BAB 7

Sukatan Serakan Data Terkumpul
Measures of Dispersion for Grouped Data

7.1 Serakan
Dispersion

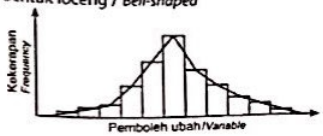
NOTA IMBASAN

1. Bagi satu data tak terkumpul, saiz selang kelas
$$= \frac{\text{Nilai data terbesar} - \text{Nilai data terkecil}}{\text{Bilangan kelas}}$$
For an ungrouped data, the size of class interval
$$= \frac{\text{Largest data value} - \text{Smallest data value}}{\text{Number of classes}}$$

2. Bagi setiap selang kelas, / *For each of class interval,*
   (a) Had bawah ialah nilai terkecil dan had atas ialah nilai terbesar dalam selang kelas.
   Lower limit is the smallest value and upper limit is the largest value in class interval.
   (b) Titik tengah $= \frac{\text{Had bawah} + \text{Had atas}}{2}$
   Midpoint $= \frac{\text{Lower limit} + \text{Upper limit}}{2}$
   (c) Sempadan bawah
   $= \frac{\text{Had atas kelas sebelumnya} + \text{Had bawah kelas itu}}{2}$
   Lower boundary
   $= \frac{\text{Upper limit of the class before it} + \text{Lower limit of the class}}{2}$
   (d) Sempadan atas
   $= \frac{\text{Had atas kelas itu} + \text{Had bawah kelas selepasnya}}{2}$
   Upper boundary
   $= \frac{\text{Upper limit of the class} + \text{Lower limit of the class after it}}{2}$

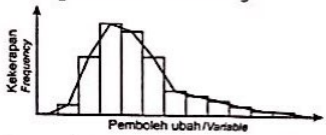
3. Bagi suatu data terkumpul, saiz selang kelas
   = sempadan atas – sempadan bawah
   For a grouped data, the size of class interval
   = *upper boundary – lower boundary*

4. Bentuk taburan data / *The shapes of data distribution*
   (a) Simetri / *Symmetrical*
   (i) Bentuk loceng / *Bell-shaped*

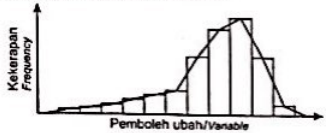


(ii) Seragam / *Uniform*

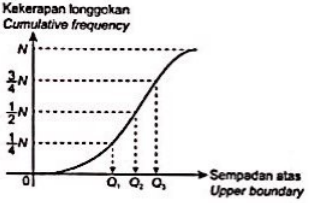
(b) Pencong / *Skewed*
(i) Pencong ke kanan / *Skew to the right*



(ii) Pencong ke kiri / *Skew to the left*



5. Bagi suatu set data terkumpul dengan *N* data, kuartil dapat ditentukan daripada ogif. Ogif ialah graf kekerapan longgokan.
For a set of grouped data with N data, quartiles can be determined from ogive. Ogive is a cumulative frequency graph.



7.2 Sukatan Serakan
Measures of Dispersion

NOTA IMBASAN

1. Julat / *Range*

$$= \begin{pmatrix}\text{titik tengah}\\ \text{kelas tertinggi}\end{pmatrix} - \begin{pmatrix}\text{titik tengah}\\ \text{kelas terendah}\end{pmatrix}$$

$$\begin{pmatrix}\textit{midpoint of the}\\ \textit{highest class}\end{pmatrix} - \begin{pmatrix}\textit{midpoint of the}\\ \textit{lowest class}\end{pmatrix}$$

2. Julat antara kuartil ditentukan daripada ogif.
Interquartile range is determined from an ogive.

Julat antara kuartil / *Interquartile range*
$= Q_3 - Q_1$

3. Varians / *Variance*

$$\sigma^2 = \frac{\Sigma fx^2}{\Sigma f} - \bar{x}^2$$

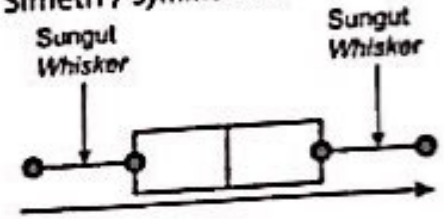
4. Sisihan piawai
Standard deviation

$$\sigma = \sqrt{\frac{\Sigma fx^2}{\Sigma f} - \bar{x}^2}$$

dengan keadaan / *where*
x : titik tengah bagi selang kelas
midpoint of class interval
f : kekerapan / *frequency*
$\bar{x}$: min / *mean*

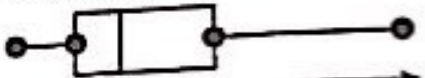
5. Bentuk taburan data berdasarkan plot kotak:
Shapes of distribution of data based on boxplot:

(a) Simetri / *Symmetrical*

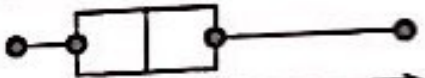


(b) Pencong ke kanan / *Skew to the right*

(i)

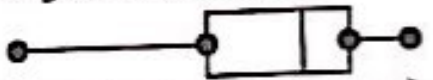


(ii)



(c) Pencong ke kiri / *Skew to the left*

(i)



(ii)