Report on Infographic

DATA VISUALIZATION CA2
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Background of datasets

Four datasets have been used to create charts used in the infographic on coffee. The first dataset is created from an online article [1]. The article has listed the top ten coffee producing countries along with a brief summary and some facts about each country included in the list. The article also provided the amount of coffee produced per year in metric tons which were used to create a list of top five coffee producing countries in the world with the help of an excel.

The second dataset is created from an online article [2]. The article has ranked countries of the world on the basis of how many cups of coffee on an average a person drinks in a day. Data from the article was used to list average cups of coffee consumptions per week for Ireland, USA and Netherlands which is the highest consuming country in the world.The third dataset is created from an online article [3]. The article provided nutrition facts of coffee. Data related to the composition of Carbs, Fats and Protein in coffee have been used to create this third dataset.

The fourth dataset is created from an online article [4]. The article has compared different beverages on the basis of the caffeine content. Caffeine content of various beverages has been listed in the article from which caffeine content of hot chocolate, tea, milk chocolate, instant coffee and cold brew have been extracted to create this fourth dataset containing the names of beverages along with caffeine content per cup of beverages. Other than above four datasets, facts from a few other websites which cited at the end of the report have also been used to create the infographic on coffee.

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[1] https://www.worldlistmania.com/top-10-largest-coffee-producing-countries-world/
[2] https://www.theatlantic.com/business/archive/2014/01/here-are-the-countries-that-drink-the-most-coffee-the-us-isnt-in-the-top-10/283100/
[3] https://nutritiondata.self.com/facts/beverages/3898/2
[4] https://www.healthline.com/health/food-nutrition/does-hot-chocolate-have-caffeine#hot-chocolate-vs.-coffee

Process outline for developing the infographic

Following series of steps were carried out to create the infographic.

1.   Data gathering and data pre-processing.

Firstly, data from multiple websites was extracted then irrelevant data was omitted and required data was used to create datasets in excel which would be used further to create charts. Pre-processing on dataset was also carried out wherever required such as converting data of coffee consumption per day to coffee consumption per week.

2.   Data analysis and visualisation.

Once the data was pre-processed the next step was to analyse the data and create charts accordingly. To create visualisation an online tool Venngage [5] was used which is also being used to create the infographic.

3.   Designing Infographic.

Next step followed was designing the infographic which was created with the help of an online tool Venngage. Once all charts were ready a layout was designed considering the story to be depicted through the infographic along with appropriate background colour. Various options and customization provided by Venngage were used to create the infographic. Icons and images provided from flatcoin.com and thenounproject.com along with the icons and images provided by Venngage tool were also used to make the infographic more easily understandable. Once the infographic was created next step involved was downloading the infographic in .png format and resizing it with the help of paint3D software and then converting it in pdf format.

The story depicted in the infographic

To depict the story behind the infographic the layout of the infographic was divided into three different sections. Each section was divided with a line made of coffee beans along with some interesting facts. The story starts with the first section which illustrates facts about production and consumption of coffee around the globe, followed by science statistics of coffee in the second section, then concluding the story by displaying how the contents of coffee covered in the previous section enables coffee to have beneficial uses.

The first section has two visualisations, the first visualisation shows the top five largest coffee producing countries in the world which are created using a bar chart. Brazil tops the list with around 2,500,000 metric tons of coffee production per year while India is on the fifth position with around 300,000 metric ton of coffee production. The second visualisation in this section shows the average cups of coffee consumption in the Netherlands, USA and Ireland. Netherlands is the highest coffee consuming country in the world with around seventeen cups of coffee consumption per person per week while the USA which has a reputation of running on coffee it is way behind it with seven cups of coffee consumption per person per week. In Ireland, the average cup of coffee consumption is only two cups of

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[5] https://infograph.venngage.com

coffee per week. The rationale behind these two visualisations in this first section is to show the vast quantity on which coffee is produced and how popular is coffee around the globe.

Science statistics of coffee is covered in section two of the infographic which consists of two visualisations. The first visualisation shows the nutrition information on coffee. The composition of carbs, fats and protein in coffee is represented using a pie chart which shows that protein and carbs content in coffee more than fats. The second visualisation in this section is a column chart used to compare caffeine content in different beverages per cup of 150ml. Cold brew and instant coffee have the highest caffeine content compared to the other beverages considered with around 150 and 70 mg of caffeine per cup respectively. The rationale behind these two visualisations in this section is to display what are the contents of coffee which helps coffee to be one of the most beneficial and popular beverages.

The third section of the infographic shows the benefits of coffee. One of the perks of coffee which makes it so popular is its ability to boost mental focus and increase energy levels. Coffee also helps one fight depression and feel happier. Few other benefits of coffee are its ability to reduce post-workout muscle pain and reduced heart attack risk.

Justification
- ## Techniques
  Various different types of charts available which can be used to visualise the data. Selecting the correct type of chart is very critical. Lots of things are to be considered while choosing the type of chart such as whether the data is qualitative or quantitative [1] and what is to be shown is it relationship, composition, distribution or comparison. The charts used in this infographic have been created keeping above things into consideration. Two column charts are used in this infographic as a comparison of coffee consumption across countries and a comparison of caffeine content in different beverages was to be shown respectively in section one and section two. The pie chart is used as there was a need to show the composition of coffee contents. A bar chart is used in section one as comparison of top five coffee producing countries in the world was to be shown.

- ## Layout
  The layout of the infographic was designed keeping in mind the story to be depicted in the infographic and so the layout was divided into three sections to show three different parts of the story and drilling down from information about coffee production and coffee consumption to the benefits of coffee.

- ## Style
  One of the objectives of the infographic is to present data in a more attractive and stylish way so as to bring more interest into the topic and for that two font styles, namely pacifico and Roboto condensed in different font sizes have been used in this infographic.

- ## Colour

  Colour section plays an important role in how quickly and clearly one can understand the information displayed in the infographic. Colour enables one to see how objects are connected to each other [2]. Considering the above things appropriate colours have been chosen in this infographic. Most of the colours used in this infographic are different shades of brown so as to match the theme of coffee which is of brown colour. Colours to represent different countries have been selected on the basis of the jersey colour of the country in the second chart of section one. Colours in the last section of the infographic have been used to highlight what information it is trying to convey for example reducing and cutting which are a good thing in the context as shown by green colour while red for heart and yellow for happier.

Technologies

Following tools have been used to create the infographic:

1. ## Venngage

   Venngage [6] is an online tool which provides various features which aid in creating an infographic quickly and easily. Venngage was also used to create visualisations rather than any other tools as charts can be created very easily using it and also provides a transparent background which helps in managing the charts in the layout.

2. ## Flat coin and the noun project

   Flat coin [7] used to get the icons of maps of different countries used in the infographic. The noun project was used to get some of the icon used in this infographic. Both of these online tools provide a range of icons which helped a lot in creating this infographic.

3. ## Paint 3D

   Paint 3D application of windows was used to edit the icons used in the infographic and resize the infographic to A3 size.

4. ## Microsoft Excel

   Microsoft Excel was used to create, store and analyse the datasets.

5. ## Some other tools

   Few other tools such as colour picker extension [8] and png2pdf [9] were also used to create the infographic.

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[6] https://infograph.venngage.com/
[7] https://www.flaticon.com/
[8] https://chrome.google.com/webstore/detail/colorpick-yedropper/ohcpnigalekghcmgcdcenkpelffpdolg?hl=en
[9] https://png2pdf.com/

Reflection

There were many difficulties faced as well as few things were quite easy while creating the infographic. One of the challenges was in choosing the correct tool to be used for creating the infographic as there are many powerful tools available. Venngage tool provided various features such as customised icons, upload images, charts which made it easy to create the infographic quickly. Designing the layout was also tricky considering that the objective of the infographic was not to just show facts but also present a story through it. Conveying the information through visualisations required an excellent choice of charts and the flow chart of selecting the charts from the notes in Moodle helped a lot.

References

[1]   L. L. Cooper and F. S. Shore, "The effects of data and graph type on concepts and visualizations of variability," *J. Stat. Educ.*, vol. 18, no. 2, pp. 1–16, 2010.

[2]   C. R. Lucius and A. Fuad, "Coloring your information: How designers use Theory of Color in creative ways to present infographic," *IOP Conf. Ser. Mater. Sci. Eng.*, vol. 277, no. 1, 2017.

References for facts used in the infographic

1. Coffee is the world's 2nd largest traded commodity.

    URL: http://www.agiboo.com/16-interesting-facts-about-coffee/

2. 54% of adult's drinks coffee on a daily basis.

    URL: http://www.e-importz.com/coffee-statistics.php

3. Coffee increases the energy level and boosts mental focus.

    URL: https://www.today.com/health/7-things-you-didnt-know-about-caffeine-1B6013380

    https://theroasterspack.com/blogs/news/15325349-does-coffee-fight-depression

4. Coffee can help fight depression and make you happier.
    URL: https://theroasterspack.com/blogs/news/15325349-does-coffee-fight-depression

5. Cut the Pain.

    URL: http://news.bbc.co.uk/2/hi/health/6254731.stm

6. Reduced heart attack risk.

    URL: http://time.com/5022060/coffee-health-benefits-heart/