**Power BI Assignment 1**

1. What do you mean by BI? Explain.

BI stands for Business intelligence, it **combines business analytics, data mining, data visualization, data tools and infrastructure, and best practices to help organizations make more data-driven decisions**.

1. How Power-BI helps in BI, and how does it help Analysts? Explain.

A Business Intelligence Analyst is responsible for taking the data that a company holds and mining it to achieve valuable insights. These insights are then used to inform critical business decisions. The insights play a crucial role in shaping the company's future and the way it operates.

Power BI is a business intelligence and analytics service from Microsoft. It **provides interactive visualizations and high-end analytics capabilities that help everyone to make smarter, real-time decisions**. Power BI is on the top of the list of popular BI tools because of its ease of use and interactive visualizations. Power BI gets quick answers through rich Data Visualization with excellent dashboards.

This Business Analytics service by Microsoft brings together raw data from various sources like a simple spreadsheet on a desktop to a cloud-based data. Simple, fast, robust and enterprise grade, it can be used by non-technical people to visually analyze and share data due to its versatility and minimum training. And this deems it ready for extensive modelling, real time analytics and custom development.

Key Features of Power BI:

* The hybrid deployment support- which helps the business intelligence tool to connect to different sources of data and allows automatic application of analytics to information by creating data subsets through the Quick Insights feature.
* Power Query- that allows integration and transformation of data into the Power BI web service. This data can be shared across multiple users and models for enhanced Data Visualization.
* The common data model-This allows the use of extensible database construction (schemas).
* The customization feature- It can change the appearance of the Data visualization tools and can also import new tools into the platform.
* The Power BI dashboard- can be embedded in other software products through the APIs.
* Complex data models-They can be divided into separate diagrams using the modeling view. Common properties can be set, viewed, and modified as per requirement.
* A popular feature on mobile devices is the Cortana integration, which allows users to query data verbally using natural language. This is a digital assistant by Microsoft.
* The business intelligence tool connects to data sources and builds reports in Power BI Desktop.
* The reports are published from Power BI Desktop to the Power BI service, and shared with end users in the service and mobile devices for viewing and drawing insights.

However, it would be unfair if we let you off without giving you the complete picture. The Power BI has a few down slides.

* The creator of the data model needs to specify the security permissions, otherwise it is extended to all the consumers of the data in PowerBI.com
* The user can only create a personal dashboard, and not a system dashboard.
* Though multiple datasets can be created, the limit per dataset is 1GB and the maximum records that can be created in PowerBI.com is 100,000.
* Only users with the same email domains can share reports and dashboards.

1. Explain Descriptive analytics?

Descriptive analytics is **the process of using current and historical data to identify trends and relationships**. It's sometimes called the simplest form of data analysis because it describes trends and relationships but doesn't dig deeper.

Descriptive analytics describes **the use of a range of historic data to draw comparisons**. Most commonly reported financial metrics are a product of descriptive analytics, for example, year-over-year pricing changes, month-over-month sales growth, the number of users, or the total revenue per subscriber.

**Measures of central tendency and measures of dispersion** are the two types of descriptive statistics. The mean, median, and mode are three types of measures of central tendency

1. Explain Predictive analytics?

Predictive analytics encompasses a variety of statistical techniques from data mining, predictive modeling, and machine learning that analyze current and historical facts to make predictions about future or otherwise unknown events. Predictive analytics is **the use of data to predict future trends and events**. It uses historical data to forecast potential scenarios that can help drive strategic decisions.

There are three common techniques or algorithms used in predictive analytics: **Decision trees, neural networks, and regression.**

1. Explain perspective analytics?

Prescriptive analytics is the process of using data to determine an optimal course of action.

**Prescriptive Analytics**is a form of advanced analytics which examines data or content to answer the question “What should be done?” or “What can we do to make \_\_\_\_\_\_\_ happen?”, and is characterized by techniques such as graph analysis, simulation, complex event processing, neural networks, recommendation engines, heuristics, and machine learning.

Because of this, prescriptive analytics is a valuable tool for data-driven decision-making.

1. Write five real-life questions that PowerBi can solve.
   * Power BI goes beyond line graphs, pie charts, and bar graphs. Users can create custom visuals by harnessing the power of the custom visual software development kit. Developers can easily create visualizations for use in the dashboard, reports, and content packs. Illustrate your data in a way that aligns with the company’s vision.
   * Pull data from various resources such as Excel spreadsheets, on-premise databases, and SQL centers. Automatically extract data from a variety of cloud services like Microsoft Dynamics, Google, Salesforce, Analytics, Facebook, among others. Businesses can import large amounts of data that other platforms would struggle to process.
   * create alerts for specific KPIs to keep users up to date on essential metrics and provide leadership with real-time information for better decision making. Use real-time data to create reports tailored to the specific needs of an organization and identify challenges before they even happen.
   * companies that implement Power BI experience increased operating income with a total risk-adjusted benefit measured at $9.2 million over three years. Business owners reported that their IT teams saved 1.75 hours per week, resulting in savings in effort of $4.9 million over three years, with the total cost of ownership lowering 25.7 percent.

1. **Koodos** proves their concept

Koodos is a new startup from Harvard Business School’s Rock Center for Entrepreneurship that builds content curation technology for Gen Z based on user-generated data. One venture capitalist called them “the competitive messaging-based Pinterest for music.”

Where they started

Koodos’ business model is dependent on understanding relationships between different sets of data. Their first experiment matched emojis with music— if you texted an emoji to 566-367, you got a song recommendation from another person.

We just tried it and found that 👴 recommends “Legend” by Twenty One Pilots, which is a song celebrating the life of the lead singer’s grandfather.

It works well, but before a BI tool, they had no easy way of truly analyzing product performance to understand how their experiments were going.

They would have to download product logs as CSVs and upload them to Google Sheets. From there, they sometimes used SQL to run queries, but because their data wasn’t centralized, they found it difficult and time-consuming to prove whether their experiments were running as intended.

How BI helped

With a business intelligence tool, Koodos is able to unify their data to gain an understanding of how their experiments are performing and then use those insights to build a better product.

First, they set up their business intelligence tool as a “central repository” for all product log data. With all that data collected, they could then run queries, no matter how clean the dataset was. With those queries, they could build out dashboards that compared sets of data directly in real time, making it a cinch to identify trends and relationships.

For instance, in the emoji experiment, Koodos found that the 🥺 emoji received the most song suggestions. They now know that Gen Z has more songs to recommend to people who are feeling sad than, say, people who feel like 🕺.

Using these insights helps Koodos not only build a better content curation product but also prove their product works well.

Takeaway

Use business intelligence to unite all your data to understand what’s happening in your product, when it’s happening, and what to do about it**.**

2. **New York Shipping Exchange** moves faster.

New York Shipping Exchange (NYSHEX) is a shipping-technology company working to improve the process of shipping overseas. They’ve been doing very well recently, doubling enrollment in 2019, thanks in no small part to business intelligence.

Where they started

To make sense of overall company performance, NYSHEX used to manually extract data from their proprietary application and their various cloud apps and then import it all into Excel. Because this was such a laborious process, few people had access to this data, and most of the requests for reports fell on the engineering team to execute.

Gordon Downes, CEO at NYSHEX, explains his thoughts during that time: “There had to be a better way to make information more readily available and save time for our engineering team. We needed a solution so that I, along with the rest of the team, could explore data on the fly.”

How BI helped

NYSHEX decided to give the entire company access to the data using their business intelligence tool, Chartio. This has been possible not only because all that data is centralized into one system, but also because it’s easy for someone with no coding knowledge to dive deep into analysis.

With Chartio’s drag-and-drop Visual SQL builder, any NYSHEX employee can run queries, set up dashboards, and create reports. Even if they have no idea what SQL stands for (structured query language), they can still get exactly what they need, when they need it.

NYSHEX is now an incredibly efficient operation because every employee can access and act on real-time data. Gordon says: “Chartio gets information to the people who need it so they can make decisions without taking loads of time.”

Takeaway

A low-code or no-code BI solution is vital for any company looking to provide the ability to understand and act on data to every employee.

**3. CareLinx personalizes care**

CareLinx is a nationwide, in-home care network connecting families to over 300,000 in-home caregivers. In recent years, they’ve increased their profile by establishing partnerships with the likes of AARP and Aetna. Taking their next step toward growth required them to adopt a compliant business intelligence solution so they could better serve their customers.

Where they started

To serve the families that use their product, CareLinx deals with protected health information (PHI). Because PHI is sensitive, they need a BI solution that’s compliant with the Health Insurance Portability and Accountability Act (HIPAA).

Before they established a HIPAA-compliant solution, they had two systems: a BI for non-PHI data and a separate manual system for PHI data. Anytime they wanted to do any sort of business analysis, they’d have to filter out all PHI data in order to remain compliant, leading to an incomplete picture of the people they serve. This dual-system approach wasn’t feasible as CareLinx prepared to scale the business nationwide.

How BI helped

CareLinx already used Chartio as their business intelligence tool for non-PHI data, so their engineering and product teams already realized the benefits of good BI. Once Chartio became HIPAA-compliant, a whole new world of opportunities opened up for them.

Now, every team in the company is able to safely query any data, PHI or otherwise, to understand their users on a deeper level. Customer success, for example, utilizes Chartio to analyze data in real time and use those insights to better serve their users.

No matter how big CareLinx gets, they can still provide personal attention to each family that uses their product by using a HIPAA-compliant BI tool.

Takeaway

Look for a BI solution that addresses all your specific needs so it can grow with you.

4. **Bugcrowd reduces churn**

Bugcrowd is a cybersecurity platform that connects its customers to security researchers to identify vulnerabilities in products and applications. Just recently, they closed Series D funding for $30 million, and they’ve helped many Fortune 500 companiesshore up their security. And the ways Bugcrowd uses BI have helped them establish their place at the forefront of their industry.

Where they started

Bugcrowd’s goal is to successfully connect companies with security researchers. In an effort to keep both groups happy, they needed to dive into the mountains of data involved in each interaction. It was too much data to handle with spreadsheets and SQL, so they turned to business intelligence.

Their requirements were strict: airtight security and the ability to handle many data sources—and it had to be easy to use. They were having trouble finding a BI tool that fit those parameters, so they considered building their own analytics system. They had the know-how to do so, but it would’ve been costly and time-consuming. Fortunately, they found a ready-made solution.

How BI helped

Quite a few BI tools meet the first two requirements (security and number of sources), but, too often, they sacrifice usability to reach that point. Bugcrowd found their solution in Chartio, and with those three requirements satisfied, they were able to surpass their goal of retaining customers by keeping them happy.

To retain your customers, you need to deeply understand them and learn how they use your product. Bugcrowd used Chartio to centralize all their interaction data in one place. From there, they could dive into each interaction individually or zoom out to see them all in aggregate.

This made it much easier to identify trends and insights, and it improved the work of all teams, from “customer support for proactive problem solving” to “engineering for feature release activity.”

At first, Bugcrowd’s goal was to just understand these interactions. But their business intelligence tool made this so easy that they moved seamlessly to improving each interaction. The result was a high-touch customer service approach that helped Bugcrowd acquire new business and retain existing business.

Jonathan Cran, VP of product at Bugcrowd, says: “We are able to drive negative churn because everyone from Sales to Customer Success uses Chartio to look at how customers are interacting and ask the right questions to improve an account’s health or find an opportunity to upsell.”

Takeaway

Start with a concrete and attainable business intelligence goal (e.g., understand user interactions), and then set stretch goals based on achieving that objective (e.g., improving those interactions).

5. **DataRobot democratizes data**

DataRobot is an enterprise-level artificial intelligence platform that invented the automated machine-learning category. They’re used by a third of the Fortune 50 companies and recently announced Series E funding, amounting to $206 million. What would a company of this caliber need a business intelligence tool for? Quite a bit, it turns out.

Where they started

As a data-centric company, DataRobot knows its way around analyzing, modeling, and presenting data. Early on, they created an ad hoc business intelligence solution, in which they created a few custom reports using Python and sent them via email. It worked pretty well for their purposes—for a while.

But after growing 60% in 2018, they realized this solution couldn’t scale with them. It wasn’t enough for DataRobot to have a data-centric culture—they needed a culture of data democracy.

How BI helped

DataRobot made the choice to onboard new employees with a seat on their BI tool, Chartio. Their goal was to give every team the power to understand and act on data without the need to go through the engineering or analytics team.

The result was an 83% adoption rate of Chartio throughout the company. By incorporating their BI tool into the onboarding process, DataRobot cemented a culture of data democratization, where every employee had the power to analyze and act on data.

This culture turned out to be vital to their recent success. Daniil Bratchenko, VP of business operations and analytics at DataRobot, said, “Democratization of access to data is super important when you see how it works, and if we didn’t have it, we would be much less effective as a company.”

Takeaway

Entrench your business intelligence into the day-to-day functions of your employees from day one to establish a culture of data democracy.

6. **Reddit eliminates a data bottleneck**

Reddit is a social media website with a focus on aggregating news and community discussion. It currently ranks seventh in Alexa’s list of Top Sites in the United States, and its ability to monetize that traffic relies on their business intelligence.

Where they started

With over 430 monthly visitors around the globe, Reddit has a lot of data to deal with. Previously, the data team was tasked with completing one-off requests that not only took time away from their own projects but also made it harder for other teams to access data.

This bottleneck obscured promising insights and made it nearly impossible to fully leverage the monetization opportunities available to the seventh-most-visited site in the United States.

How BI helped

Reddit didn’t originally plan on everyone using their business intelligence tool, but because Chartio was so easy to use, they kept getting requests from employees to query data on their own. The end result was a culture of data democracy like DataRobot, but through a “grassroots” progression.

Once they gave access to the rest of the company, the sales team became some of the biggest BI enthusiasts, using it to analyze Reddit’s huge data set in real time to identify when brands or products got mentioned among the 2-million-plus communities. They use Chartio and Google BigQuery to create graphs and visualizations showing how brands can naturally enter the discussions happening every day on Reddit.

This kind of insight never would have happened if the bottleneck stayed in place. It also wouldn’t have happened without a culture of data democracy. As Justin Bassett, data scientist at Reddit, says: “More people are making discoveries and uncovering answers they couldn’t have found on their own before,” later adding, “Sales have increased dramatically.”

Takeaway

Leverage the culture of data democracy that business intelligence naturally develops to surface opportunities you never could’ve foreseen otherwise.