**Assignment 1: Prestige Mall**

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| Name |  |
| ID |  |
| Class |  |

**Case Study: Prestige Mall**

**What businesses have you here?**



One of the shops in this shopping centre, *Prestige Mall*, has become vacant. You were tasked by your boss to suggest a possible tenant to bring into the Mall.

Some decisions that we make may be based on personal judgments but some may not. In this case, a proposal with support from data collected is obviously more convincing as compared to a proposal without such a support or a proposal supported with personal judgments alone. What are some of the information that you would include in your proposal, as support to the kind of business (and thus the potential tenant) that you would like to recommend to your boss?

Well, for instance, you may like to have an initial “feel” of the profile of customers who patronize this mall:

* What kind of job sectors are they from?
* How many times do they frequent Prestige Mall in a month?
* How much do they typically spend in Prestige Mall?
* What is their age profile?
* What is the proportion of male customers of Prestige Mall?
* What is their average monthly household income?

The questions listed above would generate valuable information in helping you to decide on the potential tenant that you would like to recommend to your boss.

You will like a systematic way to approach this problem, thus you use the 4-steps **statistical problem-solving process** that you have been introduced:

Formulating  
Questions

Collecting  
Data

Analysing  
Data

Interpreting  
Results

In order to collect data, a selected group of customers of Prestige Mall is chosen to respond to a survey. By the end of the survey period, you have collected feedback from 200 customers. The data is recorded in the spreadsheet named *PrestigeMall\_Data.xlsx*.

You can refer to Q5 below on how to fill in the fields in the table that is designed in accordance to the 4-steps statistical problem-solving process.

Refer to *PrestigeMall\_Data.xlsx* and use Minitab to analyze the data.

Q1: What is the aim of this case study?

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Q2: What is the sample of this case study? And what is the targeted population?

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Q3: How were the data collected, as recorded in the data file named “Prestige Mall”?

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Q4: What information (variables) does the data file named “Prestige Mall” hold?

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Formulating Questions

Collecting Data

Analyzing Data

Interpreting Results

|  |  | **Define variable and type of data** | **Both Numerical and Graphical summaries to be included** | **Description of Sample and  Generalization to the target population**  **(Based on Q5-Q7 sample description)** |
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| Q5 | What is the proportion of male and female customers of Prestige Mall? | *Which variable would you use to answer this question?*  Gender  *What type of data are these?*  Qualitative (nominal) | **Male:** 43%  **Female:** 57% | ***Describing the sample:***  **For Q5:** There is a slightly higher proportion of female customers visiting Prestige Mall compared to male customers.  **For Q6:**    **For Q7:**  ***Generalizing to the population:***  Generally, customers of Prestige Mall are slightly more likely to be female, |
| Q6 | What is the age profile of the customers? | *Which variable would you use to answer this question?*  *What type of data are these?* | **Mean:**  **Median:**  **SD:** |
| Q7 | What is the distribution of income of the customers? | *Which variable would you use to answer this question?*  *What type of data are these?* | **Mean:**  **Median:**  **SD:** |

Formulating Questions

Collecting Data

Analyzing Data

Interpreting Results

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| --- | --- | --- | --- | --- |
|  |  | **Define variable and type of data** | **Both Numerical and Graphical summaries to be included** | **Description of Sample and  Generalization to the target population**  **(Based on Q8-Q10 sample description)** |
| Q8 | What is the proportion of customers in the IT/Eng and Bus/Fin sectors? | *Which variable would you use to answer this question?*  *What type of data are these?* | **Bus/Fin:**  **IT/Eng:**  **Others:** | ***Describing the sample:***  **For Q8:**  **For Q9:**  **For Q10:**  ***Generalizing to the population:*** |
| Q9 | How often do the customers visit Prestige Mall in the last month? | *Which variable would you use to answer this question?*  *What type of data are these?* | **Mean:**  **Median:**  **SD:** |
| Q10 | How much did the customers spent last month at Prestige Mall? | *Which variable would you use to answer this question?*  *What type of data are these?* | **Mean:**  **Median:**  **SD:** |

Formulating Questions

Collecting Data

Analyzing Data

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|  |  | **Define variable and type of data** | **Both Numerical and Graphical summaries to be included** | **Description of Sample and  Generalization to the target population**  **(Based on Q11 sample description)** |
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| Q11 | Is there any preliminary evidence to claim that female customers who went to Prestige Mall  6 times last month spent very much more than female customers who went to Prestige Mall only once last month? | *Which variable would you use to answer this question?*  *What type of data are these?* | |  |  |  | | --- | --- | --- | | Amount spent/ month | Visit the mall once / month | Visit the mall  6 times / month | | *n* |  |  | | Mean |  |  | | SD |  |  | | Minimum |  |  | | Q1 |  |  | | Median (Q2) |  |  | | Q3 |  |  | | Maximum |  |  | | ***Describing the sample:***    ***Generalizing to the population:*** |

Formulating Questions

Collecting Data

Analyzing Data

Interpreting Results

|  |  | **Define variable and type of data** | **Both Numerical and Graphical summaries to be included** | **Description of Sample and  Generalization to the target population**  **(Based on Q12 sample description)** |
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| Q12 | **Ask a question about the relationship between 2 variables, then proceed to investigate.**  **Is there a relationship between …** | *Which variables would you use to answer this question?*  *What type of data are these?* |  | ***Describing the sample:***    ***Generalizing to the population:*** |

Q13: Based on interpretations from Q5 to Q12, suggest a potential business to recommend to your boss, and thus a potential tenant (e.g Rolex?).   
 Note: You need not use all the interpretations.

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Q14: State three assumptions that may be applicable in this case study.

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Q15: Given a chance to redesign the survey, suggest a possible new question (and thus a new variable) that can be added into the survey to gain more insight on the customers of Prestige Mall. Explain how this variable may affect your recommendation in Q13.

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| Formulating Question:  *Write down your new question for the survey here.*  Collecting Data:  *What is the name of the variable you would use to answer this question?*  *What type of data is this?*  Analyzing Data:  *What numerical summaries do you need?*  *What type of graphical summary do you need (i.e. pie chart, bar chart, histogram, boxplot?). Explain why you use this type of graphical summary.*  Explain how this variable may affect your recommendation in Q13. |