project could keep a good mix between being hard to understand and easy to use by using Tableau, which is both simple to use and good at handling complicated data. The approach combines Tableau's interactive power with the flexibility of HTML, CSS, and JavaScript to give users a smooth and changing experience. The website is made to not only show data but also tell a story through it. It does this by giving users useful analytics that can help make policy and improve public knowledge.

The end answer is to make an easy-to-use dashboard that helps people explore info without being too much for them. The project makes sure that the visualisations are more than just pictures of data; they are also tools for finding and understanding by putting the needs of the end user first during the planning process. Through a strict process of development, testing, and revision, the project aims to provide a complete platform for visualising data that can be used as a model for similar projects in the future.

1.4.1 Gathering and Preparing Data:

Source and Selection: The study made use of Kaggle's extensive collection of World Development Indicators. This dataset was selected because of its richness and breadth, including information gathered worldwide on a range of variables. Data Filtering: Particular information on worldwide nations was taken out since the research was focused on Europe. In order to ensure that only applicable data was utilised in the visualisations, this required developing filters during the data extraction process to isolate data based on geographic identifiers and pertinent metrics.

1.4.2 Visualisation Development and Interactive Design platform selection:

Tableau Public was chosen as the main visualisation platform because of its strong data handling skills and versatility in producing a variety of visual formats, including intricate interactive dashboards, graphs, and maps.

Visualisation Design: Every visualisation was made to not only faithfully depict the data, but also to captivate and make sense of it for the user. To improve user involvement, particular emphasis was given to the layout, colour scheme, and interactive features including dropdown menus, sliders, and clickable maps.

Interaction Design: To enable users to personalise their data displays, interactive components were included into the project. Users have the ability to pick certain nations, modify date ranges, and decide which data metrics to show. Because of its versatility, the tool may be used for a wider range of purposes, including policy-making and academic research.

1.4.3 User Interface and Web Development:

Front-End Implementation: HTML, CSS, and JavaScript were used to code the website's front end. This was done to make sure that the user interface would be accessible and responsive, fitting various screen sizes and devices. Integration of Visualisations: Tableau's JavaScript API was used to incorporate its visualisations into the website. In order to keep

the visualisations dynamic and interactive inside the online context, this connectivity was essential. Deployment: To provide dependable access for all visitors worldwide, the website was put up on a dependable server with enough bandwidth to manage occasional heavy demand.

1.4.4 Improvement With Input:

Feedback Gathering: An integrated feedback mechanism on the website enables users to report problems and make improvement suggestions, or provide further insights. This information is essential for improving and fine-tuning the website.

Iterative Development Process: Using an agile development technique, the project routinely incorporates user input into the development cycle. By using an iterative method, the interface and functions may be improved by taking into account real user demands and engagement.

Extra Sections to take into consideration after making a base draft of the project and with this the execution strategy is comprehensively outlined in this enlarged approach, which prioritises user-centric design, careful planning, and adaptable development techniques as the project moves forward.

1.5 Summary of contributions and achievements

In this project, I was able to create an interactive web-based platform that offers thorough analysis and visualisations of important data like mortality rates, merchandise trade dynamics, environmental emissions, and child health in Europe. The creation of an extensive data visualisation website is the initiative's primary contribution. Through the use of interactive tools and an easy-to-use interface, this platform makes comprehensive data accessible and comprehensible to a wide range of users.

This project's major goal was to thoroughly analyse four important sectors that I personally think have an impact on Europe. A better knowledge of each sector's previous year's situation with the latest year being 2016 and its influence on Europe's larger socioeconomic environment is made possible by the dataset provided, which reveals important trends, discrepancies, and possible areas for policy action. The user after interacting and filtering the data through the visualisations themselves can either look at the information provided or look into the reasonings/ information themselves to answer why there is an increase/dip in metrics in specific years.

The project uses Tableau and other sophisticated visualisation technologies to improve user engagement and data interaction. Personalised data exploration is made easier and user participation is increased when users have the ability to modify displays and perspectives to fit their interests.

In addition, the visualisations and the studies that go with them are useful tools for policymaking and teaching. For educators, legislators, and the general public, they provide insights that are vital, supporting well-informed policy choices and enhancing teaching materials. In addition this project showcases noteworthy technological accomplishments in

data management and web development, such as the skillful processing and filtering of a vast worldwide dataset to concentrate on Europe. This demonstrates not just well developed technical abilities but also a profound comprehension of the significance and use of data in practical settings.

These achievements have profound implications which lay a foundation for informed discussions and decisions regarding public health, environmental policy, economic strategies and educational approaches within Europe. The interactivity enables users to use information efficiently and then encourages informed decision-making and raises public awareness by making complicated data more accessible and intelligible.

1.6 Organization of the report:

There are seven chapters in this study, and each one is about a different part of the project. Chapter 1 talks about the project, its goals, and how the report is organised. In Chapter 2, a thorough review of the current research and technology uses is given, putting the research in its proper place. Chapter 3 goes into more depth about the methods used, including the data sources, tools, and analysis methods that were used. In Chapter 4, "Results," the authors talk about the effects of the methods they used. Chapter 5 talks about the results and what they mean. It does this by combining conversation and analysis. Chapter 6 wraps up the report by summarising the project's results and efforts. Chapter 7 offers future work by thinking about how the project could be improved and expanded. There are parts and subsections within each chapter that make it easier to understand and go into more depth about the topics.

CHAPTER 2 LITERATURE REVIEW

2.1 Literature Review:

A review of the state-of-the-art (include theories and solutions) of the field of research:

State-of-the-Art in Interactive Data Visualization:

New tools like Tableau Public and D3.js are making the field of data visualisation change very quickly. These tools are essential for creating interactive, user-centred visual experiences. These improvements are in line with the ideas that Tufte (2001) wrote about in The Visual Display of Quantitative Information. These ideas stress how important it is to present information in a clear and effective way. In the same way, Heer and Bostock (2010) talked about how interactive visualisations can improve how people understand and use graphics by getting them involved.**(5)(6)**

Adding machine learning to data visualisation tools makes them even more useful by automating insights and letting users interact with the tools in more complex ways, as Few (2009) writes in Now You See It. In line with the goals of visual analytics that Thomas and Cook (2005) talk about in Illuminating the Path, this automation is key to making it easy for users to find patterns and insights.**(8)(7)**

These interactive tools have changed the way people look at data, especially in areas like education and public policy where getting people involved and letting them change how data is used are very important. Customising data displays and interacting with them in real time as users learn and discover is not only a technological advance, but also a huge step forward in how information is processed and understood, creating a stronger bond between the user and the data.

Interactive tools significantly enhance how we engage with and interpret data, especially in critical areas like education and public policy. By offering real-time interaction, these tools facilitate a deeper connection between users and data, allowing for immediate manipulation and exploration. This level of engagement fosters a more active learning environment and enhances policy development, as stakeholders can visualise the impact of different scenarios and decisions dynamically. The ability to tailor visualisations to specific needs or inquiries makes the data more relevant and actionable, ensuring that insights derived are not only accurate but also directly applicable to the issues at hand.

The development of data visualisation tools has made difficult data analysis more accessible to more people, letting them take part in making decisions based on data. This change is important in a time when well-informed choices can have a big effect on how society works. By making it easier to work with big datasets, these tools let anyone look for and understand complicated patterns and trends without having to learn a lot about statistics. This is very

important for making sure that people can easily access the data that affects their lives and communities and use it to interact with and react to it.

These advancements suggest a future where data visualisation tools continue to evolve, becoming even more user-centric and integrated into daily decision-making processes. The trend points towards creating environments where data is not just viewed but interacted with in a manner that is intuitive and enriching, thereby enhancing the overall utility and impact of informational content.

2.1.2 Theories in Data Presentation:

Cognitive Load Theory, which says that lowering mental effort that isn't necessary can help people remember and understand things better, can be used to improve interactive data visualisations. Sweller (2010) says that well-organised and simple visual presentations can make learning a lot easier and faster. In the same way, Tufte's (2001) Information Design Theory stresses the importance of contrast, clarity, and order to make sure that data is easy to understand and use. These rules help people understand the information better by arranging it in a way that makes sense.**(9)(10)**

Ware (2012) says that the Gestalt Principles also show how people see visual features as parts of a bigger whole. This is important for making systems that make sense and are easy to use. With this knowledge, artists can make visualisations that look like whole pictures instead of separate data points. Norman's Affordance Theory (1988) is also very important because it says that visual elements should naturally show how they work, which makes encounters more natural and reduces the need for clear directions.**(11)(12)**

These basic ideas are very helpful for making data visualisations that are not only useful, but also interesting, easy to understand, and in line with how people think and see things, so the user experience is natural. To really understand the ideas behind data visualisation, we need to look at more complex cognitive theories that help people deal with data better. According to Sweller (2010), Cognitive Load Theory says that the best way to learn is to keep your brain from having to work too hard on things that aren't important. This idea says that well-designed data visualisations should make complicated data sets easier to understand by making them less difficult to understand mentally.**(9)**

Tufte's (2001) Information Design Theory takes these ideas and turns them into useful design rules like order, clarity, and contrast that make it easier to understand the information quickly. These rules aren't just for looks; they're also useful because they make sure that visualisations get information across to a lot of people.Ware (2012) goes into depth about the Gestalt Principles of visual perception, which explain how people see and organise things they see in their thoughts. The concepts of closeness, likeness, and closure help artists make visual experiences that are unified, easy to understand, and in line with how people naturally see things.**(11)(10)**

Norman's (1988) Affordance Theory is another important factor. This theory says that visual features should naturally show how they work. For example, a button should be made so that users know right away that they can click on it and interact with it. This cuts down on the learning curve and makes the experience better for users. In real life, these ideas help

people make user-centred data visualisations that are both useful and interesting. By combining these ideas of cognition and design, data visualisation can go beyond simple presenting and become a useful tool for exploring data and making decisions. This method makes sure that people don't just look at data visualisations; they also interact with them. This lets people get personal views and get more involved with the data. **(12)**

2.1.3 Solutions and Case Studies:

Interactive visualisations are being used more and more in many fields because they have a big effect and can be used in many ways. They are very important in public health for keeping track of disease trends and figuring out how well health measures are working. Bresciani and Eppler (2009)**(14)** talk about how these tools have helped lawmakers see and better handle healthcare resources during global health problems. But problems still exist, such as making sure that info is correct and private. Researchers like Bødker and Klokmose (2018) say that these problems need to be fixed by making visualisation tools that are safer, more open, and better able to meet the needs of all kinds of users.**(15)**

To be more inclusive, recent attempts have focused on incorporating universal design principles, which make tools usable by anyone, no matter what abilities they have. Wahlstrom et al. (2018) look into how visualisations can help people with disabilities, making sure that these tools are truly open to everyone. Lee and Kobsa (2016) say it's also important to use advanced anonymization methods to keep data useful while protecting private data.**(16)(17)**

Improving user interaction also means making tools easier to use so that users can connect with data more deeply. Dynamic filters and views that can be changed make the user experience more personalised, which leads to more user interaction and deeper analysis. Lund's (2017) research on the usefulness of interactive visual tools in schools shows how these features can turn idle data consumption into an active, exploring process that helps with learning and making decisions. **(18)**

A thorough examination of interactive visualisations demonstrates their significance in a variety of domains, including education and healthcare, where they simplify complex information through engaging, user-driven tools. My project will be based on using methods from well-known case studies, such as using machine learning to predict trends and improve user interaction. These advanced features help turn huge amounts of data into insights that can be used, so users can quickly make smart choices.

I'm going to use new ideas in universal design to help make things more accessible and open to everyone. I will try to improve these, though, by adding more complicated personalisation tools that many systems don't have. Personalisation not only makes the experience better for users, but it also makes sure that the visualisations meet the needs of all kinds of users, from beginners to professionals.

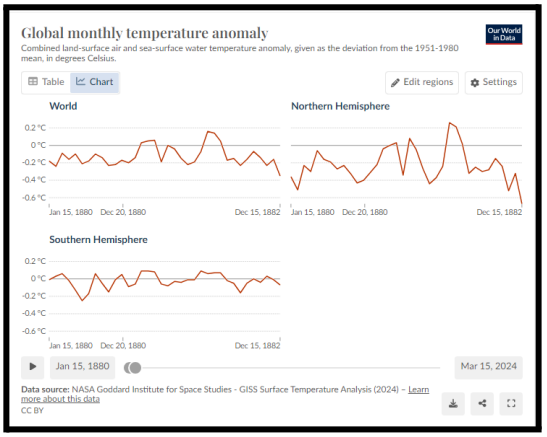
One important thing I'll include is the careful use of data anonymization methods to protect privacy, which is something Cavoukian (2011) brought up in talks about privacy by design. These methods are important for keeping users' trust, especially when dealing with private data, but they need to be matched with the need to use data in useful ways. In contrast, I will

stay away from interaction patterns that are too complicated and could hurt the user experience, as Bostock and Heer pointed out (2009). Their results show that interaction is important, but it shouldn't be too much for the user. This fits with my goal of making the visual interface easy to use and the learning curve short.**(22)(21)**

In a nutshell, my project pinpoints and utilises the best aspects of currently available tools and in doing so is able to accommodate common problems. The ultimate goal of the project is to create an accessible tool which efficiently displays useful information for its users whilst maintaining ease of use and respecting the importance of user privacy.

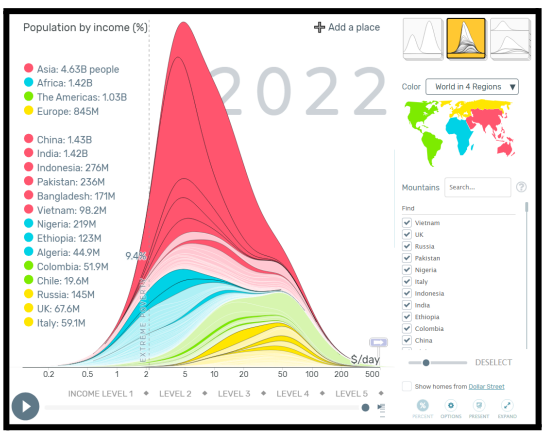
2.2 A description of the project in the context of existing literature and products/systems:

Existing Literature:



Our World in Data: is a distinctive online platform that specialises in showcasing extensive information on a broad range of international concerns, such as population shifts, politics, economics, health, and the environment. The website converts in-depth information into easily navigable graphs, charts, and interactive visualisations. Our World in Data stands out for its dedication to use and clarity, making complicated topics like the frequency of diseases throughout the world or patterns in energy usage simple to comprehend. Every visualisation is supported by in-depth studies and articles that explore the context of the data and provide insights into the trends and patterns seen. This method makes the statistics easier to grasp and tells the stories behind the numbers, which makes it a useful tool for policy-making and education.

Our World in Data's visualisations impress with their modern, streamlined design that values simplicity and focus. Their restrained use of colour keeps viewers from being overwhelmed and draws focus to the actual facts as seen in the image. The platform has an obvious and direct approach, appealing to consumers who want a simple, uncomplicated interface for interacting with data. I used a similar style for my own website, striving for an interface that strikes a balance between richness and clarity. The example provided by Our World in Data shows how complicated data may be made understandable without compromising detail, which is essential to the goal of my research. Compared to the gapminders play button that shows visualisation changes over time they are not as fluid. **(Info & image ref 1)**

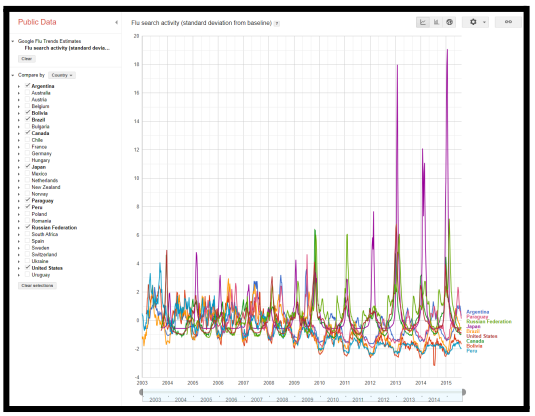


Gapminder: Founded by the late statistician Hans Rosling, Gapminder uses simple, interactive visualisations to debunk popular misconceptions about global progress. The website is especially well-known for its use of animated bubble charts, which enable viewers to see how different nations' economies have developed over time. This makes

it a useful instrument for imparting knowledge and comprehending global trends in a more engaging manner. In order to dispel common misunderstandings about development, Gapminder's visualisations concentrate on important developmental metrics including income distribution, life expectancy, and poverty rates. By encouraging users to take different quizzes to assess their knowledge and prejudices, the platform improves learning.

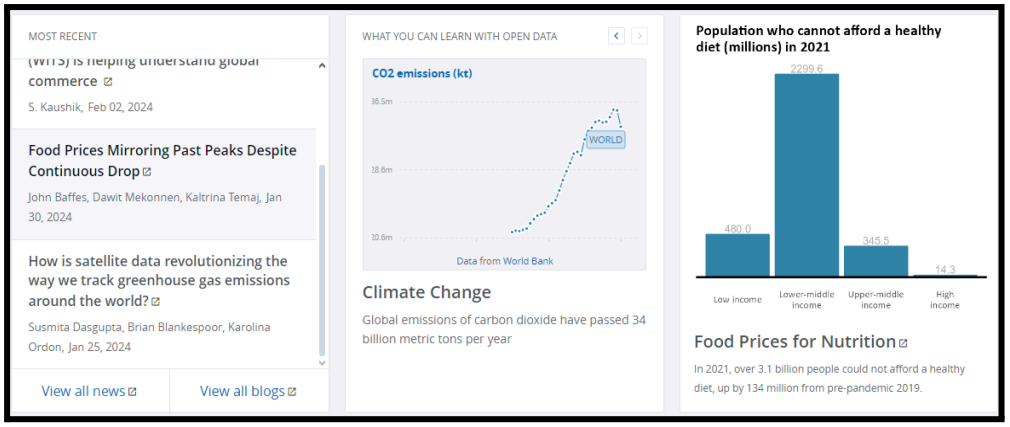
Gapminder's visualisations are great at keeping users interested because they offer an engaging, flexible experience. Users can interactively modify visual aspects like colours and countries, allowing for a personalised data exploration journey. The tool offers a wide range of graph types to meet the needs of different types of analysis. One cool feature is the motion control, which is a play button that makes the graph change over time. As seen in the image above that highlights the population by income in percentage, This brings data to life and lets users pause and play the video to look more closely at the changes and trends in the data. This helps them understand complicated information in a way that is easy to access and changes over time. **(Info & image ref 2)**

Google Public Data Explorer: With its extensive toolkit, users may examine a range of publicly available datasets from institutions such as the OECD and the World Bank. Through interactive charts and maps, users may build and share their own online visualisations of complicated statistics, facilitating understanding. Google Public Data Explorer's capacity to manage big datasets well and enable real-time variable modification for a variety of visual results is one of its primary advantages. This is very helpful for academics and researchers who want to show data patterns in public health, economics, and a variety of other subjects.



Even if the data and visualisations are accurate and fulfil the intended purpose, I would argue that the visualisation techniques used and the way in which this specific website promotes user interaction are missing in visual appeal. Looking just at the visuals on the website, I can see how this would be the closest data visualisation someone working on a project would encounter. Switching between different visualisations on the website, such as maps or various charts, is a helpful feature.**(Info & image ref 4)**

World Bank Open Data: Anyone interested in the economic and social indicators that drive global change will find a wealth of information on global development available at no cost or restriction thanks to World Bank Open Data. With the platform's customisable visual tools, users may make charts and maps to study and contrast different data points from various nations and areas. An extensive database including topics like infrastructure, healthcare, economic policy, education, and more underpins this interactive feature. Decision-makers and academics alike will find the World Bank Open Data platform important since it is not just a tool for accessing data but also a complete resource for finding data for research, teaching, and policy analysis.



The World Bank Open Data tool stands out because it includes a lot of relevant data right in with its visualisations. This method not only shows data, but it also helps the user understand it better by giving them useful information, which is similar to the design theory that I used to guide my own project. The website's interface is made to smoothly lead users from one topic to another through simple navigation, providing more visuals with each click.

Even though the platform has these benefits, its interaction doesn't quite match the active features of other systems. Even though the visualisations are useful, they don't have filters that can be changed and don't let the user directly interact with them in a way that lets them choose certain factors or go deeper into the data. Most of the interaction is limited to moving your mouse over data points to get specific numbers. Compared to other platforms we looked at, the World Bank Open Data's visualisations are more like flat pictures of data than interactive tools for exploring and getting involved. This shows an area that could use some improvement to make the user experience even better. **(Info & image ref 3)**

2.3 An analysis of how the review is relevant to the intended application/system/problem:

The creation and use of interactive data visualisations is an area that is always changing and growing, with a focus on new technologies and user-centred design. This project is at the point where technology and user experience meet. Enhancing the features of current interactive data visualisation systems, my idea creates a distinct market segment by concentrating on Europe. The project is intended to provide a thorough examination of important factors including child health, environmental pollution, mortality rates, and commerce throughout Europe by using Tableau Public. In contrast to more worldwide platforms such as Our World in Data, which provide extensive datasets on a wide range of subjects, my initiative focuses only on Europe, providing a specialised viewpoint that may be especially helpful for academics, educators, and policymakers working in this area.

In contrast to websites such as Gapminder and Google Public Data Explorer, which provide worldwide information via interactive tools, my project is unique in that it lets people explore the finer points of European data. With the help of this specialisation, users may have a more customised analytical experience by investigating data unique to individual countries, historical patterns, and possible future developments in the context of Europe. A more nuanced understanding of the links between different data points is supported by this degree

of customisation and depth, which is essential for both successful policy formation and educational objectives.

I created the platform with dynamic interaction in mind to greatly increase user engagement. Users have direct control over data manipulation, choosing individual nations, periods of time, and indicators to meet their own analytical requirements. Many of the visualisation tools that are now available only allow for more passive interaction with the data; this interactive feature goes beyond what these tools can provide. The platform enables a more intimate and personal relationship between users and the information by allowing them to customise and engage with the data display. This encourages users to draw their own conclusions and gain new insights.

In addition, I discovered how crucial education and context are to data visualisation. On my platform, every visualisation has comprehensive contextual information that explains noteworthy patterns and data spikes using historical data and study results. In addition to presenting statistics, this instructional feature aims to educate and enlighten viewers about the underlying causes of these patterns. This strategy is modelled after popular features found on websites such as the World Bank Open Data, but it emphasises a more narrative-driven and instructional user experience.

I used information design and cognitive load theory concepts while creating the visualisations to make sure the content is easily comprehensible and easily accessible. This entails arranging the facts to improve understanding and reduce needless cognitive strain. The initiative intends to lower the barrier to entry for users of all backgrounds by optimising the presentation of information, making complicated material comprehensible and entertaining. Summarised, my initiative stands out in the data visualisation space by providing a highly dynamic, instructive, and user focused tool that is especially suited to data from Europe. It is a full platform for comprehending and interacting with the problems that determine Europe today, not merely a tool for reading statistics. This initiative not only adheres to but also establishes new guidelines for the use of data to educate, inform, and spark meaningful conversation among its users.

2.4 A critique of existing work compared with the intended work.

As I've learned more about live data visualisations, I've seen that sites like Our World in Data and Gapminder offer a lot of useful global information. I like how they look at a lot of things, but I noticed that some area statistics, especially for Europe, were missing. This is where my project fills a need; it looks at European data, trends, and policies with a very sharp focus. Unlike these well-known platforms, which only show the big picture, my work digs into the specifics of European data, making a tool for researchers, politicians, and teachers with a lot of experience in this area.

In comparison to Google Public Data Explorer's basic interactive features, my visualisations are made so that users can not only see the data story, but also interact with it and change it. I picture a platform where each click and change the user makes helps to customise the story being told. This would turn idle observation into an active conversation with the information. There is a lot of involvement, more like a chat than a lecture. I think this is what

makes my work unique. It shows a dedication to not only showing facts but also creating an engaging experience that stimulates both the mind and the heart of users.

The story complexity that Our World in Data gives through its explanatory pieces is something I really like, and I've tried to copy it and add it to my visualisations. My project doesn't just give information; it teaches by adding a story to each piece of data. I think it's important to combine numbers and stories in order to really understand and remember complicated things.

But I've seen that many sites don't really deliver on making the experience truly participatory. Even if they show the info in visually appealing ways, users may not really be interested in what they're seeing. For my project, I put a lot of thought into making an interface that encourages research. I want people to not just look at the data; I want them to change it, break it down, and draw their own conclusions from it. In order to break down the walls between the user and the data, this is done so that the user can explore the material in a more personal and useful way.

To sum up, my literature study and critical analysis of other data visualisation work have made me even more sure that my project is valuable and unique. I want to get around the problems I've seen by giving people an engaging, story-based way to look at European data. My project combines the teaching depth of Our World in Data with the advanced interactive features of Tableau Public. It is designed to give insights that are focused on Europe. It's more than just a tool; it's a way to learn about all of Europe's social, environmental, and economic changes. Its goal is to connect, educate, and excite its people by giving them a wide range of data that is both interesting and useful. I want to make a difference in the field of data visualisation and set new standards for how data can be used to start intelligent conversations and shape public policy with this project.

My project wants to be at the intersection of different platforms, taking the best parts from each one. With this combination, I hope to make a tool that not only stands out for its focus on Europe but also sets a new standard for how users can connect with and learn from data visualisation.

When I looked into the topic, I found that a lot of work has already been done in this area. For example, World Bank Open Data provided me a chance to learn more about global development metrics by combining visualisations with a lot of other information. This in-depth method spoke to me, and it inspired me to add not only data to my visualisations, but also histories and descriptions that give them meaning and show how past events have affected current trends.

Gapminder also caught my eye because of the way the colours are organised. Its smart use of colours adds a new level of understanding to the data. Taking ideas from this, I've used a similar colour coding method in my visualisations, which makes them not only useful but also interesting to look at. I think this makes it easier for the user to quickly understand the visualisations and connect with the data in a way that makes more sense to them. World Bank Open Data has a lot of useful information, but it's not very interactive, so users can't really dig into the data on their own. My project, on the other hand, has a higher amount of interaction. Users can change factors like years, numbers, and countries, which makes

exploring the data very personal and interesting. This feature turns my project from a simple data display into an engaging experience where users don't just watch but also take part in the finding process, making the insights fit their own specific questions and ideas.

CHAPTER 3 METHODOLOGY & IMPLEMENTATION

3.1 Requirements Specification:

The main idea behind this project is to utilise Kaggle's World Development Indicators to get measures that are especially focused on the whole world but I have filtered the dataset to only include europe. This screening is very important for the pxroject because it focuses on area data specificities and makes sure that the analysis is precise. The large size of the dataset makes it possible to look at health, the environment, and the economy in many different ways. It also makes it possible to create rich, context-sensitive visualisations that show how complicated European politics are.

In terms of software and Tools, the project would be using Tableau Desktop which was chosen because it has powerful data editing and visualisation tools that meet the needs of the project for professional grade tools that are accurate and adaptable. Tableau Public connects basic data analysis to dynamic web-based presenting. It makes it easy to add live data visualisations to an HTML website that was custom-built. Users can connect with the data in real time thanks to this setting, which makes the project more educational and exploratory.

Specifications for the Hardware would be that the hardware setup is made to handle the heavy computing needs of Tableau and the handling of big files. Specifications would include a strong CPU as well fast RAM. These parts are necessary to keep the system running smoothly and make sure that jobs like data processing and visualisation don't get held up, which improves the workflow and user experience while exploring data. although this is not necessary for the actual user this is intended for because they would be viewing the visualisations in a browser via a website.

User Needs would be understanding and anticipating user interaction with the visualisation tool is pivotal. The project wants to reach a wide range of people, from politicians and scholars to people who are just interested in how Europe works. The tool has a lot of engaging features such as buttons for changing the time and detailed menu for analysing data by country on the right side of every visualisations and tooltips for quick data insights, when hovering over them which tableau already provides. These features are made to be easy to use and understand resulting in a lowered learning curve and makes it easier for users to draw useful conclusions from the data.

All the above requirements are meticulously matched with the relevant technical requirements needed for advanced visualisation and catered to accommodate the real world

needs of users who want to understand complicated data sets through an easy to use interface. The final goal of this project is to create a tool which is not only able to show data but also turn it into an interesting story/research/historical information which gives its users the opportunity to learn something new.

3.1.2 Analysis:

This part of the methodology is used to go into analysis of my data sources and the rationale behind choosing this specific software/ dataset. I have discussed preliminary data explorations and proof of concepts tests that I conducted to come to this conclusion.

Investigating Data Sources: The World Development Indicators dataset from Kaggle was chosen for the research because of its extensive coverage of global development data, which includes in-depth information on Europe. Assessing the quality, completeness, and relevance of the data relevant to European nations was part of the preliminary data exploration process. During this phase, the data was filtered to only include countries in Europe, the consistency of the time-series data was confirmed, and important indicators reflecting the region's economic, environmental, and health issues were identified.

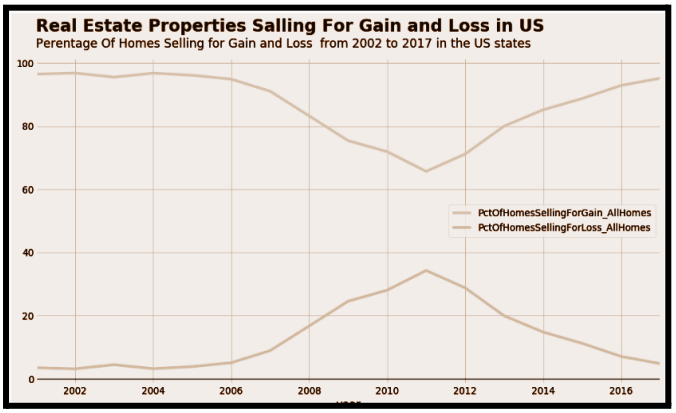
Technology Justification: Tableau Desktop was selected because of its sophisticated analytical features, which are critical for managing the World Development Indicators' complexity. To make sure Tableau could effectively manage the amount and complexity of the dataset, proof-of-concept tests were carried out, using fake visualisations to evaluate functionality and interaction.

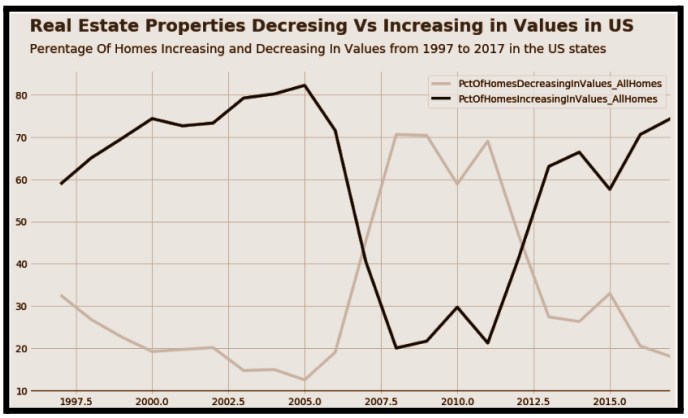
Although personally it was a difficult procedure to figure out how to port/sync over local visualisations made on a tableau workbook on desktop to tableau cloud as this required sign in and a custom account link to publish the vizzes to tableau public and after trial and error i figured it out.

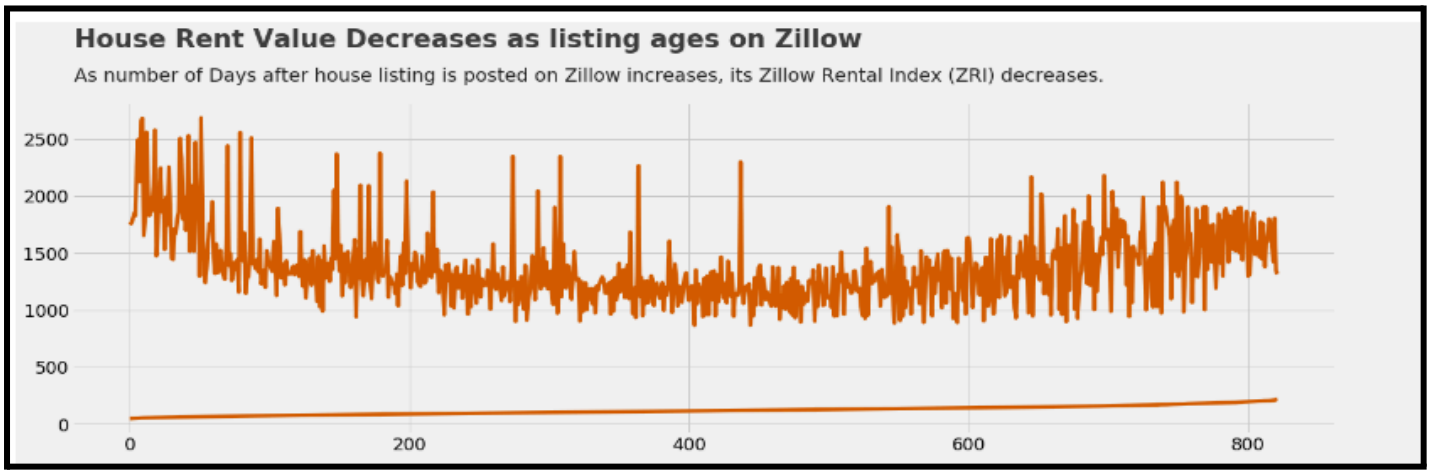
In order to get accustomed to the software and be able to efficiently create visualisations I utilised a draft dataset which I had researched before which I initially wanted to use as the primary dataset for this project. The dataset was about real estate market trends. The reason why I did not proceed with this dataset was because creating a dummy visualisation was hard to do as there weren't many indicators to allocate into creating charts and maps. The data was also unfiltered, the values were not assigned to names and there were too many null values to produce comprehensive visuals. although i did make a few visuals which were the basics and did not have any interactivity, which is shown in the tool validation section.

Tool Validation: To evaluate Tableau's responsiveness and output clarity there was preliminary testing including producing simple visualisations of a draft dataset.. These tests verified that Tableau could provide the required level of interaction without sacrificing rendering speed or quality. Tests were also conducted to guarantee compatibility and a smooth online user experience before integrating these visualisations into a bespoke HTML website which only came to be after coming to the correct dataset. Which was the world dataset filtered to europe dataset not the real estate market trends.

3.1.3 Simple Dummy Visualisations For Real Estate Market Trends: Testing Tableau's Software/Dummy Visualisation Figure



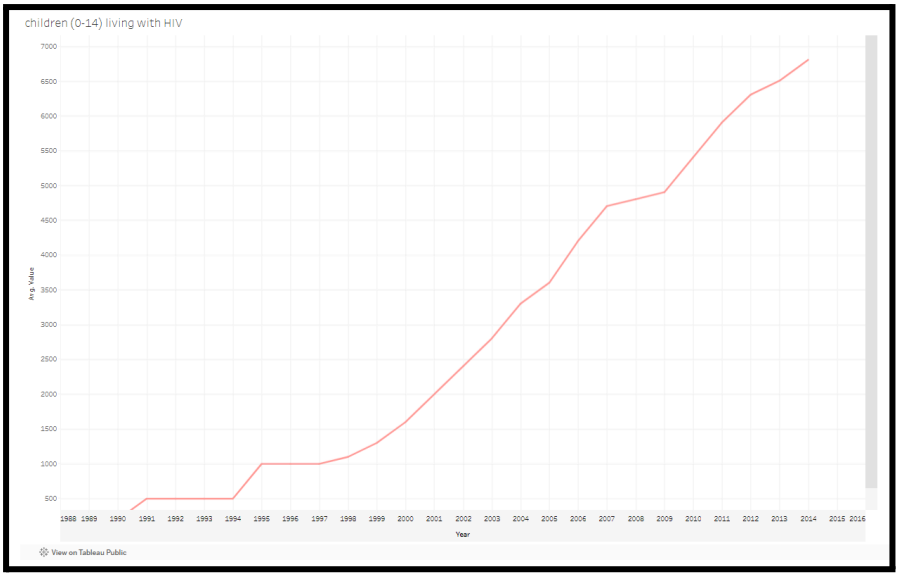




Upon reviewing the initial visualisations created with the draft dataset, it became clear that the limited scope of useful visualisations restricted the project's ability to explore a broad array of indicators comprehensively. This realisation led me to select a dataset that would offer a richer variety of visual possibilities and more in-depth analytical opportunities for my project.

After selecting a dataset rich in indicators for Europe, I successfully generated an initial series of visualisations focusing on children's health across different metrics such as DPT diseases, measles, overweight, wasting, underweight, and stunting. Before integrating these visualisations into the custom-built HTML website, I did a lot of tests to make sure they would work well and that the user experience would be good. These tests were crucial for confirming that the visualisations would function seamlessly within the web environment, leading to a robust user experience on the final site. This step was key to moving forward with the full implementation on the website.

3.1.4 Correct Dataset Visualisations in website: Correct Simple Visualisation Figure



When I made the first visualisation for my website I showed the visualisation of how the number of young children living with HIV is growing, which is a serious public health problem. Even though this graph is very basic, it was used as a starting point to make more complicated features. To get people more interested in the visualisation I decided to add interactive elements like scales and clickable tabs as well as useful titles and colour coding to make the data easier to understand and the topic it was about. These changes weren't just for looks as they were also meant to make the user experience more engaging and educational. In the results part of my work I will show more information and how well these improvements worked.

The project uses different types of quantitative analysis, like trend analysis, association analysis, and comparison analysis, to get useful information from the data. These methods were chosen because they allow a deep look into the data's temporal and regional changes, which in turn allows a deep understanding of changes and trends that happen across borders over time.

The project's success relies on careful planning and careful study of the technologies and tools that are chosen to make sure that the goals are met and that there is a reliable, easy-to-use, and useful tool for looking at European growth markers.

3.1.5 Experiments design and setup:

I kept a careful eye on website traffic and average user engagement on many visualisation platforms as part of my user testing technique. This required a thorough examination of the site's data to spot interaction trends and determine which elements visitors were finding appealing. Popular websites provide insightful information about what features such as interactive components which are easy to understand visuals or comprehensive content that might be motivating users to choose them.

My goal in doing this study was to identify distinctive elements that I might include into my own website in order to increase user engagement. I examined how certain interfaces

resulted in lengthier interaction durations and thought about the possible roles that functionality and user experience may play. I tried to use similar tactics in my project by examining these effective components in order to draw people in and provide them a satisfying and enlightening experience when they engage with the visualisations.

3.1.6 Implementations:

During the execution process, I chose Tableau Desktop because it has a lot of advanced features for working with complex data and a lot of different ways to show it. After importing the information from Kaggle, I used Tableau's data mixing tools to make links between groups and signs. Iteratively making separate files and then combining them into a dynamic screen was needed to make the visualisations. To make sure the visualisations would be lively and responsive, this step was very important.

Iteratively making the visualisations meant making changes to and fine-tuning each form before putting them all together in dashboards. After that, I made these graphs public on my Tableau page, which let me make embed codes for websites. Keeping Tableau Desktop and Tableau Public in line was a big problem. To share and embed the visualisations, you had to sign in and link your accounts in a certain way. I was able to set up a smooth process after a few tries and a lot of reading Tableau's instructions. use colour schemes that go with the topic of the text. The colour coded thematic method was meant to improve the user experience by linking different colours to different data themes. This would give users a visual cue to help them find their way around the content more easily. For example the blue for children's health, green for emission, red for mortality rates and yellow for Merchandise import and export.

When I put the visualisations into the HTML code of the website, I had to use programming languages. I used colour codes, such as blue for children's health and green for pollution data, to make sure that the CSS style matched the theme of the content. To make things more interactive, JavaScript was used to do things like expanding visualisations on the fly and switching menus for mobile views.

For example, one of the hardest things was making sure that the website looked good and fit with the data's themes. To fix this, the design was changed several times, user feedback was gathered, and the visual parts were improved over time to meet users' wants and expectations. The goal was to make a user experience that was not only nice to look at but also simple and quick to use, so that people would be more interested in the visualisations generally.

There were some problems that came up when Tableau was added to the website's HTML code. It took a lot of work to make sure that the integrated visualisations worked well on a variety of browsers and devices. I made the website run faster by reducing the data and using asynchronous loading of visualisations, which made the page load times a lot faster.

The work also needed a thorough testing step to find any problems with connectivity. Cross-browser testing was necessary and found a number of performance problems. I fixed

these by carefully fixing the CSS and setting up a flexible design system that could change to different screen sizes and give all users a smooth experience.

Putting together my website's donut-shaped navigation menu was another challenge. It was an important but difficult part of the process that I wanted to make as easy as possible for people to use. The goal of the design was to use colour coded parts to clearly show the different data sets (Children's Health, Emissions, Mortality Rates, and Merchandise Trade) so that users could move between pages by touching them.

To make the donut-shaped menu that looks good and works on all devices, complex HTML and CSS code had to be used. Scalable Vector Graphics (SVG) really helped me make sure that the menu looked good and worked well on all devices and screen sizes. Each donut piece was written with JavaScript event monitors that could handle user movements like clicking to go to a certain part of the site.

However, adding this choice proved to be difficult in a number of ways. One big problem was making sure that the clickable parts of the SVG were perfectly lined up with the visible parts. This needed careful changes to the SVG code's values and paths. It was also necessary to use thorough CSS media queries and do a lot of testing on different browsers and screen sizes to make sure that the menu was adaptable and kept its usefulness and look on different devices.

To deal with these problems, I went through a strict process of fixing and testing over and over again. This meant making small changes to the SVG paths, the CSS properties to make the site flexible and scalable, and the JavaScript code to make sure movement worked smoothly and reliably. The process of development was iterative, and many versions were tried to make the visual and interaction design better.

The fact that this menu worked so well shows how well creative design and technical skill can work together. It made the whole experience better for the users by making it easy and fun to move around the complicated data visualisations. This shows that the developers really understood both the principles of user interface design and how to put them into practice. Aside from making the website look better, this feature also made it easier for people to use and more interesting for them to explore data visualisations.

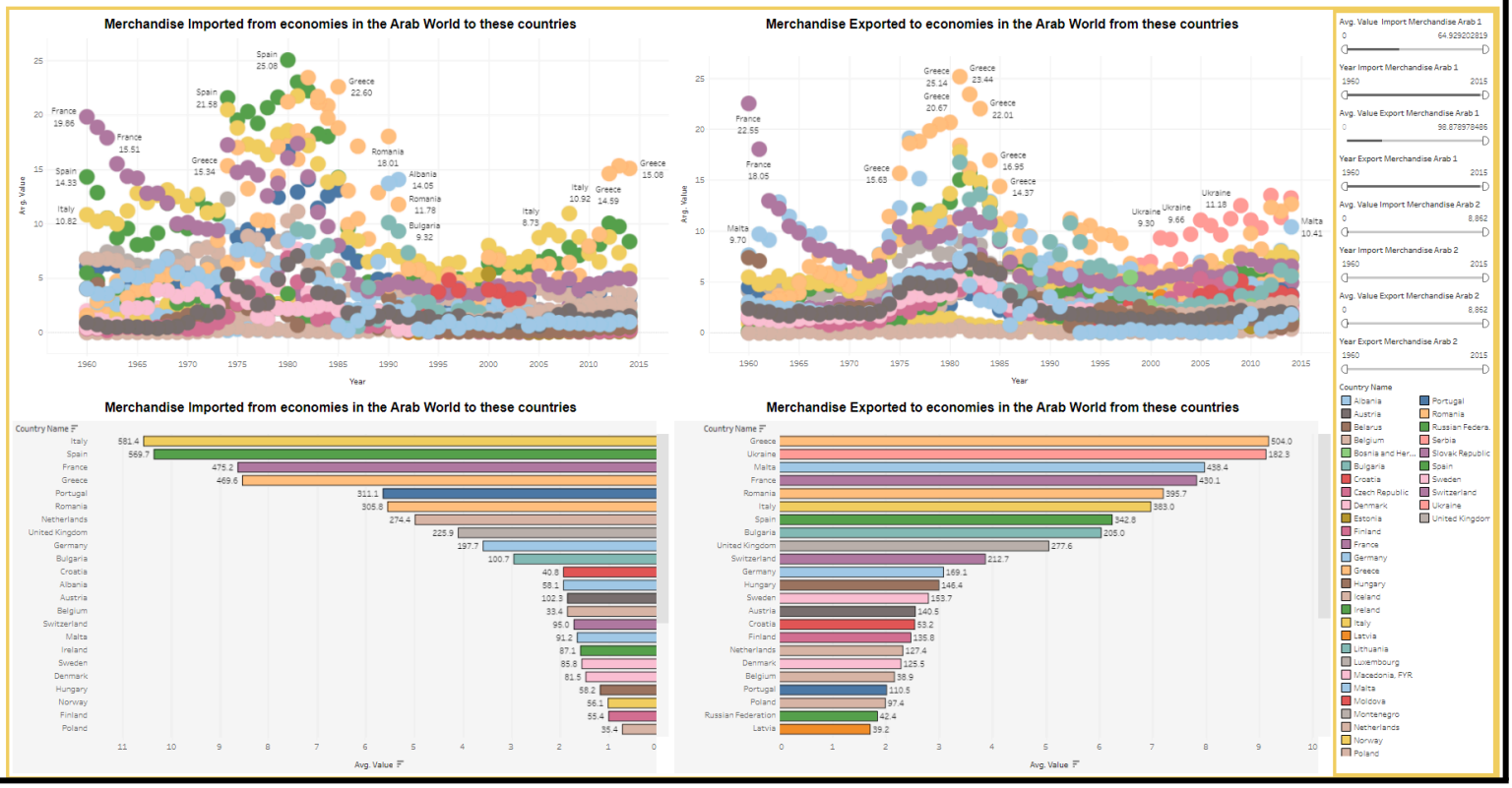
The following figures show how the site would operate with the donut menu right at the left top side so it is easy to navigate to. The user is introduced to what the page is about with the header and information given below. To keep the user engaged they are given a colour coded dashboard of visualisations with lots of interactive sliders and options to pick from, the user can also click on a colour coded country and that country would be highlighted for all the visualisations further encouraging analysis from the user.

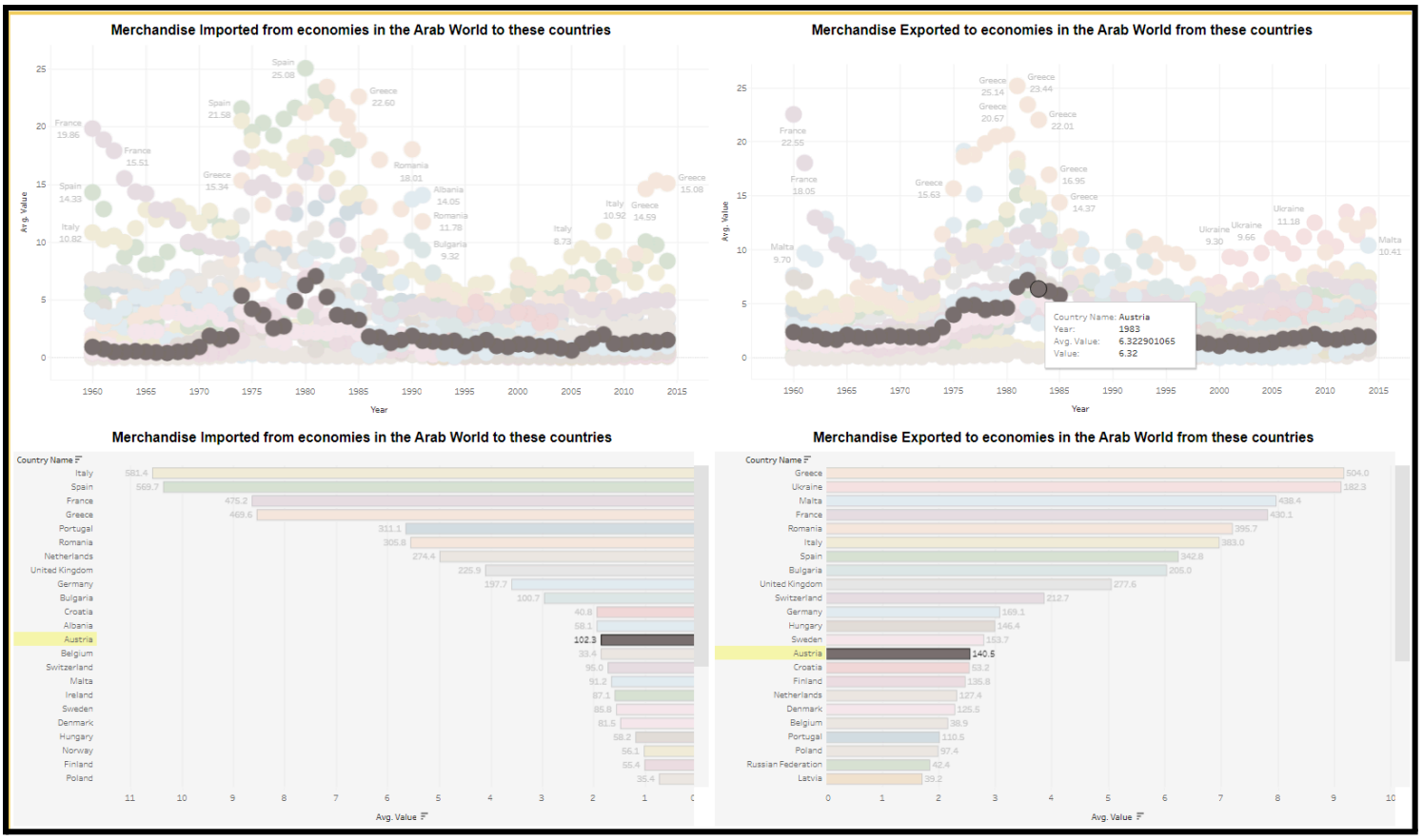
3.1.6 Figure Overview and Close up of Website:

ALL

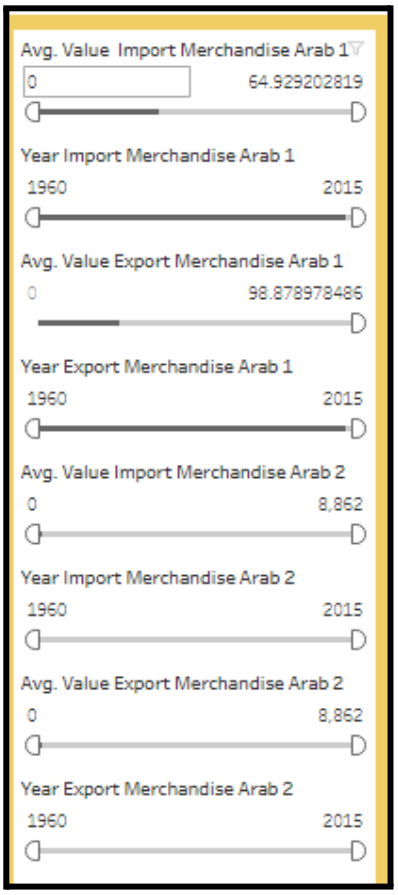
EUROPE'S MERCHANDISE

Greetings and welcome to our interactive platform, where we will explore the rich history of European goods trade. We explore how Europe has interacted with economies worldwide through a carefully chosen series of visualisations that take us from the bustling markets of the Arab world to the dynamic shores of South us across time and geography. We urge you to investigate the ebbs and flows of trade ties via each of the painstakingly detailed visualisations on our site. Our bubble charts and scatter plots come to life with vibrant colours and sizes that tell the tale of trade volume, economic development, and the shifting fortunes of history, which have moulded the world we live in. The line graphs, which show trade's percentage of GDP, highlight the importance of trade in the framework of national economies. You may learn more about a country's long-term economic resilience and vitality by using this macroeconomic perspective. Observe h demonstrate how Europe has extended out across seas to trade with far-off countries and provide a comparative look at the continent's trading activities outside its immediate neighbours. This demonstrates the spirit of enterprise and interdependence that characterise Europe's position in the world economy.





I have decided to class all these figures as one as it allows for the understanding of how the website interactivity functions. At the top of this text we can see that clicking and any country highlights it in all the visuals allowing the user to hover over it and have a description of the details. As for the figures on the right side we can see that it is the section for sliders and clickable countries. Sliding down/up allows the user to narrow down or broaden up the year value and the avg value in percentage for closer analysis of the data.



3.1.8 Donut Interactive Menu Figure/Code Snippet:

This showcases the main code snippets that are used to implement the interactive donut menu for the users. Other code That is not mentioned is just for the placement of the menu.


```
<svg class="donut-chart-link" width="100" height="100" viewBox="0 0 42 42">
   <a xlink:href="demo.html" target="_blank">
      <circle class="donut-hole" cx="21" cy="21" r="15.91549430918954"
fill="#4a69bd"></circle>
      <circle class="donut-segment yellow-segment" cx="21" cy="21" r="15.91549430918954" fill="transparent"
stroke="yellow" stroke-width="5" stroke-dasharray="25 75" stroke-dashoffset="100"></circle>
      <circle class="donut-segment green-segment" cx="21" cy="21" r="15.91549430918954" fill="transparent"
stroke="green" stroke-width="5" stroke-dasharray="25 75" stroke-dashoffset="75"></circle>
      <circle class="donut-segment blue-segment" cx="21" cy="21" r="15.91549430918954" fill="transparent"
stroke="blue" stroke-width="5" stroke-dasharray="25 75" stroke-dashoffset="50"></circle>
      <circle class="donut-segment red-segment" cx="21" cy="21" r="15.91549430918954" fill="transparent"
stroke="red" stroke-width="5" stroke-dasharray="25 75" stroke-dashoffset="25"></circle>
      <text x="50%" y="50%" text-anchor="middle" fill="white" dy=".3em" font-size="10">ALL</text>
   </a>
</svg>

<script>
   function toggleMenu() {
      var chartLink = document.querySelector('.donut-chart-link');
      chartLink.classList.toggle('show');
   }
   document.querySelector('.yellow-segment').addEventListener('click', function () {
      window.location.href = 'Merchandise.html';
   });
   document.querySelector('.green-segment').addEventListener('click', function () {
      window.location.href = 'Emission.html';
   });
   document.querySelector('.blue-segment').addEventListener('click', function () {
      window.location.href = 'Childrens Health.html';
   });
   document.querySelector('.red-segment').addEventListener('click', function () {
      window.location.href = 'Mortality.html';
   });
</script>
```

SVG Element Explanation:

SVG Container: The <svg> tag defines the space for the donut chart, setting its width, height, and viewable area.
class="donut-chart-link" assigns a class for potential CSS styling and JavaScript interaction.

width="100" height="100" viewBox="0 0 42 42" sets the size of the SVG element and the viewable area that contains the shapes.

Links: The <a> tag with xlink:href="demo.html" target="_blank" wraps the circles, making the entire donut chart a hyperlink that opens "demo.html" in a new tab when any segment is clicked that doesn't have a specific interaction defined.

Circles:

class="donut-hole" represents the centre of the donut, styled with a solid fill.
class="donut-segment" prefixed circles (yellow-segment, green-segment, blue-segment, red-segment) represent clickable areas of the donut chart.

Each segment has:
stroke defining the colour of the segment.
stroke-width="5" setting the thickness of the circle's line.
stroke-dasharray and stroke-dashoffset control the dashed appearance, creating gaps that visually separate the segments.

JavaScript Interaction:

Toggle Functionality: toggleMenu() is a function that toggles the visibility or style of the donut chart, allowing it to show or hide based on user interaction, though the specifics of the "show" class behaviour are not defined in the provided code.

Event Listeners:

These are added to each segment of the donut chart. When a segment is clicked, it redirects the browser to a new HTML page corresponding to the segment's topic (e.g., 'Merchandise.html' for the yellow segment).

This setup enhances user navigation by linking different sections of the site through visually distinct segments of the donut chart. This implementation uses SVG for rendering scalable interactive graphics and JavaScript to handle user interactions effectively, providing a visually engaging and intuitive navigation experience on the website. The combination of SVG for the graphical presentation and JavaScript for interaction underpins a modern web design approach that enhances user engagement and accessibility.

3.1.9 Embedded Visualisations:

This showcases the actual code that allows the visualisations to appear on my website:

By successfully embedding a Tableau visualisation into a web page, the HTML and JavaScript code that is given improves the interactivity and accessibility of data via a browser. The Tableau visualisation is housed inside the element, while the Tableau material is embedded using the tag, which has precise specifications governing its look and behaviour. The source URL, display preferences like toolbar visibility, and aesthetic components like static graphics during the visualisation's loading phase are some of these attributes.

When JavaScript is disabled in a browser, the <noscript> element offers a static fallback picture of the visualisation. This makes sure that even in the absence of interactive features, a representation of the data is still displayed. The Tableau visualisation is included using the <object class='tableauViz'> element. The default setting is none, which is managed by JavaScript to make sure it only shows up once everything has loaded and been set up. The

visualisation's attributes, including the host URL, whether to show the Tableau toolbar, transitions, and language settings, are configured using a number of <param> tags within the object.

JavaScript is important here since it ensures that the display is responsive on various devices by dynamically adjusting the visualisation's size dependent on the breadth of the viewing area. Maintaining a pleasant user experience depends on the visualisation looking acceptable on both desktop and mobile devices, which is made possible by its responsiveness. Additionally, the Tableau JavaScript library (viz_v1.js) is loaded erratically by the script, which may speed up page loading considerably by not obstructing the presentation of other components.

Concerning Reactivity The method makes sure that the visualisation is visually consistent and responsive across a variety of device sizes, which is important for the user experience on many platforms. When it comes to performance, we can see that the Tableau script's dynamic loading may speed up the page's initial load. The intricacy of the Tableau visualisation and the effectiveness of the Tableau server, however, will also have an impact on the real performance. Content accessibility is guaranteed by offering a static picture fallback in the event that user preferences or browser limitations prevent interactive features from being used.

The script modifies the Tableau visualisation's dimensions according to the container's width. This guarantees that the visualisation is adaptable and shows correctly on various screen sizes. The visualisation is set to bigger dimensions if the width of the container is more than 800 pixels; if not, it resizes to suit the available space. Overall, the code is efficient and user-friendly since it is well-structured to allow Tableau visualisations to be seamlessly integrated into a web context. Asynchronous script loading and responsive design concepts improve the data visualisations' accessibility and performance. This method is a reliable choice for web-based data presentations since it guarantees easy interaction between users and the data regardless of the device or speed of the connection.

```
<div class='tableauPlaceholder' id='viz1712969276097' style='position: relative'>
    <noscript>
        <a href='#'>
            <img alt='Map Overview' src='https://public.tableau.com/static/images/Ma/MapOverview_17129691103840/MapOverview/1_rss.png' style='border: none' />
        </a>
    </noscript>
    <object class='tableauViz' style='display:none;'>
        <param name='host_url' value='https%3A%2F%2Fpublic.tableau.com%2F' />
        <param name='embed_code_version' value='3' />
        <param name='site_root' value='' />
        <param name='name' value='MapOverview_17129691103840/MapOverview' />
        <param name='tabs' value='no' />
        <param name='toolbar' value='yes' />
        <param name='static_image' value='https://public.tableau.com/static/images/Ma/MapOverview_17129691103840/MapOverview/1.png' />
        <param name='animate_transition' value='yes' />
        <param name='display_static_image' value='yes' />
        <param name='display_spinner' value='yes' />
        <param name='display_overlay' value='yes' />
        <param name='display_count' value='yes' />
        <param name='language' value='en-GB' />
    </object>
</div>
<script type='text/javascript'>
    var divElement = document.getElementById('viz1712969276097');
    var vizElement = divElement.getElementsByTagName('object')[0];
    if (divElement.offsetWidth > 800) {
        vizElement.style.width = '2300px';
        vizElement.style.height = '1227px';
    } else if (divElement.offsetWidth > 500) {
        vizElement.style.width = '2300px';
        vizElement.style.height = '1227px';
    } else {
        vizElement.style.width = '100%';
        vizElement.style.height = '727px';
    }
    var scriptElement = document.createElement('script');
    scriptElement.src = 'https://public.tableau.com/javascripts/api/viz_v1.js';
    vizElement.parentNode.insertBefore(scriptElement, vizElement);
</script>
```

Fig 3.2
Html code for an tableau visualisation

3.2 Algorithms/tools/technologies:

For my project, I mostly used Tableau Desktop and Tableau Public to show data. Tableau was the best tool for processing the huge amount of data from Kaggle's World Development Indicators because it could connect to many different data sources and handle large datasets well. I also added these Tableau visualisations to an HTML website. Embedded codes from Tableau Public were used to make this possible.This method lets users interact with data on the website in real time.

For building the website HTML was used for structure and CSS was used for styling. This made sure that the visualisations looked good and were easy for people to use. JavaScript was used to add interactive elements such as the colour coded donut-shaped navigation menu. This made the user experience better by making it easier to find data and by making the visuals match the themes of the datasets. The way this mix of technologies was used was very creative and especially how Tableau's interactive features were seamlessly added to a custom web environment. This let users change how data was displayed right in their browser which made it easier to access and understand complex data.

CHAPTER 4 RESULTS

4.1 Research analysis:

The project's output is a comprehensive interactive data visualisation tool designed to investigate different development indicators throughout Europe. With the help of this tool, users can effortlessly transform intricate datasets into visually stimulating and thought-provoking representations that highlight important topics like environmental sustainability, public health, and economic dynamics in the European context.

Software/System Performance: Tableau Public's integration with a unique HTML website enables dynamic user interaction with the data. To guarantee excellent responsiveness and seamless operation, this integration underwent extensive testing on a variety of hardware and browser combinations. Performance tests verified that even with intricate data manipulations, the visualisations remain fast and clear. This optimisation makes sure that there is less lag or interruption for users when they interact with the data, which improves the tool's usability and instructional value.

User Feedback and Engagement: One of the most important measures of this project's success was user feedback. The tool's interface and interactive features have received a great deal of positive initial user feedback. Users have praised the interactive elements' intuitive design, which includes clickable maps, colour-coded graphs, and sliders, as well as how simple it is to navigate between different data sets. This feedback highlights how well the tool works to make complex data understandable and accessible to a wide range of users, including educational institutions and policymakers.

Innovative Use of Technology: The project is notable for the creative way it makes use of Tableau's online visualisation tools. The project makes use of cutting-edge data processing and visualisation tools in an innovative way by embedding Tableau visualisations straight into an HTML framework. This method not only makes the data more visually appealing and interactive, but it also democratises access to sophisticated data analytics, enabling non-specialists to investigate and comprehend important development trends.

Quantitative Analysis: The tool supports trend analysis, comparative analysis, and predictive modelling, among other types of quantitative analysis. With the help of these features, users can get useful insights from the data, such as patterns in the economic or health outcomes of various European regions over time. Rapid data manipulation and analysis facilitates a deeper comprehension of the fundamental causes underlying these trends.

Educational and Policy Implications: Through interactive learning, the visualisation tool has improved users' comprehension of complex issues, demonstrating its value as a valuable educational resource. The tool provides policymakers with a strong platform for planning scenarios and making decisions based on in-depth data analysis. The tool's insights are being used to guide policy talks and educational materials, demonstrating the project's significant influence on information sharing and policy development in Europe.

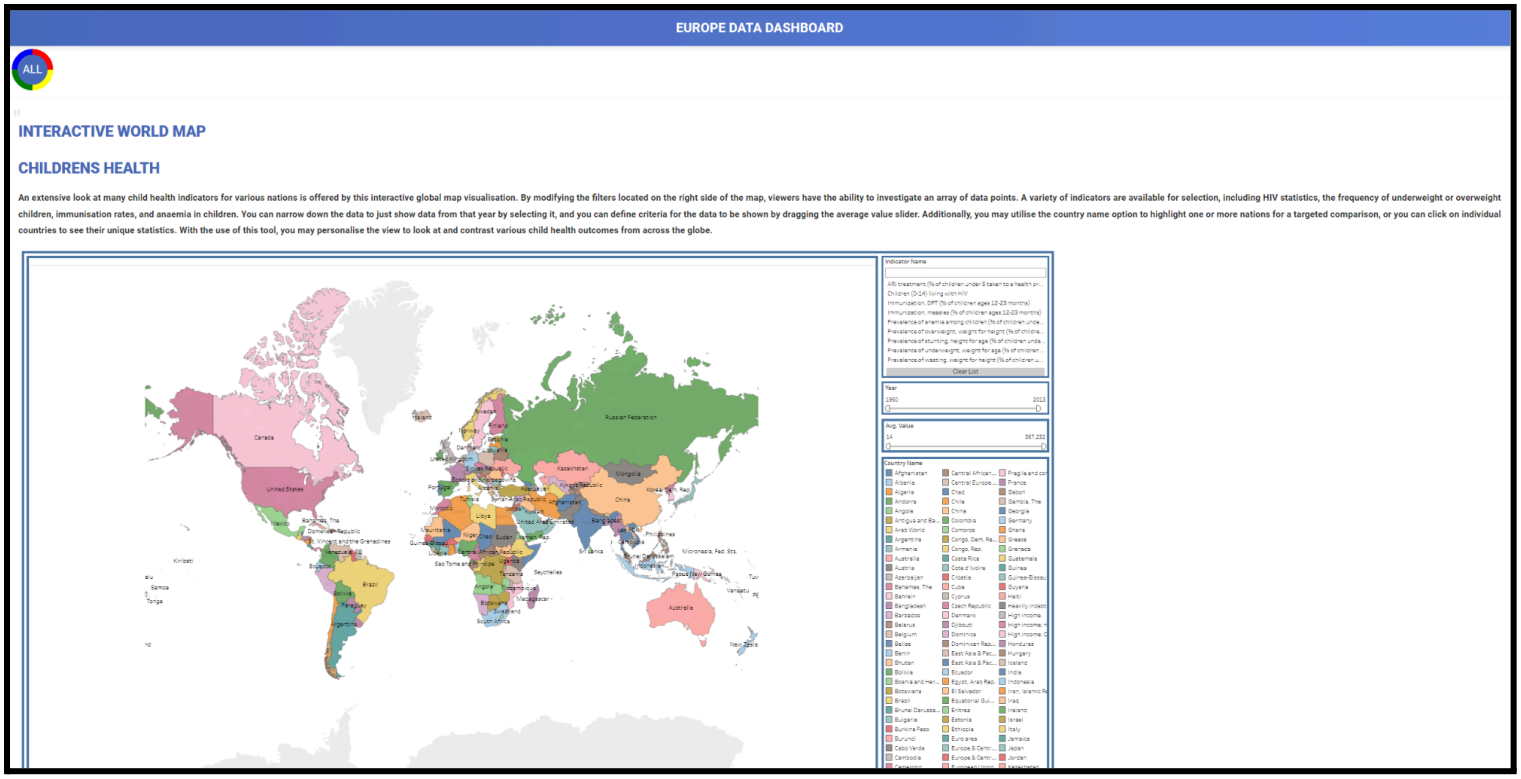
In summary, the project's objectives of creating a high-performing, user-friendly, and instructive data visualisation tool are successfully met. The outcomes show the implementation's technical skill as well as its usefulness for users looking to use data-driven insights to comprehend and impact European development.

4.2 State of the website:

Users may examine a variety of child health metrics for different nations using this dashboard. The main feature of the layout is a globe map, on which various data metrics are represented by the colour coding of the various nations. Users may narrow their view by year, age value, and country names using the filters on the right side of the screen. This configuration is intended to provide a thorough analysis at a glance, giving users the ability to alter the presentation depending on certain indicators such as vaccination rates, the incidence of underweight or overweight children, etc.

The option to click on certain nations for in-depth information or use the sliders to modify the dataset for a specific year range or metric average highlights the tool's interactivity. Users such as policymakers, academics, and the general public may examine the effects of various health indicators across countries and get insights into global trends in child health by using this kind of visual tool, which is a great resource.

Making the data accessible and interesting is largely dependent on the design decisions made about colour, layout, and user interaction paths. When it comes to presenting complicated information in a manner that might affect comprehension and decision-making, these kinds of visualisations work very well. It exhibits a deliberate approach to data display, giving equal weight to the communication of information and the interaction between the user and that information. **Fig 4.2.3 Children's Health p1**



I gave careful consideration to both navigability and in-depth research while designing the interactive data visualisation's tabs section. Users may quickly navigate between several health subcategories, with each tab leading them to a visualisation suited for a particular health issue. With the user's inquisitive curiosity in mind, this feature was created to enable a smooth focus transition without requiring the user to go back or lose context.

Furthermore, the information section included at the bottom of every visualisation fulfils two functions: it gives integrated citations in addition to providing insights and methodology behind the data shown. This makes it possible for further scholarly investigation, establishing a foundation for the visual data in credible sources and providing avenues for people to go further into the study. All data points are properly cited, allowing readers to track the data's original source and investigate the larger context. This design decision demonstrates my dedication to enhancing the user's comprehension and giving them the tools they need to do independent investigation, rather than only displaying facts.

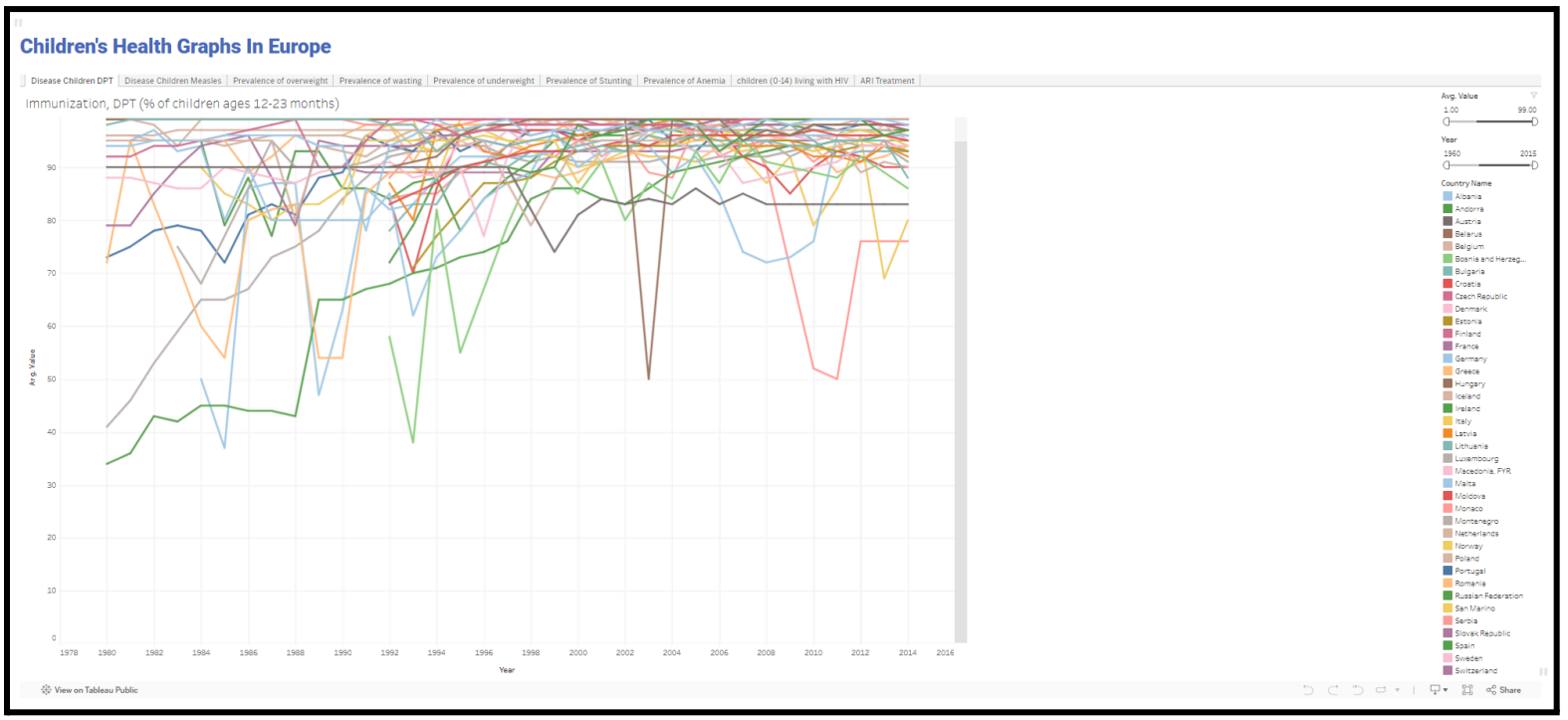
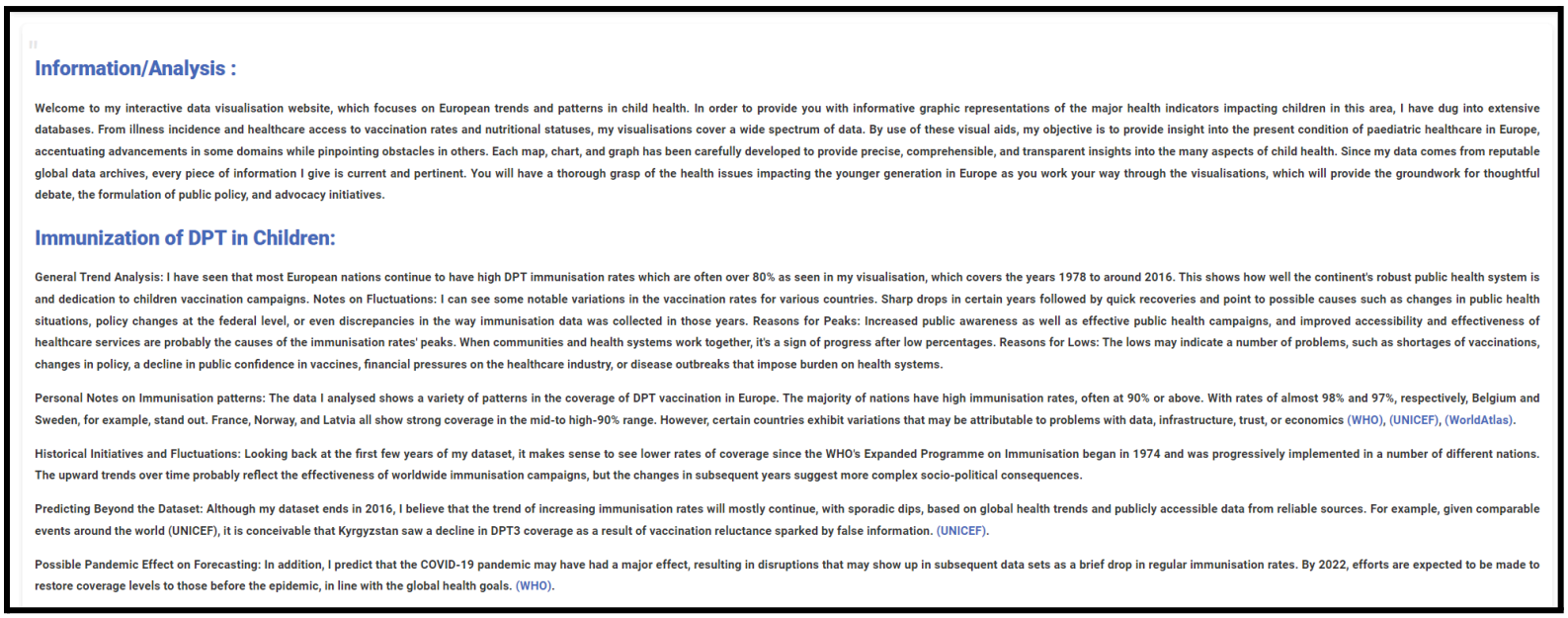


Fig 4.2.4 Children's Health p2



Information/Analysis :

Welcome to my interactive data visualisation website, which focuses on European trends and patterns in child health. In order to provide you with informative graphic representations of the major health indicators impacting children in this area, I have dug into extensive databases. From illness incidence and healthcare access to vaccination rates and nutritional statuses, my visualisations cover a wide spectrum of data. By use of these visual aids, my objective is to provide insight into the present condition of paediatric healthcare in Europe, accentuating advancements in some domains while pinpointing obstacles in others. Each map, chart, and graph has been carefully developed to provide precise, comprehensible, and transparent insights into the many aspects of child health. Since my data comes from reputable global data archives, every piece of information I give is current and pertinent. You will have a thorough grasp of the health issues impacting the younger generation in Europe as you work your way through the visualisations, which will provide the groundwork for thoughtful debate, the formulation of public policy, and advocacy initiatives.

Immunization of DPT in Children:

General Trend Analysis: I have seen that most European nations continue to have high DPT immunisation rates which are often over 80% as seen in my visualisation, which covers the years 1978 to around 2016. This shows how well the continent's robust public health system is and dedication to children vaccination campaigns. Notes on Fluctuations: I can see some notable variations in the vaccination rates for various countries. Sharp drops in certain years followed by quick recoveries and point to possible causes such as changes in public health situations, policy changes at the federal level, or even discrepancies in the way immunisation data was collected in those years. Reasons for Peaks: Increased public awareness as well as effective public health campaigns, and improved accessibility and effectiveness of healthcare services are probably the causes of the immunisation rates' peaks. When communities and health systems work together, it's a sign of progress after low percentages. Reasons for Lows: The lows may indicate a number of problems, such as shortages of vaccinations, changes in policy, a decline in public confidence in vaccines, financial pressures on the healthcare industry, or disease outbreaks that impose burden on health systems.

Personal Notes on Immunisation patterns: The data I analysed shows a variety of patterns in the coverage of DPT vaccination in Europe. The majority of nations have high immunisation rates, often at 90% or above. With rates of almost 98% and 97%, respectively, Belgium and Sweden, for example, stand out. France, Norway, and Latvia all show strong coverage in the mid-to high-90% range. However, certain countries exhibit variations that may be attributable to problems with data, infrastructure, trust, or economics (WHO), (UNICEF), (WorldAtlas).

Historical Initiatives and Fluctuations: Looking back at the first few years of my dataset, it makes sense to see lower rates of coverage since the WHO's Expanded Programme on Immunisation began in 1974 and was progressively implemented in a number of different nations. The upward trends over time probably reflect the effectiveness of worldwide immunisation campaigns, but the changes in subsequent years suggest more complex socio-political consequences.

Predicting Beyond the Dataset: Although my dataset ends in 2016, I believe that the trend of increasing immunisation rates will mostly continue, with sporadic dips, based on global health trends and publicly accessible data from reliable sources. For example, given comparable events around the world (UNICEF), it is conceivable that Kyrgyzstan saw a decline in DPT3 coverage as a result of vaccination reluctance sparked by false information. (UNICEF).

Possible Pandemic Effect on Forecasting: In addition, I predict that the COVID-19 pandemic may have had a major effect, resulting in disruptions that may show up in subsequent data sets as a brief drop in regular immunisation rates. By 2022, efforts are expected to be made to restore coverage levels to those before the epidemic, in line with the global health goals. (WHO).

Fig 4.2.5 Children's Health p3

Moving onto the different page of the visualisations, the mortality rates which is f**ig 4.3.6 Mortality rates**. Through the dashboard the user is given a thorough and multifaceted overview of maternal death rates. The layout makes use of an interactive map in conjunction with an additional bar chart that provides views of the data from both a geographical and historical viewpoint. By switching between many graphic layers, this format enables users to rapidly understand temporal patterns and regional inequalities. The option to filter and choose certain data points enhances the user experience and offers a customised analytical path.

The development from the first crude visualisations to this more sophisticated level shows a rise in complexity in terms of both usefulness and aesthetic appeal. The dual-component visualisation technique successfully tells an engaging and educational story about maternal health, enticing the user to go further into the data. The tool's dynamic character, which accommodates a range of informational demands and preferences, is shown by the ability for users to engage with the data on numerous levels, from broad overviews to minute details and as the iterations go by the more pages i created i got more efficient and better at making them look visually pleasing and functional

Looking back at the development of the visual design, it is evident that a great deal of attention was paid to the clarity and intuitiveness of the visual representation and the user interface. In order to engage a varied audience, the final product strikes a balance between complicated data display and user-friendly navigation. In addition to displaying technical mastery, the use of this dynamic and tiered method to data visualisation also shows careful attention for end-user engagement and instructional value. The same format follows in all of them there is a visualisation dashboard and then information provided for the user at the bottom giving historical and research info to why the values are that in those years.

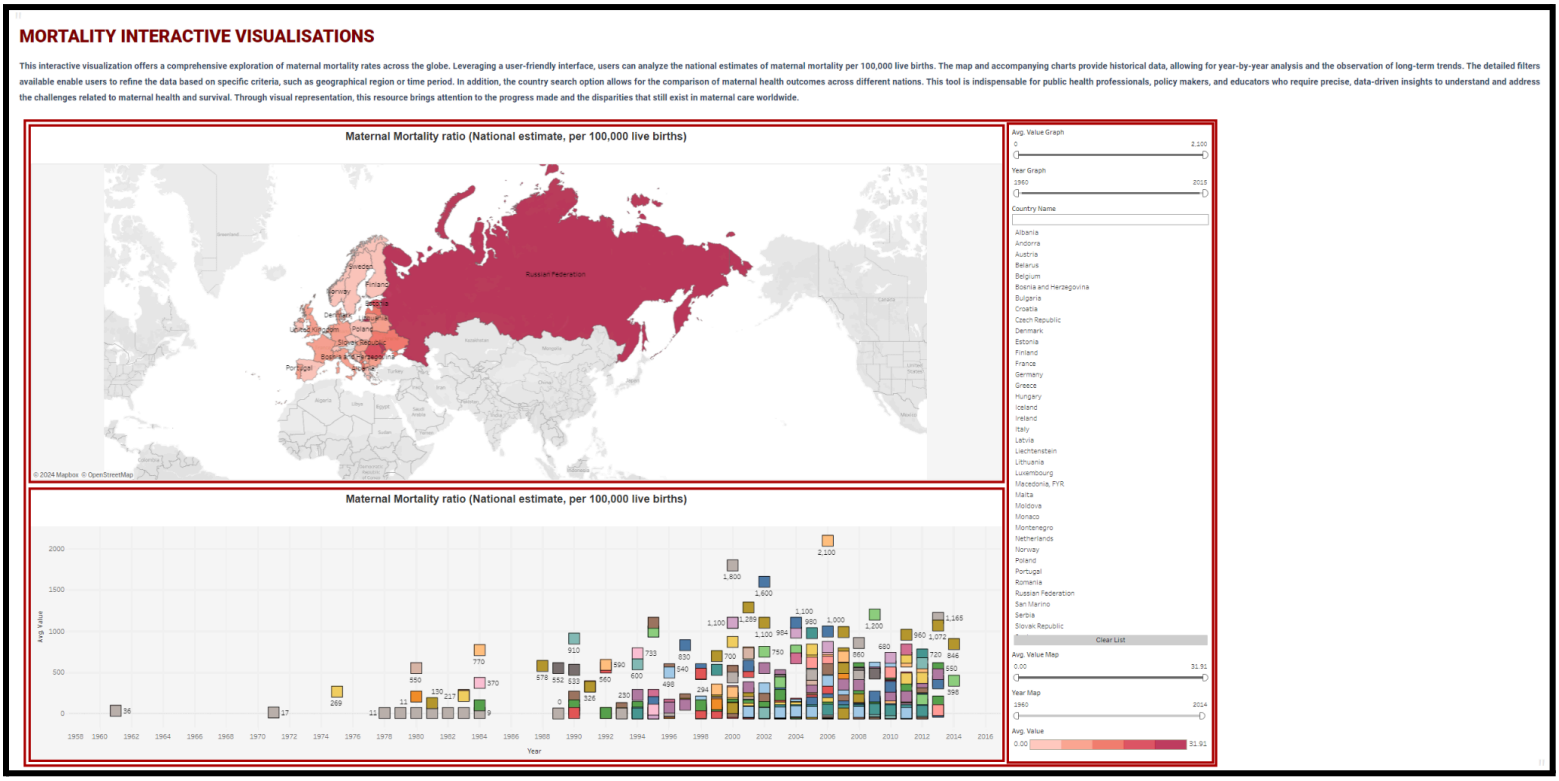


Fig 4.3.6 Mortality rates

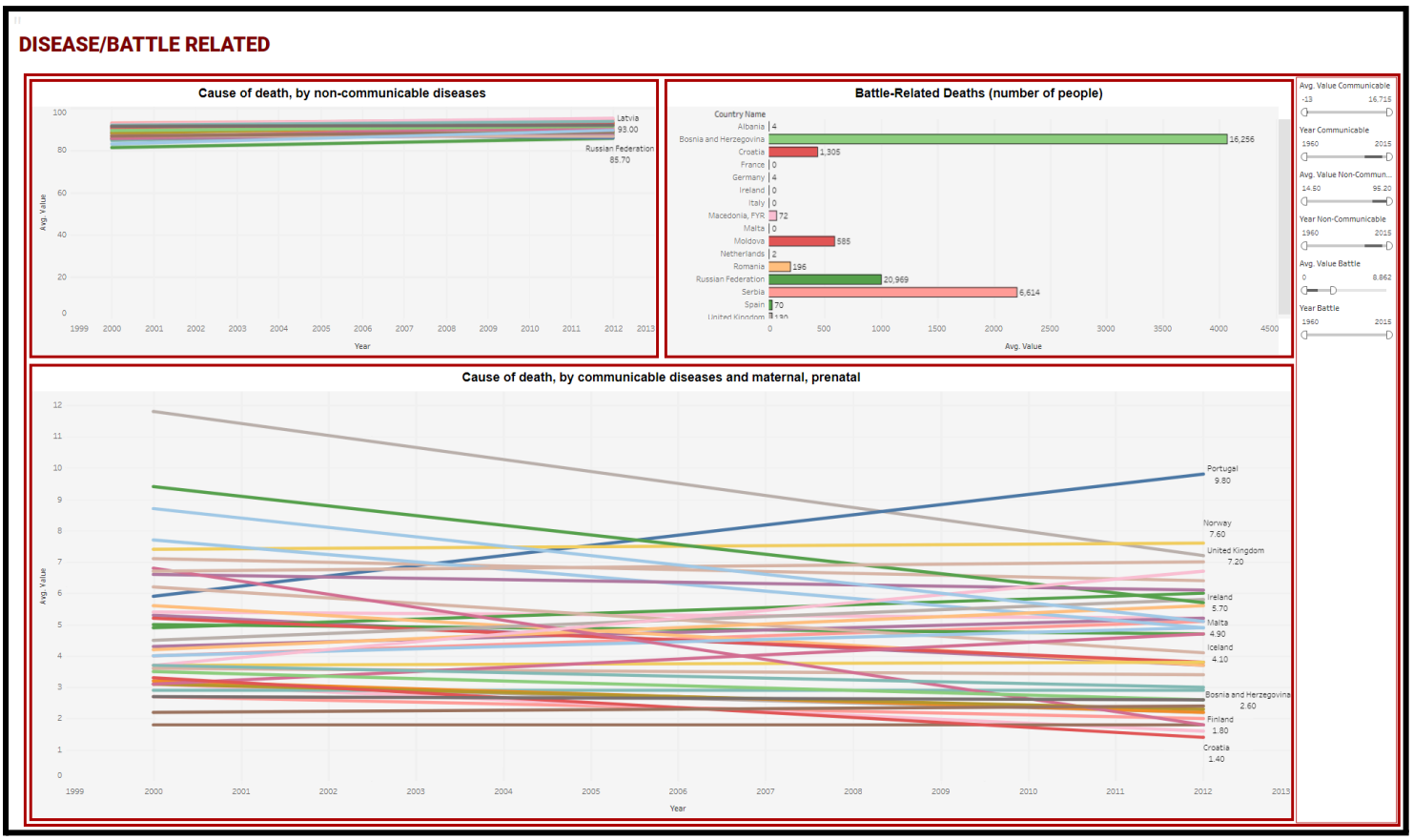
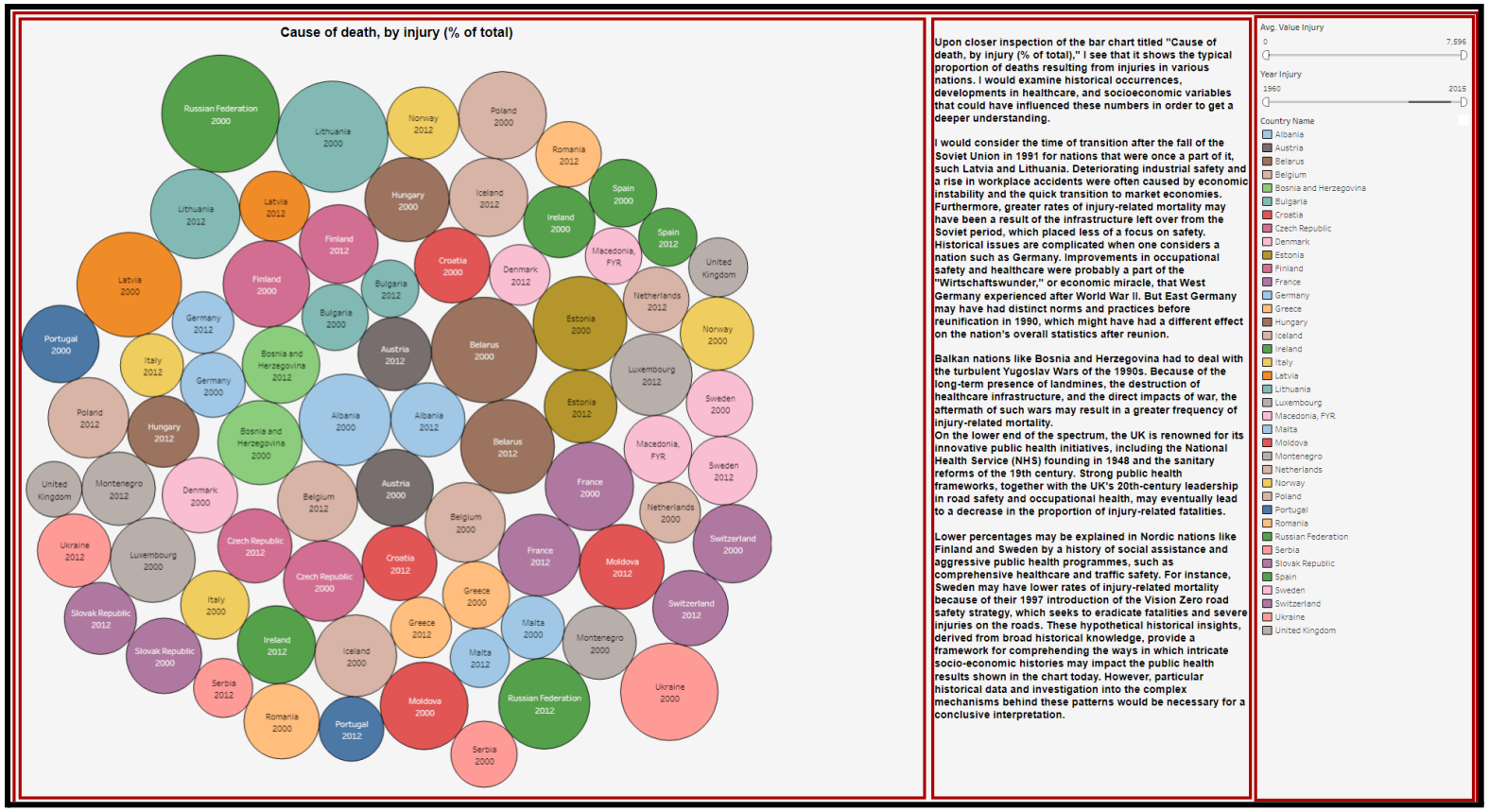


Fig 4.3.7 Mortality rates



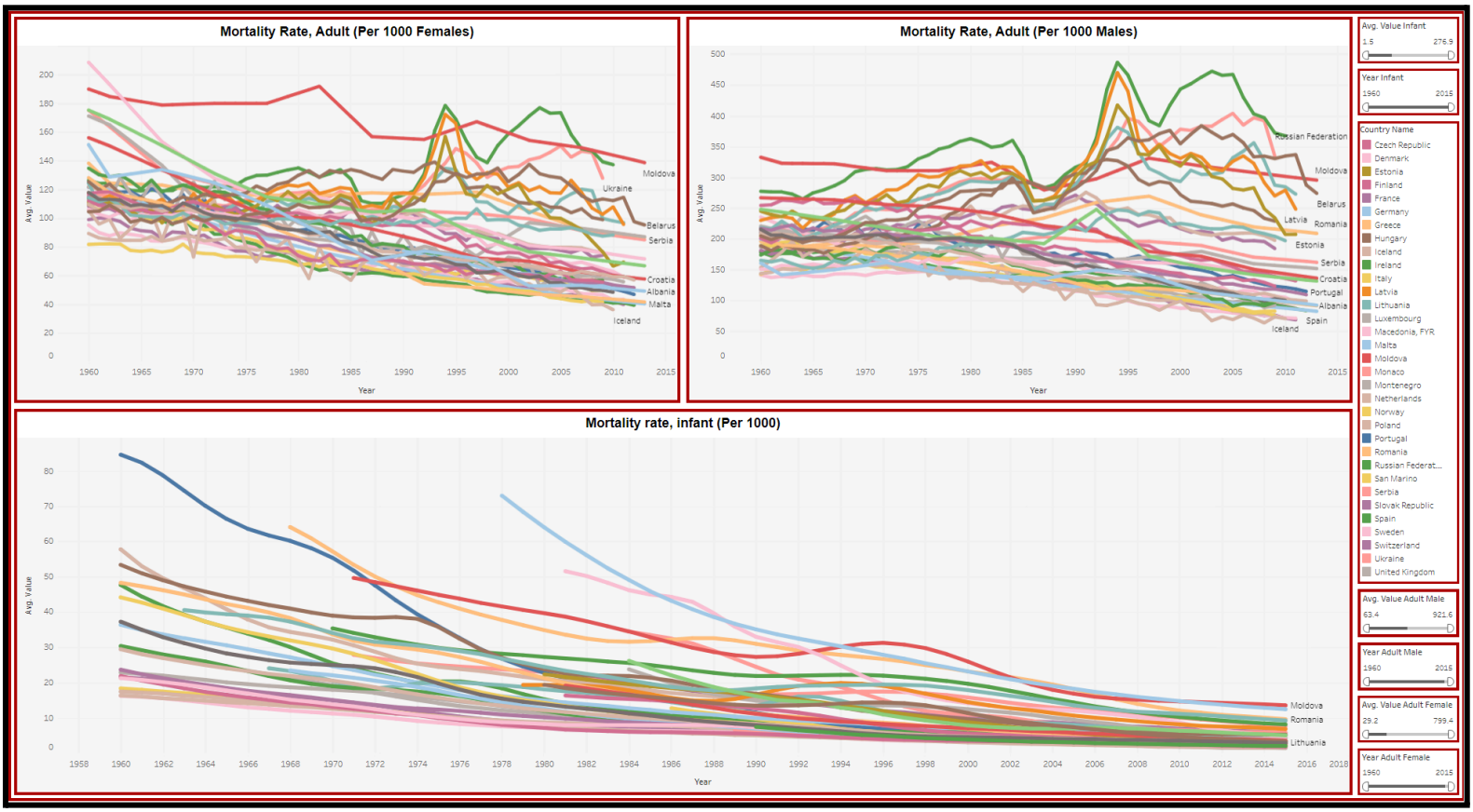
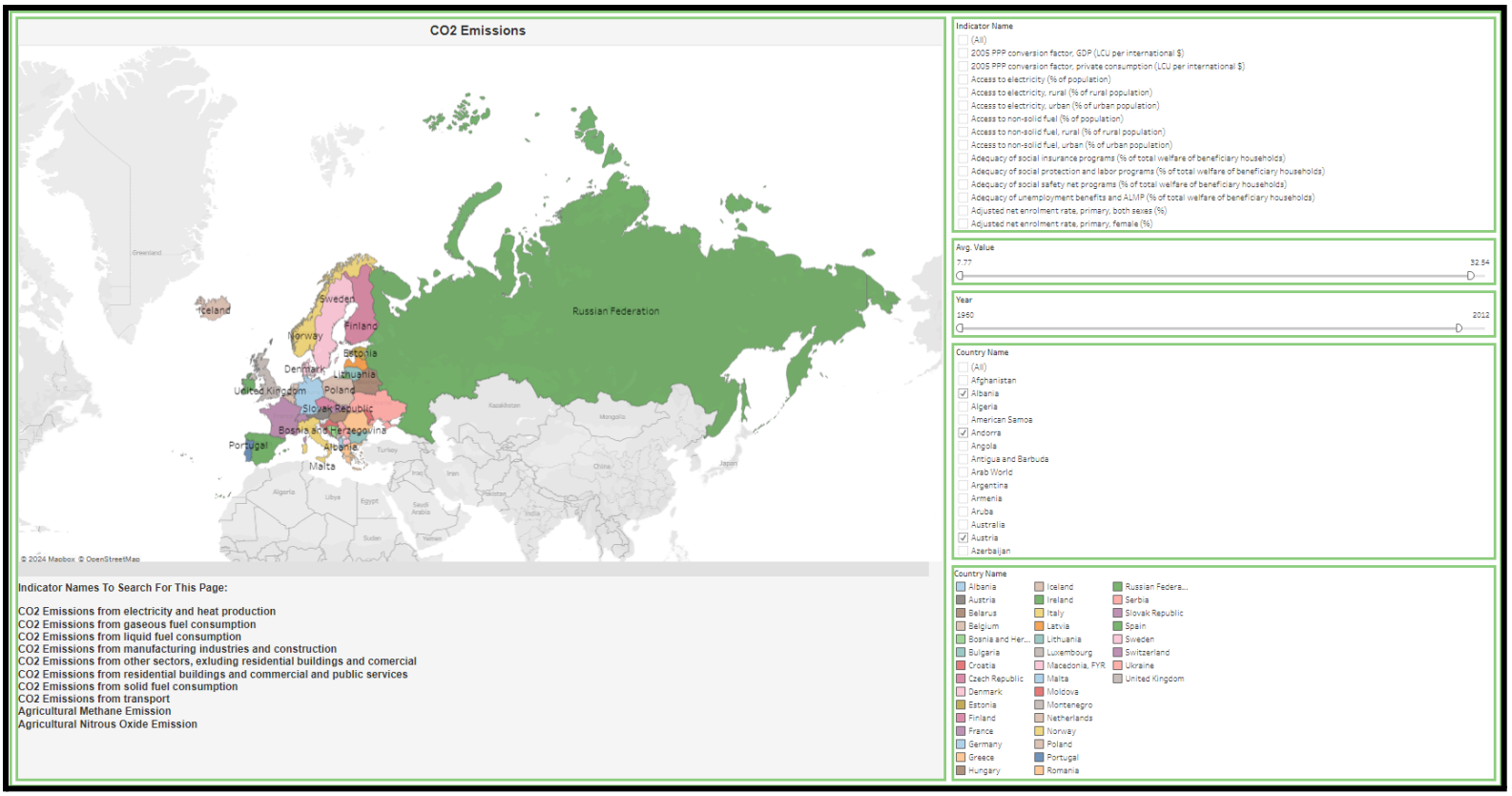
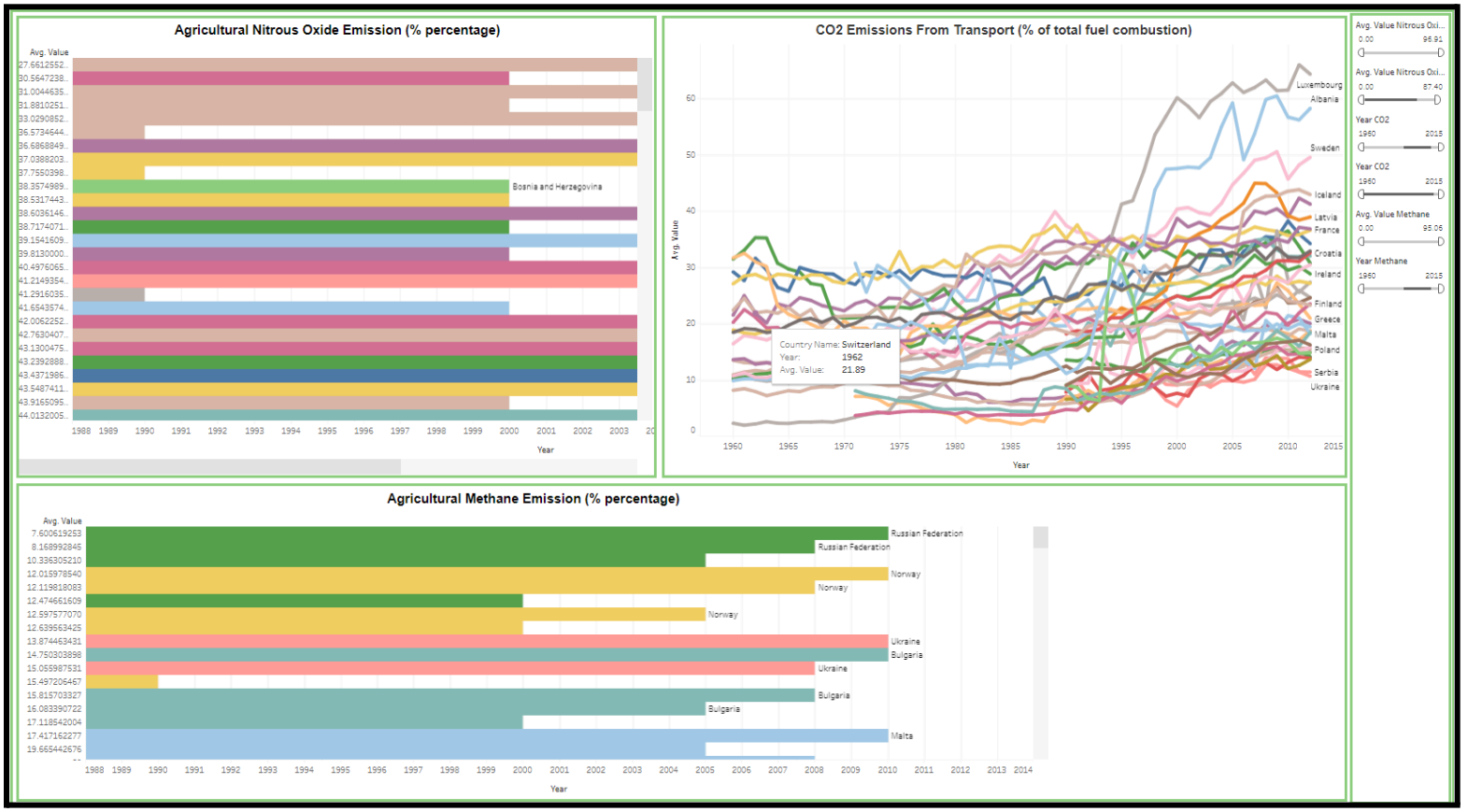


Fig 4.3.8 Mortality rates

Fig 4.3.9 Mortality rates


CO2 Emissions
Russian Federation
Sweden
Finland
Norway
Iceland
Estonia
Denmark
Lithuania
United Kingdom
Poland
Slovak Republic
Bosnia and Herzegovina
Portugal
Albania
Malta
© 2024 Mapbox © OpenStreetMap
Indicator Name
(All)
2005 PPP conversion factor, GDP (LCU per international $)
2005 PPP conversion factor, private consumption (LCU per international $)
Access to electricity (% of population)
Access to electricity, rural (% of rural population)
Access to electricity, urban (% of urban population)
Access to non-solid fuel (% of population)
Access to non-solid fuel, rural (% of rural population)
Access to non-solid fuel, urban (% of urban population)
Adequacy of social insurance programs (% of total welfare of beneficiary households)
Adequacy of social protection and labor programs (% of total welfare of beneficiary households)
Adequacy of social safety net programs (% of total welfare of beneficiary households)
Adequacy of unemployment benefits and ALMP (% of total welfare of beneficiary households)
Adjusted net enrolment rate, primary, both sexes (%)
Adjusted net enrolment rate, primary, female (%)
Avg. Value
7.77
32.54
Year
1960
2012
Country Name
(All)
Afghanistan
Albania
Algeria
American Samoa
Andorra
Angola
Antigua and Barbuda
Arab World
Argentina
Armenia
Aruba
Australia
Austria
Azerbaijan
Indicator Names To Search For This Page:
CO2 Emissions from electricity and heat production
CO2 Emissions from gaseous fuel consumption
CO2 Emissions from liquid fuel consumption
CO2 Emissions from manufacturing industries and construction
CO2 Emissions from other sectors, exluding residential buildings and comercial
CO2 Emissions from residential buildings and commercial and public services
CO2 Emissions from solid fuel consumption
CO2 Emissions from transport
Agricultural Methane Emission
Agricultural Nitrous Oxide Emission
Country Name
Albania
Austria
Belarus
Belgium
Bosnia and Her...
Bulgaria
Croatia
Czech Republic
Denmark
Estonia
Finland
France
Germany
Greece
Hungary
Iceland
Ireland
Italy
Latvia
Lithuania
Luxembourg
Macedonia, FYR
Malta
Moldova
Montenegro
Netherlands
Norway
Poland
Portugal
Romania
Russian Federa...
Serbia
Slovak Republic
Spain
Sweden
Switzerland
Ukraine
United Kingdom


Agricultural Nitrous Oxide Emission (% percentage)
Avg. Value
Bosnia and Herzegovina
Year
CO2 Emissions From Transport (% of total fuel combustion)
Avg. Value
Year
Country Name: Switzerland
Year: 1962
Avg. Value: 21.89
Luxembourg
Albania
Sweden
Iceland
Latvia
France
Croatia
Ireland
Finland
Greece
Malta
Poland
Serbia
Ukraine
Avg. Value Nitrous Oxi...
Year CO2
Avg. Value Methane
Year Methane
Agricultural Methane Emission (% percentage)
Avg. Value
Russian Federation
Norway
Ukraine
Bulgaria
Malta
Year

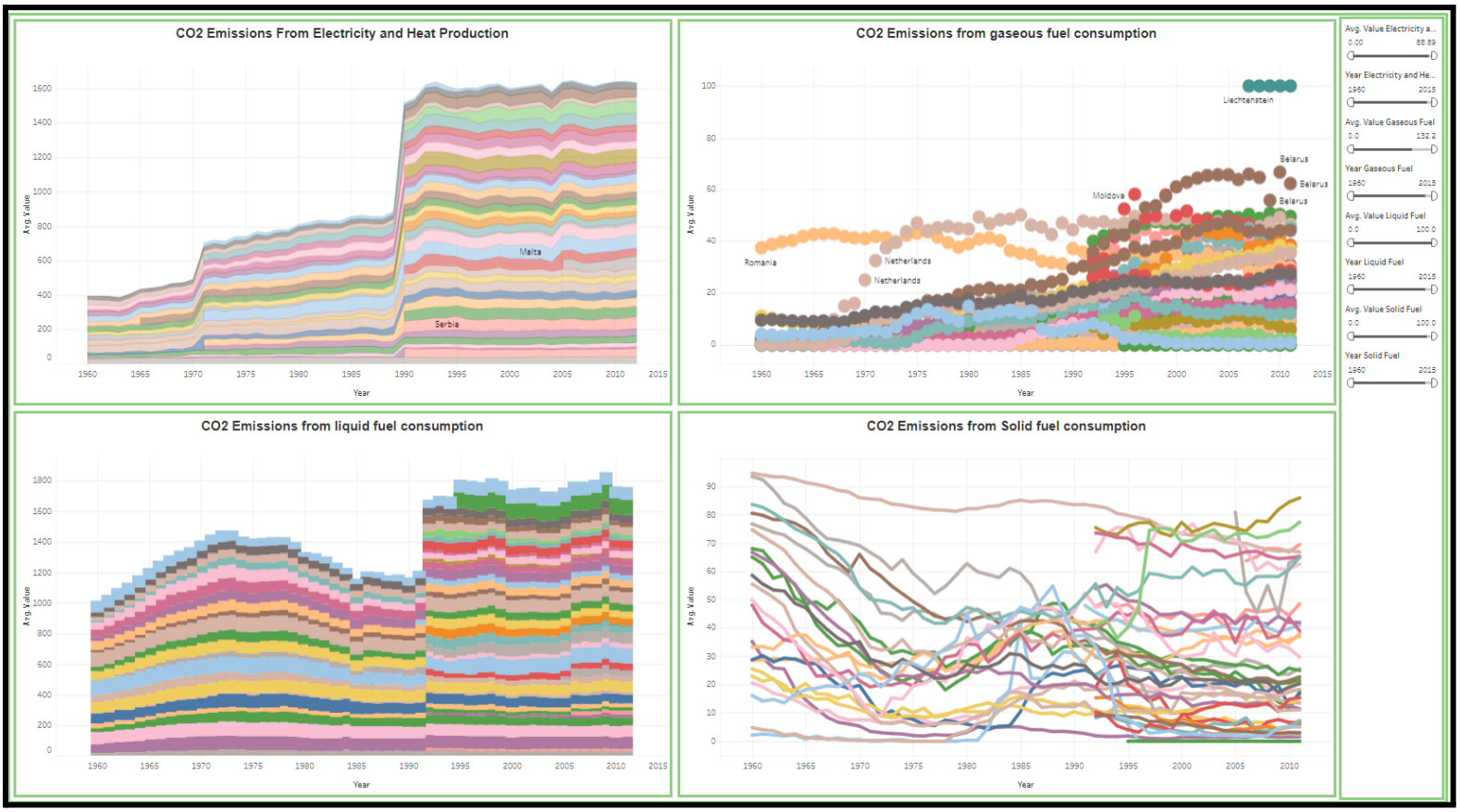


Fig 4.4.1 Emissions
Fig 4.4.2 Emissions
Fig 4.4.3 Emissions

CHAPTER 5 TESTING/DISCUSSION AND ANALYSIS

5.1 Discussion and Analysis:

The interactive data visualisation tool's results demonstrate its inventiveness and efficacy in presenting complex data in an understandable format. It was created to investigate development indicators throughout Europe. An interactive and captivating user experience was made possible by the seamless integration of Tableau into a dynamic HTML interface, highlighting the tool's ability to offer real-time data analysis and customisation. In-depth analysis of these results is provided in this report in the methodology section with a focus on how the tool affects the users understanding and decision making in the contexts of education and policy.

5.2 Significance of the Findings:

The project's results are noteworthy because they show how interactive data visualisations can improve knowledge of difficult subjects like European economic policy and public health. The tool helps with scenario planning and strategy development for policymakers in addition to serving educational purposes by enabling users to manipulate and interact with the data.

The tool is an invaluable resource for stakeholders who want to make informed decisions based on the most recent data trends because of its dynamic interaction with data through visual means.

5.3 Limitations:

Even though the project has been successful, there are still issues that need to be resolved for further advancement. The primary limitation is the dependence on the completeness and quality of the Kaggle dataset, which may have an impact on the visualisations' accuracy. Furthermore, even though the tool runs smoothly on powerful devices, its functionality might be improved for users with slower internet or outdated technology to ensure wider accessibility. Future improvements might include growing the dataset to include more localised, fine-grained data and optimising data processing algorithms to increase speed and efficiency.

One limitation of the project overall is the difficulty in filtering the world data set that I got from Kaggle to only show European data. at first i wanted this project to be about showing world data visualised but i came across the problem that the data would too comprehensive to the point where there would be a lot of overlapping of data in the visualisations and this would eventually be very hard for the end user to navigate through especially if every country would be colour coded and this would use a lot of computational power for the software/end website to process each time the user filters in the data using the sliders or highlights a specific country.

5.4 Testing:

At this point in the project, the HTML code that implemented the interactive visualisations was put through a thorough testing process to make sure it worked well on different browsers and systems. User engagement, responsiveness, and functionality were the main areas of attention for the testing. The functionality of the code was verified by making sure that all interactive components such as sliders and clickable regions performed as anticipated and enabled users to easily change the visual data.

To guarantee that the visual quality and user experience were maintained across tablets, smartphones, and PCs, responsiveness testing included modifying the visualisations for various device displays. This was important since the project wanted to work on any device and be used by a wide range of users. Focusing on user contact was also crucial. JavaScript was used in the project to improve the data's interaction. The JavaScript code, for instance, was designed to effectively process user inputs and update visualisations in real time in response to user choices of various data filters or time periods. It was crucial to have this quick feedback loop in place to keep people interested and motivated to delve further into the data.

Validating the stability and usability of the interactive data visualisation tool required testing the implementation. It made sure the tool fulfilled all of its practical needs and provided an excellent, user-friendly, and captivating experience. Through comprehensive testing, any

technological problems that would impede user engagement or accessibility might be found and fixed, improving the tool's overall usefulness in practical situations.
Furthermore, testing was essential in verifying that the tool could manage complicated datasets without sacrificing speed. This was especially crucial because of the large Kaggle dataset, which needed to be processed quickly in order to guarantee seamless user interfaces and quick load times.

The testing stage verified that Tableau visualisations were successfully integrated into a unique HTML interface and that the interactive elements functioned well on various platforms. Proceeding to the ultimate deployment stage with confidence that the tool was reliable, user-focused, and useful was made possible in large part by the testing findings. This stage demonstrated the project's dedication to producing an excellent teaching tool that makes use of cutting-edge web technologies to make difficult information understandable and interesting for a wide range of users.

5.5 Summary:

This chapter examined the findings from the creation of the data visualisation tool and talked about its importance for improving education and making data-driven decisions. It also listed the drawbacks and suggested areas for advancement in the future. The project serves as an example of how web platforms can be transformed by incorporating sophisticated visualisation tools, which offer a potent way to investigate and comprehend complicated datasets and their effects on different industries.

CHAPTER 6 REMARKS & UPCOMING PROJECTS

6.1 Conclusions:

The project set out to use an advanced interactive data visualisation tool to improve the visualisation and comprehension of European development indicators. With this tool, you can combine Tableau's powerful data handling features with the adaptable and interactive environment of a custom HTML web interface. It was designed to provide users with the ability to explore a wide range of data points related to economic, environmental, and health metrics, with a particular emphasis on European regions.

This project's ability to make complex data sets interactive and understandable for users with a variety of backgrounds has been its main accomplishment. The project effectively transforms raw data into an engaging and accessible format by filtering and visualising specific European data from Kaggle's large World Development Indicators dataset. Policymakers, scholars, and the general public can all benefit from this by gaining practical insights into European developmental trends.

The interactive features of the visualisation tool created for this project make it unique since they let users alter data in real time. This dynamic interaction makes the tool both educational and informative because it goes beyond simply viewing static data and involves

interacting with the data to reveal a variety of narratives and insights. The user-friendly interface, when paired with interactive features like customisable graphs, clickable maps, and sliders, allows users to explore data more deeply and encourages an exploratory approach to learning.

6.2 Future Work :

Upon reflection of the project's development and implementation, a number of areas have been highlighted for expansion and future improvement. The broadening of data coverage is one of the main areas. The project now manages national and regional data for Europe well enough, but adding more localised data points could give users even more in-depth insights. This might entail incorporating sub-regional statistics that provide a more in-depth analysis of particular developmental concerns.

The optimisation of the tool's performance over a wider range of devices and network conditions is an important area for future development. Making sure the tool works well on comparatively weaker hardware or slower internet connections can significantly improve accessibility and make more people able to access the data. This entails improving the backend algorithms and possibly adding data handling and visualisation technologies that are more effective.

Moreover, the incorporation of sophisticated analytical functionalities like machine learning and predictive analytics has the potential to transform the tool from a reactive platform for data visualisation into a proactive analytical tool. This could allow users to forecast future trends based on historical data, in addition to seeing what has already happened. With the ability to provide forecasts and scenario analyses that aid in strategic planning and decision-making, these features have the potential to completely transform the way data is used in educational and policy contexts.

This project has, in the end, established a solid basis for interactive data visualisation with an emphasis on European development indicators. Through interactive visual narratives, it has shown to have significant potential in enhancing data literacy and decision-making processes. The work that is outlined for the future attempts to increase this potential even more, making the tool useful for forecasting and strategic planning in addition to being a way to view data. The tool's capabilities will be expanded and its current limitations will be addressed in the ongoing development to guarantee that it continues to be a valuable resource for a wide range of users.

CHAPTER 7 CONCLUSION

During this project, I learned a lot especially how to use Tableau to visualise data as well as HTML and CSS to build websites and JavaScript to make websites more interactive for users. I learned everything I needed to know about how to combine these different technologies into a single compact and useful application. This project also helped me get better at solving problems by teaching me how to approach tough problems in a methodical and creative way. During this project there were alot of things that I learnt. One of the main things was how to utilise the tableau software to visualise data

A challenge that I came across and was not able to overcome properly when making this project is that to truly make my website/tools public I would have to buy a domain for users to actually search on the web. This was out of my scope because of funding. but for this limitation i came to solve this issue for whoever wants to view this website. the user would have to manually download my html code and open it via any browser they want which would work the same as opening it through the web. A minor limitation would be that the user would have to download each html code page for each of the dataset topics for the donut menu to function properly. although this would be easily fixable if the website was hosted by a domain.

Reflecting on what could have been done differently in this project. I realised that my initial plan was somewhat rigid and in order to make less mistakes in future projects would benefit from a more agile approach which would allow for more flexibility to adapt as errors and upgrades arise. This experience has taught me the importance of being adaptable and being open to changing strategies mid project to make sure the end results are what was initially wanted and not only in the context of technology but also in managing project timelines and deliverables.

Initially, the project aimed to create a broad global data visualisation platform using world data but practical limitations narrowed it down to focus on European data. This pivot was crucial in managing the scope and complexity of the project effectively because It allowed for deeper and more meaningful analysis and visualisations that were more tailored and insightful for the end user. In conclusion, this project wasn't just a technical practice; it was an experience that helped me learn more about the pros and cons of using data visualisation to solve problems in the real world. It taught me how to work on projects in the future that will need more than just technical skills. They will also need strategy planning and the ability to change.

Increasing user involvement with complicated datasets is one of the goals of my project and other websites operating in the data visualisation space, like Datawrapper or Google Data Studio. These systems shine because they provide wide data interoperability and easily customisable graphic features. On the other hand, my initiative prioritises open access and user involvement without requiring upfront expenditures, whereas they often demand subscriptions for complete capability. This distinction highlights what makes my idea special: it puts accessibility and interaction first without sacrificing the breadth of the data analysis.

This project's development involves a number of painstaking processes, starting with the dataset's selection and filtering with an emphasis on European indicators. Because of Tableau's powerful data visualisation features, I was able to include these images into a specially designed HTML website. Iterative changes were made throughout the design process to improve user engagement. Responsive design components and interactive features like sliders and clickable maps were included. To make sure everything was in line with the goals of the project and the requirements of the users, each step was recorded and assessed.

This project has a great deal of opportunity for improvement. Future versions could include AI integration for predictive analytics, real-time data upgrades, and mobile platform growth for increased accessibility. By optimising the backend with more effective data handling techniques, load times and performance might be increased, hence improving the user experience. Furthermore, broadening the platform's functionality to include real-time collaboration tools may make it a more dynamic resource for professional and academic teams.

The end-user experience was this project's top goal. Every aspect of the website, including the interactive components and data selection, was created with the user in mind. It was crucial to make sure that the information was readable by people with different degrees of data literacy and that the interface was easy to use. This user-centric approach helps users to make defensible judgements based on the visualisations offered, while also serving instructional objectives.

The interactive data visualisations, which enabled users to actively change data and get insights from various angles, were noteworthy components of the project. By giving consumers a greater grasp of the data and context, the integration of these aspects with instructional material also contributed a substantial amount of value. The early efforts to include a more comprehensive worldwide dataset were less noteworthy. Although they were ambitious, they turned out to be too complex and took away from the targeted research required to get major insights in the European context.
In order to make sure that the platform not only meets present requirements but also evolves to meet future expectations and technological advancements, each of these categories offers insight into the project's effect, how it compares to current solutions, and future development directions.

CHAPTER 8 SOCIAL, LEGAL & ETHICAL ISSUES (SLE)

Social Considerations The design of the project and the results it produces have the potential to affect the attitudes and perceptions of users on public health and policy. In light of the fact that it highlights facts pertaining to health, it is of the utmost importance to provide data in an accurate and responsible manner in order to prevent any distortion or prejudice that can result in societal confusion or fear. As part of ethical design, it is also important to make sure that visualisations are accessible to all people, taking into account colorblindness and other accessibility considerations.

Legal Concerns The use of data, particularly health data, may be subject to a variety of legal requirements, such as the General Data Protection Regulation (GDPR) in Europe, which regulates the privacy of data. Even though the data from Kaggle is accessible to the general public, it is essential to make certain that it is used in accordance with the terms of service and any licences that are related with it. Furthermore, since the project may show sensitive health-related information, it is vital to verify that the data does not include any personal information and does not breach any privacy rules.

Concerns Regarding Ethical Behaviour Ethical concerns are of the utmost importance, particularly in initiatives that include health data. Even when dealing with aggregated statistics, there is a fundamental ethical imperative to protect individuals' privacy and confidentiality. The initiative needs to additionally take into consideration the ramifications of users misinterpreting data, which has the ability to influence reactions from public health officials or individual behaviour. It is of the utmost importance to protect the instrument from being exploited to disseminate false information or panic without providing any context.

CHAPTER 9 REFLECTION

When I think back on this project, I see that it has been a journey not just of acquiring new technical abilities, but also of gaining an awareness of the complex link that exists between data, representation, and subjective experience. A solid understanding of programming and an interest in data visualisation were the starting points for the approach. My skills in Tableau, HTML, CSS, and JavaScript increased as the project progressed, and I also gained an awareness of how to integrate these technologies into a story that is consistent and centred on the user.

There was a major learning curve involved in becoming familiar with the complexities of Tableau's capabilities in terms of data management and visualisation. In order to adapt from just showing data to conveying stories via interactive graphs, it was necessary to do an in-depth investigation into the complexities of the programme. As for the web development side of things, the same thing applies: knowing how to achieve a harmonic balance between functionality and design, making sure that the user's trip around the website was as educational as it was interesting.

The presence of difficulties was constant. The realisation that some goals, such as making the tool available to the general public, were hampered by practical restrictions, such as a lack of financing for web domain hosting, was the one that persisted the longest. Despite the fact that a workaround was discovered, which enabled users to download and execute the HTML files locally, the solution highlighted the significance of adaptation and inventiveness in the face of limits imposed by logistics.

In the event that I had to confront a challenge of a comparable kind once again, I would place a greater emphasis on scalability from the very beginning, making certain that the project could expand without requiring substantial modifications. Taking an agile strategy, which involves doing more iterative testing and user input cycles, is likely to result in a final product that is more polished and a development process that is more streamlined.

The initial goals have to be readjusted in order to accommodate the development of the project. The scope was reduced to European data in order to focus on practicality and depth of research. This was done after beginning with a broad vision of a worldwide platform. This move, albeit being a departure from the initial plan, contributed to an improvement in the quality of the project by making it possible to get insights that were more relevant to the location.

In a nutshell, everything about this trip has been life-changing. It has been a lesson in the sociology of data, which is the study of how information is consumed, perceived, and acted upon. Outside of coding and system design, it has been a lesson. My approach to future projects will surely be influenced by this realisation. In the future, my technological expertise will be accompanied by a careful assessment of the user's experience and the effect on society.

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APPENDIX

Github link: https://github.com/karnagetm/World-Data-FYP

Children's health html code

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Health Data Dashboard</title>
    <link
href="https://fonts.googleapis.com/css2?family=Roboto:wght@400;700;900&display=swap"
rel="stylesheet">
    <style>
        :root {
            --primary-color: #4a69bd;
            --text-color: #333;
            --shadow-color: rgba(0,0,0,0.1);
            --shadow-hover-color: rgba(0,0,0,0.2);
            --link-color: #4a69bd;
            --link-hover-color: #3b4a8a;
            --btn-primary: #5a7fdb;
            --btn-hover: #4869b4;
        }

        body {
            font-family: 'Roboto', sans-serif;
            margin: 0;
            padding: 0;
            background-color: var(--background-color);
```

```
            color: var(--text-color);
            line-height: 1.6;
        }

        .header {
            background: linear-gradient(to right, var(--primary-color), var(--btn-primary)); /*
Gradient header */
            color: #fff;
            padding: 15px 20px;
            text-align: center;
            font-size: 28px;
            font-weight: 700;
            box-shadow: 0 2px 10px var(--shadow-color);
        }

        .container {
            display: flex;
            flex-wrap: wrap;
            padding: 20px;
            justify-content: space-around;
            gap: 20px; /* Ensures consistent spacing between elements */
        }

        .information {
            flex: 1 1 300px;
            background: var(--info-background-color);
            box-shadow: 0 4px 6px var(--shadow-color);
            border-radius: 8px;
            padding: 20px;
            transition: box-shadow 0.3s ease, transform 0.3s ease;
            color: var(--text-color); /* Default text color */
            position: relative; /* For pseudo-element positioning */
            font-size: 1.2rem; /* Larger font size for better readability */
            font-weight: 700; /* Bolder text for more pop */
        }

            .information h2 {
                font-size: 2rem; /* Increase size for headings */
                color: var(--primary-color); /* Use the primary color for headings */
                margin-bottom: 0.75rem;
                font-weight: 900;
            }

            .information p {
                margin-bottom: 1rem;
                text-align: justify;
                line-height: 1.8;
                font-weight: bold; /* Add this line to make the text bold */
            }

            .information strong {
                color: var(--primary-color);
                font-weight: 900; /* Even bolder for strong tags */
            }
```

```
        .information .highlight {
            background: linear-gradient(to right, rgba(255,255,255,0), rgba(246, 229, 141, 0.4),
rgba(255,255,255,0));
            padding: 10px;
            border-radius: 5px; /* Rounded corners for the highlight */
            margin: 10px -20px; /* Extend highlight to the edges */
            box-shadow: inset 0 0 8px rgba(246, 229, 141, 0.5); /* Inner shadow for depth */
        }

        .information::before,
        .information::after {
            content: "";
            font-size: 3rem; /* Large quote marks */
            color: rgba(0,0,0,0.1); /* Light quote marks */
            position: absolute;
        }

        .information::before {
            top: 10px;
            left: 10px;
        }

        .information::after {
            bottom: 10px;
            right: 10px;
        }

    .graph {
        width: calc(100% - 40px);
        margin-bottom: 20px;
    }

    .tableauPlaceholder {
        height: auto;
        position: relative;
        min-height: 700px;
    }

    .hamburger-menu {
        display: none;
        position: absolute;
        top: 15px;
        left: 20px;
        cursor: pointer;
        z-index: 1000;
    }

    .menu-line {
        width: 30px;
        height: 3px;
        background-color: #fff;
        margin: 5px 0;
        transition: transform 0.2s;
```

```
        }

        .menu-open .menu-line:nth-child(1) {
            transform: translateY(9px) rotate(45deg);
        }

        .menu-open .menu-line:nth-child(2) {
            opacity: 0;
        }

        .menu-open .menu-line:nth-child(3) {
            transform: translateY(-9px) rotate(-45deg);
        }

        a {
            color: var(--link-color);
            text-decoration: none;
            transition: color 0.3s;
        }

            a:hover {
                color: var(--link-hover-color);
                text-decoration: underline;
            }

        @media (max-width: 768px) {
            .container {
                flex-direction: column;
            }

            .hamburger-menu {
                display: block;
            }

            .information, .graph {
                width: 100%;
                margin: 0 0 20px 0;
            }
        }
    </style>
</head>
<body>

    <div class="header">
        EUROPE DATA DASHBOARD
        <div class="hamburger-menu" onclick="toggleMenu()">
            <div class="menu-line"></div>
            <div class="menu-line"></div>
            <div class="menu-line"></div>
        </div>
    </div>
    <svg class="donut-chart-link" width="100" height="100" viewBox="0 0 42 42">
        <a xlink:href="demo.html" target="_blank">
            <circle class="donut-hole" cx="21" cy="21" r="15.91549430918954"
```

```
fill="#4a69bd"></circle>
        <circle class="donut-segment yellow-segment" cx="21" cy="21"
r="15.91549430918954" fill="transparent" stroke="yellow" stroke-width="5"
stroke-dasharray="25 75" stroke-dashoffset="100"></circle>
        <circle class="donut-segment green-segment" cx="21" cy="21"
r="15.91549430918954" fill="transparent" stroke="green" stroke-width="5"
stroke-dasharray="25 75" stroke-dashoffset="75"></circle>
        <circle class="donut-segment blue-segment" cx="21" cy="21"
r="15.91549430918954" fill="transparent" stroke="blue" stroke-width="5"
stroke-dasharray="25 75" stroke-dashoffset="50"></circle>
        <circle class="donut-segment red-segment" cx="21" cy="21" r="15.91549430918954"
fill="transparent" stroke="red" stroke-width="5" stroke-dasharray="25 75"
stroke-dashoffset="25"></circle>
        <text x="50%" y="50%" text-anchor="middle" fill="white" dy=".3em"
font-size="10">ALL</text>
    </svg>



    <div class="information">
        <h2>INTERACTIVE WORLD MAP</h2>
        <h2>CHILDRENS HEALTH</h2>
        <p>
            An extensive look at many child health indicators for various nations is offered by this
interactive global map visualisation. By modifying the filters located on the right side of the
map, viewers have the ability to investigate an array of data points. A variety of indicators are
available for selection, including HIV statistics, the frequency of underweight or overweight
children, immunisation rates, and anaemia in children. You can narrow down the data to just
show data from that year by selecting it, and you can define criteria for the data to be shown
by dragging the average value slider. Additionally, you may utilise the country name option to
highlight one or more nations for a targeted comparison, or you can click on individual
countries to see their unique statistics. With the use of this tool, you may personalise the view
to look at and contrast various child health outcomes from across the globe.
        <p>

            <div class='tableauPlaceholder' id='viz1713103769303' style='position: relative'>
                <noscript>
                    <a href='#'>
                        <img alt='Dashboard 1'
src='https://public.tableau.com/static/images/Eu/EuropeChildWorldMapMain/Dashboard1/1_rs
s.png' style='border: none' />
                    </a>
                </noscript>
                <object class='tableauViz' style='display:none;'>
                    <param name='host_url' value='https%3A%2F%2Fpublic.tableau.com%2F' />
                    <param name='embed_code_version' value='3' />
                    <param name='site_root' value='' />
                    <param name='name' value='EuropeChildWorldMapMain/Dashboard1' />
                    <param name='tabs' value='no' />
                    <param name='toolbar' value='yes' />
                    <param name='static_image'
value='https://public.tableau.com/static/images/Eu/EuropeChildWorldMapMain/Dashboard1/1.
png' />
                    <param name='animate_transition' value='yes' />
```

```
                <param name='display_static_image' value='yes' />
                <param name='display_spinner' value='yes' />
                <param name='display_overlay' value='yes' />
                <param name='display_count' value='yes' />
                <param name='language' value='en-GB' />
            </object>
        </div>
        <script type='text/javascript'>
            var divElement = document.getElementById('viz1713103769303');
            var vizElement = divElement.getElementsByTagName('object')[0];
            if (divElement.offsetWidth > 800) {
                vizElement.style.width = '2200px';
                vizElement.style.height = '1227px';
            } else if (divElement.offsetWidth > 500) {
                vizElement.style.width = '2200px';
                vizElement.style.height = '1227px';
            } else {
                vizElement.style.width = '100%';
                vizElement.style.height = '727px';
            }
            var scriptElement = document.createElement('script');
            scriptElement.src = 'https://public.tableau.com/javascripts/api/viz_v1.js';
            vizElement.parentNode.insertBefore(scriptElement, vizElement);
        </script>


    </div>



    <div class="information">
        <h2>Children's Health Graphs In Europe</h2>
        <p>


            <div class='tableauPlaceholder' id='viz1712605907436' style="width: 100%; height:
700px;">
                <noscript><a href='#'><img alt=' '
src='https://public.tableau.com/static/images/wo/world_17126058276380/DiseaseChildrenDP
T/1_rss.png' style='border: none' /></a></noscript>
                <object class='tableauViz' style='display:none;'>
                    <param name='host_url' value='https%3A%2F%2Fpublic.tableau.com%2F' />
                    <param name='embed_code_version' value='3' />
                    <param name='site_root' value='' />
                    <param name='name' value='world_17126058276380/DiseaseChildrenDPT' />
                    <param name='tabs' value='yes' />
                    <param name='toolbar' value='yes' />
                    <param name='static_image'
value='https://public.tableau.com/static/images/wo/world_17126058276380/DiseaseChildrenD
PT/1.png' />
                    <param name='animate_transition' value='yes' />
                    <param name='display_static_image' value='yes' />
                    <param name='display_spinner' value='yes' />
                    <param name='display_overlay' value='yes' />
```

```
                <param name='display_count' value='yes' />
                <param name='language' value='en-GB' />
            </object>
        </div>
        <!-- Additional graphs can be added here -->
    </div>
    </div >

    <div class="container">
        <div class="information">
            <h2>Information/Analysis :</h2>
            <p>
```

Welcome to my interactive data visualisation website, which focuses on European trends and patterns in child health. In order to provide you with informative graphic representations of the major health indicators impacting children in this area, I have dug into extensive databases. From illness incidence and healthcare access to vaccination rates and nutritional statuses, my visualisations cover a wide spectrum of data.

By use of these visual aids, my objective is to provide insight into the present condition of paediatric healthcare in Europe, accentuating advancements in some domains while pinpointing obstacles in others. Each map, chart, and graph has been carefully developed to provide precise, comprehensible, and transparent insights into the many aspects of child health.

Since my data comes from reputable global data archives, every piece of information I give is current and pertinent. You will have a thorough grasp of the health issues impacting the younger generation in Europe as you work your way through the visualisations, which will provide the groundwork for thoughtful debate, the formulation of public policy, and advocacy initiatives.

```
            </p>

            <h2>Immunization of DPT in Children:</h2>
            <p>
```

General Trend Analysis: I have seen that most European nations continue to have high DPT immunisation rates which are often over 80% as seen in my visualisation, which covers the years 1978 to around 2016. This shows how well the continent's robust public health system is and dedication to children vaccination campaigns.

Notes on Fluctuations: I can see some notable variations in the vaccination rates for various countries. Sharp drops in certain years followed by quick recoveries and point to possible causes such as changes in public health situations, policy changes at the federal level, or even discrepancies in the way immunisation data was collected in those years.

Reasons for Peaks: Increased public awareness as well as effective public health campaigns, and improved accessibility and effectiveness of healthcare services are probably the causes of the immunisation rates' peaks. When communities and health systems work together, it's a sign of progress after low percentages.

Reasons for Lows: The lows may indicate a number of problems, such as shortages of vaccinations, changes in policy, a decline in public confidence in vaccines, financial pressures on the healthcare industry, or disease outbreaks that impose burden on health systems.

Personal Notes on Immunisation patterns: The data I analysed shows a variety of patterns in the coverage of DPT vaccination in Europe. The majority of nations have high immunisation rates, often at 90% or above. With rates of almost 98% and 97%, respectively, Belgium and Sweden, for example, stand out. France, Norway, and Latvia all show strong coverage in the mid-to high-90% range. However, certain countries exhibit variations that may be attributable to problems with data, infrastructure, trust, or economics
(WHO),
(UNICEF),
(WorldAtlas).

Historical Initiatives and Fluctuations: Looking back at the first few years of my dataset, it makes sense to see lower rates of coverage since the WHO's Expanded Programme on Immunisation began in 1974 and was progressively implemented in a number of different nations. The upward trends over time probably reflect the effectiveness of worldwide immunisation campaigns, but the changes in subsequent years suggest more complex socio-political consequences.

Predicting Beyond the Dataset: Although my dataset ends in 2016, I believe that the trend of increasing immunisation rates will mostly continue, with sporadic dips, based on global health trends and publicly accessible data from reliable sources. For example, given comparable events around the world (UNICEF), it is conceivable that Kyrgyzstan saw a decline in DPT3 coverage as a result of vaccination reluctance sparked by false information.
(UNICEF).

Possible Pandemic Effect on Forecasting: In addition, I predict that the COVID-19 pandemic may have had a major effect, resulting in disruptions that may show up in subsequent data sets as a brief drop in regular immunisation rates. By 2022, efforts are expected to be made to restore coverage levels to those before the epidemic, in line with the global health goals.
(WHO).

<h2>Immunization of Measles in Children :</h2>

The measles immunization visualization for Europe that tracks data from 1978 to 2016 visually shows the difficulties and achievements in public health across the years. Following the measles vaccine's release in the early 1960s, immunization campaigns were launched throughout Europe. The World Health Organization's (WHO) Expanded Programme on Immunisation, which then focused on illnesses like measles in 1974, strengthened these

initiatives.

Despite these efforts, measles continued to spread and was infectious, which led to recurrent outbreaks, especially among communities who had not received vaccinations. The graph shows variations in reaction to these outbreaks and the recoveries that followed as a result of public health measures within these spikes and lows. Prior to vaccinations, measles was prevalent across the globe, and according to the WHO's history of the disease, global death rates were dramatically lowered by the creation of the vaccine and its broad use as a result the community health advancements contributed to this decline (WHO).

According to WHO data, the eradication of measles was confirmed in 37 European nations by 2017, demonstrating the efficacy of long-term immunization programmes. However, difficulties with regular vaccination coverage—often brought about by poor coverage among marginalized groups or at subnational levels—created immunity gaps and aided in the spread of epidemics. Due to these inadequacies, major outbreaks continued to occur in various European nations by the late 2010s, even with high vaccination rates (WHO).

The dataset used in the visualization not only illustrates the effectiveness of immunization campaigns in lowering the prevalence of measles but also highlights the vital need for adopting complete and consistent immunization protocols in order to avert a comeback. The graph's visual fluctuations, which show regular declines and recoveries, draw attention to the continuing fight against measles and emphasize how important it is to keep public health systems robust in order to guarantee high vaccination rates and herd immunity.

<h2> Prevalence of overweight Children :</h2>

I've collected data on how common it is for kids under 5 in different European countries to be overweight. When I look at it, I see a complicated fabric that shows different national trends.

In Albania, the rate went from 9.5% in 1997 to 30% in 2000, which was a big jump. It then went down a bit to 23.4% by 2009. This big rise could mean that kids are sleeping less or that their eating habits have changed, which is making them less active.

The numbers for Montenegro show a rise from 15.6% in 2005 to 22.3% in 2013. This worries me because it means it will be harder for young kids to stay at healthy weights.

From 16.3% in 2000 to 25.6% in 2006, the rate of occurrence rose in Bosnia and Herzegovina, which was a worrying sign. It then went down to 17.4% by 2012. The drop could mean that successful steps are being taken to deal with the problem.

In FYR Macedonia, I saw a rapid rise from 7.9% in 2004 to 16.2% in 2005, then a drop to 12.4% by 2011. The sudden rise and then drop could be due to the arrival of bad food

choices followed by good public health reactions, or it could be because of changes in how the data was collected.

The fact that the rate in Moldova dropped from 9.1% in 2005 to 4.9% in 2012 gives me hope that actions are working, maybe ones that focus on eating and exercise.

In 2000, the incidence rate in Ukraine was 26.5%, which is one of the highest rates I've seen. This shows that public health needed a lot of attention at that time.

In 2004, 13.6% of people in Bulgaria had the disease. This is lower than the rate in Ukraine, which may be because of different eating habits or national health policies.

In 2005, Belarus had a lower rate of 9.7%, which could mean that conditions at the time were good for kids to stay at a healthy weight.

Lastly, Italy's 7.1% rate in 1976 isn't very high, which suggests that the health policies or ways of life at that time were good for kids' health.

Overall, these findings show that Europe has different levels of success when it comes to controlling children's health. Some countries have good control, while others have big problems. These numbers make it clear to me how important it is to keep looking into the things that affect kids' eating and exercise levels, as well as the need for focused methods to stop the rise in overweight and obese kids.

Several studies have shown that the number of overweight and obese children in Europe is growing. The rates are higher in some countries than others. According to a study from WHO Europe, there are still a lot of people in the European Region who are overweight or obese. In fact, a new WHO report on obesity in Europe that came out in 2023 said that about one-third of kids in elementary school are either obese or overweight (UN News).

Childhood obesity is common for a number of reasons, including living in places that make it hard to live a healthy life, like places that don't offer many healthy food options or chances to be active. The WHO Regional Director for Europe (UN News) says this is one of the main reasons why so many people are overweight. Another thing that has been linked to overweight and obesity numbers is the level of education. Higher levels of schooling are linked to lower rates of being overweight in women. This is true in all EU Member States (European Commission).

Based on these bigger trends, any highs or lows in your visualization could be due to changes in policies, health programs, or even culture shifts within each country that have affected the amount of nutrition and physical movement kids get over the years. To give you

	an example, policies that try to lower the amount of sugar kids eat or campaigns that try to get kids to be more active could lower the number of overweight kids. On the other hand, if the economy gets worse or public health programs are cut, these numbers might go up. Prevalence of Wasting in Children : Reflecting on the prevalence of wasting among children under 5 in various European countries, I have discerned several noteworthy trends from the data points provided. In Bosnia and Herzegovina, I noticed a substantial improvement, with the prevalence of wasting decreasing from 7.4% in 2000 to 2.3% in 2012. This suggests a positive trend, which might be attributed to effective health and nutrition programs. Conversely, in Bulgaria, the rate was at 3.2% in 2004. Compared to its neighboring countries, Bulgaria's lower prevalence indicates more favorable conditions for child health. Belarus also showed a promising figure with a prevalence of 2.2% in 2005, a low rate that instills confidence in the country's ability to support the health of its young population through sound nutrition and healthcare strategies. Germany stands out with an exceptionally low rate of 1.0% in 2005, indicative of a robust healthcare system and effective child welfare programs. Such a benchmark is heartening and sets a standard for others to follow. Observations in Montenegro revealed an increase from 4.2% in 2005 to 2.8% in 2013. Although there is an increase, the rates are not alarming and suggest that health policies may be effectively addressing child nutrition, with the caveat that vigilance is needed to ensure continued progress. Serbia's data showed a slight reduction from 4.5% in 2005 to 3.9% in 2014, indicating that efforts to combat child malnutrition are having a positive impact, albeit modestly. Albania presented a more fluctuating scenario, with an upward trend from 8.1% in 1997 to 12.2% in 2000, followed by a decrease and another rise by 2009, pointing to the need for consistent and sustainable interventions to prevent fluctuations in child health outcomes. Macedonia, FYR, showed relative stability in wasting prevalence, with only a slight increase from 1.7% in 1999 to 1.8% in 2011. This stability is reassuring, yet it underscores the necessity for continuous monitoring to maintain and improve upon these rates. These analyses highlight the importance of country-specific solutions to address child malnutrition. Public health initiatives must be tailored to meet the unique challenges each country faces, considering the various factors that contribute to child health and nutrition. It is crucial to sustain efforts and adapt strategies to ensure the well-being of children under 5 across Europe. Prevalence of Underweight Children : When I explore the historical distribution of underweight among children under five, the data from different European nations provide a nuanced but compelling picture. Underweight children were substantially underrepresented in Italy and the United Kingdom in the mid-1970s, with prevalence rates of 1.3% and 1.9%, respectively. This indicates to me that both nations were able to sustain comparatively high levels of child feeding even in the wake of the post-war economic downturn, presumably as a result of the advancement of

social services and healthcare systems at this time. The Netherlands had a somewhat higher 1.6% incidence by 1980, but this still shows that there is a robust public health system in place to promote child health. It implies that the Dutch healthcare system kept its youngest people safe even in the face of the economic changes of the late 1970s.

The story is quite different when looking at statistics from Albania, which shows a spike from 7.1% in 1997 to 17% in 2000, followed by swings that eventually reached 9.4% in 2009. This may be a result of the nation's turbulent exit from the communist era, with all the ensuing economic turmoil impacting food security and healthcare and raising the prevalence of underweight children. By 2002, Romania's share had also increased from 5% in 1991 to 3.5%. Romania underwent a dramatic transformation in the early 1990s, moving from a closed communist system to a market economy. This upheaval probably had an immediate effect on public health. The modest incidence of 2.3% in Hungary in 1984 may have resulted from more gradual political and economic changes in comparison to its Balkan counterparts. The continuously low rates of 0.5% and 1.2% in the mid-1990s for Croatia indicate a post-independence state of child health that is comparatively steady.

In the case of Ukraine, the rate of 8.2% in 2000 and the startling decline to 0.3% in 2002 suggest that things may have improved in terms of healthcare and the economy, or that data collection and reporting practices may have changed. With rates averaging 1.6% and 1.3% in the middle of the 2000s, respectively, Bulgaria and Belarus indicate to me that throughout this time, public health and child nutrition initiatives were probably having a beneficial effect. After gaining independence and going through the first several years of developing a new national healthcare system, Montenegro's percentage of children under five died significantly, from 2.2% in 2005 to 1% in 2013. This suggests improvements in child nutrition and healthcare. Ultimately, Serbia had a little decline in rates from 4.5% in 2005 to 3.9% in 2014. This shows considerable success against child hunger despite the political and economic turmoil that followed the breakup of Yugoslavia.

<h2> Prevalence of Stunting of Children :</h2>

Upon analysis of the data pertaining to the incidence of stunting in children under five in many European nations, distinct difficulties and past health effects are revealed by the patterns. It was shown that in 1976, the frequency of stunting was 4.3% in Italy and 3.9% in the United Kingdom. The advantages of well-established healthcare and nutrition programmes in post-World War II Western Europe may be reflected in these very low percentages. Hungary's 3.3% stunting rate in 1984 suggests that the nation had acceptable control over child health difficulties at the time, which maybe would be as a result of its moderate economic and social policies in the later stages of the Cold War.

Albania showed an alarming rise from 7.1% in 1997 to a high of 39.2% in 2000, as the visualisation made clear. This may be related to the nation's political and economic unrest after the fall of the communist government, which caused problems with food security and health care. In 2006, stunting rates in Bosnia and Herzegovina reached a noteworthy 11.8%. This might be attributed to the post-conflict recovery period and the ensuing difficulties in reconstructing public health infrastructure. However, by 2012, there had been a noticeable improvement, with the percentage falling to 8.9%. These trends may be a reflection of the health and economic transitions that followed communism in Eastern European nations such as the Czech Republic (rates of 3.1% in 1991 and 2.6% in 2001) and Macedonia (rates of 8% in 1999 and 1.2% in 2004). In these countries, the initial obstacles were progressively

addressed through reforms and international assistance.

Stunting in Montenegro decreased from 7.9% in 2005 to 1% in 2013. This is a promising trend that may be a sign of the health programmes' effective implementation after independence. Romania's statistics, which show a decline from 11.2% in 1991 to 3.5% in 2002, also point to gains in child health and nutrition this may be as a consequence of the nation's efforts to strengthen its public health systems and integrate into the European Union. Croatia's 1996 drop in child malnutrition from 1.4% to 0.5% suggests a successful strategy which may have been aided by the country's EU membership and consequent social and health spending.

These trends highlight how public health regulations, foreign assistance, and wide socioeconomic shifts all affect the health of children. The influence of political and economic shifts on stunting is most evident in the post-communist countries, while statistics from Western Europe demonstrate the long-term advantages of stable health systems and sufficient nutrition. In order to address the underlying causes of stunting and ensure the health of future generations, it is imperative to comprehend these historical settings.

<h2> Prevalence of Anemia In Children :</h2>

The patterns I've seen in the incidence of anaemia in children across many European nations till 2016 seem to be indicative of a larger worldwide pattern of anaemia that is impacted by issues relating to nutrition, the economy, and health. Anaemia has historically been associated with a high health burden, especially for women and children. Iron deficiency is the most prevalent cause of anaemia globally, affecting cognitive function and causing a variety of symptoms including weariness and weakness that may negatively affect a child's development and general well-being.

These patterns may be partly explained by dietary differences and healthcare availability in Europe. There may have been a decrease in anaemia rates as a result of advancements made in these fields, particularly in Western Europe. On the other hand, areas that have financial difficulties or limited access to healthcare may see greater rates. The worldwide decline in the incidence of anaemia between 1990 and 2010, which was somewhat more pronounced for men than for women, raises the possibility that improving socioeconomic circumstances and public health campaigns were involved. Though there were more notable declines in anaemia in East, Southeast, and South Asia, the prevalence of anaemia remained high in places like South Asia and sub-Saharan Africa.

It is necessary to take into account both direct causes, such as dietary deficits, and indirect ones, such as infections that might induce anaemia, in order to fully comprehend the particular variables influencing the prevalence of anaemia in children. For instance, the risk of anaemia might be raised by diseases like schistosomiasis and malaria. Furthermore, anaemia may also result from chronic renal disease, which has been seen to be becoming more common.

Lower socioeconomic level groups often have greater rates of anaemia, which is associated with increased anaemia burdens in such communities. The correlation between socioeconomic position and health outcomes highlights the significance of all-encompassing

public health approaches that tackle not just the dietary aspects but also more general variables such as poverty, education, and healthcare accessibility.

<h2> Children (0-14) living with HIV :</h2>

The graphic representation of HIV trends in children in Moldova and Ukraine offers a clear picture of the effects of the pandemic over a number of years. The graph, which began at a low point in the late 1980s and has an alarming upward trend in the early 1990s, reflects the wider spread of HIV after the first epidemics. A number of reasons, including social and political unrest after the fall of the Soviet Union, may have contributed to the sharp rise in HIV diagnoses in the 2000s, weakening healthcare systems and making people more susceptible to the virus. Looking further into the statistics, I see that there is a more noticeable rise in HIV-positive youngsters in Ukraine than in Moldova. This may be related to the higher population size, variations in the adult population's HIV prevalence, and the efficacy of interventions aimed at preventing mother-to-child transmission.

When looking at individual years, there seems to be a spike in numbers around the year 2000. A number of causes, including elevated rates of transmission from intravenous drug use and limited availability of antiretroviral therapies in Eastern Europe during this time, might be responsible for this spike. Economic difficulties and a spike in migration may possibly have contributed to the increase in instances, because those travelling abroad in search of employment may have participated in hazardous activities or lacked access to resources for prevention and treatment. When harm reduction programmes were implemented in Ukraine by the middle of the 2000s, opinions on substitution treatment and drugs like methadone and buprenorphine were varied in society and politics. Notwithstanding these efforts, supply constraints and allegations of theft within the health ministry presented noteworthy obstacles to the efficient handling of the issue.

It is essential to acknowledge the impact of global assistance on the response to HIV. The provision of preventative and treatment services in these nations has been made possible in large part by international grants and organisations. The statistics could be a reflection of these global initiatives since we can see certain times when the number of cases increases steadily or at a slower pace, suggesting that these initiatives are working. HIV services have suffered greatly as a result of the regional wars, especially the War in Donbass in Ukraine. Due to the disruption brought on by the conflict and the separatist authorities' restriction on methadone and substitution treatment in Donetsk and Luhansk, a public health emergency has resulted in a large number of HIV/AIDS positive people leaving these locations. The patterns and spikes seen in the graph (Wikipedia) are closely correlated with such political and social upheavals.

The story of HIV among children in Moldova and Ukraine is essentially a complicated tapestry made from the strands of shifting sociopolitical conditions, difficulties in the healthcare system, and global relief initiatives. In addition to displaying facts, the data visualisation narrates the human tale behind these numbers, emphasising the need of ongoing assistance and sensible policymaking in order to stop this pandemic.

<h2> ARI Treatment :</h2>

I've seen several interesting patterns and differences in ARI therapy that make me

	wonder about the underlying reasons and consequences. Starting with Albania, there was a notable rise from 83.0% in 2000 to 69.6% in 2009. The initial high proportion indicates that at that time, ARI patients had significant access to healthcare practitioners. However, the ensuing decline to 45.0% by 2005 may be a sign of financial difficulties or changes to healthcare regulations affecting patient access. Conversely, Serbia's treatment rate remained comparatively steady with an astounding 89.7% in 2010, suggesting the strength of Serbia's healthcare system in overseeing children's health. The consistent high proportion points to ongoing healthcare efforts and potentially effective public health programs. \ In Montenegro, the rate maintained at 89.4% between 2005 and 2010, demonstrating remarkable stability which might reflect the public’s trust in the healthcare system and the consistency of health policy. Moldova’s figures, however, were inconsistent, declining from 78.0% in 2000 to 60.0% in 2005, then rising to 79.2% in 2012. These fluctuations may be related to the political and economic landscape changes impacting healthcare accessibility and service provision. \ Bosnia and Herzegovina's progress from 80.0% in 2000 to a peak of 91.0% in 2006, followed by a slight decline to 87.0% in 2012, might reflect post-war rebuilding efforts and health system development, with subsequent dips possibly due to healthcare reforms or fiscal constraints impacting service utilization. Meanwhile, the Former Yugoslav Republic of Macedonia showed consistent improvement in ARI treatment rates, from 92.7% in 2005 to 93.0% in 2006, indicative of a robust healthcare system and effective public health campaigns. \ Reflecting on these observations, it becomes evident that public health campaigns, political policies, healthcare access and quality, and economic stability significantly influence the likelihood of children receiving ARI treatment. The patterns in the data underscore how public health initiatives and changes in socio-political contexts critically affect children's health outcomes. \ Graphs Further Analysis <noscript> </noscript> <object class='tableauViz' style='display:none;'> <param name='host_url' value='https%3A%2F%2Fpublic.tableau.com%2F' /> <param name='embed_code_version' value='3' /> <param name='site_root' value='' /> <param name='name' value='worldfurtheranalysis/DiseaseChildrenDPT' /> <param name='tabs' value='yes' /> <param name='toolbar' value='yes' /> <param name='static_image' value='https://public.tableau.com/static/images/wo/worldfurtheranalysis/DiseaseChildrenDPT/1.png' />

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                </object>
            </div>
            <script type='text/javascript'>
                var divElement = document.getElementById('viz1712856889555');
                var vizElement = divElement.getElementsByTagName('object')[0];
                if (vizElement) {
                    vizElement.style.width = '100%';
                    vizElement.style.height = (divElement.offsetWidth * 0.75) + 'px';
                    var scriptElement = document.createElement('script');
                    scriptElement.src = 'https://public.tableau.com/javascripts/api/viz_v1.js';
                    vizElement.parentNode.insertBefore(scriptElement, vizElement);
                }
            </script>
        </div>

        <h2>Further Analysis</h2>
        <p>
            High-income nations: Because of their strong healthcare systems, steady financing, and easy availability to vaccinations, these nations often have stable, high immunisation rates. A decline in these rates may be a sign of problems like supply chain interruptions or vaccination reluctance.
        <p>
            Upper-middle-income nations: As their economies expand and their healthcare systems advance, they often see increases in immunisation rates. They could, however, encounter instability as a result of alterations in politics, financial crises, or the financing of healthcare. Lower-middle-income nations: As a result of increased access to healthcare, development initiatives, and foreign help, these nations may see significant advances in the future. However, problems with vaccine delivery and storage or unstable economies may have an impact on rates.

            Low-income nations: The rate of immunisation progresses more slowly in these nations, which may be attributed to a number of issues including poverty, violence, a lack of infrastructure for healthcare, and restricted access to vaccinations. Global health programmes, however, have the potential to eventually provide considerable gains. Unexpected declines in vaccination rates may be related to particular occurrences such as natural catastrophes, conflicts, or economic penalties that cause disruptions to healthcare systems. Consistent rises may be associated with times of political stability, economic expansion, or the effects of international health programmes like the Vaccine Alliance and Gavi.
            When the majority of the population that can be reached has received vaccinations and the remaining unvaccinated populations are more difficult to reach because of logistical, cultural, or financial obstacles, there may be a ceiling effect or vaccine reluctance.
            Historical Analysis:
        <p>
            Examining the introduction of vaccinations, changes in healthcare policy, the function of foreign assistance, and the impact of significant health campaigns are some examples of historical study topics. Because of the WHO's Expanded Programme on Immunisation, immunisation rates rose in several countries in the late 1970s and early 1980s.
```

Higher coverage rates were probably caused by the introduction of the Hib vaccine in the 1990s and the pneumococcal and rotavirus vaccinations in the 2000s. Economic downturns, like the one that occurred in 2008, may result in lower expenditure on healthcare and have a detrimental effect on vaccination rates. In order to provide a precise analysis, each trend would normally be examined in relation to historical occurrences and changes in policy over certain periods. For extensive and contextual data to assist your study, you may want to check databases like the World Bank's World Development Indicators, UNICEF's data warehouse, or the WHO's Global Health Observatory, depending on your particular needs.

I often travel across time in my historical studies, sorting through the occasions that influenced these tendencies. The WHO's Expanded Programme on Immunisation, for example, drove a spike in immunisation rates in the late 1970s and early 1980s. The upward contours of these graphs were further filled in by the introduction of vaccines such as the Hib in the 1990s and later pneumococcal and rotavirus vaccines. However, history also reveals darker periods: the 2008 financial crisis, for instance, resulted in a reduction of healthcare budgets, which in turn affected immunisation rates.

I can observe a drop in anaemia rates when I look at the Prevalence of Anaemia, weight for height (% of children under 5) tables, which may indicate improvements being made globally in the fight against malnutrition and improving access to healthcare. The incidence of anaemia is noticeably lower in high-income nations, most likely due to more stable food systems and access to healthcare. Regarding the middle-class populations, their declining patterns may be consistent with gains in health brought about by efforts to fortify foods or implement dietary treatments.

With reference to the Prevalence of children (0–14) living with HIV in lower-middle-income countries, the upward trend up to the early 2000s may illustrate the alarming expansion of the HIV pandemic prior to the more widely available treatments such as antiretroviral medications. The subsequent trend of plateauing may show the beneficial effects of these medicines and international health initiatives.

The ARI Treatment (% of children under 5 brought to a health provider) data, which show an abrupt drop followed by a rebound for upper-middle-income nations, are very fascinating. This may represent a time when there was a setback in healthcare access, either as a result of legislative changes or economic difficulty, and then a period of recovery.

It is evident that a variety of causes might have impacted these patterns when I take historical research into account to contextualise these tendencies. Global health programmes, economic policies, and other socio political developments are important. Examining WHO reports or statistics from global health efforts to have a deeper understanding of these nations' historical background may help to explain these differences. These graphs show actual challenges and achievements in public health; they are more than just statistics.

<script>
function toggleMenu() {

```
            var chartLink = document.querySelector('.donut-chart-link');
            chartLink.classList.toggle('show');
        }

        document.querySelector('.yellow-segment').addEventListener('click', function () {
            window.location.href = 'Merchandise.html';
        });
        document.querySelector('.green-segment').addEventListener('click', function () {
            window.location.href = 'Emission.html';
        });
        document.querySelector('.blue-segment').addEventListener('click', function () {
            window.location.href = 'Childrens Health.html';
        });
        document.querySelector('.red-segment').addEventListener('click', function () {
            window.location.href = 'Mortality.html';
        });
    </script>

    <!-- Tableau graphs JavaScript -->
    <script type='text/javascript'>
        var divElement = document.getElementById('viz1712605907436');
        var vizElement = divElement.getElementsByTagName('object')[0];

        // Set up a function to run whenever the window resizes to adjust the viz size
        function resizeViz() {
            if (divElement.offsetWidth > 900) {
                vizElement.style.width = '100%';
                vizElement.style.height = '1000px'; // Set this to the height that accommodates your
full graph
            } else {
                vizElement.style.width = '100%';
                vizElement.style.height = '1000px'; // Set this for smaller screens as well
            }
        }

        // Call this function initially and every time the window resizes
        window.onload = resizeViz;
        window.onresize = resizeViz;

        var scriptElement = document.createElement('script');
        scriptElement.src = 'https://public.tableau.com/javascripts/api/viz_v1.js';
        vizElement.parentNode.insertBefore(scriptElement, vizElement);
    </script>

    <script>
        // Simple script for hamburger menu animation
        document.querySelector('.hamburger-menu').addEventListener('click', function () {
            this.classList.toggle('menu-open');
        });
    </script>

</body>
</html>
```

Emissions html code	<!DOCTYPE html>
	<html lang="en">
	<head>
	<meta charset="UTF-8">
	<meta name="viewport" content="width=device-width, initial-scale=1.0">
	<title>Health Data Dashboard</title>
	<link href="https://fonts.googleapis.com/css2?family=Roboto:wght@400;700;900&display=swap" rel="stylesheet">
	<style>
	/* Modern color palette */
	:root {
	--primary-color: #7DCEA0; /* Soft Green */
	--secondary-color: #F7DC6F; /* Soft Yellow */
	--accent-color: #A569BD; /* Soft Purple */
	--background-color: #F4F6F7; /* Light Gray Background */
	--text-color: #34495E; /* Dark Blue Text */
	--shadow-color: rgba(0,0,0,0.2);
	}
	
	body {
	font-family: 'Roboto', sans-serif;
	margin: 0;
	padding: 0;
	background-color: var(--background-color);
	color: var(--text-color);
	line-height: 1.6;
	}
	
	.header {
	background-color: var(--primary-color); /* Solid color header */
	color: #fff;
	padding: 20px;
	text-align: center;
	font-size: 32px; /* Increased font size */
	font-weight: 900;
	box-shadow: 0 4px 8px var(--shadow-color);
	}
	
	.container {
	display: flex;
	flex-wrap: wrap;
	padding: 20px;
	justify-content: space-around;
	gap: 20px; /* Consistent spacing */
	}
	
	.information {
	flex: 1 1 300px; /* Responsive card sizing */
	background: #fff;
	border: 1px solid #ddd; /* Subtle borders for definition */
	box-shadow: 0 6px 12px var(--shadow-color);
	border-radius: 8px; /* Rounded corners */
	padding: 20px;

```
        transition: box-shadow 0.3s ease, transform 0.3s ease;
        color: var(--text-color);
        position: relative;
    }

        .information h2 {
            font-size: 2rem; /* Increase size for headings */
            color: var(--primary-color); /* Use the primary color for headings */
            margin-bottom: 0.75rem;
            font-weight: 900;
        }

        .information p {
            margin-bottom: 1rem;
            text-align: justify;
            line-height: 1.8;
            font-weight: bold; /* Add this line to make the text bold */
        }

        .information strong {
            color: var(--primary-color);
            font-weight: 900; /* Even bolder for strong tags */
        }

        .information .highlight {
            background: linear-gradient(to right, rgba(255,255,255,0), rgba(246, 229, 141, 0.4),
rgba(255,255,255,0));
            padding: 10px;
            border-radius: 5px; /* Rounded corners for the highlight */
            margin: 10px -20px; /* Extend highlight to the edges */
            box-shadow: inset 0 0 8px rgba(246, 229, 141, 0.5); /* Inner shadow for depth */
        }

        .information::before,
        .information::after {
            content: "";
            font-size: 3rem; /* Large quote marks */
            color: rgba(0,0,0,0.1); /* Light quote marks */
            position: absolute;
        }

        .information::before {
            top: 10px;
            left: 10px;
        }

        .information::after {
            bottom: 10px;
            right: 10px;
        }

    .graph {
        width: 100%; /* Full-width graphs */
        margin-bottom: 20px;
```

```
}

.tableauPlaceholder {
    height: auto;
    position: relative;
    min-height: 700px; /* Updated min-height for consistency */
}

.hamburger-menu {
    display: none;
    position: absolute;
    top: 15px;
    left: 20px;
    cursor: pointer;
    z-index: 1000;
}

.menu-line {
    width: 30px;
    height: 3px;
    background-color: #fff;
    margin: 5px 0;
    transition: transform 0.2s;
}

.menu-open .menu-line:nth-child(1) {
    transform: translateY(9px) rotate(45deg);
}

.menu-open .menu-line:nth-child(2) {
    opacity: 0;
}

.menu-open .menu-line:nth-child(3) {
    transform: translateY(-9px) rotate(-45deg);
}

a {
    color: var(--link-color);
    text-decoration: none;
    transition: color 0.3s;
}

    a:hover {
        color: var(--link-hover-color);
        text-decoration: underline;
    }

@media (max-width: 768px) {
    .container {
        flex-direction: column;
    }

    .information, .graph {
```

```
            width: 100%;
            margin: 0 0 20px 0;
        }
    }
  </style>
</head>
<body>

  <div class="header">
    EUROPE DATA DASHBOARD
    <div class="hamburger-menu" onclick="toggleMenu()">
      <div class="menu-line"></div>
      <div class="menu-line"></div>
      <div class="menu-line"></div>
    </div>
  </div>
  <svg class="donut-chart-link" width="100" height="100" viewBox="0 0 42 42">
    <a xlink:href="demo.html" target="_blank">
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fill="#4a69bd"></circle>
      <circle class="donut-segment yellow-segment" cx="21" cy="21"
r="15.91549430918954" fill="transparent" stroke="yellow" stroke-width="5"
stroke-dasharray="25 75" stroke-dashoffset="100"></circle>
      <circle class="donut-segment green-segment" cx="21" cy="21"
r="15.91549430918954" fill="transparent" stroke="green" stroke-width="5"
stroke-dasharray="25 75" stroke-dashoffset="75"></circle>
      <circle class="donut-segment blue-segment" cx="21" cy="21"
r="15.91549430918954" fill="transparent" stroke="blue" stroke-width="5"
stroke-dasharray="25 75" stroke-dashoffset="50"></circle>
      <circle class="donut-segment red-segment" cx="21" cy="21" r="15.91549430918954"
fill="transparent" stroke="red" stroke-width="5" stroke-dasharray="25 75"
stroke-dashoffset="25"></circle>
      <text x="50%" y="50%" text-anchor="middle" fill="white" dy=".3em"
font-size="10">ALL</text>
  </svg>



  <div class="information">
    <h2>EMISSIONS WORLD MAP </h2>
    <p>
      This interactive map of CO2 emissions offers a thorough examination of several
environmental metrics impacting countries all over the world. Users may choose from a wide
range of CO2 emission-influencing parameters, such as energy production and agricultural
methods, thanks to the user-friendly interface. Users may customise the data presentation
based on particular interests, such emissions per capita or the percentage contributions from
various fuel sources, by using detailed filters. By making a little alteration to the chronology,
the map facilitates an investigation of patterns over time and historical comparisons, enabling
an analysis year by year. In addition, users may use the country search option to compare the
environmental effect of different countries or click on particular countries to delve down into
more detailed details. For environmental analysts, legislators, and educators looking to use
data-driven insights to comprehend and confront the difficulties of climate change, this
visualisation is a priceless resource.
```

```
<p>
  <div class='tableauPlaceholder' id='viz1712969276097' style='position: relative'>
    <noscript>
      <a href='#'>
        <img alt='Map Overview'
src='https://public.tableau.com/static/images/Ma/MapOverview_17129691103840/MapOverview/1_rss.png' style='border: none' />
      </a>
    </noscript>
    <object class='tableauViz' style='display:none;'>
      <param name='host_url' value='https%3A%2F%2Fpublic.tableau.com%2F' />
      <param name='embed_code_version' value='3' />
      <param name='site_root' value='' />
      <param name='name' value='MapOverview_17129691103840/MapOverview' />
      <param name='tabs' value='no' />
      <param name='toolbar' value='yes' />
      <param name='static_image'
value='https://public.tableau.com/static/images/Ma/MapOverview_17129691103840/MapOverview/1.png' />
      <param name='animate_transition' value='yes' />
      <param name='display_static_image' value='yes' />
      <param name='display_spinner' value='yes' />
      <param name='display_overlay' value='yes' />
      <param name='display_count' value='yes' />
      <param name='language' value='en-GB' />
    </object>
  </div>
  <script type='text/javascript'>
    var divElement = document.getElementById('viz1712969276097');
    var vizElement = divElement.getElementsByTagName('object')[0];
    if (divElement.offsetWidth > 800) {
      vizElement.style.width = '2300px';
      vizElement.style.height = '1227px';
    } else if (divElement.offsetWidth > 500) {
      vizElement.style.width = '2300px';
      vizElement.style.height = '1227px';
    } else {
      vizElement.style.width = '100%';
      vizElement.style.height = '727px';
    }
    var scriptElement = document.createElement('script');
    scriptElement.src = 'https://public.tableau.com/javascripts/api/viz_v1.js';
    vizElement.parentNode.insertBefore(scriptElement, vizElement);
  </script>


  <style>
    .map-title {
      text-align: center;
      font-size: 24px; /* You can adjust the font size as needed */
      font-weight: bold;
      margin-top: 20px; /* Adjust the margin as needed */
      margin-bottom: 20px; /* Adjust the margin as needed */
    }
```

```
        </style>

    </div>

    <div class="information">
        <h2>Emission Visualisations</h2>

        <!-- Embed for ChartDash1 -->
        <div class='tableauPlaceholder' id='viz1712970508761' style='position: relative'>
            <noscript>
                <a href='#'>
                    <img alt='Chart Dash 1'
src='https://public.tableau.com/static/images/Ch/Chart1_17129691463690/ChartDash1/1_rss.
png' style='border: none' />
                </a>
            </noscript>
            <object class='tableauViz' style='display:none;'>
                <param name='host_url' value='https%3A%2F%2Fpublic.tableau.com%2F' />
                <param name='embed_code_version' value='3' />
                <param name='site_root' value='' />
                <param name='name' value='Chart1_17129691463690/ChartDash1' />
                <param name='tabs' value='no' />
                <param name='toolbar' value='yes' />
                <param name='static_image'
value='https://public.tableau.com/static/images/Ch/Chart1_17129691463690/ChartDash1/1.p
ng' />
                <param name='animate_transition' value='yes' />
                <param name='display_static_image' value='yes' />
                <param name='display_spinner' value='yes' />
                <param name='display_overlay' value='yes' />
                <param name='display_count' value='yes' />
                <param name='language' value='en-GB' />
            </object>
        </div>
        <script type='text/javascript'>
            var divElement = document.getElementById('viz1712970508761');
            var vizElement = divElement.getElementsByTagName('object')[0];
            if (divElement.offsetWidth > 800) {
                vizElement.style.width = '2200px';
                vizElement.style.height = '1227px';
            } else if (divElement.offsetWidth > 500) {
                vizElement.style.width = '2200px';
                vizElement.style.height = '1227px';
            } else {
                vizElement.style.width = '100%';
                vizElement.style.height = '1327px';
            }
            var scriptElement = document.createElement('script');
            scriptElement.src = 'https://public.tableau.com/javascripts/api/viz_v1.js';
            vizElement.parentNode.insertBefore(scriptElement, vizElement);
        </script>

        <p>
            The graph in front of us shows the trends in CO2 emissions from transportation and
```

agriculture. When we examine the nitrous oxide emissions from agriculture over time, we find that certain nations have seen a decrease in emissions, while others have seen no change or even a rise. The usage of nitrogen-based fertilisers, shifts in animal populations, and the adoption of more productive agricultural techniques might all have an impact on these patterns.

Methane emissions from agriculture provide a more distinct picture, perhaps because of their strong correlation with animals. Here, efforts to improve waste management and adjustments to ruminant animals' diets may contribute to the noted variations.

The multicoloured line graph depicting the CO2 emissions from transportation shows an overall upward trend in recent years, which is not unexpected considering the growth in automotive use and industrialization worldwide. But the ups and downs probably line up with oil crises, recessions, and the arrival of more fuel-efficient or alternative-energy cars.

<p>

<!-- Embed for ChartDash2 -->

<noscript>

<img alt='Chart Dash 2'
src='https://public.tableau.com/static/images/Ch/Chart2_17129691660760/ChartDash2/1_rss.png' style='border: none' />

</noscript>
<object class='tableauViz' style='display:none;'>
<param name='host_url' value='https%3A%2F%2Fpublic.tableau.com%2F' />
<param name='embed_code_version' value='3' />
<param name='site_root' value='' />
<param name='name' value='Chart2_17129691660760/ChartDash2' />
<param name='tabs' value='no' />
<param name='toolbar' value='yes' />
<param name='static_image'
value='https://public.tableau.com/static/images/Ch/Chart2_17129691660760/ChartDash2/1.png' />
<param name='animate_transition' value='yes' />
<param name='display_static_image' value='yes' />
<param name='display_spinner' value='yes' />
<param name='display_overlay' value='yes' />
<param name='display_count' value='yes' />
<param name='language' value='en-GB' />
</object>

<script type='text/javascript'>
var divElement = document.getElementById('viz1712970593593');
var vizElement = divElement.getElementsByTagName('object')[0];
if (divElement.offsetWidth > 800) {
vizElement.style.width = '2200px';
vizElement.style.height = '1227px';
} else if (divElement.offsetWidth > 500) {
vizElement.style.width = '2200px';

```
            vizElement.style.height = '1227px';
        } else {
            vizElement.style.width = '100%';
            vizElement.style.height = '1727px';
        }
        var scriptElement = document.createElement('script');
        scriptElement.src = 'https://public.tableau.com/javascripts/api/viz_v1.js';
        vizElement.parentNode.insertBefore(scriptElement, vizElement);
    </script>


    <div class="container">
        <div class="information">
            <h2>Information/Analysis:</h2>
            <p>
```

By looking at this scatter plot, we can see that over time, CO2 emissions from burning gaseous fuels have been going up. This is in line with the trend around the world of using more energy and relying more on fossil fuels. Some countries, like Romania and the Netherlands, are shown a lot, which means they have a lot of emissions compared to the other countries. In terms of history, this rise can be linked to the economic growth that European countries saw after World War II, when industry and home energy use grew by huge amounts. There may be a link between the rise in dots in later years and the energy policies put in place during the oil crisis of the 1970s. During that time, many countries switched from oil to gaseous fuels like natural gas. There aren't many data points for countries like Liechtenstein, which could mean that they don't use much data or that there isn't much of it available. Smaller European countries with less industry or those that are putting money into green technologies may have lower pollution. To get a full picture, one would have to look at how the economy, government, and technology have changed over time. The changes in the energy sector caused by the oil crashes of the 1970s, the Kyoto Protocol in 1997, and the more recent Paris Agreement will have an effect on the trends shown here. Trends in CO2 pollution would also be affected by national policies that encourage people to use less energy, switch to green energy sources, and change how industries work. This picture shows how growth, energy use, and environmental effects are all connected in a complicated way. It also shows how important it is to look at the past to understand how emissions have changed over time and how well policies have worked at lowering the carbon footprint. The "CO2 Emissions from Liquid Fuel Consumption" stacked area chart shows how CO2 emissions from liquid fuels like petrol, diesel and oil have changed over time. By looking at the layers, we can figure out that countries with large industry bases, large car fleets, and high levels of economic activity have been the main sources of pollution over the years. It is worth noting that emissions rise during times of economic growth. This is because businesses and transportation use more energy during those times.

```
            <p>
            <p>
```

For example, many European countries had fast industrial growth during the economic boom that followed World War II. This is likely what the rising trends in the figure from the 1950s to the late 20th century mean. In the 1970s, especially the 1973 oil crisis, there were oil shocks that caused costs to rise and demand to temporarily slow down. This is likely what caused the short period of stability seen in the data. This is an example of how well the chart can show how global events have affected the economy and the environment. On the other hand, the trend may have flattened and eventually gone down in the early 21st century because of a number of things, such as the 2008 financial crisis, greater environmental knowledge, and policy changes like the approval of the Kyoto Protocol. Because people are worried about climate change, this turning point could also mean a move

	towards cleaner fuels and green energy sources. The different coloured levels on the picture show how much energy each country uses, which is affected by its economic policies, new technologies, and the resources it has access to. So, the visualisation not only keeps track of how energy was used in the past, but it also makes people and policymakers think about how important it is to use energy in a way that doesn't harm the environment. <p> CO2 released when burning fuel is burned It's possible that this bubble chart shows how CO2 pollution from gaseous sources like natural gas have changed over time in different countries. It's possible that bigger bubbles mean more pollution. It's possible that countries that use or produce a lot of natural gas would have bigger or more frequent bubbles. Changes in energy policy, the growth of industry, or the move towards cleaner energy sources could all have an effect on the historical trends in this data. Emissions of CO2 from using liquid fuel Visualisation Analysis: The total amount of CO2 released from liquid fuels, like oil products, in different countries could be shown on a stacked area chart. The areas that are going up and down could be caused by economic booms and busts, the effects of oil crises, the use of more efficient technologies, or the enforcement of environmental laws. CO2 emissions from burning solid fuels Analysis of Visualisation: It would be helpful to see how pollution from solid fuels, like coal, have changed over time with a line graph. Sharp rises or falls in some lines could be related to past events like the use of tools to control emissions, the opening or closing of coal mines, or changes in the economy as a whole. <p> CO2 Emissions From Making Electricity and Heat: A Visualisation and Analysis This stacked area chart might show how much CO2 is released when energy and heat are made. These emissions may be rising quickly because more people are moving to cities and needing more power and heat. On the other hand, they may be levelling off or going down because people are using less energy, switching to green sources, or factories closing down.CO2 Emissions from Transportation (as a percentage of all fuel burned) Analysis of Visualisation: This line graph might show how much CO2 is released by the transportation industry, which could include land, air, and sea travel. Trends might show how transportation infrastructure is growing, how fuel-efficient vehicles are changing, how the economy is affecting trade and travel, or how we are switching to less damaging transportation technologies. Nitric oxide and methane emissions from farms (%) and methane emissions from farms (%) Analysis of Visualisation: These bar charts could show how agriculture affects greenhouse gas pollution. For example, nitrous oxide is a result of how land is managed, and methane is mostly made by cattle. Differences over time could be caused by changes in farming methods, the use of new farming tools, new ways of managing animals, or new rules meant to lower emissions from farming. In all of these cases, past study would look into how changes in society, the economy, technology, and government policies affected these emissions trends. This might also have something to do with how foreign deals like the Paris Agreement or the Kyoto Protocol work. To get a better sense of these trends in a bigger picture, the data could be compared to records of past energy use, GDP growth, industry output, and agriculture production. Each visualisation shows a small part of the complicated, interconnected factors that affect the environment and helps us understand how hard it is to control CO2 emissions on a global scale. CO2 Emissions from Gaseous Fuel Consumption: The graph of "CO2 Emissions from Gaseous Fuel Consumption" probably shows how much CO2 fuels like natural gas put into the air over time in different countries. Each data point, which could be shown by a bubble, shows a country's annual emissions, and the size of the point shows how much emissions there are. A rising line in the data set could mean that the world is using more gaseous fuels, which is often a sign of economic growth and a higher need for energy. This rise could be especially high when the economy is doing well and not so high when the economy is doing badly or when there is a move towards green energy sources. <p> CO2 Emissions from Liquid Fuel Consumption: for "CO2 Emissions from

Liquid Fuel Consumption," a stacked area map might suit your needs. Usually, this kind of chart would show the overall emissions from liquid fuels by putting the emissions from each country on top of the others. Each section would have a different colour or design to show which country it belongs to, and the total height of the stacked areas at any given time would show the world's total emissions. The trends seen might be related to things that happened in the past, like the rise in car use, the use of liquid fuels in industry, and changes in world policy that favour innovations that use less fuel. A sharp rise could be linked to times when factories started to grow, while drops or plateaus could be linked to big oil crises, economic downturns, or the start of alternative energy projects. CO2 Emissions from Solid Fuel Consumption: A chart called "CO2 Emissions from Solid Fuel Consumption," which is most likely a line graph, shows how CO2 emissions change over time when solid fuels like coal and wood are burned. Each line could show a country's pollution over time, showing how manufacturing methods and energy use have changed over time. A general drop in some countries could mean that they are switching from coal to better energy sources, while lines that stay the same or go up could mean that they are still relying on solid fuels. Historical events like the passing of clean air acts, the closing of coal mines, or investments in coal-fired power plants would have a big effect on these trends.

<p>
The picture displayed The graph called "Agricultural Methane Emission (% percentage)" looks like a bar chart that shows how much methane is released by farming in different countries. This kind of graph can show how emissions vary a lot from one country to the next. This is probably because farming methods, the size of animal farms, and the use of farming technology are all different. Bars that go further along the horizontal line may show countries with bigger agricultural sectors or that depend a lot on raising livestock, which is a major source of methane because ruminants produce it when their guts ferment.

<p>
The history of these pollutants can be connected to changes in eating habits, the Green Revolution, and how farming methods have changed over time. For example, the rise in meat consumption around the world may have caused methane emissions to rise, especially in places where industrial cattle farming is growing. Putting in place methods to lower methane levels, like better waste management and changing the food that animals eat, may also help to see drops or stays the same in some areas. This graphic is an important part of knowing how agriculture affects the environment and stresses the need for environmentally friendly farming methods to slow down climate change.

```
        </div>
    </div>



    <script>
        function toggleMenu() {
            var chartLink = document.querySelector('.donut-chart-link');
            chartLink.classList.toggle('show');
        }

        document.querySelector('.yellow-segment').addEventListener('click', function () {
            window.location.href = 'Merchandise.html';
        });
        document.querySelector('.green-segment').addEventListener('click', function () {
            window.location.href = 'Emission.html';
        });
        document.querySelector('.blue-segment').addEventListener('click', function () {
            window.location.href = 'Childrens Health.html';
        });
```

	document.querySelector('.red-segment').addEventListener('click', function () {
	window.location.href = 'Mortality.html';
	});
	</script>
	
	<!-- Tableau graphs JavaScript -->
	<script type='text/javascript'>
	var divElement = document.getElementById('viz1712605907436');
	var vizElement = divElement.getElementsByTagName('object')[0];
	
	// Set up a function to run whenever the window resizes to adjust the viz size
	function resizeViz() {
	if (divElement.offsetWidth > 900) {
	vizElement.style.width = '100%';
	vizElement.style.height = '1000px'; // Set this to the height that accommodates your full graph
	} else {
	vizElement.style.width = '100%';
	vizElement.style.height = '1000px'; // Set this for smaller screens as well
	}
	}
	
	// Call this function initially and every time the window resizes
	window.onload = resizeViz;
	window.onresize = resizeViz;
	
	var scriptElement = document.createElement('script');
	scriptElement.src = 'https://public.tableau.com/javascripts/api/viz_v1.js';
	vizElement.parentNode.insertBefore(scriptElement, vizElement);
	</script>
	
	<script>
	// Simple script for hamburger menu animation
	document.querySelector('.hamburger-menu').addEventListener('click', function () {
	this.classList.toggle('menu-open');
	});
	</script>
	
	</body>
	</html>

Mortality html code	<!DOCTYPE html> <html lang="en"> <head> <meta charset="UTF-8"> <meta name="viewport" content="width=device-width, initial-scale=1.0"> <title>Health Data Dashboard</title> <link href="https://fonts.googleapis.com/css2?family=Roboto:wght@400;700;900&display=swap" rel="stylesheet"> <style> /* Modern color palette */ :root { --primary-color: #800000; /* New primary color Maroon Red */

```
    --secondary-color: #F7DC6F; /* Soft Yellow */
    --accent-color: #A569BD; /* Soft Purple */
    --background-color: #F4F6F7; /* Light Gray Background */
    --text-color: #34495E; /* Dark Blue Text */
    --shadow-color: rgba(0,0,0,0.2);
}

body {
    font-family: 'Roboto', sans-serif;
    margin: 0;
    padding: 0;
    background-color: var(--background-color);
    color: var(--text-color);
    line-height: 1.6;
}

.header {
    background-color: var(--primary-color); /* Solid color header */
    color: #fff;
    padding: 20px;
    text-align: center;
    font-size: 32px; /* Increased font size */
    font-weight: 900;
    box-shadow: 0 4px 8px var(--shadow-color);
}

.container {
    display: flex;
    flex-wrap: wrap;
    padding: 20px;
    justify-content: space-around;
    gap: 20px; /* Consistent spacing */
}

.information {
    flex: 1 1 300px; /* Responsive card sizing */
    background: #fff;
    border: 1px solid #ddd; /* Subtle borders for definition */
    box-shadow: 0 6px 12px var(--shadow-color);
    border-radius: 8px; /* Rounded corners */
    padding: 20px;
    transition: box-shadow 0.3s ease, transform 0.3s ease;
    color: var(--text-color);
    position: relative;
}

    .information h2 {
        font-size: 2rem; /* Increase size for headings */
        color: var(--primary-color); /* Use the primary color for headings */
        margin-bottom: 0.75rem;
        font-weight: 900;
    }

    .information p {
```

```
            margin-bottom: 1rem;
            text-align: justify;
            line-height: 1.8;
            font-weight: bold; /* Add this line to make the text bold */
        }

        .information strong {
            color: var(--primary-color);
            font-weight: 900; /* Even bolder for strong tags */
        }

        .information .highlight {
            background: linear-gradient(to right, rgba(255,255,255,0), rgba(246, 229, 141, 0.4),
rgba(255,255,255,0));
            padding: 10px;
            border-radius: 5px; /* Rounded corners for the highlight */
            margin: 10px -20px; /* Extend highlight to the edges */
            box-shadow: inset 0 0 8px rgba(246, 229, 141, 0.5); /* Inner shadow for depth */
        }

        .information::before,
        .information::after {
            content: "";
            font-size: 3rem; /* Large quote marks */
            color: rgba(0,0,0,0.1); /* Light quote marks */
            position: absolute;
        }

        .information::before {
            top: 10px;
            left: 10px;
        }

        .information::after {
            bottom: 10px;
            right: 10px;
        }

    .graph {
        width: 100%; /* Full-width graphs */
        margin-bottom: 20px;
    }

    .tableauPlaceholder {
        height: auto;
        position: relative;
        min-height: 700px; /* Updated min-height for consistency */
    }

    .hamburger-menu {
        display: none;
        position: absolute;
        top: 15px;
        left: 20px;
```

```
            cursor: pointer;
            z-index: 1000;
        }

        .menu-line {
            width: 30px;
            height: 3px;
            background-color: #fff;
            margin: 5px 0;
            transition: transform 0.2s;
        }

        .menu-open .menu-line:nth-child(1) {
            transform: translateY(9px) rotate(45deg);
        }

        .menu-open .menu-line:nth-child(2) {
            opacity: 0;
        }

        .menu-open .menu-line:nth-child(3) {
            transform: translateY(-9px) rotate(-45deg);
        }

        a {
            color: var(--link-color);
            text-decoration: none;
            transition: color 0.3s;
        }

            a:hover {
                color: var(--link-hover-color);
                text-decoration: underline;
            }

        @media (max-width: 768px) {
            .container {
                flex-direction: column;
            }

            .information, .graph {
                width: 100%;
                margin: 0 0 20px 0;
            }
        }
    </style>
</head>
<body>

    <div class="header">
        EUROPE DATA DASHBOARD
        <div class="hamburger-menu" onclick="toggleMenu()">
            <div class="menu-line"></div>
            <div class="menu-line"></div>
```

```
        <div class="menu-line"></div>
      </div>
   </div>
   <svg class="donut-chart-link" width="100" height="100" viewBox="0 0 42 42">
      <a xlink:href="demo.html" target="_blank">
         <circle class="donut-hole" cx="21" cy="21" r="15.91549430918954"
fill="#4a69bd"></circle>
         <circle class="donut-segment yellow-segment" cx="21" cy="21"
r="15.91549430918954" fill="transparent" stroke="yellow" stroke-width="5"
stroke-dasharray="25 75" stroke-dashoffset="100"></circle>
         <circle class="donut-segment green-segment" cx="21" cy="21"
r="15.91549430918954" fill="transparent" stroke="green" stroke-width="5"
stroke-dasharray="25 75" stroke-dashoffset="75"></circle>
         <circle class="donut-segment blue-segment" cx="21" cy="21"
r="15.91549430918954" fill="transparent" stroke="blue" stroke-width="5"
stroke-dasharray="25 75" stroke-dashoffset="50"></circle>
         <circle class="donut-segment red-segment" cx="21" cy="21" r="15.91549430918954"
fill="transparent" stroke="red" stroke-width="5" stroke-dasharray="25 75"
stroke-dashoffset="25"></circle>
         <text x="50%" y="50%" text-anchor="middle" fill="white" dy=".3em"
font-size="10">ALL</text>
   </svg>



   <div class="information">
      <h2>MORTALITY INTERACTIVE VISUALISATIONS </h2>
      <p>
         This interactive visualization offers a comprehensive exploration of maternal mortality
rates across the globe. Leveraging a user-friendly interface, users can analyze the national
estimates of maternal mortality per 100,000 live births. The map and accompanying charts
provide historical data, allowing for year-by-year analysis and the observation of long-term
trends. The detailed filters available enable users to refine the data based on specific criteria,
such as geographical region or time period. In addition, the country search option allows for
the comparison of maternal health outcomes across different nations. This tool is
indispensable for public health professionals, policy makers, and educators who require
precise, data-driven insights to understand and address the challenges related to maternal
health and survival. Through visual representation, this resource brings attention to the
progress made and the disparities that still exist in maternal care worldwide.
      </p>

      <div class='tableauPlaceholder' id='viz1713116883645' style='position: relative'>
         <noscript>
            <a href='#'>
               <img alt='Mortality Dash 3'
src='https://public.tableau.com/static/images/Mo/MortalityDash3/MortalityDash3/1_rss.png'
style='border: none' />
            </a>
         </noscript>
         <object class='tableauViz' style='display:none;'>
            <param name='host_url' value='https%3A%2F%2Fpublic.tableau.com%2F' />
            <param name='embed_code_version' value='3' />
            <param name='site_root' value='' />
```

```
            <param name='name' value='MortalityDash3/MortalityDash3' />
            <param name='tabs' value='no' />
            <param name='toolbar' value='yes' />
            <param name='static_image'
value='https://public.tableau.com/static/images/Mo/MortalityDash3/MortalityDash3/1.png' />
            <param name='animate_transition' value='yes' />
            <param name='display_static_image' value='yes' />
            <param name='display_spinner' value='yes' />
            <param name='display_overlay' value='yes' />
            <param name='display_count' value='yes' />
            <param name='language' value='en-GB' />
         </object>
      </div>
      <script type='text/javascript'>
         var divElement = document.getElementById('viz1713116883645');
         var vizElement = divElement.getElementsByTagName('object')[0];
         if (divElement.offsetWidth > 800) {
            vizElement.style.width = '2200px';
            vizElement.style.height = '1227px';
         } else if (divElement.offsetWidth > 500) {
            vizElement.style.width = '2200px';
            vizElement.style.height = '1227px';
         } else {
            vizElement.style.width = '100%';
            vizElement.style.height = '1027px';
         }
         var scriptElement = document.createElement('script');
         scriptElement.src = 'https://public.tableau.com/javascripts/api/viz_v1.js';
         vizElement.parentNode.insertBefore(scriptElement, vizElement);
      </script>

      <style>
         .map-title {
            text-align: center;
            font-size: 24px; /* You can adjust the font size as needed */
            font-weight: bold;
            margin-top: 20px; /* Adjust the margin as needed */
            margin-bottom: 20px; /* Adjust the margin as needed */
         }
      </style>

   </div>

   <div class="information">
      <h2>DISEASE/BATTLE RELATED</h2>

      <div class='tableauPlaceholder' id='viz1713117287930' style='position: relative'>
         <noscript>
            <a href='#'>
               <img alt='Mortality Dash 2'
src='https://public.tableau.com/static/images/Mo/Mortalitydash2/MortalityDash2/1_rss.png'
style='border: none' />
            </a>
         </noscript>
```

```
            <object class='tableauViz' style='display:none;'>
              <param name='host_url' value='https%3A%2F%2Fpublic.tableau.com%2F' />
              <param name='embed_code_version' value='3' />
              <param name='site_root' value='' />
              <param name='name' value='Mortalitydash2/MortalityDash2' />
              <param name='tabs' value='no' />
              <param name='toolbar' value='yes' />
              <param name='static_image'
value='https://public.tableau.com/static/images/Mo/Mortalitydash2/MortalityDash2/1.png' />
              <param name='animate_transition' value='yes' />
              <param name='display_static_image' value='yes' />
              <param name='display_spinner' value='yes' />
              <param name='display_overlay' value='yes' />
              <param name='display_count' value='yes' />
              <param name='language' value='en-GB' />
            </object>
          </div>
          <script type='text/javascript'>
            var divElement = document.getElementById('viz1713117287930');
            var vizElement = divElement.getElementsByTagName('object')[0];
            if (divElement.offsetWidth > 800) {
              vizElement.style.width = '2200px';
              vizElement.style.height = '1227px';
            } else if (divElement.offsetWidth > 500) {
              vizElement.style.width = '2200px';
              vizElement.style.height = '1227px';
            } else {
              vizElement.style.width = '100%';
              vizElement.style.height = '1327px';
            }
            var scriptElement = document.createElement('script');
            scriptElement.src = 'https://public.tableau.com/javascripts/api/viz_v1.js';
            vizElement.parentNode.insertBefore(scriptElement, vizElement);
          </script>
```

<p>
The visuals in front of us show a thorough analysis of the causes of death over a number of years, with an emphasis on non-communicable illnesses, communicable diseases along with problems relating to mother and foetus health, and fatalities from combat. The first graph shows that non-communicable illnesses continue to account for a stable and overwhelming majority of causes of death. This pattern is consistent with findings made on world health, which show that diseases like diabetes, cancer, and heart disease take more lives annually than other causes. The prevalence of these illnesses may be explained by the fact that they are often linked to environmental and lifestyle variables including pollution, exercise, and food.

A much more diversified environment may be seen in the bottom graphic, where a tapestry of lines represents mortality from infectious illnesses and maternal and prenatal disorders. The lowering trend lines were probably caused in part by the drop in certain illnesses and the success of treatments related to maternal health. On the other hand, oscillations in healthcare quality and accessibility, resistant strains of illnesses, or epidemics might be indicated by the ups and downs in other lines. Every line conveys a different tale of a nation's struggle against illnesses that, in contrast to non-communicable ones, may spread across populations and are often more directly influenced by developments in medicine and

public health initiatives. The first graphic illustrates a sobering fact about public health: non-communicable illnesses have an unwavering hold on it. We may see that nations like Latvia and the Russian Federation had continuously high percentages during the late 1990s and the early 2010s. A number of variables, such as an ageing population, changes in lifestyle, and maybe an increase in risk factors like smoking and dietary changes, might be to blame for this.

Regarding communicable illnesses, maternal and prenatal health, a wealth of data is available that provides insight into the distinct health difficulties faced by each nation and the measures taken to address them. Take note of the general lower trend in the majority of the nations, which points to advancements in healthcare access and medicinal treatments. On the other hand, surges in certain years can indicate epidemics or brief gaps in healthcare delivery. Deaths from battle provide a grim perspective on the price of war. For example, the statistics pertaining to the Russian Federation may be indicative of the unstable circumstances in Chechnya in the early 2000s. These figures reflect lives and serve as a reminder of the toll that political uncertainty has on people. They are more than simply statistics.

<p>

<noscript>

<img alt='Dashboard 4'
src='https://public.tableau.com/static/images/Mo/Mortalitydash4/Dashboard4/1_rss.png'
style='border: none' />

</noscript>
<object class='tableauViz' style='display:none;'>
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<param name='embed_code_version' value='3' />
<param name='site_root' value='' />
<param name='name' value='Mortalitydash4/Dashboard4' />
<param name='tabs' value='no' />
<param name='toolbar' value='yes' />
<param name='static_image'
value='https://public.tableau.com/static/images/Mo/Mortalitydash4/Dashboard4/1.png' />
<param name='animate_transition' value='yes' />
<param name='display_static_image' value='yes' />
<param name='display_spinner' value='yes' />
<param name='display_overlay' value='yes' />
<param name='display_count' value='yes' />
<param name='language' value='en-GB' />
</object>

<script type='text/javascript'>
var divElement = document.getElementById('viz1713117660136');
var vizElement = divElement.getElementsByTagName('object')[0];
if (divElement.offsetWidth > 800) {
vizElement.style.width = '2200px';
vizElement.style.height = '1227px';
} else if (divElement.offsetWidth > 500) {
vizElement.style.width = '2200px';
vizElement.style.height = '1227px';

```
            } else {
                vizElement.style.width = '100%';
                vizElement.style.height = '727px';
            }
            var scriptElement = document.createElement('script');
            scriptElement.src = 'https://public.tableau.com/javascripts/api/viz_v1.js';
            vizElement.parentNode.insertBefore(scriptElement, vizElement);
        </script>

        <div class='tableauPlaceholder' id='viz1713117947360' style='position: relative'>
            <noscript>
                <a href='#'>
                    <img alt='Mortality Dash 1'
src='https://public.tableau.com/static/images/Mo/Mortalitydash1/MortalityDash1/1_rss.png'
style='border: none' />
                </a>
            </noscript>
            <object class='tableauViz' style='display:none;'>
                <param name='host_url' value='https%3A%2F%2Fpublic.tableau.com%2F' />
                <param name='embed_code_version' value='3' />
                <param name='site_root' value='' />
                <param name='name' value='Mortalitydash1/MortalityDash1' />
                <param name='tabs' value='no' />
                <param name='toolbar' value='yes' />
                <param name='static_image'
value='https://public.tableau.com/static/images/Mo/Mortalitydash1/MortalityDash1/1.png' />
                <param name='animate_transition' value='yes' />
                <param name='display_static_image' value='yes' />
                <param name='display_spinner' value='yes' />
                <param name='display_overlay' value='yes' />
                <param name='display_count' value='yes' />
                <param name='language' value='en-GB' />
            </object>
        </div>
        <script type='text/javascript'>
            var divElement = document.getElementById('viz1713117947360');
            var vizElement = divElement.getElementsByTagName('object')[0];
            if (divElement.offsetWidth > 800) {
                vizElement.style.width = '2200px';
                vizElement.style.height = '1227px';
            } else if (divElement.offsetWidth > 500) {
                vizElement.style.width = '2200px';
                vizElement.style.height = '1227px';
            } else {
                vizElement.style.width = '100%';
                vizElement.style.height = '1377px';
            }
            var scriptElement = document.createElement('script');
            scriptElement.src = 'https://public.tableau.com/javascripts/api/viz_v1.js';
            vizElement.parentNode.insertBefore(scriptElement, vizElement);
        </script>

    <p>
        We see the complex tale of death across many groups across multiple decades in the
```

visualisations in front of me. The death rate for adult females is clearly declining, with a few noteworthy outliers that see a surge in certain years. This decrease is evidence of increased knowledge of women's health concerns, better access to healthcare, and medical advancements. The surges, however, could point to times when these achievements were momentarily undone by times of economic difficulty, political upheaval, or health problems.

Male adult mortality rates exhibit a similar declining trend, but with more national variation. This may indicate that some lifestyle variations, workplace risks, or cultural elements have a disproportionately negative impact on men's health. The nations with greater rates may be dealing with systemic health issues, such as high rates of alcohol or tobacco use, which have traditionally been more common among men.

The data on newborn death rates is very informative. The sharp fall seen in every nation is indicative of international efforts to reduce infant mortality via improved nutrition, immunisations, and prenatal care. Nonetheless, differences continue to exist, most likely demonstrating the uneven distribution of educational and health resources.

```
<p>

<script>
    function toggleMenu() {
        var chartLink = document.querySelector('.donut-chart-link');
        chartLink.classList.toggle('show');
    }

    document.querySelector('.yellow-segment').addEventListener('click', function () {
        window.location.href = 'Merchandise.html';
    });
    document.querySelector('.green-segment').addEventListener('click', function () {
        window.location.href = 'Emission.html';
    });
    document.querySelector('.blue-segment').addEventListener('click', function () {
        window.location.href = 'Childrens Health.html';
    });
    document.querySelector('.red-segment').addEventListener('click', function () {
        window.location.href = 'Mortality.html';
    });
</script>

<!-- Tableau graphs JavaScript -->
<script type='text/javascript'>
    var divElement = document.getElementById('viz1712605907436');
    var vizElement = divElement.getElementsByTagName('object')[0];

    // Set up a function to run whenever the window resizes to adjust the viz size
    function resizeViz() {
        if (divElement.offsetWidth > 900) {
            vizElement.style.width = '100%';
            vizElement.style.height = '1000px'; // Set this to the height that accommodates your full graph
        } else {
            vizElement.style.width = '100%';
            vizElement.style.height = '1000px'; // Set this for smaller screens as well
        }
    }
```

	``
	// Call this function initially and every time the window resizes
	window.onload = resizeViz;
	window.onresize = resizeViz;
	
	var scriptElement = document.createElement('script');
	scriptElement.src = 'https://public.tableau.com/javascripts/api/viz_v1.js';
	vizElement.parentNode.insertBefore(scriptElement, vizElement);
	</script>
	
	<script>
	// Simple script for hamburger menu animation
	document.querySelector('.hamburger-menu').addEventListener('click', function () {
	this.classList.toggle('menu-open');
	});
	</script>
	
	</body>
	</html>```

Merchandise html code	```<!DOCTYPE html>
	<html lang="en">
	<head>
	<meta charset="UTF-8">
	<meta name="viewport" content="width=device-width, initial-scale=1.0">
	<title>Health Data Dashboard</title>
	<link href="https://fonts.googleapis.com/css2?family=Roboto:wght@400;700;900&display=swap" rel="stylesheet">
	<style>
	/* Modern color palette */
	:root {
	--primary-color: #E6B800; /* Gold Yellow */
	--secondary-color: #F7DC6F; /* Soft Yellow */
	--accent-color: #A569BD; /* Soft Purple */
	--background-color: #F4F6F7; /* Light Gray Background */
	--text-color: #34495E; /* Dark Blue Text */
	--shadow-color: rgba(0,0,0,0.2);
	}
	
	body {
	font-family: 'Roboto', sans-serif;
	margin: 0;
	padding: 0;
	background-color: var(--background-color);
	color: var(--text-color);
	line-height: 1.6;
	}
	
	.header {
	background-color: var(--primary-color); /* Solid color header */
	color: #fff;
	padding: 20px;
	text-align: center;```

```
        font-size: 32px; /* Increased font size */
        font-weight: 900;
        box-shadow: 0 4px 8px var(--shadow-color);
    }

    .container {
        display: flex;
        flex-wrap: wrap;
        padding: 20px;
        justify-content: space-around;
        gap: 20px; /* Consistent spacing */
    }

    .information {
        flex: 1 1 300px; /* Responsive card sizing */
        background: #fff;
        border: 1px solid #ddd; /* Subtle borders for definition */
        box-shadow: 0 6px 12px var(--shadow-color);
        border-radius: 8px; /* Rounded corners */
        padding: 20px;
        transition: box-shadow 0.3s ease, transform 0.3s ease;
        color: var(--text-color);
        position: relative;
    }

        .information h2 {
            font-size: 2rem; /* Increase size for headings */
            color: var(--primary-color); /* Use the primary color for headings */
            margin-bottom: 0.75rem;
            font-weight: 900;
        }

        .information p {
            margin-bottom: 1rem;
            text-align: justify;
            line-height: 1.8;
            font-weight: bold; /* Add this line to make the text bold */
        }

        .information strong {
            color: var(--primary-color);
            font-weight: 900; /* Even bolder for strong tags */
        }

        .information .highlight {
            background: linear-gradient(to right, rgba(255,255,255,0), rgba(246, 229, 141, 0.4),
rgba(255,255,255,0));
            padding: 10px;
            border-radius: 5px; /* Rounded corners for the highlight */
            margin: 10px -20px; /* Extend highlight to the edges */
            box-shadow: inset 0 0 8px rgba(246, 229, 141, 0.5); /* Inner shadow for depth */
        }

        .information::before,
```

```
    .information::after {
        content: "";
        font-size: 3rem; /* Large quote marks */
        color: rgba(0,0,0,0.1); /* Light quote marks */
        position: absolute;
    }

    .information::before {
        top: 10px;
        left: 10px;
    }

    .information::after {
        bottom: 10px;
        right: 10px;
    }

.graph {
    width: 100%; /* Full-width graphs */
    margin-bottom: 20px;
}

.tableauPlaceholder {
    height: auto;
    position: relative;
    min-height: 700px; /* Updated min-height for consistency */
}

.hamburger-menu {
    display: none;
    position: absolute;
    top: 15px;
    left: 20px;
    cursor: pointer;
    z-index: 1000;
}

.menu-line {
    width: 30px;
    height: 3px;
    background-color: #fff;
    margin: 5px 0;
    transition: transform 0.2s;
}

.menu-open .menu-line:nth-child(1) {
    transform: translateY(9px) rotate(45deg);
}

.menu-open .menu-line:nth-child(2) {
    opacity: 0;
}

.menu-open .menu-line:nth-child(3) {
```

```
            transform: translateY(-9px) rotate(-45deg);
        }

        a {
            color: var(--link-color);
            text-decoration: none;
            transition: color 0.3s;
        }

            a:hover {
                color: var(--link-hover-color);
                text-decoration: underline;
            }

        @media (max-width: 768px) {
            .container {
                flex-direction: column;
            }

            .information, .graph {
                width: 100%;
                margin: 0 0 20px 0;
            }
        }
    </style>
</head>
<body>

    <div class="header">
        EUROPE DATA DASHBOARD
        <div class="hamburger-menu" onclick="toggleMenu()">
            <div class="menu-line"></div>
            <div class="menu-line"></div>
            <div class="menu-line"></div>
        </div>
    </div>
    <svg class="donut-chart-link" width="100" height="100" viewBox="0 0 42 42">
        <a xlink:href="demo.html" target="_blank">
            <circle class="donut-hole" cx="21" cy="21" r="15.91549430918954"
fill="#4a69bd"></circle>
            <circle class="donut-segment yellow-segment" cx="21" cy="21"
r="15.91549430918954" fill="transparent" stroke="yellow" stroke-width="5"
stroke-dasharray="25 75" stroke-dashoffset="100"></circle>
            <circle class="donut-segment green-segment" cx="21" cy="21"
r="15.91549430918954" fill="transparent" stroke="green" stroke-width="5"
stroke-dasharray="25 75" stroke-dashoffset="75"></circle>
            <circle class="donut-segment blue-segment" cx="21" cy="21"
r="15.91549430918954" fill="transparent" stroke="blue" stroke-width="5"
stroke-dasharray="25 75" stroke-dashoffset="50"></circle>
            <circle class="donut-segment red-segment" cx="21" cy="21" r="15.91549430918954"
fill="transparent" stroke="red" stroke-width="5" stroke-dasharray="25 75"
stroke-dashoffset="25"></circle>
            <text x="50%" y="50%" text-anchor="middle" fill="white" dy=".3em"
font-size="10">ALL</text>
```

```
</svg>



<div class="information">
    <h2> EUROPE'S MERCHANDISE</h2>
    <p>
        Greetings and welcome to our interactive platform, where we will explore the rich history of European goods trade. We explore how Europe has interacted with economies worldwide through a carefully chosen series of visualisations that take us from the bustling markets of the Arab world to the dynamic shores of South Asia, the vibrant hubs of East Asia & Pacific, and the emerging landscapes of Sub-Saharan Africa. Our journey takes us across time and geography.

        We urge you to investigate the ebbs and flows of trade ties via each of the painstakingly detailed visualisations on our site. Our bubble charts and scatter plots come to life with vibrant colours and sizes that tell the tale of trade volume, economic development, and the shifting fortunes of countries over time. These visual tales are more than simply statistics; they represent the beating heart of trade and history, which have moulded the world we live in.

        The line graphs, which show trade's percentage of GDP, highlight the importance of trade in the framework of national economies. You may learn more about a country's long-term economic resilience and vitality by using this macroeconomic perspective. Observe how economic ups and downs, booms, and recoveries leave their lasting impressions on these lines.

        Our bar graphs demonstrate how Europe has extended out across seas to trade with far-off countries and provide a comparative look at the continent's trading activities outside its immediate neighbours. This demonstrates the spirit of enterprise and interdependence that characterise Europe's position in the world economy.

    </p>

    <div class='tableauPlaceholder' id='viz1713151471257' style='position: relative'>
        <noscript>
            <a href='#'>
                <img alt='Arab Import/Export'
src='https://public.tableau.com/static/images/Ar/ArabMerchDashboard/ArabImportExport/1_rs.png' style='border: none' />
            </a>
        </noscript>
        <object class='tableauViz' style='display:none;'>
            <param name='host_url' value='https%3A%2F%2Fpublic.tableau.com%2F' />
            <param name='embed_code_version' value='3' />
            <param name='site_root' value='' />
            <param name='name' value='ArabMerchDashboard/ArabImportExport' />
            <param name='tabs' value='no' />
            <param name='toolbar' value='yes' />
            <param name='static_image'
value='https://public.tableau.com/static/images/Ar/ArabMerchDashboard/ArabImportExport/1.png' />
            <param name='animate_transition' value='yes' />
```

```
            <param name='display_static_image' value='yes' />
            <param name='display_spinner' value='yes' />
            <param name='display_overlay' value='yes' />
            <param name='display_count' value='yes' />
            <param name='language' value='en-GB' />
        </object>
    </div>
    <script type='text/javascript'>
        var divElement = document.getElementById('viz1713151471257');
        var vizElement = divElement.getElementsByTagName('object')[0];
        if (divElement.offsetWidth > 800) {
            vizElement.style.width = '2300px';
            vizElement.style.height = '1227px';
        } else if (divElement.offsetWidth > 500) {
            vizElement.style.width = '2300px';
            vizElement.style.height = '1227px';
        } else {
            vizElement.style.width = '100%';
            vizElement.style.height = '1727px';
        }
        var scriptElement = document.createElement('script');
        scriptElement.src = 'https://public.tableau.com/javascripts/api/viz_v1.js';
        vizElement.parentNode.insertBefore(scriptElement, vizElement);
    </script>


    <style>
        .map-title {
            text-align: center;
            font-size: 24px; /* You can adjust the font size as needed */
            font-weight: bold;
            margin-top: 20px; /* Adjust the margin as needed */
            margin-bottom: 20px; /* Adjust the margin as needed */
        }
    </style>
```

<p>
Observing these visual aids, I perceive a narrative developing on the changing dynamics between European nations and the Arab world. The goods import bubble charts present a heterogeneous picture, with France, Italy, and Spain appearing as key partners. The varying sizes of these bubbles over time indicate a rise in trade volumes, pointing to a tightening economic tie that is probably the consequence of strategic trade agreements and the integration of the world economy. European imports from the Arab world: The upward trend in European imports from the Arab World may be a sign of the continent's expanding energy requirements, particularly in the aftermath of the 1970s oil crisis. Global energy dynamics significantly changed during this time, especially after the 1973 oil embargo, with European nations becoming more and more dependent on Arab countries for its oil. Furthermore, the introduction of the single market by the European Union in the 1990s could have made commerce between its member states simpler, which would have increased the amount of imports.

Exports from Europe to the Arab World: On the other hand, the increase in European exports to the Arab World throughout time may be attributed to the modernization and rebuilding efforts in many Arab nations, especially those that followed the 1990s. Demand for

	European industrial products and services was strong as these countries looked to expand their economies beyond oil. Furthermore, given that political instability may have an impact on commercial connections, the Arab Spring events of 2011 could have caused temporary swings in trade. Trade with Developing Economies in Sub-Saharan Africa, East Asia & Pacific, and South Asia: The late 20th century growth of the "Asian Tigers" (Hong Kong, Singapore, South Korea, and Taiwan), China's entry into the World Trade Organisation in 2001, and India's economic liberalisation policies in 1991 all probably played a role in the region's increased trade volumes as manufacturing powerhouses. The rise in Sub-Saharan Africa may be related to European development and assistance programmes, such as the 2000 Cotonou Agreement, which promoted commerce with nations in the African, Caribbean, and Pacific regions. goods Trade as a Whole: The overall rise in goods trade throughout the years as a proportion of GDP is probably indicative of the larger globalisation trend. Reducing trade obstacles and promoting cross-border business, the World Trade Organization's establishment in 1995 and the next rounds of international trade talks may have had a role in this growth. In conclusion, the story of a globe becoming increasingly interconnected via commerce is captured by these visuals. The fluctuations may be linked to important geopolitical occurrences, changes in policies, and worldwide economic transformations. These figures illustrate the interdependence of our global economy and weave them into the story of the planet. <p> <h2>SOUTH/EAST ASIA & PACIFIC</h2> <noscript> </noscript> <object class='tableauViz' style='display:none;'> <param name='host_url' value='https%3A%2F%2Fpublic.tableau.com%2F' /> <param name='embed_code_version' value='3' /> <param name='site_root' value='' /> <param name='name' value='SouthEastAsiaPacificMerchDash/SouthEastAsiaPaciificImportExport' /> <param name='tabs' value='no' /> <param name='toolbar' value='yes' /> <param name='static_image' value='https://public.tableau.com/static/images/So/SouthEastAsiaPacificMerchDash/SouthEastAsiaPaciificImportExport/1.png' /> <param name='animate_transition' value='yes' /> <param name='display_static_image' value='yes' /> <param name='display_spinner' value='yes' /> <param name='display_overlay' value='yes' /> <param name='display_count' value='yes' /> <param name='language' value='en-GB' /> </object>

```
        </div>
        <script type='text/javascript'>
            var divElement = document.getElementById('viz1713153216483');
            var vizElement = divElement.getElementsByTagName('object')[0];
            if (divElement.offsetWidth > 800) {
                vizElement.style.width = '2300px';
                vizElement.style.height = '1227px';
            } else if (divElement.offsetWidth > 500) {
                vizElement.style.width = '2300px';
                vizElement.style.height = '1227px';
            } else {
                vizElement.style.width = '100%';
                vizElement.style.height = '1827px';
            }
            var scriptElement = document.createElement('script');
            scriptElement.src = 'https://public.tableau.com/javascripts/api/viz_v1.js';
            vizElement.parentNode.insertBefore(scriptElement, vizElement);
        </script>
        <p>
```

Welcome to our investigation on the patterns of European commerce with emerging nations. We take a trip through time with these visualisations, following the flow of trade currents from the thriving economies of East Asia and South Asia to the healthy markets of Europe. Our line charts reveal a dynamic trading environment, starting with South Asia. The region's remarkable ups and downs may be a reflection of the market liberalisation and economic changes that started in the late 20th century, particularly in India. The goal of these adjustments was to further integrate the economies of South Asia into the world market; the results may be seen in the increasing import and export values over time.Luxembourg is shown to be a fairly important hub in the bubble charts for imports from East Asia and the Pacific. This is probably due to Luxembourg's welcoming investment environment and its clever use of capital to forge a robust logistics system that increases its import capability.

As a result of the "East Asian Miracle," which saw nations like China, South Korea, and others achieve rapid industrial expansion, exports have increased significantly over time. The rising trend of exports to these areas indicates that Europe, with its sophisticated technology and money, has been a crucial partner in this progress, contributing equipment and investment.The remarkable success of Romania's exports to both areas is especially interesting. This may be explained by its industrial sector's competitiveness and its improved access to Asian markets after the EU membership.

```
        <p>


    <h2>SUB-SAHARAN AFRICA/TRADE</h2>
    <div class='tableauPlaceholder' id='viz1713153420071' style='position: relative'>
        <noscript>
            <a href='#'>
                <img alt='Sub-Saharan Africa Import/Export'
src='https://public.tableau.com/static/images/Su/Sub-SaharanAfricaMerchDash/Sub-Saharan
AfricaImportExport/1_rss.png' style='border: none' />
            </a>
        </noscript>
        <object class='tableauViz' style='display:none;'>
            <param name='host_url' value='https%3A%2F%2Fpublic.tableau.com%2F' />
            <param name='embed_code_version' value='3' />
            <param name='site_root' value='' />
```

```
            <param name='name'
value='Sub-SaharanAfricaMerchDash/Sub-SaharanAfricaImportExport' />
            <param name='tabs' value='no' />
            <param name='toolbar' value='yes' />
            <param name='static_image'
value='https://public.tableau.com/static/images/Su/Sub-SaharanAfricaMerchDash/Sub-Sahar
anAfricaImportExport/1.png' />
            <param name='animate_transition' value='yes' />
            <param name='display_static_image' value='yes' />
            <param name='display_spinner' value='yes' />
            <param name='display_overlay' value='yes' />
            <param name='display_count' value='yes' />
            <param name='language' value='en-GB' />
        </object>
    </div>
    <script type='text/javascript'>
        var divElement = document.getElementById('viz1713153420071');
        var vizElement = divElement.getElementsByTagName('object')[0];
        if (divElement.offsetWidth > 800) {
            vizElement.style.width = '2300px';
            vizElement.style.height = '1227px';
        } else if (divElement.offsetWidth > 500) {
            vizElement.style.width = '2300px';
            vizElement.style.height = '1227px';
        } else {
            vizElement.style.width = '100%';
            vizElement.style.height = '1377px';
        }
        var scriptElement = document.createElement('script');
        scriptElement.src = 'https://public.tableau.com/javascripts/api/viz_v1.js';
        vizElement.parentNode.insertBefore(scriptElement, vizElement);
    </script>
```


<p>
Portugal has historically high percentages in the bubble plots of imports from Sub-Saharan Africa to European nations. This is not just a coincidence; it is a result of linguistic and colonial legacies that have strengthened commercial links long into the twenty-first century. Historical occurrences such as the Carnation Revolution of 1974, which brought an end to Portugal's autocratic government, and its entry into the European Economic Community in 1986 created new opportunities for investment and trade as Portugal worked to reestablish equitable and mutually beneficial relationships with its former colonies.A similar story is told by the export graph, which continually shows Portugal at the top. This may be related to investments made in Portuguese-speaking African nations in industries like banking and energy. The global commodities boom that saw a jump in demand for raw materials—many of which are rich in Africa—is reflected in the higher export numbers around the end of the 20th and beginning of the 21st centuries.

When one zooms out to the larger picture of the economy, the merchandise trade as a proportion of GDP provides more context. The commodities supercycle, the ease of capital movements at that time, and the apex of globalisation might all be contributing factors to the startling rise in trade's GDP share in the 2000s. The fact that this development is not consistent across all nations, however, suggests that different economic strategies, resource endowments, and industrial capabilities exist.Early in the new millennium, trade volume increased in tandem with China's admission to the World Trade Organisation (WTO) in 2001,

which spurred trade links between Africa and non-traditional Western partners to expand. Furthermore, the 2008 financial crisis is probably to blame for the subsequent oscillations, since decreased global demand and falling commodity prices had a significant effect on trade dynamics.

```
    <p>

        <h2>OUTSIDE REGION</h2>
        <div class='tableauPlaceholder' id='viz1713153522328' style='position: relative'>
            <noscript>
                <a href='#'>
                    <img alt='Outside Import/Export'
src='https://public.tableau.com/static/images/Ou/OutsideMerchDash/OutsideImportExport/1_r
ss.png' style='border: none' />
                </a>
            </noscript>
            <object class='tableauViz' style='display:none;'>
                <param name='host_url' value='https%3A%2F%2Fpublic.tableau.com%2F' />
                <param name='embed_code_version' value='3' />
                <param name='site_root' value='' />
                <param name='name' value='OutsideMerchDash/OutsideImportExport' />
                <param name='tabs' value='no' />
                <param name='toolbar' value='yes' />
                <param name='static_image'
value='https://public.tableau.com/static/images/Ou/OutsideMerchDash/OutsideImportExport/1
.png' />
                <param name='animate_transition' value='yes' />
                <param name='display_static_image' value='yes' />
                <param name='display_spinner' value='yes' />
                <param name='display_overlay' value='yes' />
                <param name='display_count' value='yes' />
                <param name='language' value='en-GB' />
            </object>
        </div>
        <script type='text/javascript'>
            var divElement = document.getElementById('viz1713153522328');
            var vizElement = divElement.getElementsByTagName('object')[0];
            if (divElement.offsetWidth > 800) {
                vizElement.style.width = '2300px';
                vizElement.style.height = '1227px';
            } else if (divElement.offsetWidth > 500) {
                vizElement.style.width = '2300px';
                vizElement.style.height = '1227px';
            } else {
                vizElement.style.width = '100%';
                vizElement.style.height = '977px';
            }
            var scriptElement = document.createElement('script');
            scriptElement.src = 'https://public.tableau.com/javascripts/api/viz_v1.js';
            vizElement.parentNode.insertBefore(scriptElement, vizElement);
        </script>

    <p>
        Upon analysing the trade connections shown in these illustrations, I am reminded of the
complex network of economic interdependencies that shape our world. When one focuses on
```

goods coming into and going out of emerging economies outside of the immediate area of Europe, one can see that the wave of globalisation has certainly reached every beach. The remarkable stability of imports in nations like France and Germany points to a steady demand for goods from other areas, highlighting the broad import portfolios and strong consuming capacity of these economies. Conversely, the disparities in import levels across the various European nations draw attention to the subtleties of economic scale, consumption trends, and maybe the strategic importance of certain trade agreements.

Turning now to exports, it is striking how many countries are now able to access emerging economies. Nations like Portugal and the United Kingdom that have a long history of colonisation and maritime commerce have the resources and incentive to sustain and grow their trading networks. Subtle gains in exports from post-EU nations such as Latvia and Lithuania demonstrate how a country's export potential may be increased by incorporation into a bigger economic union. When historical events are superimposed on this data, it becomes clear that the early 1990s collapse of the Soviet Union, the following shift of Eastern Europe to market economies, and the EU's expansion in the 2000s have all contributed to the reconfiguration of these trade flows. More recently, as nations reevaluate their economic plans, the 2008 financial crisis and the current retreat from globalisation may account for the stabilisation or fall in certain trade activity.

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<p>

    <h2>WITHIN REGION</h2>
    <div class='tableauPlaceholder' id='viz1713153542170' style='position: relative'>
        <noscript>
            <a href='#'>
                <img alt='Within region import/export'
src='https://public.tableau.com/static/images/Wi/WithinRegionMerchDash/Withinregionimporte
xport/1_rss.png' style='border: none' />
            </a>
        </noscript>
        <object class='tableauViz' style='display:none;'>
            <param name='host_url' value='https%3A%2F%2Fpublic.tableau.com%2F' />
            <param name='embed_code_version' value='3' />
            <param name='site_root' value='' />
            <param name='name' value='WithinRegionMerchDash/Withinregionimportexport' />
            <param name='tabs' value='no' />
            <param name='toolbar' value='yes' />
            <param name='static_image'
value='https://public.tableau.com/static/images/Wi/WithinRegionMerchDash/Withinregionimpo
rtexport/1.png' />
            <param name='animate_transition' value='yes' />
            <param name='display_static_image' value='yes' />
            <param name='display_spinner' value='yes' />
            <param name='display_overlay' value='yes' />
            <param name='display_count' value='yes' />
            <param name='language' value='en-GB' />
        </object>
    </div>
    <script type='text/javascript'>
        var divElement = document.getElementById('viz1713153542170');
        var vizElement = divElement.getElementsByTagName('object')[0];
        if (divElement.offsetWidth > 800) {
            vizElement.style.width = '2300px';
            vizElement.style.height = '1227px';
```

```
            } else if (divElement.offsetWidth > 500) {
                vizElement.style.width = '2300px';
                vizElement.style.height = '1227px';
            } else {
                vizElement.style.width = '100%';
                vizElement.style.height = '977px';
            }
            var scriptElement = document.createElement('script');
            scriptElement.src = 'https://public.tableau.com/javascripts/api/viz_v1.js';
            vizElement.parentNode.insertBefore(scriptElement, vizElement);
        </script>
    <p>
        Upon closer inspection of the import picture, I see a trend of rising import activity over
time, with certain nations—such as Moldova and Ukraine—frequently displaying bigger
bubbles. This could point to their expanding marketplaces or perhaps their key positions as
the region's transportation centres. The variety of colours that stand for the many nations
highlights how these countries are not simply isolated units but rather are a part of a wider,
interdependent economic structure. It also depicts a varied but linked commerce network.
Now let's look at the export graphic, which shows how different countries are interacting with
their neighbours based on the distribution of export activity. It's fascinating to observe the
times of notable export quantities, which may coincide with successful industries, important
agricultural export harvest seasons, or local economic booms. Taking into account the
historical background, I can think of a number of reasons that might have an impact on these
trends, such as regional trade agreements, economic reforms, and infrastructure building
programmes. The state of politics may also have a significant effect on commerce. While
political unrest might cause a contraction in commerce, a tranquil era can promote growth in
it.
    <p>


        <script>
            function toggleMenu() {
                var chartLink = document.querySelector('.donut-chart-link');
                chartLink.classList.toggle('show');
            }

            document.querySelector('.yellow-segment').addEventListener('click', function () {
                window.location.href = 'Merchandise.html';
            });
            document.querySelector('.green-segment').addEventListener('click', function () {
                window.location.href = 'Emission.html';
            });
            document.querySelector('.blue-segment').addEventListener('click', function () {
                window.location.href = 'Childrens Health.html';
            });
            document.querySelector('.red-segment').addEventListener('click', function () {
                window.location.href = 'Mortality.html';
            });
        </script>

        <!-- Tableau graphs JavaScript -->
        <script type='text/javascript'>
            var divElement = document.getElementById('viz1712605907436');
            var vizElement = divElement.getElementsByTagName('object')[0];
```

```
        // Set up a function to run whenever the window resizes to adjust the viz size
        function resizeViz() {
            if (divElement.offsetWidth > 900) {
                vizElement.style.width = '100%';
                vizElement.style.height = '1000px'; // Set this to the height that accommodates
your full graph
            } else {
                vizElement.style.width = '100%';
                vizElement.style.height = '1000px'; // Set this for smaller screens as well
            }
        }

        // Call this function initially and every time the window resizes
        window.onload = resizeViz;
        window.onresize = resizeViz;

        var scriptElement = document.createElement('script');
        scriptElement.src = 'https://public.tableau.com/javascripts/api/viz_v1.js';
        vizElement.parentNode.insertBefore(scriptElement, vizElement);
    </script>

    <script>
        // Simple script for hamburger menu animation
        document.querySelector('.hamburger-menu').addEventListener('click', function () {
            this.classList.toggle('menu-open');
        });
    </script>

</body>
</html>
```