**Title: DS Methodology on Credit cards**

**Which topic did you choose to apply the data science methodology to?**

**Ans:**

“Email is such a powerful delivery tool because it’s a stream people already check,” says Ben Thompson, founder and author of the popular tech newsletter Stratechery. “To be invited into a place where people live—and to know you won’t be filtered by an algorithm—is a very powerful thing.” Swedish journalist Charlotte Fagerlund adds: “Emails have got quite a lot of different functions. They are an effective way of making people continue to read after they have started paying, a way to drag in people, and they are, of course, a very effective way to make money from ads.”

**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?"**

**Ans:**

You are required to:

Describe the problem, related to the topic you selected.

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?".

Is it possible to monitor credit card fraud from the time and place of credit card transaction?

**Briefly 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.**

**Ans:**

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

1. **Analytic Approach** Analysis of time and place of credit card transaction data using statistical analysis and data visualization methods.

2. **Data Requirements** The data should include credit card transaction time, transaction location, transaction amount, and information that can be traced back to the credit card user.

3. **Data Collection** Collect relevant transaction data through the bank's credit card department and unify the data format.

4. **Data Understanding and Preparation** View data size, analyze data types, and analyze data statistics. The next step is to clean the data and add missing values.

5. **Modeling and Evaluation** Analyze the distribution of credit card transaction time, and the relationship between the transaction amount and location distribution. Analyze the relationship between various variables, and finally construct a credit card fraud information monitoring model. Finally, apply the model and continuously evaluate the results and continually improve the model.