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Application of Google Data Studio for Data Visualization at SMK Tunas Bangsa Malang

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ABSTRACT

The Department of Office Automation and Governance (OTKP) is one of the Vocational High School's majors in Indonesia that focuses on office operations and information processing. One of the popular skill in information processing lately is data processing and visualization. In response of this trend, we propose a Google Data Studio training for Tunas Bangsa Vocational High School's students from OTKP Majors. Google Data Studio is a free data analysis tool from Google. With this tool, users can not only display data with attractive and easy-to-understand visuals but also can process data from various sources on one worksheet. This service is mostly free, not limited to Google services such as Google Sheets but can be linked to other platforms, such as websites, applications or third party services. By the end of the training all participants have been able to use Google Data Studio for data visualization needed for offices in general.

Keywords: Google data studio, OTKP, Vocational High School

Introduction

Vocational High School, also known as SMK is an upper-level education level that is ready to work after completing studies. Therefore, vocational students must really understand the vocational field they choose (Soenarto et al., 2017). This understanding is mainly from a practical point of view. In accounting, one of the main skills that must be possessed is data visualization and analysis to obtain information about its characteristics (Samaras et al., 2022). Visual data can also function to view complex data and consist of various graphic forms so that it is easier for readers to reach.

Muharni and Chandra (2022) state that data visualization has become an inseparable part of accounting and an increasingly needed part of the basic skills of vocational students. Data visualization is a general term that will help readers (general public) to obtain information on data through graphical/visual displays (Siddiqui, 2021). In the beginning, the most widely used method by accountants to visualize data was through Ms. Excel. This activity started with a gradual increase in spreadsheets and then graphs were made one by one. However, along with the development of technology, especially in the field of software data analysis, currently data visualization has a new challenge, namely being able to create an increasingly attractive visualization display and also making it easier to share information with the wider community or colleagues (Qin et al., 2019).

To help equip SMK students with good data visualization skills, we conducted community service on how to use Google Data Studio as an application for data visualization and pre-

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processing. Google Data Studio is a cloud-based program designed as an easy-to-use tool for simple statistical visualization and analysis. Google Data Studio can be accessed anywhere and by anyone. The app was first released in May 2016 as part of the Analytics 360 Suite. In this community service, the analysis taught to SMK Tunas Bangsa students includes compiling cross tabs to obtain certain information, making graphs, and making simple analyzes.

Material and Methods

Google data studio is a data visualization program designed as an easy-to-use tool to represent complex data sets in an attractive and clear way. Data visualization is a general term that describes any attempt to help people Data visualization is a general term that describes any attempt to help people understand the significance of data by placing data in a visual context. It was launched in May 2016 as part of the paid Analytics 360 Suite and in August 2016 Google made the program free to the public. Google Data Studio's goal is to help users create dynamic, visually appealing reports by channeling external data sources into an easy-to-navigate platform for sharing data-driven reports. Google Data Studio performs impressively in producing attractive and easy-to-understand data visualizations. The Google Data Studio user interface is recognizable to anyone who works with the Google office suite. The color scheme and labels are consistent across platforms, making it easy to navigate the Google Data Studio menus.

Like the Google Slides platform, Google Data Studio uses sidebar menus to facilitate the creation and performance of interpreting elements. Google Data Studio relies on a mix of charts and the types of charts commonly found in data tools but with additions such as providing several features, including the ability to integrate multiple sources into a single report, enabling dynamic report updates and creating new metrics for analysis. within the platform rather than modifying the original data. Some of the advantages of this application are:

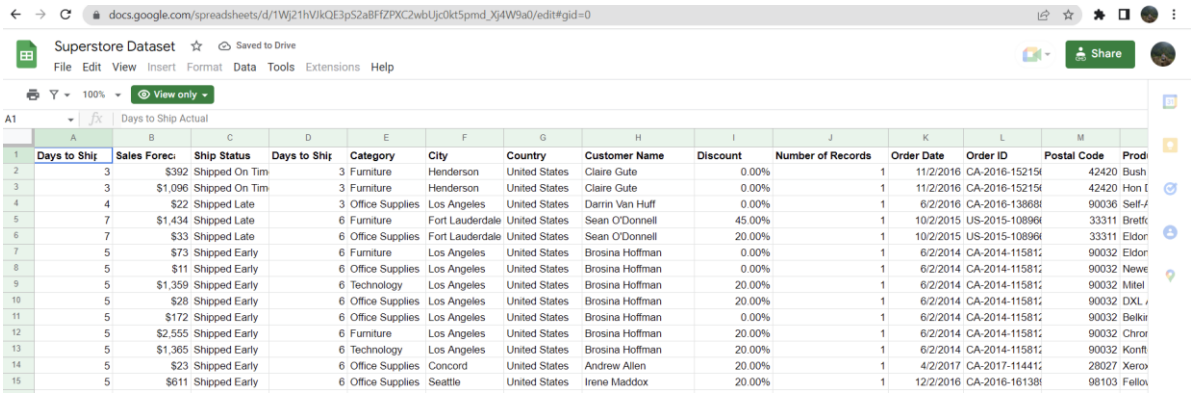
1. Visually appealing
   For the appearance of Google Data Studio, it is quite simple when compared to the flat design that is rife lately, but if we are not smart enough in the graphic field, then the data presentation display that Google Data Studio has is quite good and easy to use. When using Google Data Studio, clients will not be bored to read the report data that we present because the data will be displayed with attractive charts and graphs.
2. Combining data from various sources
   If we have data from several sources, such as buyer data in Google Sheets, then the number of site visits in Google Analytics and advertising costs in Google Adwords, we can export and combine them in Google Data Studio. Data can be aggregated only from the following sources: Google Analytics, Google Ads, Google Sheets, BigQuery, File Upload, Campaign Manager, Cloud Spanner Cloud SQL for MySQL, Display & Video 360, Extract Data, Google Ad Manager 360, Google Cloud Storage, MySQL, PostgresSQL, Search Ads 360, Search Console, YouTube Analytics and also several partner connestors that support Google Data Studio as shown in figure 1.2.
3. Get real-time updates
   The data presented can be updated in real-time. This feature is similar to the real-time analytics feature presented in Google Analytics and the like. The real-time feature is already presented in Google Docs, Sheets, and others because when there is a data change, the data in Google Data Studio automatically changes accordingly.
4. Enables rapid development and deployment
   We know how troublesome it is when someone asks for our site traffic. It's so risky if we give it access to view data in Google Analytics, because sometimes clients or anyone who wants to see sometimes don't believe the screenshots that we provide. In Google Data Studio we can easily share with anyone just by copying the given link. Another feature found in other Google products.

5. Free
   Google Data Studio is provided free of charge unless we are going to use a group of more than five Google accounts. That's why for those who often manage data and present it for specific needs, Google Data Studio is a fairly powerful tool.
6. Scalable
   Good data visualization is capable in terms of accessibility and can be maintained and modified in the future. Why data visualization is important. Humans are visual creatures.

Results and Discussion

In community service at SMK Tunas Bangsa, we provide some information about Google Data Studio, including creating an interactive dashboard. The initial steps that need to be taken are as follows:

1. Setting up Google Sheets and Google Data Studio
2. Open a browser and enter the following link https://bit.ly/SuperStoreDataset. There are several attributes in this data, one of which is the city and country, then save this data into Google Drive.



Days to Ship	Sales Forec	Ship Status	Days to Ship	Category	City	Country	Customer Name	Discount	Number of Records	Order Date	Order ID	Postal Code	Prod
3	$392	Shipped On Tim	3	Furniture	Henderson	United States	Claire Gute	0.00%	1	11/2/2016	CA-2016-15215	42420	Bush
3	$1,096	Shipped On Tim	3	Furniture	Henderson	United States	Claire Gute	0.00%	1	11/2/2016	CA-2016-15215	42420	Hon D
4	$22	Shipped Late	3	Office Supplies	Los Angeles	United States	Darrin Van Huff	0.00%	1	6/2/2016	CA-2016-13868	90036	Self-A
7	$1,434	Shipped Late	6	Furniture	Fort Lauderdale	United States	Sean O'Donnell	45.00%	1	10/2/2015	US-2015-10896	33311	Bretfo
7	$33	Shipped Late	6	Office Supplies	Fort Lauderdale	United States	Sean O'Donnell	20.00%	1	10/2/2015	US-2015-10896	33311	Eldon
5	$73	Shipped Early	6	Furniture	Los Angeles	United States	Brosina Hoffman	0.00%	1	6/2/2014	CA-2014-11581	90032	Eldon
5	$11	Shipped Early	6	Office Supplies	Los Angeles	United States	Brosina Hoffman	0.00%	1	6/2/2014	CA-2014-11581	90032	Newe
5	$1,359	Shipped Early	6	Technology	Los Angeles	United States	Brosina Hoffman	20.00%	1	6/2/2014	CA-2014-11581	90032	Mitel
5	$28	Shipped Early	6	Office Supplies	Los Angeles	United States	Brosina Hoffman	20.00%	1	6/2/2014	CA-2014-11581	90032	DXL A
5	$172	Shipped Early	6	Office Supplies	Los Angeles	United States	Brosina Hoffman	0.00%	1	6/2/2014	CA-2014-11581	90032	Belkin
5	$2,555	Shipped Early	6	Furniture	Los Angeles	United States	Brosina Hoffman	20.00%	1	6/2/2014	CA-2014-11581	90032	Chror
5	$1,365	Shipped Early	6	Technology	Los Angeles	United States	Brosina Hoffman	20.00%	1	6/2/2014	CA-2014-11581	90032	Konft
5	$23	Shipped Early	6	Office Supplies	Concord	United States	Andrew Allen	20.00%	1	4/2/2017	CA-2017-11441	28027	Xerox
5	$611	Shipped Early	6	Office Supplies	Seattle	United States	Irene Maddox	20.00%	1	12/2/2016	CA-2016-16138	98103	Fellow

Figure 1. Datasets of USA shopping recap

3. After that, prepare Google Data Studio, please open datastudio.google.com.
   If this is your first time creating a Google Data Studio dashboard then you will see an initial explanation about Google Data Studio, select Get Started and then select agree to the Terms and Conditions. Next, an empty dashboard page will appear, select add data source and then various data sources will appear to choose from. Select Google Sheets – Superstore Dataset – Connection.

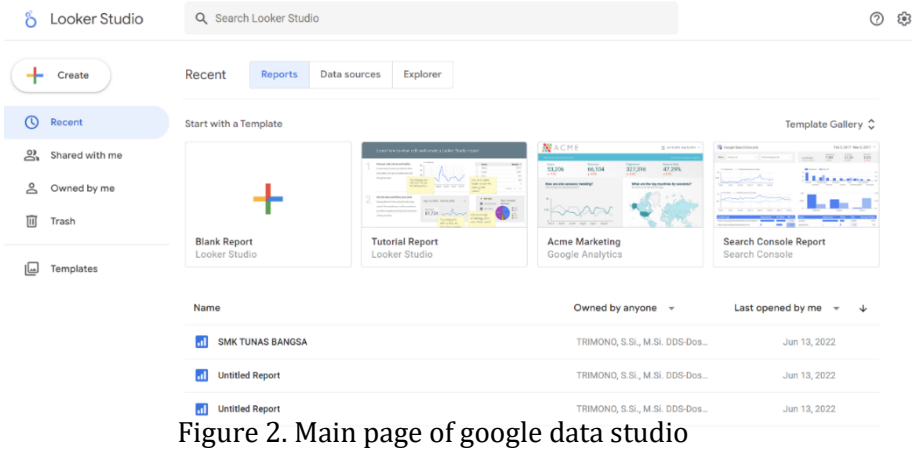


Figure 2. Main page of google data studio

4. Creating the First Dashboard
   On the right side of the dashboard we will see two tabs on the right sidebar, namely Data and Style. In general, the dashboard in Data Studio has the following structure:
   a. Data Source
      The data source is the data source that we will use
   b. Dimension
      Dimensions usually consist of date & text fields such as city or item category
   c. Metric
      Metrics are quantitative values in data, such as sales or profit

We can drag & drop on the right to left fields to display the data on the dashboard.

On the Data tab, when scrolling down we can also choose how to sort and filter data. Sort and filter this data through the fields on the right. If we select the chart table, we can see some examples of visualizations that we can use. Previously we had a table on the dashboard automatically.

Bar Chart

Bar charts or commonly called bar charts have the advantage that their visualization is more attractive because bar charts use 2-dimensional images. The bar graph is focused on the area of the bar (length x width). The width of the bar is made the same while the height varies according to the amount of data. Bar charts are divided into three, namely single bars, multi bars, and component bars.

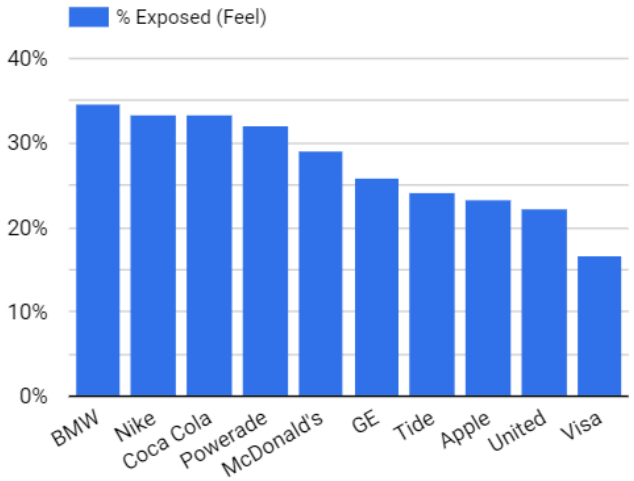


Figure 3. Bar chart of car percentage exposed

Making pie chart

A pie chart or commonly known as a pie chart is a statistical chart in the form of a circle which is divided into several slices and the extent depends on the composition between categories of data held. Its characteristic is that it can show a comparison of the size of the sector's big data directly and does not show its size or frequency [8]. Back to Google. Here we can see how many items were delivered on time, early or late. From the data super store more than half of the goods are delivered early. Now let's style this pie chart. Select the Style tab on the sidebar menu. We can choose how many slices are on the pie chart. Please remember not to choose multiple slices because it will confuse the reader.

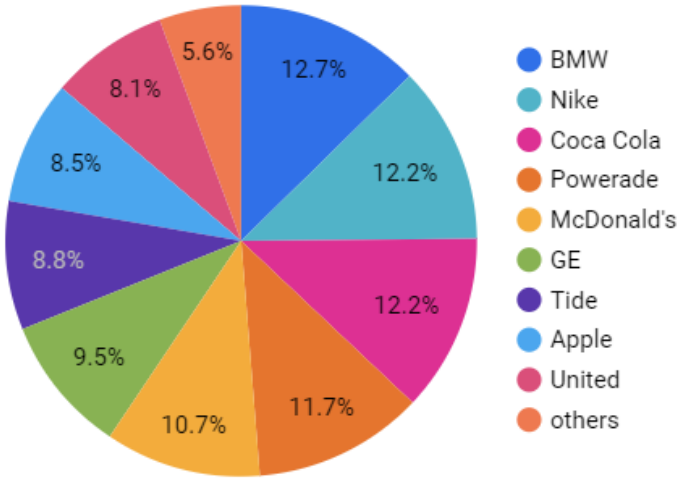


Figure 4. Pie chart of marketing data

Conclusion

Google Data Studio is one of the useful applications to make data visualization and data analysis. The SMK student needs to applicate it to do it in working place.

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