**Take Home Document**

Hello,

We are thrilled to guide you toward the next steps for the Business Intelligence Engineer I position at Snap Finance. This assessment is designed to evaluate your skills and knowledge in analytics tools and datasets, as well as your problem-solving abilities and attention to detail.

During this assessment, you will be given a set of data tables and tasks that will test your technical proficiency in analytics, presenting, and problem-solving. We encourage you to approach each challenge with a thorough understanding of the problem at hand and to use your creativity and critical thinking skills to come up with effective solutions.

We believe that this assessment will provide us with valuable insights into your capabilities as a Business Intelligence Engineer I, and we are excited to see what you can accomplish. Best of luck and we look forward to reviewing your submission.

Data

You should download an .xlsx file from [this Github](https://github.com/brodymoore-snapfinance/bi_engineer_tech_assessment/blob/main/sample_datasets.xlsx) containing four distinct tables, each table is specific to the information it contains. The tables are: *‘applications’, ‘customers’, ‘stores’,* and *‘marketing’.*  The data included in these tables are sample data and should be enough to demonstrate abilities in understanding and building visualizations on the data.

Audience

Assume that your presentation is to a group of Stakeholders that mainly care about obtaining the answers to the requirements listed with clear communication. We will ask you technical questions surrounding your choices with the data after the presentation, so please have the code you used accessible.

Data Dictionary:

|  |  |
| --- | --- |
| customers | |
| customer\_id | A unique identifier assigned to each customer |
| DOB | Date of Birth of the customer |
| first\_name | First name of the customer |
| last\_name | Last name of the customer |
| email | Email address of the customer |
| phone\_number | Phone number of the customer |
| language | Preferred language of the customer |
| income | Annual income of the customer |
| title | Job title of the customer |
| campaign | Campaign through which the customer was acquired or contacted (Foreing key to Marketing table) |
| applications | |
| application\_id | A unique identifier assigned to each application |
| customer\_id | A unique identifier assigned to each customer who applied |
| store | The store location where the application was submitted |
| submit\_date | The date when the application was submitted |
| approved | A flag indicating whether the application was approved or not |
| approved\_date | The date when the application was approved |
| approved\_amount | The amount approved |
| dollars\_used | The dollar amount used by the customer |
| lease\_grade | the grade of the lease |
| stores | |
| store | The name or identifier of the store |
| start\_dt | The date when the store started partnering |
| state | The state where the store is located |
| size | The size of the store in revenue |
| industry | The industry or sector to which the store belongs |
| marketing | |
| id | A unique identifier assigned to each marketing campaign |
| name | The name or description of the marketing campaign |
| spend | The amount spent on the marketing campaign |
| start\_date | The start date of the marketing campaign |
| end\_date | The end date of the marketing campaign |

 Tools

            It is encouraged to use any tools that will help you become familiar with the data provided in the tables. Use Python to complete the following tasks: (You can use AI to assist in completing these tasks, but be prepared to answer questions over your choices)

Tasks:

1. Task 1 - Calculate the number of applications, number of approved, and the number of used applications and visualize the trend over the submission date.
2. Task 2 - Calculate the average of the approved amount and the average of the amount used and visualize the trend over the submission date.
3. Task 3 - Create a table to show possible metrics (e.g. number of applications, number of approved, approved amount, number of used apps, used amount, percentages, etc) by store.
4. Task 4 - Create a view with a graph to compare the used dollars amount by Marketing name, and color by spend amount.
5. Task 5 - Come up with something interesting with the data to share with us. Keep in mind this is randomly generated sample data so trends may or may not be present, but don’t let that hold you back.
6. Task 6 - Check your code into a public repo and share the link with us