Data Analyst Assignment

DANA

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1 Greetings!

Thank you for applying to DANA Indonesia! We are glad to welcome you to our challenge.

To proceed with the next step we introduce you to three cases:

1. SQL/Python,
2. Dashboarding,
3. Dashboard Deployment Plan.

We believe that you are an expert on these cases, and you will show us (and most importantly to yourself) your best effort to complete the challenge!

2 Guidelines

1. We estimate that the tests would need 1-2 hours of your precious time to finish.
2. However, we would like to request you submit the answer 3 days after you receive this test case. So you could have the best thoughts on the cases in between your busy days.
3. Please make sure to notify us before starting working on the case.
4. Please also notify us when you need more time to finish it.
5. Write the best documentation that you can write, so it can be understood by Business People, Customer Service Managers, fellow Data Analyst and such.
6. Please refrain from making your solution publicly accessible, for instance, by uploading your code to a public repository.
7. Submit your solution using standard archive formats (e.g., `.zip`, `.tar.gz`, `.tar`). Avoid using proprietary archive types.

3 The Cases

3.1 Test Case 1: SQL and Data Manipulation with Python

3.1.1 Context

A retail company has two tables stored in their database:

1. customers (columns: customer_id, signup_date, last_purchase_date)
2. purchases (columns: purchase_id, customer_id, item, amount)

3.1.2 Tasks

SQL:

1. Write an SQL query to find the top 10 customers with the highest total purchase amount.
2. Write an SQL query to compute the average purchase amount of customers that have made purchases in the last 30 days.

Python:

1. Write a Python script to calculate the average time (in days) between the signup_date and last_purchase_date for all customers.
2. Using Python, identify any customers who have not made a purchase in the last 90 days and create a list of these customers. Also, suggest a specific product for them to be applied promos to.
3. Using Python, show us a graph on the buying tendency of customers depending on the month they signed up. Make it as informative as possible.

3.2 Test Case 2: Dashboard Creation with Tableau

3.2.1 Context

Imagine you are given a dataset containing monthly sales figures for a company over the past 5 years. The dataset has columns for Date, Product Category, Region, and Sales Amount.

3.2.2 Tasks

Create a Tableau dashboard that:

1. Shows monthly sales trends over the 5 years.
2. Compares sales by Product Category.
3. Provides a regional breakdown of sales.
4. Incorporate a feature where a user can select a specific month and view a detailed breakdown of sales for that month.

Write a short report detailing:

1. Any noticeable trends or patterns in the data.
2. Recommendations for the company based on the data.

Please make sure to use the correct table format, referring to data warehousing staging, to achieve a responsive and well-performed dashboard.

3.3 Test Case 3: Managing Dashboard Lifecycle

3.3.1 Context

A payment company is planning on using a dashboard to monitor the monthly number of user complaints, treatments given, and average resolution times.

3.4 Tasks

Outline a plan to design, execute, test, release, and maintain the dashboard. Make sure your answer contains end-to-end workflow for every task needed to create the best dashboard in terms of:

1. Data Integrity
2. Data Reliability
3. Data Security
4. User Experience
5. Relevance
6. Data Completeness
7. Performance
8. Scalability
9. Interactiveness
10. Other

Suggest three potential ways the data from the dashboard can be used to improve the services of the payment company, ensuring you detail how each suggestion is backed by the data.

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Best of Luck!

With Best Wishes,

DANA Indonesia