# MIS 350 Final Project Guidelines and Rubric

## Overview

A data analyst can extract insights and information from data sets. As a data analyst, you can do many different specialized tasks, including analyzing data and reporting on the findings. Those reported findings can help a business make data-informed decisions.

In this assignment, you will demonstrate your mastery of the following course outcomes:

* Utilize appropriate tools and techniques for creating business intelligence reports.
* Apply business intelligence techniques and practices for making data-centered decisions within a business setting.
* Recommend appropriate solutions to business problems that address business needs and requirements.
* Create data visualizations utilizing appropriate tools and techniques for producing business reports.

## Scenario

ABC Company is in competition with many companies that provide the same products and services. A personal touch and strong customer service are standards being set by ABC Company, and this is shaking up the market. To keep up with consumer expectations and initiate new customers from different areas, expansion must take place. For this expansion, the company needs to answer several business questions. Utilizing business intelligence techniques, a business can utilize data to create reports and provide insight into those business questions.

For this project, you will play the role of a data analyst at a consulting company that you own. You will be working directly for the CEO in your investigation of the expansion of this business. You will be asked to evaluate one of seven data sets related to what the company has done up to this point, and you will provide those insights back to the company. For each of these data-set areas, you will be asked to use Microsoft Power Business Intelligence (BI) tools to build a stunning visualization of the data and a written report of the insights that were found in the analysis.

Using the IBM Watson Analytics data, choose **ONE** of the seven data sets and explore the data for interesting insights, and create dashboards using the Microsoft Power BI tool.

### Dataset Deliverables

Create only the deliverables associated with your chosen data set. Click on the title of the data set to view the data in Excel:

| Data and Deliverables | |
| --- | --- |
| 1 | [IT Help Desk](http://snhu-media.snhu.edu/files/course_repository/undergraduate/mis/mis350/wa_fn_usec_it_help_desk.csv) |
| The ABC Company’s CEO is interested in examining how quickly issues are resolved and improving customer satisfaction. Analyze the help-desk tickets, including number of tickets, number of high priority tickets, and average response time. Understand the causes of high-priority tickets, and improve resolution times with better understanding of ticket details.  The following information in this cell is from the [IBM Watson Analytics website](https://www.ibm.com/communities/analytics/watson-analytics-blog/it-help-desk/):  Background: This data is from an Information Technology (IT) department interested in examining how quickly issues are resolved and improving satisfaction of customers. To start their analysis, they have this data set of 100,000 closed tickets that were filed at their help desk.  About the data: A total of 100,000 rows. Each row in the data includes:   * employee who submitted the ticket * employee’s seniority within the company * IT employee who serviced the ticket * functional area against which the ticket was filed (systems, software, hardware, access) * whether the ticket was a request for new services or an issue with existing services * submitter-assigned severity of the ticket * IT-assigned priority of the ticket * number of days the ticket was open * satisfaction with the resolution of the ticket (reported by the submitter) | |
| 2 | [Employee Attrition](http://snhu-media.snhu.edu/files/course_repository/undergraduate/mis/mis350/wa_fn_usec_hr_employee_attrition.csv) |
| ABC Company’s CEO is curious to find the factors that lead to employee attrition. This will be very important as the CEO moves forward with the  expansion of the company. The stakeholders are interested in this analysis, which will provide some insights into leadership effectiveness. The analysis should take some key point indicators (Distance, Education, Job Role, Income) and provide an analysis. | |
| 3 | [Telco Customer Churn](http://snhu-media.snhu.edu/files/course_repository/undergraduate/mis/mis350/wa_fn_usec_telco_customer_churn.csv) |
| ABC Company’s CEO is concerned that, during this expansion, customers may leave the company for its competitors. Predict the behavior of customers and how to retain them. Analyze all relevant customer data and develop focused customer retention programs.  The data set includes information about:   * Customers who left within the last month—this column is called Churn. * Services that each customer has signed up for—phone, multiple lines, internet, online security, online backup, device protection, tech support, and streaming for TV and movies. * Customer account information—how long they have been a customer, contract, payment method, paperless billing, monthly charges, and total charges. * Demographic info about customers—gender, age range, and whether they have partners or dependents. | |
| 4 | [Accounts Receivable](http://snhu-media.snhu.edu/files/course_repository/undergraduate/mis/mis350/wa_fn_usec_accounts_receivable.csv) |
| In the past, ABC Company’s CEO had set up business accounts where the business could carry a balance with purchases (goods or services) that were made. Due to the expansion, the stakeholders are concerned that the balances will not be paid. The CEO would like to understand the factors of  successful collection efforts. Predict which customers will pay fastest, recover more money, and improve collection efficiency. | |
| 5 | [Operations Dem Planning Bike Share](http://snhu-media.snhu.edu/files/course_repository/undergraduate/mis/mis350/wa_fn_usec_operations_dem_planning_bikeshare.csv) |
| During this expansion investigation, ABC Company’s CEO would still like to manage the process of matching supply and demand. Explore information based on usage and external factors to understand the effects of a bike-share program in a major U.S. city to analyze patterns such as the relationship between humidity and ridership by month, or how temperature and holidays drive usage demand. | |
| 6 | [Retail Sales and Marketing, Profit and Cost](http://snhu-media.snhu.edu/files/course_repository/undergraduate/mis/mis350/wa_retail_salesmarketing_profitcost.csv) |
| During the expansion process, ABC Company’s CEO realizes that there will need to be a review of the product-related information, such as Cost, Revenue, and Price, across Years and Ordering Method. This will be especially important to the stakeholders, as they will see what has worked and what has not.  This data set could be used to create a multiple-tab dashboard in Microsoft Power BI. For this data set, you will be an analyst for one of the stakeholders and find insights in Sales and Marketing, and Profit and Cost. The data is clean and manageable. | |
| 7 | [Marketing Campaign](http://snhu-media.snhu.edu/files/course_repository/undergraduate/mis/mis350/wa_fn_usec_marketing_campaign_eff_usec_fastf.csv) |
| ABC Company’s CEO is looking to add new items to the menu in the fast food department. The CEO needs help determining the promotion campaign for the new products. Quickly analyze test market campaigns based on responses, revenue, and other key metrics. Predict who will respond to which campaign by which channel, and why. Increase the likelihood of responses and the quality of leads in future campaigns. A different promotion is used at each location, and the weekly sales of the new item are recorded for the first four weeks.   * MarketID   Unique identifier for market (1–10).   * Market Size   Size of market area by sales (Small, Medium, Large).   * LocationID   Unique identifier for store location.   * Age Of Store   Age of store in years (1–28).   * Promotion   One of three promotions that was tested (1, 2, 3).   * week   One of four weeks when the promotions were run (1–4).   * Sales In Thousands   Sales amount for a specific LocationID, Promotion, and week. | |

Specifically, the following **critical elements** must be addressed:

## Prompt

1. **Report for Stakeholders:** You will write an enterprise-level report about your project. While this critical element is listed first, you will complete it last.
   1. Generate an **enterprise-level report** that will be submitted along with your executive summary. This report should address all the critical elements below.
   2. Compose an **executive summary** that explains what your process was to create the report, as well as why you performed the actions you did. Within your summary, provide a detailed description of the report that explains the visualizations used in audience-appropriate language. You

will also need to anticipate questions stakeholders may ask, so be sure that your explanation is as detailed as possible but also uses audience- appropriate language.

1. **Identify the Business Question:** Select a data set and scenario from the provided list and explain how you would solve the business question. Identify what sort of data you would require in order to solve the question.
2. **Making Sense of Data:** In this section, you will analyze the data within the spreadsheet in order to understand what information it will provide and its relation to the business question.
   1. Analyze the provided data set and explain what the data is and how the **data correlates** back to the business question you intend to answer.
   2. Identify which **areas of data** from the spreadsheet you will utilize and why. For example, which columns would you use?
3. **Business Intelligence:** In this section, you will explain how Power BI can be used to address business problems.
   1. Explain how you plan to address the organization's business problem using the **Power BI** analysis tool.
   2. Explain how the Power BI analysis tool can influence and **affect the audience**, such as the stakeholders and coworkers in different areas of the company. For example, how can the tool be used to convey information?
4. **Software Integration:** For this section, you will upload your data into Power BI and ensure it has appropriate formatting.
   1. **Upload** into Power BI the selected data set, using the correct data type and fields.
   2. Ensure your columns have **appropriate formatting** by editing your data. For example, ensure that you have formatted your columns with monetary values as currency.
5. **Guiding Questions:** Data relationships are necessary for linking common data or records in tables together to analyze the data and generate meaningful reports. In this section, you will look at your initial analysis from section III and develop business questions (and answers) that will serve as the focus of your visualizations.
   1. **Develop business questions** based on your initial analysis that will effectively guide your visualizations.
   2. Explain how you will use the compiled and cleaned data to **effectively answer** the business questions posed based on your initial analysis.
6. **Visualizations:** In this section, you will choose appropriate visualizations to display your data.
   1. Describe how you chose which particular visualization is best suited for **displaying the data**.
   2. Describe how you know the visualization used is best suited for **conveying information** to the targeted user audience and their interaction needs across multifunctional teams.
   3. Generate visualizations to **accurately display** your data.
   4. Create **visual data correlations** by integrating additional data into your visualizations.
   5. **Insert data visualizations** into your report and explain what the visualizations represent. Confirm that all of the data that you want displayed is shown.
7. **Actionable Insights**: Identify actionable insights based on your analysis.

## Final Project Rubric

**Guidelines for Submission:** Your enterprise-level report and executive summary should be 4–5 pages long, including visualizations.

| Critical Elements | Exemplary | Proficient | Needs Improvement | Not Evident | | Value | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Report for Stakeholders: Enterprise-Level Report |  | Generates an enterprise-level report that is submitted along with the executive summary (100%) | Generates an enterprise-level report that is submitted along with the executive summary, but the report is lacking in detail or contains inaccuracies  (55%) | | Does not generate an enterprise-level report (0%) | | 3.96 | |
| Report for Stakeholders: Executive Summary | Meets “Proficient” criteria, and the summary demonstrates keen insight into how to appropriately communicate the details of the report (100%) | Composes a detailed executive summary, utilizing audience- appropriate language, in which the process of creating the enterprise-level report and the visualizations used is explained, and defends the actions  performed (85%) | Composes a detailed executive summary, but the summary lacks details about process or does not defend actions or does not use audience- appropriate language or contains inaccuracies (55%) | | Does not compose an executive summary (0%) | | 3.96 | |
| Identify the Business Question | Meets “Proficient” criteria, and explanation demonstrates sophisticated awareness of what data would be required to solve the business problem (100%) | Selects a data set and scenario from the provided list and explains how to solve the business question and what sort of data would be required in order to do so (85%) | Selects a data set and scenario from the provided list and explains how to solve the business question and what sort of data would be required in order to do so, but explanation is cursory or  contains inaccuracies (55%) | | Does not select a data set and scenario from the provided list and does not explain how to solve the business question or what sort of data would be required in order to do so (0%) | | 3.96 | |
| Making Sense of Data: Data Correlates | Meets “Proficient” criteria, and explanation demonstrates a complex grasp of the correlation and relevance of the data to the business  question (100%) | Explains what the data is and how the data correlates back to the business question (85%) | Explains what the data is and how the data correlates back to the business question, but explanation is cursory or contains inaccuracies (55%) | | Does not explain what the data is and how the data correlates back to the business question (0%) | | 5.94 | |
| Making Sense of Data: Areas of Data | Meets “Proficient” criteria, and the defense demonstrates sophisticated awareness into why the particular data should  be used (100%) | Explains which areas of data from the spreadsheet will be utilized and why (85%) | Explains which areas of data from the spreadsheet will be utilized and why, but the explanation is cursory or  contains inaccuracies (55%) | | Does not explain which areas of the data from the spreadsheets will be utilized (0%) | | 5.94 | |
| Business Intelligence: Power BI | Meets “Proficient” criteria, and explanation demonstrates a sophisticated awareness of how Power BI can be utilized as an analysis tool for addressing  business problems (100%) | Explains how to address the organization's business problem using the Power BI analysis tool (85%) | Explains how to address the organization's business problem using the Power BI analysis tool, but explanation is cursory or contains inaccuracies  (55%) | | Does not explain how to address the organization's business problem using the Power BI analysis tool (0%) | | 5.94 | |
| Business Intelligence: Affect the Audience | Meets “Proficient” criteria, and explanation demonstrates a sophisticated awareness of how the Power BI analysis tool can influence and affect the  audience (100%) | Explains how the Power BI analysis tool can influence and affect the audience (85%) | Explains how the Power BI analysis tool can influence and affect the audience, but explanation is cursory or contains inaccuracies (55%) | | Does not explain how the Power BI analysis tool can influence and affect the audience (0%) | | 3.96 | |
| Software Integration: Upload |  | Data set was uploaded into Power BI using the correct data type and fields (100%) | Data set was uploaded into Power BI but does not use the correct data type, or fields are  not correct (55%) | | Does not upload the data set into Power BI (0%) | | 7.92 | |
| Software Integration: Appropriate Formatting |  | Data has been edited, and columns have appropriate formatting (100%) | Data has not been edited, or columns do not have appropriate formatting (55%) | | Data has not been edited and columns do not have appropriate formatting (0%) | | 7.92 | |
| Guiding Questions: Develop Business Questions |  | Developed business questions based on initial analysis that will effectively guide visualizations (100%) | Developed business questions based on initial analysis that will effectively guide visualizations, but questions are inappropriate or are not  supported (55%) | | Did not develop business questions (0%) | | 7.92 | |
| Guiding Questions: Effectively Answer | Meets “Proficient” criteria and expertly explains how to effectively answer the business question (100%) | Explains how to use the compiled and cleaned data to effectively answer the business questions posed based on the initial analysis (85%) | Explains how to use the compiled and cleaned data to effectively answer the business questions posed, but explanation is cursory, lacks key details, or contains inaccuracies  (55%) | | Does not explain how to use the compiled and cleaned data to effectively answer the business question (0%) | | 5.94 | |
| Visualizations: Displaying the Data | Meets “Proficient” criteria, and description demonstrates a sophisticated awareness of how the visualization is best suited  for displaying data (100%) | Describes which particular visualization is best suited for displaying the data (85%) | Describes which particular visualization is best suited for displaying the data, but description is inaccurate or is  not supported (55%) | | Does not describe which particular visualization is best suited for displaying the data (0%) | | 5.94 | |
| Visualizations: Conveying Information | Meets “Proficient” criteria, and description demonstrates a sophisticated awareness of how the visualization is best suited for conveying information (100%) | Describes how the visualization used is best suited for conveying information to the targeted user audience and their interaction needs across multifunctional teams (85%) | Describes how the visualization used is best suited for conveying information to the targeted user audience and their interaction needs across multifunctional teams, but the description is cursory or  contains inaccuracies (55%) | | Does not describe how the visualization used is best suited for conveying information to the targeted user audience and their interaction needs across multifunctional teams (0%) | | 5.94 | |
| Visualizations: Accurately Display |  | Generated visualizations to accurately display the data  (100%) | Generated visualizations to display the data, but data is not  accurately displayed (55%) | | Did not generate visualizations to display the data (0%) | | 5.94 | |
| Visualizations: Visual Data Correlations |  | Create visual data correlations by integrating additional data into the visualizations (100%) | Create visual data correlations by integrating additional data into the visualizations, but visual data correlation is  inaccurate (55%) | | Does not create visual data correlations (0%) | | 5.94 | |
| Visualizations: Insert Data Visualizations | Meets “Proficient” criteria, and explanation demonstrates keen insight into what the  visualizations represent (100%) | Inserts data visualizations into report and explains what the visualizations represent (85%) | Inserts data visualizations into report, but explanation is cursory, contains inaccuracies,  or is incomplete (55%) | | Does not insert data visualizations into report and does not explain what the  visualizations represent (0%) | | 3.96 | |
| Actionable Insights |  | Identifies actionable insights based on analysis (100%) | Identifies actionable insights based on analysis, but insights are inaccurate or lack support  (55%) | | Does not identify actionable insights based on analysis (0%) | | 3.96 | |
| Articulation of Response | Submission is free of errors related to citations, grammar, spelling, syntax, and organization and is presented in a professional and easy-to-read  format (100%) | Submission has no major errors related to citations, grammar, spelling, syntax, or organization (85%) | Submission has major errors related to citations, grammar, spelling, syntax, or organization that negatively impact readability and articulation of  main ideas (55%) | | Submission has critical errors related to citations, grammar, spelling, syntax, or organization that prevent understanding of ideas (0%) | | 4.96 | |
| Total | | | | | | | 100% | |