Power BI Assignment 1

1. What do you mean by BI? Explain.

   Business intelligence (BI) refers to the procedural and technical infrastructure that collects, stores, and analyses the data produced by a company's activities.

   BI is a broad term that encompasses data mining, process analysis, performance benchmarking, and descriptive analytics. BI parses all the data generated by a business and presents easy-to-digest reports, performance measures, and trends that inform management decisions.

   The need for BI was derived from the concept that managers with inaccurate or incomplete information will tend, on average, to make worse decisions than if they had better information. Creators of financial models recognize this as "garbage in, garbage out."

   BI attempts to solve this problem by analysing current data that is ideally presented on a dashboard of quick metrics designed to support better decisions.

   TYPES OF BI TOOLS AND SOFTWARE

   BI tools and software come in a wide variety of forms

- **Spreadsheets:** Spreadsheets like Microsoft Excel and Google Docs are some of the most widely used BI tools.
- **Reporting software:** Reporting software is used to report, organize, filter, and display data.
- **Data visualization software:** Data visualization software translates datasets into easy-to-read, visually appealing graphical representations to quickly gain insights.

   BENEFITS OF BUSINESS INTELLIGENCE

   There are many reasons why companies adopt BI. Many use it to support functions as diverse as hiring, compliance, production, and marketing. BI is a core business value; it is difficult to find a business area that does not benefit from better information to work with.

   Some of the many benefits companies can experience after adopting BI into their business models include faster, more accurate reporting and analysis, improved data quality, better employee satisfaction, reduced costs, and increased revenues, and the ability to make better business decisions.

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

Power BI is a BI and data visualization tool that leverages visual analytics to empower people and organizations in making the most of their data. The engaging visualizations created in Power BI take the excel workflow to the next level and help stakeholders make sense of the massive amounts of data available.

Reasons to use Power BI by analysts

- **It is easy to link data together**

  Power BI makes it easy to combine your data into one place for better accessibility, organization, and visibility in your reporting efforts.

- **It is powerful and efficient**

  Power BI's Power Pivot database modelling engine, which is shared with Excel, is a high-performing columnar database that uses modern tabular databases to compress tables and ensure full memory access for maximum performance.

- **It features custom, open source visual**

  Power BI includes a lot of pre-packaged standard data visuals that you can leverage in your interactive reports. These include a bar, column, and line, matrix, pie charts and scatter, table, waterfall, and scatter. Each of these visuals has its own customization options to enhance presentation and functionality.

- **Excel's familiar features allow you to perform more advanced analytics**

  Advanced Excel users who are proficient in Data Analysis Expressions can dig deeper into their data to find patterns with Power BI. Power BI features such as clustering, grouping, forecasting, and quick measures make it easier for them to use Power BI.

  Excel users will be familiar with the embedded self-service Power Query tool, which makes it simple to ingest and transform business data, as well as integrate and enrich Power BI.

3. Explain Descriptive analytics?

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

Descriptive analytics is relatively accessible and likely something your organization uses daily. Basic statistical software, such as MS Excel or data visualisation tools, such as Google Charts and Tableau, can help parse data, identify trends and relationships between variables, and visually display information.

Descriptive analytics is especially useful for communicating change over time and uses trends as a springboard for further analysis to drive decision making.

Examples of descriptive analytics

- **Traffic and Engagement Reports**

One example of descriptive analytics is reporting. If your organization tracks engagement in the form of social media analytics or web traffic, you are already using descriptive analytics.

These reports are created by taking raw data—generated when users interact with your website, advertisements, or social media content—and using it to compare current metrics to historical metrics and visualize trends.

- **Financial Statement Analysis**

Another example of descriptive analytics is financial statement analysis. Financial statements are periodic reports that detail financial information about a business and, together, give a holistic view of a company's financial health.

There are several types of financial statements, including the balance sheet, income statement, cash flow statement, and statement of shareholders' equity. Each caters to a specific audience and conveys different information about a company's finances.

- **Progress to goals**

Descriptive analytics can be applied to track progress to goals. Reporting on progress toward key performance indicators (KPIs) can help your team understand if efforts are on track or if adjustments need to be made.

4. Explain Predictive analytics?

The term predictive analytics refers to the use of statistics and modelling techniques to make predictions about future outcomes and performance. Predictive analytics looks at current and historical data patterns to determine if those patterns are likely to emerge again. This allows businesses and investors to adjust where they use their resources to take advantage of possible future events. Predictive analysis can also be used to improve operational efficiencies and reduce risk.

Uses of Predictive Analytics

- **Forecasting**

  Forecasting is essential in manufacturing because it ensures the optimal utilization of resources in a supply chain.
  Critical spokes of the supply chain wheel, whether it is inventory management or the shop floor, require accurate forecasts for functioning.

- **Marketing**

  Individuals who work in this field look at how consumers have reacted to the overall economy when planning on a new campaign. They can use these shifts in demographics to determine if the current mix of products will entice consumers to make a purchase.

- **Human Resources**

  Human resources use predictive analytics to improve various processes, such as forecasting future workforce needs and skills requirements or analysing employee data to identify factors that contribute to high turnover rates. Predictive analytics can also analyse an employee's performance, skills, and preferences to predict their career progression and help with career development planning in addition to forecasting diversity or inclusion initiatives.

5. Explain perspective analytics?

Prescriptive analytics is a type of data analytics that attempts to answer the question "What do we need to do to achieve this?" It involves the use of technology to help businesses make better decisions through the analysis of raw data. Prescriptive analytics specifically factors information about possible situations or scenarios, available resources, past performance, and current performance, and suggests a course of action or strategy. It can be used to make decisions on any time horizon, from immediate to long-term. It is the opposite of descriptive analytics, which examines decisions and outcomes after the fact.

Examples of Prescriptive Analytics

- **Hospitals and Clinics**

Prescriptive analytics can be used by hospitals and clinics to improve the outcomes for patients. It puts health care data in context to evaluate the cost-effectiveness of various procedures and treatments and to evaluate official clinical methods.

It can also be used to analyse which hospital patients have the highest risk of re-admission so that health care providers can do more, via patient education and doctor follow-up to stave off constant returns to the hospital or emergency room.

- **Banking**

Banking is one of the industries that can benefit from prescriptive analytics the most. That is because companies in this sector are always trying to find ways to better serve their customers while ensuring they remain profitable. Applying prescriptive analytical tools can help the banking sector to:

  - Create models for customer relationship management
  - Improve ways to cross-sell and upsell products and services
  - Recognize weaknesses that may result in losses, such as anti-money laundering (AML)
  - Develop key security and regulatory initiatives like compliance reporting.

- **Marketing**

Just like banking, data analytics is very critical in the marketing sector. Marketers can use prescriptive analytics to stay ahead of consumer trends. Using past trends and past performance can give internal and external marketing departments a competitive edge.

6. Write five real-life questions that PowerBi can solve.

- **Mobile BI**
    - The Visualizations that you will publish to Power BI sites would use the HTML 5 rendering & hence the support for Mobile BI.
    - There is also a native Microsoft Power BI app for Windows 8 so you can use surface tablets for Mobile BI. IOs (apple) or Android native apps have NOT been announced yet.
- **An end-to-end self-service suite of tools for Power Users**
    - Users will be enabled to search, analyse and visualize data using Power Query, Power Pivot & Power View. Plus, it allows them a way to collaborate with each other.
- **Easier way to search for data that is available inside & outside for organization**
    - One of the key themes of "Power BI" has been easier discovery of data that is available to you to analyse.
    - This is important from an adoption standpoint because with the technologies that we have today, we can't enable power users to search for "data-sets". Power BI enables IT to publish Data Catalogue which I imagine would make it easier for power users to search & connect to data sets & start analysing!
- **Cool tools that people *want* to use it.**
    - Power BI has rich user experience.
    - Users can build cool visualizations & create some business value
    - Since this is a "self-service" suite, it seems to be designed as a user-friendly set of tools. This is important because if a user is "confused" or "over whelmed" then they are not going to use the tool & find something else.
- **Gateway to the future**
    - The Human-computer interaction is evolving. Over the past couple of years, we have seen tools like Siri (apple audio powered personal assistant) which allows users to use "Natural Language" to interact with computers
    - Power BI has a tool called "Q&A" that allows users to do business analysis using "Natural Language." I do not know the maturity of the current offering but I'm excited about the possibilities that this could offer in future!
    - Imagine a computer (in some amazing futuristic form) and you say to it "sales trend in north America region during past 12 months" and it gives a you nice trend chart that you can use to start analysis.