Revision for QM 250

CHAPTER ONE

**Note Number 1: how to distinguish between Population(parameter) & Sample(statistic)?**

Population “all object “: all students in QM250 as an example.

Sample: part of population: “some student selected from QM 250 as an example”

Exercise: determine whether the below is sample or population?

1. Some workers in Batelco
2. All markets in Bahrain
3. Few of smokers in your class
4. All computers in UOB

**Note Number 2: how to distinguish between Quantitative variables & qualitative variable?**

Quantitative variable: NUMERIC “temperature, number of iPads, number of cars as an example “while qualitative: Non-Numeric:” gender, religion, marital status as an example”

Exercise: identify whether the below examples are QUANT or QUALT?

1. Salary
2. Income
3. Hight
4. Weight
5. Type of car
6. Number of AC
7. Number of chairs

**Note Number 3: how to distinguish between continues & discrete?**

Both are quantitative variables but the difference is the fractions or decimals how?

Continues: accept the fractions & Decimals “temperature coz we can say the temperature like 27.5 or 29.2, right?

Discrete: doesn’t accept the fractions “number of students, can’t say that the number of students is 7.5, right?

***NOW TRY THE ABOVE EXAMPLES AND DETERMINE WHICH ONE IF CONT OR DISC.***

**Note Number 4: how to distinguish between descriptive statistics & inferential statistics?**

**Inferential:** drawing conclusion about the population from sample “selecting some students from the class and we found these students were A students **so** WE CAN CONCLUDE THAT ALL STUDENTS IN THE CLASS ARE A STUDENT**.**

CHAPTER TWO

**Note Number 1: how to construct frequency distribution?**

First, we need to follow the below steps:

Step 1: determine the range: higher value – lower value

Step 2: determine the number of classes (k): 2^k >n or we can use that k > ln n / ln 2

Step 3: determine the class interval “class width” (I): I > or equal (range / k)

Very important note: always take the whole number

step 4: in setting the classes always start from the lower value

step 5: put the frequency and please note that the total frequency same as n.

**now try to construct the frequency distribution for the below data:**

12,9,13,15,7,19,25,17,12,8,10

**Note Number 2: how to find the midpoint?**

It’s the sum of upper limit & lower limit of class divided by two

See the below example, “let’s have the class of 10-15, here 10 called lower limit & 15 called upper limit” so the midpoint is 25/2 which is 12.5.

Note that the midpoint will increase by the class interval always.

|  |  |  |
| --- | --- | --- |
| Classes | Frequency | Midpoint |
|  0 up to 4 | 1 | 2 |
| 4 up to 8 | 3 | 6 |
| 8 up to 12 | 5 | 10 |

**Note Number 3: how to find the relative frequency?**

It’s the number of frequencies divided by the total frequency, lets see the below example

|  |  |  |  |
| --- | --- | --- | --- |
| Classes | Frequency | Midpoint | Relative Frequency  |
|  0 up to 4 | 1 | 2 | 0.1 |
| 4 up to 8 | 3 | 6 | 0.3 |
| 8 up to 12 | 5 | 10 | 0.6 |

**Note Number 4: how to find the Relative frequency in %?**

It’s the relative frequency multiply by 100, see the below example:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Classes | Frequency | Midpoint | Relative Frequency  | Relative frequency in % |
|  0 up to 4 | 1 | 2 | 0.1 | 11 |
| 4 up to 8 | 3 | 6 | 0.3 | 33 |
| 8 up to 12 | 5 | 10 | 0.6 | 56 |