UTM

UNIVERSITI TEKNOLOGI MALAYSIA

Group 2

SECI1143-03

Assignment 1

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Question 1

a) Qualitative : Customer Name, Age group, Favourite pizza topping

Quantitative : Rating of service (1-5 stars), Number of slices ordered, Total bill amount (RM), Time spent eating (in minutes)

b) Rating of service (1-5 stars)

Discrete because you can count the stars. For example, you won't end up with half a star.

Number of slices ordered

Discrete because you can count the number of slices. For example, you should receive 8 slices of pizza instead of 8.5 slices.

~~Total bill amount (RM)~~

~~Discrete because you can count the total of bill amount. For example, you can get RM1.00 but won't get RM1.05.~~

Time spent eating (in minutes)

Continuous because you can measure the time spent eating. For example, you can spend 5.5 minutes eating.

Total bill amount (RM)

Continuous because it can take any value within a range. For example, you can have RM54.55 as your total bill amount that is included with additional percentages like entertainment tax.

c) Customer name

Nominal as it only involves classification. For example, you would not have an order of name.

Age group

~~Nominal as it only involves classification.~~

Ordinal as it involves classification and order. For example, you can order them according to their age (child > teen > adult > senior). However, interval between groups are not equal.

Favourite pizza topping

Nominal as it only involves classification with no inherent order. For example, you would classify the topping you want such as pepperoni and margherita.

Rating of service

Ordinal as it shows order (5 > 4 > 3 > 2 > 1) but ~~interval between~~ difference between ratings are not measurable. For example, 4 stars doesn't necessarily means twice as many as 2 stars.

Number of slices ordered.

Ratio as it has a true zero. For example, 4 slices is twice as many as 2 slices.

Total bill amount (RM)

Ratio as it has a true zero. For example, RM20 is twice as many as RM10.

Time spent eating (minutes)

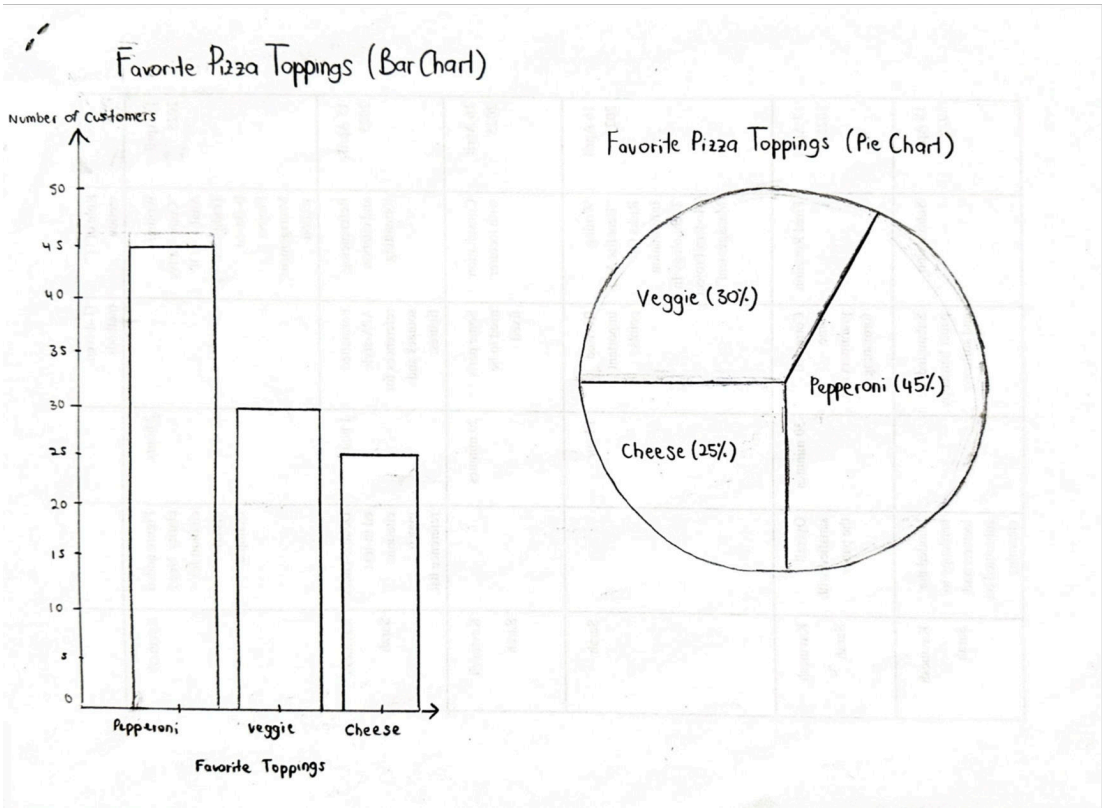
Ratio as it has a true zero. For example, 2 minutes are twice as many as 1 minute.

Question 2.

(a)

Pizza Topping	Frequency, f	Relative frequency
Pepperoni	45	$\frac{45}{100} = 0.45$
Veggie	30	$\frac{30}{100} = 0.30$
Cheese	25	$\frac{25}{100} = 0.25$
Total	100	1.00

(b)



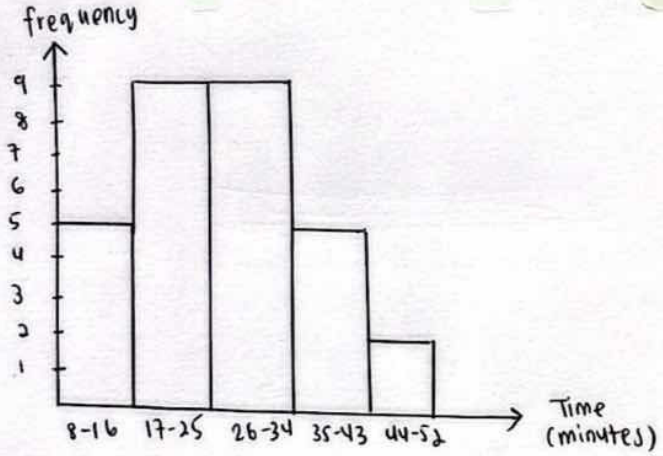
(c) The pie chart will be difficult to read as adding more topping options increases number of slices which will be cluttered.

Question 3

a)

class	frequencies	midpoint
8-16	5	12
17-25	9	21
26-34	9	30
35-43	5	39
44-52	2	48

range = 50 − 8
= 42



b) minimum = 8
maximum = 50

Q_1 = 25th percentile

$i = \frac{25(30)}{100}$

$= 7.5$

≈ 8

$Y(8) = 20$

$P_{25} = Q_1 = 20$

Q_3 = 75th percentile

$i = \frac{75(30)}{100}$

$i = 22.5$

≈ 23

$Y(23) = 34$

$P_{75} = Q_3 = 34$

~~$Q_1 = 50$~~

median = 50th percentile

$= \frac{50(30)}{100}$

$i = 15$

$\frac{Y(15) + Y(16)}{2} = \frac{26+27}{2}$

$= 26.5$

P_{50} = median = 26.5

c) IQR = $Q_3 - Q_1$

= 34 − 20

= 14

d) lower = $Q_1 - 1.5 \cdot IQR$

= 20 − 1.5 · 14

= −1

upper = $Q_3 + 1.5 \cdot IQR$

= 34 + 1.5 · 14

= 55

~~There is no outliers~~

e)