Which topic did you choose to apply the data science methodology to? **(2 marks)**

Credit Cards

Next, you will play the role of the client and the data scientist.

Using the topic that you selected, complete the Business Understanding stage by coming up with a problem that you would like to solve and phrasing it in the form of a question that you will use data to answer. **(3 marks)**

You are required to:

1. Describe the problem, related to the topic you selected.
2. Phrase the problem as a question to be answered using data.

For example, using the food recipes use case discussed in the labs, the question that we defined was, "Can we automatically determine the cuisine of a given dish based on its ingredients?".

1. Problem: Unable to achieve growth in the maturing credit card market with current customer base.  
2. Question: How to increase market share in various spending categories on all credit card transactions of existing customer base?

riefly explain how you would complete each of the following stages for the problem that you described in the Business Understanding stage, so that you are ultimately able to answer the question that you came up with. **(5 marks)**:

1. Analytic Approach
2. Data Requirements
3. Data Collection
4. Data Understanding and Preparation
5. Modeling and Evaluation

You can always refer to the labs as a reference with describing how you would complete each stage for your problem.

1. Analytic Approach: Using predictive modeling - Identify the monthly spending pattern minus returns of existing customers based on all transactions for past 1 year by categorizing them into Groceries, Dining, Gas, Travel, Education, Insurance, Phone, Cable Services, Healthcare, Utilities, Automotive, etc. Based on spending pattern each month at popular in-stores/online, marketing offers against specific category can be targeted for additional use of credit cards at in-store/online. 2. Data Requirements: Define the format and identify various internal database sources for collecting the necessary data related to customer details, spending categories, credit card transactions in order to perform predictive analysis. 3. Data Collection: Work with IT team of DBA and Programmers as required to fetch the data in necessary format from various sources and eliminate data that is more than 1 year old. 4. Data Understanding and Preparation: Understand the data extracted to assess if it helps to address question in hand for the business stakeholders and prepare the data to be useful like grouping spending category by each month for a given customer to avoid scanning through individual transaction. Substitute any missing values as not applicable Or identify as an opportunity to market more offers during those months. 5. Modeling and Evaluation: We need to look for customers likely to spend more on a given spending category based on transaction history in a given month past year. Using the predictive analysis identify the optimal model that has maximum separation between blue ROC (Receiver Operating Charateristic) curve relative to Red base line. This will help to target customers who are likely to spend more in a given month on a specific spending category. Final Note: Keep refining the model until optimum results are obtained with help of marketing offers.