Data Analyst Assignment

# Overview

You have been asked by members of the marketing team to analyze data and help them with some of their top projects. It is up to you to answer the questions below using the data provided and submit the required output along with a document that outlines in detail the process used to complete each task.

# Assignment

1. The Marketing Manager would like to advertise on Kayak.com which will cost $0.25 per search and we can choose which routes we would like to advertise on their site. He is only interested in selecting routes where we believe we will be profitable. Using the data provided please calculate the expected Profit (Total Revenue – Cost) for each route and create a list of routes that will have a positive profit amount.
   1. Total Revenue can be calculated as per the data dictionary below
   2. Assume that we will have the same amount of searches on Kayak as we have on our site for the past 12 weeks
2. The Email Coordinator would like to run a campaign to increase our insurance revenue on an upcoming email. She is asking for Insurance attachment rate by route and would like a recommendation on the top 5 routes to highlight in the email that would generate the most bookings with insurance and the estimated revenue from insurance expected from the email.
   1. For each route assume the email will generate 5% of the total searches that route has had in the past 12 weeks
   2. Insurance Attachment Rate can be calculated as per the data dictionary below
3. The Paid Search Manager would like to start advertising on Google in markets outside of Canada but doesn’t know which countries to target. He would like to see which countries have the best conversion rate and where he would make the most profit if it costs him $0.10 per search to advertise.
   1. Assume that all customers are from the country of the departure airport for the route searched (for example YYZ-DEL, the departure airport is YYZ, which is in Canada so we can assume all searches were made on Google Canada)
   2. Assume that we will have the same amount of searches from Paid Search as we have on our site for the past 12 weeks
4. The Chief Marketing Officer would like to increase our total revenue by changing the amount of discount we are offering on our coupon codes for each route. Currently we are advertising $10 off for using a coupon on all routes across the site. Despite having the coupon code advertised everywhere, we find that not every customer enters the coupon code on the payment page. Through A/B testing we have found that for every $1 change in the price of the coupon amount we see coupon attachment rate change by 4% (for example if we increase coupons discount to $11 then attachment rate will increase by 4%, and if we increase to $12 attachment rate will increase by 8%, and if we decrease discount to $9 attachment rate will decrease by 4%). We have also found that a $1 change in the coupon amount will change conversion rate (Orders per Search) by 0.5% (a $1 increase in coupon discount will increase conversion rate by 0.5% and a $1 decrease will decrease conversion rate by 0.5%). Please find the optimal discount amount for coupons on all routes to gain the most amount of total revenue possible.
   1. Please select a round number for the coupon amount (I.e. $10 instead of $10.24)
   2. You do not need to account for Insurance Revenue in this exercise
   3. Please note the increase is a percentage from previous total instead of an increase by percentage points
      1. For example, if the conversion rate is 4% then a 0.5% increase would mean conversion rate would increase to 4.02% (4% \* (1+0.5%)) not 4.5%

# Data Dictionary

The data provided is hypothetical data loosely based on Flightnetwork data for the past 12 weeks.

* Route – The route a visitor searches for using IATA airport codes
  + The first 3 letter code is the departure airport and the second 3 letter code is the destination airport
* Searches – The number of times the route was searched on flightnetwork.com
* Orders – The number of transactions for that specific route
* Sales Amount – The total amount a customer pays for an order, which includes ticket price and taxes
* Insurance Revenue – The total amount of revenue earned from insurance when a customer purchases it as part of their order
* Coupon Amount – The total amount of coupons redeemed on all orders for that route
* ***Ticket Revenue*** – Calculate this metric by assuming a commission of 2.5% of the Sales Amount on all orders
* ***Total Revenue*** – The calculation of (Ticket Revenue + Insurance Revenue – Coupon Amount)
* ***Conversion Rate*** – The calculation of (Orders / Searches)
* ***Insurance Attachment Rate*** – The percentage of orders where a customer purchased insurance
  + We get $40 each time a customer purchases Insurance
* ***Coupon Attachment Rate*** – The percentage of orders where a customer used a coupon code
  + All coupons are $10