Business Statistics

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Question 1

You are a policy maker in the Ministry of Tourism and you decide to design a questionnaire, in order to know more about the visitors and their experience in Cambodia. Of course, your goal is to increase tourism revenues.

What questions would you ask, and what would be the possible answers to these questions ?

Make up the actual questionnaire. 4Q to 8Q

Answer Q#1:

1. Where do you come from?
   o US
   o Europe
   o Asia
   o Other: …………
2. How many times have you come to Cambodia?
   o First time
   o <3 times
   o 3-5 times
   o >5 times
3. What is your purpose for visiting Cambodia?
   o For work
   o For business
   o For leisure/holiday
   o For personal purposes
4. Who do you travel with?
   o Friends
   o Family
   o Partner/Couple
   o Alone
5. How long will you stay in Cambodia?
   o <3 days
   o 3-10 days
   o 10-30 days
   o >30 days

6. What type of tourist sites are you planning to visit?
    o Mountainous
    o Beach
    o Historical
    o City/town
7. How much will you plan on spending per day during your stay?
    o <$30
    o $30-$80
    o $80-$130
    o >$130

Question 2

You work for the Ministry of Social Affairs and you want to measure the well-being of Cambodians.

What are the variables that you want to consider ?

Answer Q#2:

Variables that we would take into consideration are:

1. Monthly income and personal net worth
2. Satisfaction level of work-life balance
3. Educational level (graduate, post-graduate, doctoral, etc.)
4. Mental health
5. Social protection
6. Pension
7. Safety need
8. Access to public services (water & electricity supply, transportation, school, health care, etc.)
9. Quantity of free time.
10. Access to medical care
11. Access to education

Question 3

You are the Vice-President of Operations for Lucky Department Stores, and of course you want to increase sales.

What examples of paired-data sets could be of interest to you ?

Graph a hypothetical plot of such paired-data.

Answer Q#3:

Examples of paired data sets could be the following:

1. More Discount rate, More Sales revenue
2. The lower the selling price compared to market (competitive price), the higher units/items sold
3. The higher the margin of each product, the more profit it will make each
4. The more attractive promotions, the more customers walk-in
5. The more time customers spend in store, the more items in their baskets
6. Slower moving or aging inventory, the more cost attached (shelves/space rental)
7. The more stores (branches) open, the more sales revenues
8. The more product varieties, the more items sold

- Graph a hypothetical plot of such paired-data:

**Case 1: More discount rate, more sale revenue**

Discount Rate	Sale Revenue
2%	1,000 $
5%	2,500 $
10%	5,000 $
20%	10,000 $
30%	15,000 $
50%	25,000 $
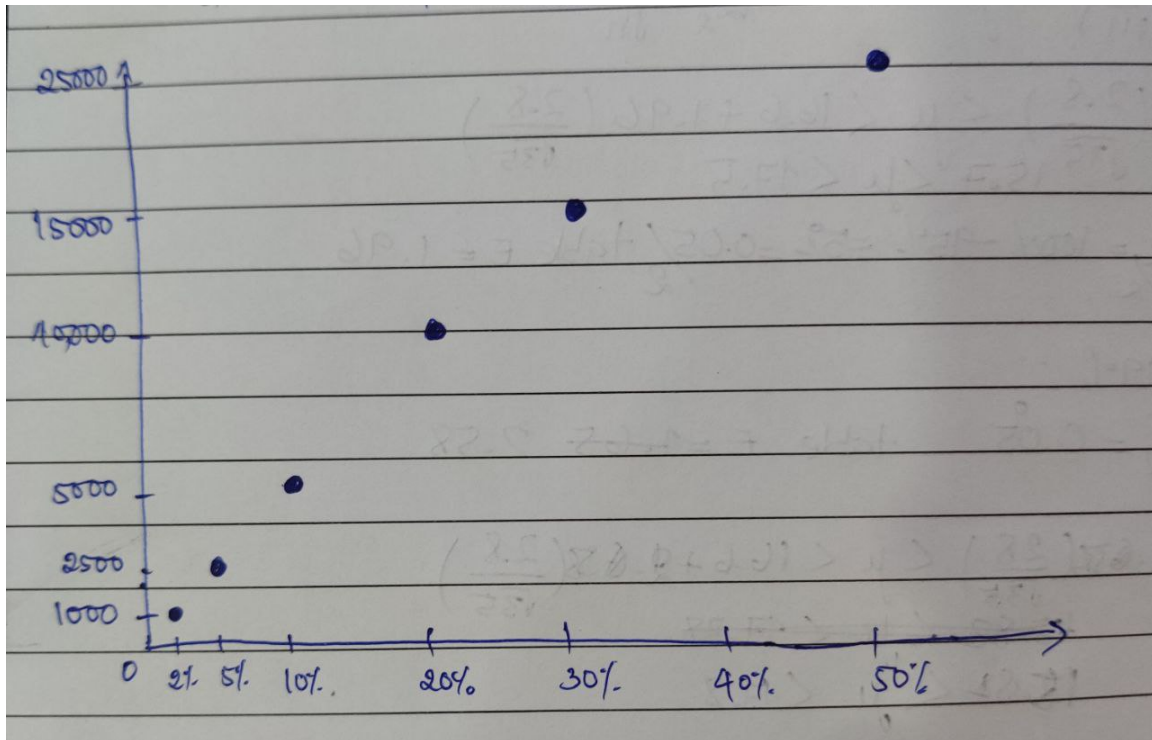
It's a positive linear relationship. It means the discount price causes an uptick in sales revenue which derives from increased amounts of goods sold.

**Case 7: More stores (branches) open, more sales revenues**

Total Store/Year	Annual Sales ($)
10	$ 1.000.000
13	$ 2.500.000
18	$ 3.000.000
20	$ 4.300.000
23	$ 5.900.000
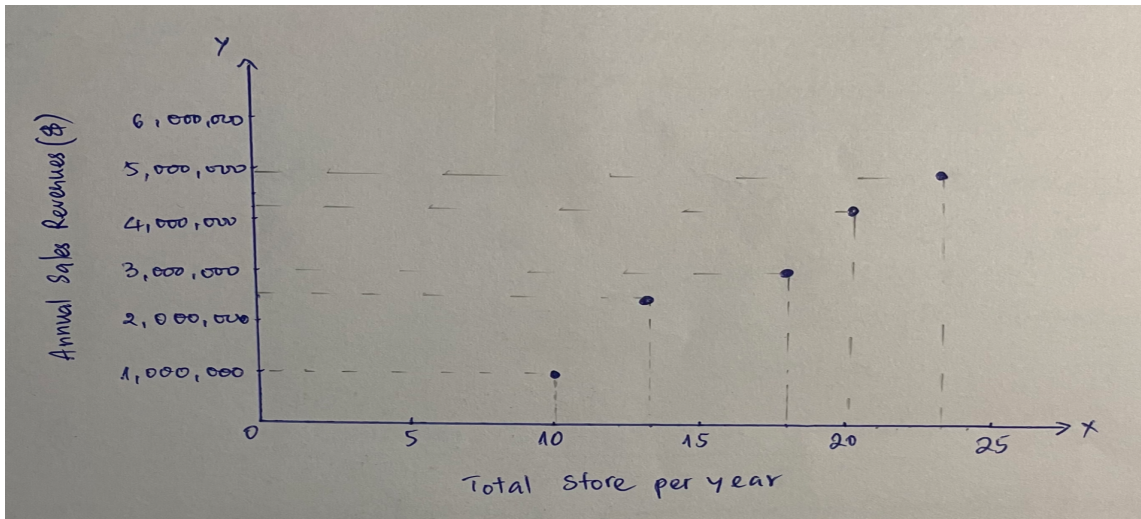
There is a positive linear relationship, and there is a direct cause-effect relationship, meaning that the increase in numbers of stores causes the increase in annual sales revenues.

Case 8: More variety of products, more items sold

Products (type)	Products Sold (unit)
1500	300,000
2000	600,000
2200	800,000
2400	1,000,000
2500	1,200,000
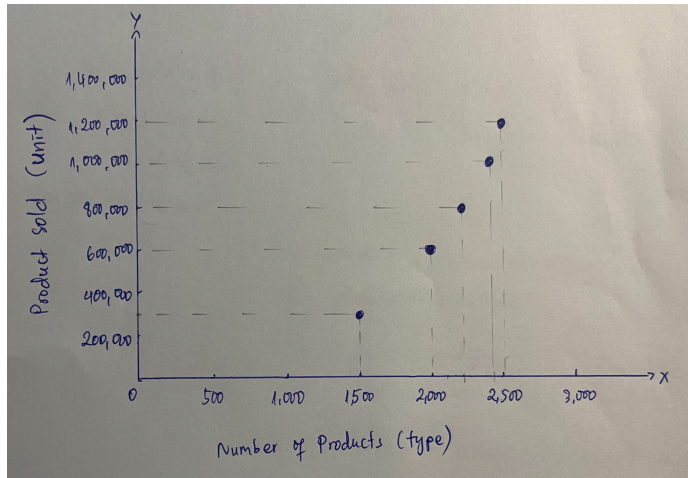
There is a positive linear relationship and it is a direct cause-effect relationship, meaning that the increase in the variety of products causes the increase in the number of products sold.
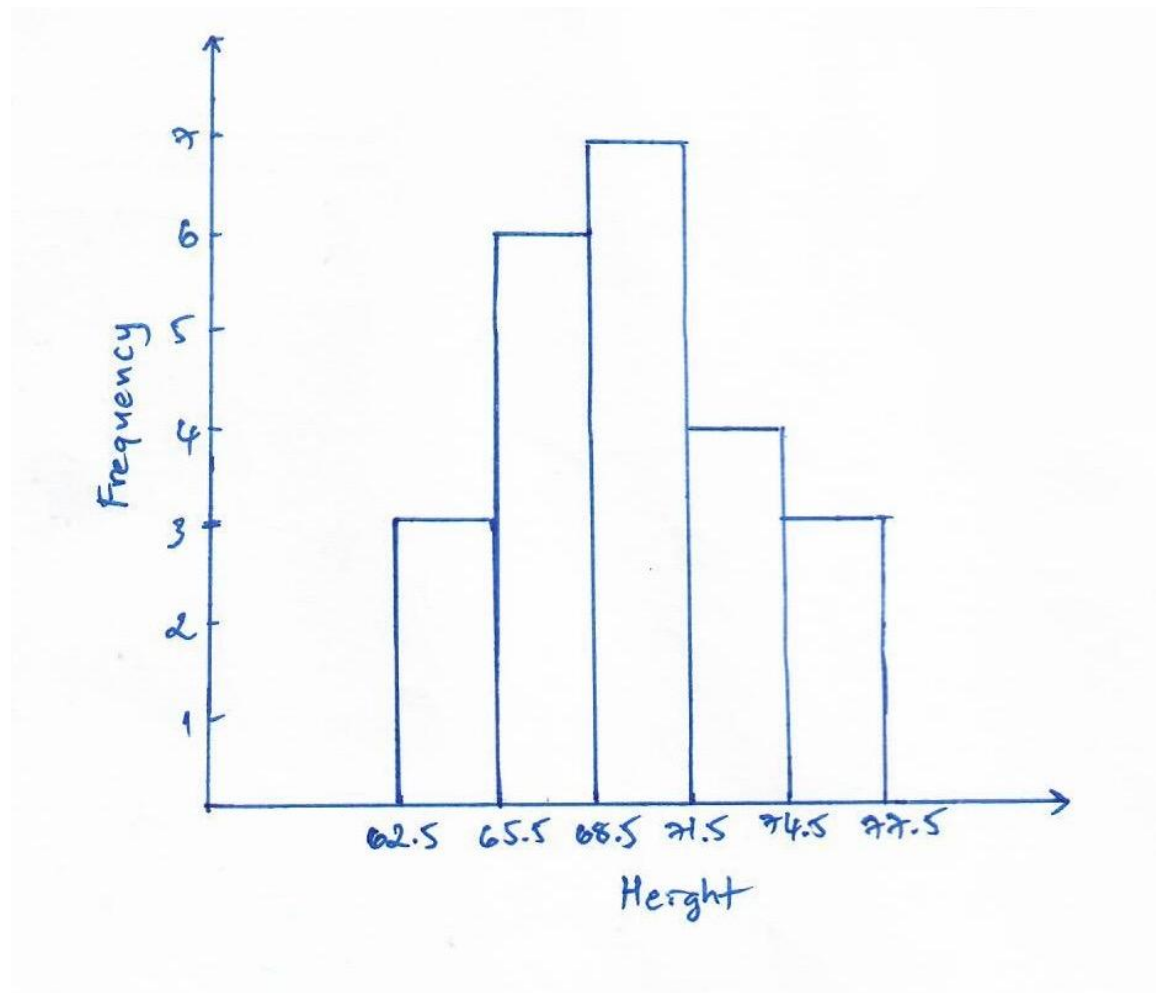
Question 4

Below is a sample of the heights (in inches) of 23 male students in a physical education class :

Height	Frequency
63 - 65	3
66 - 68	6
69 - 71	7
72 - 74	4
75 - 77	3

Graph a frequency histogram and calculate the mean of the distribution.

Answer Q#4:

Graph a frequency histogram:

Calculate the mean of the distribution:

Height	Frequency	Midpoint	Frequency Midpoint
63 - 65	3	64	192
66 - 68	6	67	402
69 - 71	7	70	490
72 - 74	4	73	292
75 - 77	3	76	228
Total	23		1,604

Mean=1,604/23= 69.73