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Assignment 4
Online Dashboard Report

LECTURER: HAIRUDIN BIN ABDUL MAJID

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Group Leader Hp Number: 018-9769949

GROUP MEMBERS	 MOHAMED ZIYAAFSER BIN MOHD. ZINNAH **GROUP LEADER**	 RYAN LIM SHEN	 MUHAMMAD KAMIL EIZAZ BIN OTHMAN	 MUHAMMAD SYAHMI BIN SALEH	 VINODH A/L NADARAJAH
MATRIC NUMBERS	A21EC0200	A21EC0223	A21EC0084	A21EC0208	A21EC0138

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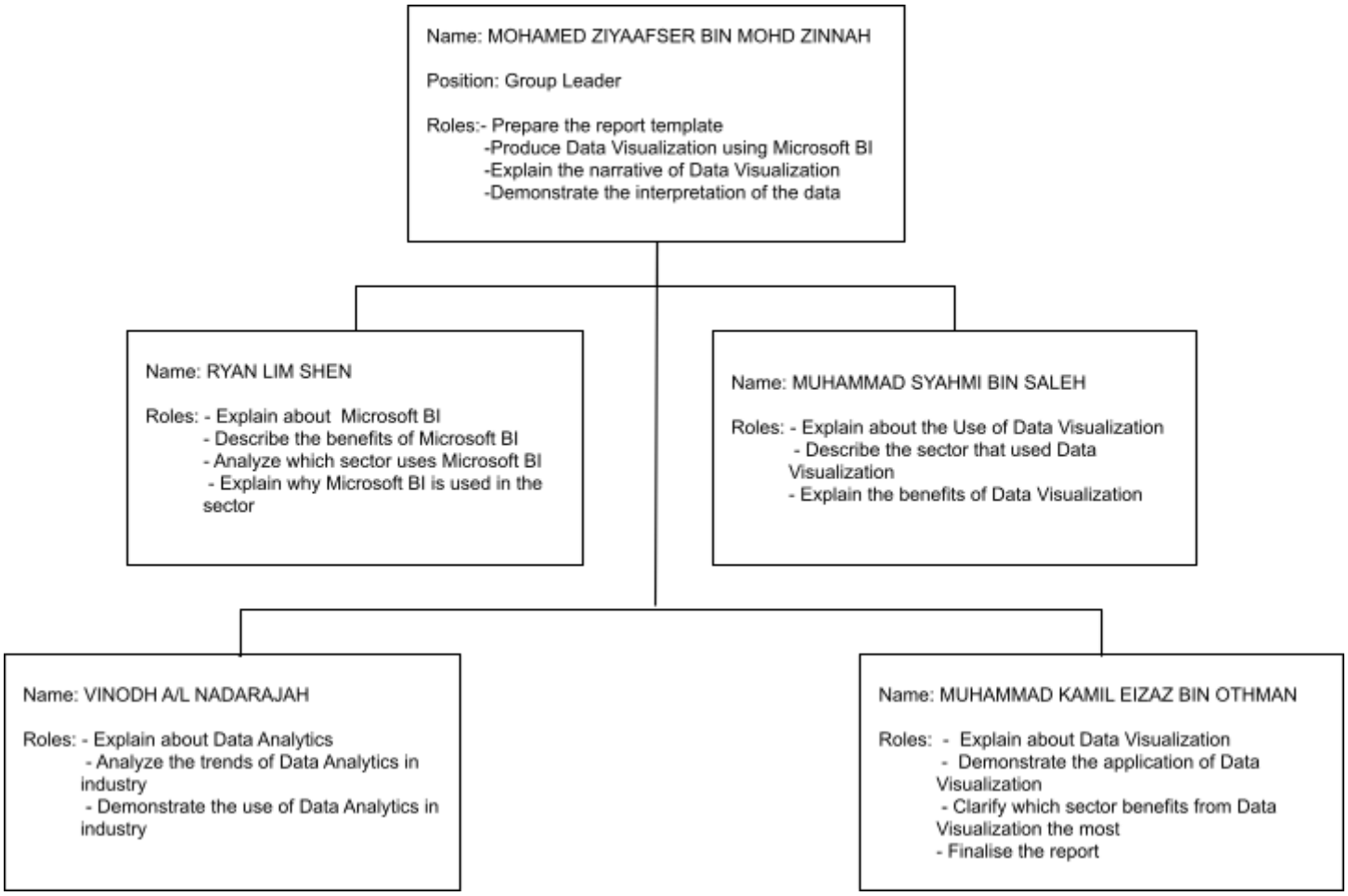

Introduction

Data Analytics

The science of studying raw data in order to draw findings about it is known as data analytics. Many data analytics approaches and techniques have really been mechanised into mechanical processes and algorithms that deal with raw data and are intended for human usage.

Data analytics may be a broad phrase that refers to a spread of information analysis techniques. Data analytics methods are often applied to any variety of data to realize knowledge which will be wont to improve things. Trends and metrics that may well be lost in a very sea of knowledge will be discovered using data analytics techniques. This data can then be utilized to enhance a company's or system's increased performance by optimizing procedures.

Manufacturing organisations, for fact, frequently record the runtime, downtime, and work queue for various machines, then analyse the info to effectively schedule workloads in order that the machines function at near-peak capacity.

Data analytics can do plenty quite just identify production bottlenecks. Data analytics is employed by gaming firms to make incentive schedules for players that keep the bulk of them engaged within the game. Many of the identical data analytics are employed by content companies to keep you clicking, viewing, or reorganising content so as to get another look or click.

Data analytics is critical since it aids organisations in improving their results. Companies can assist cut costs by developing more efficient ways of doing business and storing big amounts of information by incorporating it into their business strategy. Data analytics may also be wont to help a corporation make better business decisions and assess customer patterns and satisfaction, which may result in the event of new and better products and services.

Trends of Data Analytics in Different Sectors

Because processing times are sometimes short, several businesses, such as travel and hospitality, have used data analytics. This industry can gather client information and establish where, if any, problems exist, as well as how to address them. Another business that employs both structured and unstructured data is healthcare, where data analytics can help with making timely decisions. In the same way, the retail industry makes considerable use of knowledge in order to meet the ever-changing needs of customers.

Banking sector

Introduction of data analytics in banking sector:

Over the last decade, data analytics has become a significant buzzword, with many companies implementing some type of data science into their operations. Banks are no different.The growing interest in data analytics in the banking business is due to the rapid developments that have occurred in many areas. Technological changes, people's expectations, financial market and behaviour are all factors.Data analytics' introduction and application have aided the banking industry in optimising procedures and streamlining operations, hence increasing efficiency and competitiveness. Many banks are attempting to improve their data analytics, either to gain a competitive advantage or to foresee new trends that may have an impact on their companies.

Why do banks need data analytics?

The majority of us have a positive relationship with our financial institutions and banks. Our banking relationships are based on trust, commitment, and personalised service. However, as banking services and products become more sophisticated, there is a greater demand for effective decision-making tools to help consumers make better decisions based on data insights.Viewing documents and numbers by itself is no longer sufficient to influence your business. The banking industry needs to make better use of its data for analysis and decision-making.When you analyse data, you can figure out how to increase revenues while also improving business connections and customer service. That's when data analytics comes in handy. Examining your documents and transactional data will assist you in gaining a greater understanding of your company and its operations.

Examples of how banks use data analytics to manage risk:

Fraud detection;

While reducing fraud is a typical goal for banks and financial institutions, analytics may also be used to manage risk rather than just detect it.Individual consumers who are at risk of theft can be identified and rated using analytics, and then varying levels of monitoring and verification can be applied to those accounts. Banks and financial institutions can determine what to focus on in their detecting fraud efforts by identifying the risk of the accounts.

Risk modeling for investment banks;

Risk modelling is the process of modelling the movement of a portfolio of assets (stocks, bonds, futures, options, and so on) or a single asset (such as an interest rate) in reaction to various situations. You can lower your portfolio's total risk and enhance performance if risk modelling is done appropriately and consistently across all assets.

If a bank wishes to do an investment banking transaction, for illustration, they must examine the following like ,What are the anticipated profits? What are the dangers? How likely are they to succeed? and how significant is this deal in comparison to other options? Risk models are used by banking firms in a variety of disciplines to explain how hazardous things are, what's likely to happen, and how much risk mitigation will cost. We'll take a look at some more of these models further down.

Example of a case study regarding banking sector:

City Union Bank, one of India's oldest banks with a history spanning over a century and a comprehensive range of banking services including deposits, loans, and savings/current accounts, sought an intelligent technology solution to improve their present gold loan underwriting process.

The bank's goal was to eliminate manual underwriting of gold loans and replace this one with a scientific method that would increase risk management accuracy and provide deeper insights for current and emerging loan applicants.

Healthcare sector

Introduction of data analytics in healthcare sector:

Expertise, abilities, and data about the ins and outs of the medical area dominate the healthcare business. Because every move performed and decision made has the potential to vary the course of events and affect human health and life, there are additional elements that influence the healthcare sector, like precision in deciding and trust in activities and tasks.

This precision is achieved through data analytics, which could be a crucial element of the healthcare industry. Healthcare is on its way to becoming another sector whose future is decided by data, due to the rapid advancement of technology.

Why do healthcare need data analytics?

Healthcare data analytics has the potential to cut back treatment costs and forecast disease outbreaks, hence improving overall quality of life. When it involves data analytics, health experts and business owners are very similar, since both are continuously searching for the foremost effective ways to use these facts.In the case of hospitals and healthcare executives, data analytics in healthcare facilitates both administration and management data, further as information, to help in patient care efforts, provide quality healthcare, and improve current operations.

Another area where data analytics is gaining traction in healthcare is physician scheduling. In this case, healthcare analytics gives a detailed account of physician records as well as the patient's history and needs, guaranteeing that the best physician is assigned to the patients who need it the most.Healthcare analytics will play a role in assisting healthcare professionals in deriving insights from data for a variety of operational aspects. One critical area where analytics can be used to improve attempts is the donations and funding portion of hospitals and charities.

Because donations are based on yearly budgets for various healthcare providers, it is critical to organise and track expenditures and operations in order to set appropriate targets. It can also be useful for tracking donor engagement, retention, and previous contributions.In the case of insurance businesses, healthcare analytics allows for a more clear and straightforward method of tracking existing claims, clients, and premiums. Insurance companies can alter policies, monitor open claims, and introduce lower service prices if they have superior genuine data and remarkable visualisations.

Examples of benefit on the use of data analytics in healthcare sector:

Predictive Analytics In Healthcare;

Predictive Analytics plays a large and important role in healthcare, with applications that extend far beyond corporations. For example, Optum Labs, a US research collaboration, has gathered EHRs from over 30 million patients to create a database for predictive analytics tools that would improve medical delivery. The major goal is to assist clinicians in making data-driven decisions faster and improve patient treatment. This is especially true for people who have complicated medical histories and are suffering from various illnesses. The new tools can also identify if a patient is at risk of diabetes, for example, and provide them with recommendations for additional testing or weight control.

Care for High-Risk Patients;

For people seeking medical assistance or services, healthcare is typically expensive and complicated. Although it is not always the case that higher costs would result in a better outcome, it can be inconvenient for patients. Patients' patterns and histories can be discovered more efficiently with the help of digitised healthcare records. Predictive analytics can help identify patients who are at risk of experiencing a crisis as a result of their chronic health conditions. Physicians will be able to create correction strategies that reduce emergency visits as a result of this. Appropriate data is required for properly assessing these patients and providing them with individualised medical treatment solutions, and that is why the use of a Business Intelligence (BI) solution is critical in healthcare when it comes to maintaining high-risk patients safe.

Deal with Human Error;

When a doctor prescribes an incorrect dosage or drug, for example, simple mistakes frequently result in preventable health complications and insurance claims. This increases the danger that patients are exposed to, as well as the costs of insurance and claims that healthcare facilities are subjected to.

Data analytics technologies can be used to examine patient data and pharmaceuticals prescribed in order to substantiate data and warn users of any unusual prescriptions or dosages in ways that minimize mistakes and prevent patient mortality or health issues. This becomes a handy option to prevent errors, particularly in rapidly changing workplaces when physicians deal with several patients on a single day.

Industry Advancement;

Data analysis technologies give long-term benefits for advancing the sector in the future, in addition to providing an advantage to current healthcare industry difficulties. Data analytics can be used to quickly analyse large amounts of data in order to discover therapy options or solutions for a variety of ailments, with the goal of offering both accurate solutions based on historical data and individualised solutions to specific patient needs.

When it comes to the progress of the healthcare industry, data analytics offers unlimited applications, from epidemic predictions to illness cures, improved quality of life, preventative care, before diagnosis and risk evaluation.

Cost Reduction;

Treatment centres, clinics, and hospitals spend a significant amount of money on financial management, which is usually due to understaffing or overstaffing. This difficulty can be avoided by using predictive analysis, which aids in the prediction of admission rates and ensures that the appropriate staff is capable of satisfying the patient's needs.This helps patients to receive the care they need more efficiently and quickly, with shorter wait times, while also reducing total hiring needs and a shortage of beds, which hospitals sometimes suffer due to poor financial management.

Example of a case study regarding healthcare sector:

In a case study,Qlik outlines how technology helps Children's Healthcare of Atlanta (CHOA) improve its functionality in crucial areas such as operations, finance, and research and development . Children's Healthcare of Atlanta is one of the leading providers of clinical treatment for children in the United States, with three hospitals and 16 neighborhood branches, and more than 500,000 patient visits every year.It's crucial to remember that, while there are some universal data analytics requirements, each healthcare institution has its own set of requirements that are specific to its patient population and performance objectives. Other BI platforms had been explored by CHOA in the past, but they did not perform well for the organisation and caused friction between the IT and business divisions. In the end, the Qlik platform proved to be a superior fit for CHOA's objectives.The Qlik platform resulted in a 65 percent drop in set deadline, the removal of a 10-12 day waiting period for analysis enquiries, and new insights into how to cut expenses and improve quality assurance.

Data Visualization

The graphical representation of information and data is known as data visualizations. We can develop the data visualization by using the data illustration tools, which consists of visual components such as charts, graphs, and maps. Through this method, it will give an effective way to observe and comprehend trends, abnormalities, and characteristics of the data. Data Visualization tools and technologies are critical in the Big Data environment especially when it is using enormous volumes of data and making data-driven decisions. Beside that, data visualisations also use vibrant colors and patterns, since it will catch our attention the most. We can rapidly distinguish between the primary colours, yellow and red and also the shapes, square and round. With this colour and pattern, it will pique our passion and keep our attention on the subject. When we look at a chart, we can easily see trends and abnormalities. Once we can see something, we can immediately process it. For instance, if you have already looked at a big worksheet of data and couldn't find a pattern, then, you will understand how much more convenient a visualisation will be

Uses of Data Visualization

Data Visualization is a process of converting data into a better way, an easier form to understand, to identify the trends, outliers and patterns of large data sets. Data Visualization is one of the data science processes which will visualise all the data that has been collected, processed and modeled and get a conclusion of the data.

Data visualization can also make decisions faster compared to humans. If the data received communicates well, decision making can take actions as fast as possible based on the data insights, decision making and business growth. Other than that, it also makes sense for complicated data. It benefits users to recognize new patterns and error data. When the errors in the data are already finalized, the user can focus more on that part and make progress.

Data Visualization can be said as one of the most important things in every career. It is usually used by teachers to show the students marks, by computer scientists exploring AI, by businessmen to share their stakeholders and many more. This Data visualization also can be used by a company to see their company growth and the data of sales, profits and other things.The Data visualization will ease every career in this world.

Microsoft Power BI

Microsoft Power BI is a data visualization software created by Microsoft with the sole priority on business intelligence. Power BI issues cloud-based BI services, known as “Power BI Services”, and also desktop-based interfaces, known as “Power BI Desktop”. Microsoft Power BI gives information warehouse skills which includes information preparation, information discovery, and interactive dashboards. Microsoft implements Power BI on its Microsoft Azure cloud platform. The main difference between Microsoft Power BI and its competitors is that this product has the ability to load custom visualizations. The Power BI ecosystem consists of Power BI Desktop, Power BI Service, Power BI Mobile Apps, Power BI Gateway, Power BI Embedded, Power BI Report Server, Power BI Premium and also Power BI Visuals Marketplace. Power BI is software that makes data culture easier to implement. It makes accessing, understanding business-critical data without much hassle. Some of the features that Power BI provides are AppSource, where you can build your own compilation of data without limits. Next, AI-powered answers allow you to control your data just by asking it questions. Additionally, Excel integration allows Power BI and Excel to work hand in hand. Besides that, Power BI allows users to connect to multiple data sources into one dashboard. Real-time analytics allows Power BI dashboards to refresh in real-time to keep the data updated. Lastly, Power BI allows data to be shared and reports to be collaborated across companies in the cloud.

Microsoft Power BI is a service that provides data analytics to employees. This software is commonly utilized by data analysts and business professionals who usually make these data models before handing out the report to the company. One advantage of this software is that it does not require analytical experience in order to operate the software and make reports. Microsoft Power BI is utilized by department reps and management. The reports are created to help sales and marketing representatives. At the same time, supplying data for management to evaluate the performance of department or even individual employees. Lastly, Power BI gives an admin portal for administrators to assist configure the implementation of Power BI, in addition to utilization tracking and licenses.

Data Visualization - using Microsoft Power BI

Narrative of analytics

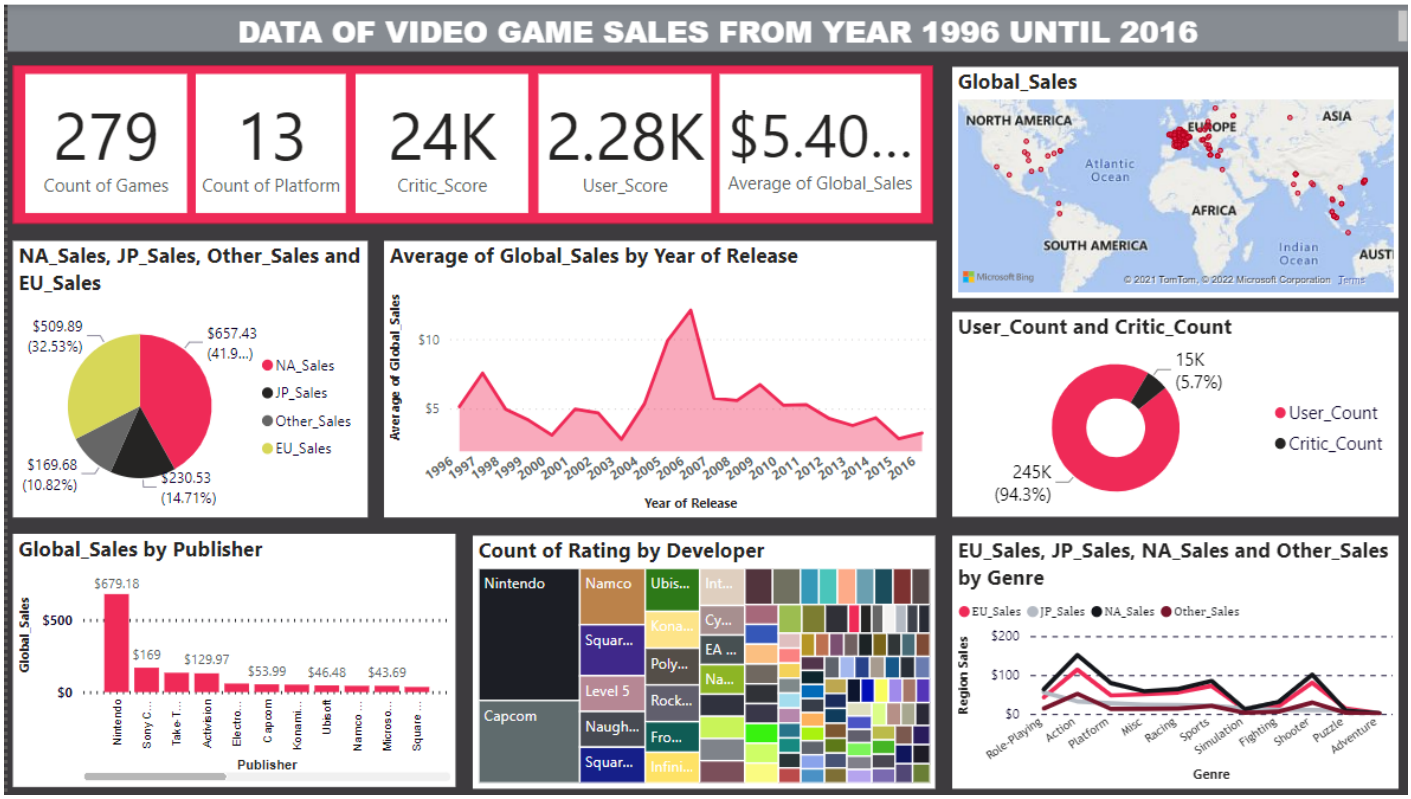

Figure 1.1 shows the data visualization of video game sales from year 1996 to 2016 using Microsoft Power BI

Microsoft BI link of Data of Video Game Sales From Year 1996 until 2016 : clickhttps://app.powerbi.com/view?r=eyJrIjoiNzJmMWI2NzItYWRhZC00M2ExLWEwODAtNjEwMmYzMjczZDAzIiwidCI6IjBlMGRiMmFkLWM0MTYtNDdjNy04OGVjLWNlYWM0ZWU3Njc2NyIsImMiOjEwfQ%3D%3D&pageName=ReportSection

Introduction

A set of data was obtained in order to visualize the data to make it easier to analyze and interpret the data from the visualization. The title of data collected is Video game sales from 1996 to 2016. Many processes were made to develop the data visualization of data collected. Those processes are, combining and cleaning the raw data, importing data to Microsoft Excel, changing variable names and labels, transforming variables from raw data into understandable forms from decimal numbers to fixed whole numbers and performing data analytics on Microsoft Power BI. Followed by the data visualization, an interpretation of data analytics based on the data visualization of Video game sales from 1996 to 2016 was reported.

Goal

The purpose and goal of this project is to data visualize, analyze, identify and interpret the video game sales from 1996 to 2016 using Microsoft Power BI.

Descriptive Data Analytic of each variables

A total of 16 variables can be found in the data, which are games,platform,year of release, genre, publisher, NA sales, EU sales, JP sales, Other sales, Global sales, critic score, critic count, user score, user count, developer and rating. All of these variables were visualized on Microsoft BI. However, there are few variables that can be classified as important variables which are the sales from different regions such as the NA sales, EU sales, JP sales, Other sales, Global sales.

Global sales are the total sales from all regions worldwide from different publishers. Few of those publishers are Nintendo, Ubisoft, Take-Two Interactive and more. NA sales is defined as sales from North America sales, which means this variable shows the number of sales for every game from 1996 to 2016 by the sales happened in North America. This same goes to all other variables of region sales, EU sales (Europe) consisting of countries such as France, Germany and more, JP sales (Japan), other sales which consist of all other countries apart from the other 3 region variables.

Next variable is genre. Genre means the type of game which has been classified as action,adventure, fighting and more. Year of release, is recorded from 1996 to 2016 is another variable. From this we are able to know the sales form each year. User score, user count are variables, that the rating is given by general players and users. Critics score and count is another variable in which this is different from user score and count because critics are someone who analyzes the game in all aspects. For developers, there are many, such as Nintendo, Next Level Games and more, in which these are the organizations that create or develop the game.

Data Analytics Interpretation

Questions and answers

1. Why are action genre games the highest in sales for most of the regions?

From the line chart graph of EU sales, NA sales, JP sales, other sales by genre,it shows that the video game sales on action genre has the highest sales, in which NA sales is $151.65 million, JP sale $32.33 million, EU sales $113.8 million, and other sales are $52.08 million. This value is really very high compared to all other genres listed based on the graph. The reason why action genre games are the highest in sales is because most people are entertained by emotional thrill rather than working their brain. The action makes people feel more realistic than playing normal simulation games.Scientifically, when people play actions or furious games, the human body would generally produce adrenaline more frequently, hence this makes people feel more fun to play action genre games. Besides, another genre which is similar to action is the shooter genre as it is also a part of action. Based on the graph, we can see shooter games have the second highest sales after action. Therefore, this clearly shows that people admire playing thrill, furious games compared to relaxing and complex thinking mechanism games.

2. Why is Nintendo the highest in sales and count rating?

Based on the column chart graph of global sales by publisher and treemap of count of rating by developer, it is obvious that Nintendo Co.,Ltd.is the highest in terms of sales and also rating on a larger scale different from other companies.From the graph, the global sale for Nintendo is $679.18 million which is approximately 3 times higher than the second highest publisher on the graph which is Sony Computer Entertainment with sales of $169 million. So, the main reason why Nintendo tops the market is because of several reasons. First, they produce many games compared to all other publishers. The high number of games makes their company produce a variety of games to the users. When this happens, users tend to try the games and get addicted to them. In other words, it can also be said that a lot of people grew up with Nintendo consoles during the years back then. In fact, Nintendo produces great quality games,and this makes people feel nice to play with the game compared to other games that are low in quality and interfaces. Besides, when compared to the second highest publisher, Sony Computer Entertainment, Nintendo sells their product at a more affordable price and this made many people to buy Nintendo games. As of that, this clearly shows why Nintendo is the highest in sales and also in ratings.

3. **What caused the sudden increase in game sales in year 2004?**

From the area chart graph, it can be seen that starting from the year 2004, a drastic, sudden increase in the value until 2006. In year 2004, the sales was $5.34 million and in year 2006 it reached the highest sales of $12.09 million. There are few reasons why there is a sudden increase in the sales from year 2004 to 2006. Firstly, it is because, in 2004, Nintendo made a big change to their game. Nintendo made a notable innovation making a touch screen handheld system. This can be related back to the graph of global sales by publisher, in which if Nintendo does a big change, it will definitely affect the whole global sale as what we can see for the year 2004. Besides, the sudden increase after 2004 till 2006 happened because 2005 was the year for modern landscape video games, there were many changes made during that time. Nintendo also reinvented their popular game, Super Mario Galaxy with a new platformer genre again. As of that, these are the causes of sudden increase in game sales in year 2004.

Conclusion on case study

From all the data collected, interpreted and analyzed and based on the questions and explanation, an understanding,inference or a story can be developed. In which, people like to play more thrilling and furious games compared to any other genre like simulation which focuses on more thinking of complex situations and time consuming. So when the genre is related to action, shooting and adventure, the higher the game sales. Besides, another understanding can be referred to, quality plays a crucial part in everything as we can see Nintendo, that implements quality in their work, has the highest sales and becomes people's favorite. Not only that, we can understand that Nintendo plays a very important part in global sales. When Nintendo's performance increases, the global sales increases as well as Nintendo secured a strong position in the video game industry.

Conclusion

In conclusion, Microsoft Power BI is a very useful application in order to ease the work of data visualization of raw data. The visualization of data for Video game sales from year 1996 to 2006 was able to be made easily using Microsoft Power BI. When the data is in sheets, it tends to be difficult to analyze each graph based on the variable. When the data is visualized using Microsoft Power BI, the data can now be able to interpret, analyze the value of highest sale, count and so on. Therefore, the use of data visualization should be implemented by all the sector to ease the work.

Microsoft BI link of Data of Video Game Sales From Year 1996 until 2016 ;

https://app.powerbi.com/view?r=eyJrIjoiNzJmMWI2NzItYWRhZC00M2ExLWEwODAtNjEwMmYzMjczZDAzIiwidCI6IjBlMGRiMmFkLWM0MTYtNDdjNy04OGVjLWNlYWM0ZWU3Njc2NyIsImMiOjEwfQ%3D%3D&pageName=ReportSection

Online Dashboard Report Link ;

https://dashboard639477612.wordpress.com/

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