Data Distribution and Presentation

Data Handling

Editing of Data

- **To condense the mass of data**
- **To present the facts in a simple form**
- **To bring out clearly the similarities and dissimilarities**
- **To facilitate comparison and relationship**
- **To assist the further analysis**

Data Classification

- **Geographical data – Country, State, District etc.**
- **Chronological data – Years, Months, Days, Hours etc.**
- **Qualitative data – Descriptive as colour, gender etc.**
  - **Simple – Two classes**
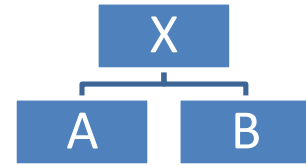
  - **Manifold – Many classes**
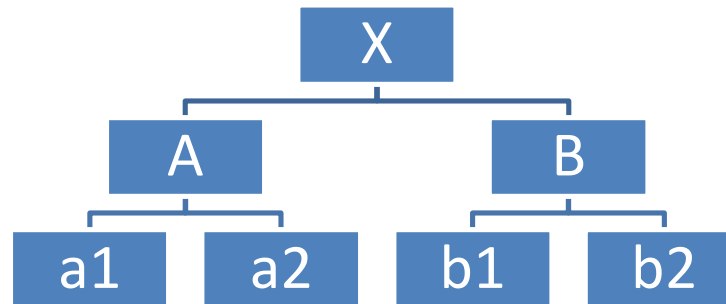
- **Quantitative data – Numeric values as age, height, weight, number, size etc.**

Statistical Investigation

4. Presentation of data

- A. Tabular
- B. Diagrammatic
- C. Graphical

A. Tabular presentation

- **Logical and systematic arrangement of data in Rows and Columns**

- **Rows are horizontal arrangement**

- **Columns are vertical arrangements**

- **They may be further divided as**
  - **Simple Table – One way table, carrying two factors**
  - **Complex Table – Multiple table, carrying two, three or more factors**

Tabulation of data

- **To clarify the objects**
- **To simplify the complexity**
- **To present the facts in minimum place**
- **To facilitate comparison**
- **To detect errors**
- **To help further processing**
- **To generate inference**

Components of Data Tables

- **Table Number:** Each table should have a specific table number for ease of access and locating

- **Title:** A table must contain a title that clearly tells the readers about the data it contains, time period of study, place of study and the nature of classification of data

- **Headnotes:** A headnote further aids in the purpose of a title and displays more information about the table

- **Stubs:** These are titles of the rows in a table. Thus a stub display information about the data contained in a particular row

- **Caption:** A caption is the title of a column in the data table. In fact, it is a counterpart if a stub and indicates the information contained in a column

- **Body or field:** The body of a table is the content of a table in its entirety. Each item in a body is known as a 'cell'

- **Footnotes:** Footnotes are rarely used. In effect, they supplement the title of a table if required

- **Source:** When using data obtained from a secondary source, this source has to be mentioned below the footnote

The Advantages of Tabular Presentation

- **Ease of representation:** A large amount of data can be easily confined in a data table. Evidently, it is the simplest form of data presentation

- **Ease of analysis:** Data tables are frequently used for statistical analysis like calculation of central tendency, dispersion etc.

- **Helps in comparison:** In a data table, the rows and columns which are required to be compared can be placed next to each other

- **Economical:** Construction of a data table is fairly easy and presents the data in a manner which is really easy on the eyes of a reader. Moreover, it saves time as well as space.

Parts of a Table

- **Table number**
- **Title**
- **Head note (if any)**
- **Caption**
- **Stub**
- **Body**
- **Foot note (If any)**
- **Source (If any)**

	caption	
	A	B
Stub		
		Body

Classification of Table

1. Individual series – All the values are arranged according to serial number and ascending or descending order

S. No.	Value
1	21
2	22
3	22
4	23
5	23
6	23
7	24

S. No.	Value
8	25
9	25
10	25
11	25
12	26
13	26
14	27

2. **Discrete series** – Data are arranged in groups of similar values. Also called discontinuous series

S. No.	Value	Frequency
1	21	1
2	22	2
3	23	3
4	24	1
5	25	4
6	26	2
7	27	1

3. Continuous series – Data are presented in class intervals of fixed values. The lowest and highest numbers of each class are called **class limits** and known as Lower limit and Upper limit

S. No.	Class	Frequency
1	0-10	1
2	10-20	2
3	20-30	3
4	30-40	1
5	40-50	4
6	50-60	2
7	60-70	1

B. Diagrammatic Presentation

- **Diagrams may be less accurate but are much more effective than tables in presenting the data. There are various kinds of diagrams in common use**

1. **Line diagram**

2. **Bar diagram**

3. **Pie diagram**

4. **Cartogram**

5. **Pictogram**

Rules for Drawing a Diagram

- **Each diagram should have a suitable title**

- **On Proper scale or graph paper**

- **Should be neat and clean**

- **Contain foot note**

- **Index for identification**

1. Line Diagram

Series	Growth
Monday	2
Tuesday	5
Wednesday	8

Growth

1　　　2　　　3
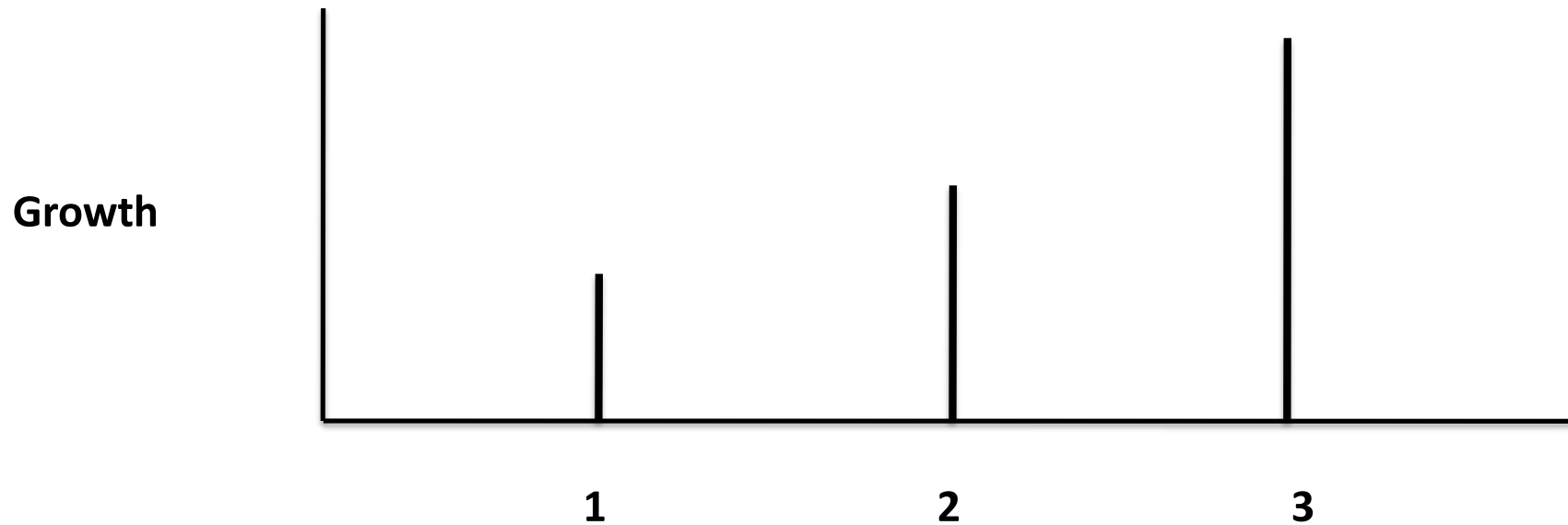
2. Bar Diagram

Series	Growth
Monday	2
Tuesday	5
Wednesday	8

Growth
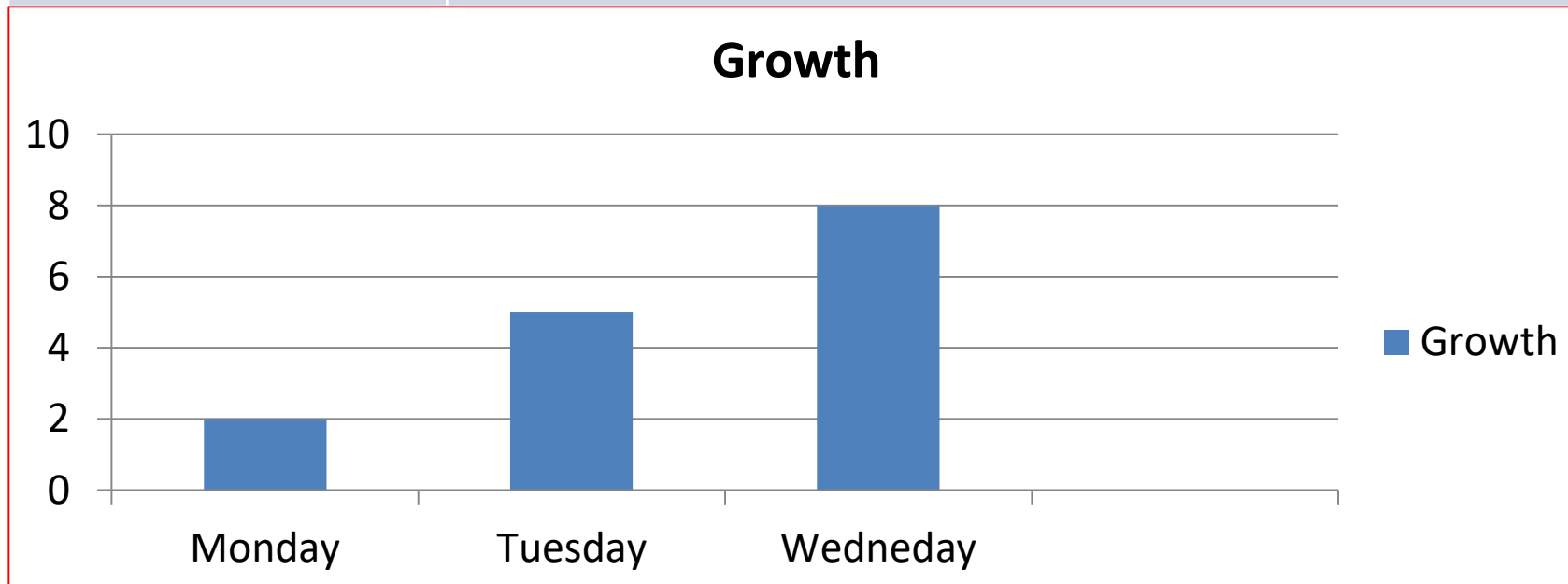
Bar Diagram

1. **Simple Bar – Vertical rectangles at regular intervals. One dimensional**

2. **Multiple Bar – Two or more bars side by side. One dimensional**

3. **Component Bar – Subdivided segments**

4. **Percentage Bar – Rectangles as per percentage of the data**

2. 1 Simple Bar

Series	Growth
Monday	2
Tuesday	5
Wednesday	8

Growth
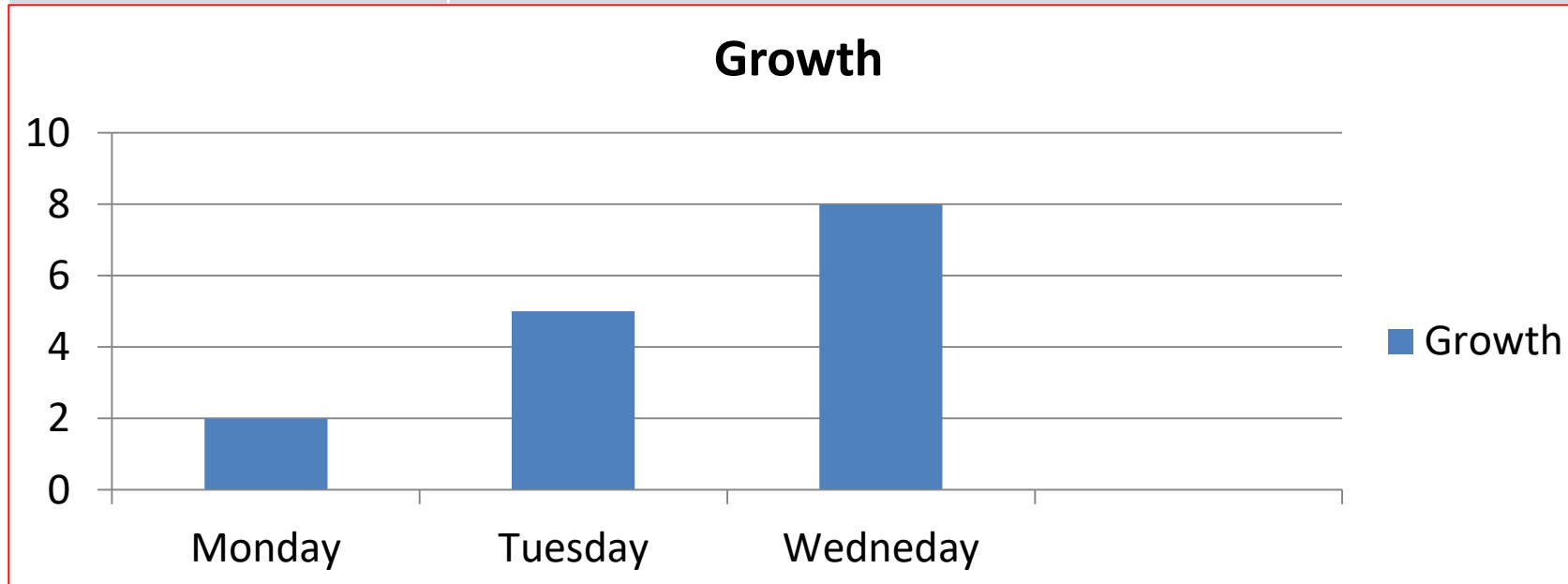
2.2 Multiple Bar

Site	Fungus Isolated	
	Aspergillus	*Penicillium*
Soil A	4	1
Soil B	8	3
Soil C	11	7
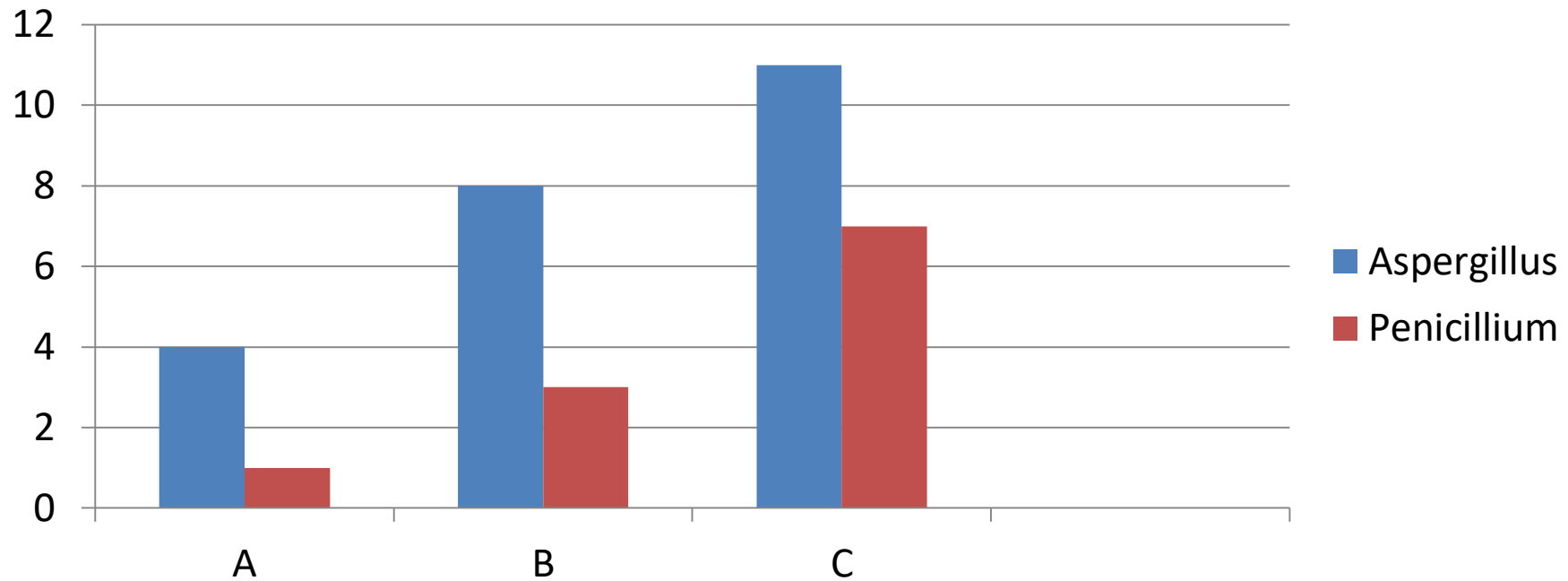
2.3 Component Bar

Site	Fungus Isolated	
	Aspergillus	*Penicillium*
Soil A	4	1
Soil B	8	3
Soil C	11	7

Site	Fungus Isolated		
	Soil A	Soil B	Soil C
Aspergillus	4	8	11
Penicillium	1	3	7
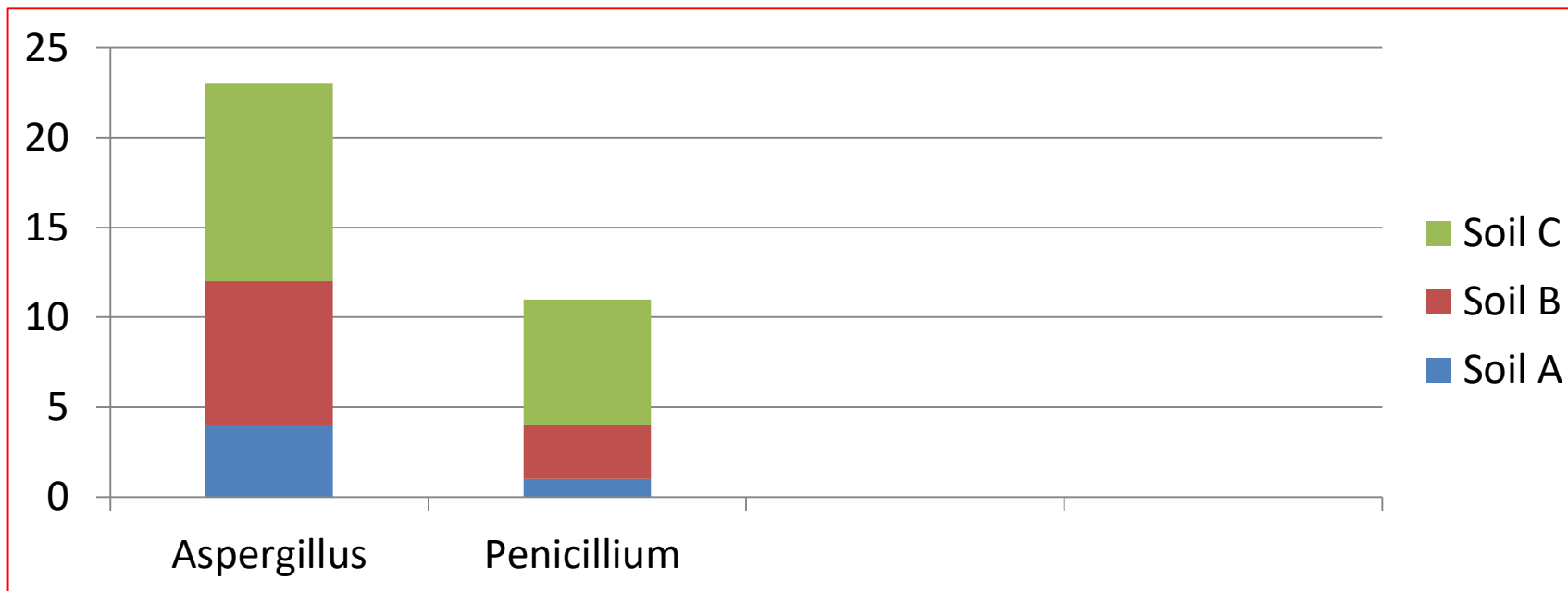
2.4 Percentage Bar

Site	Fungus Isolated	
	Aspergillus	*Penicillium*
Soil A	80	20
Soil B	73	27
Soil C	61	39
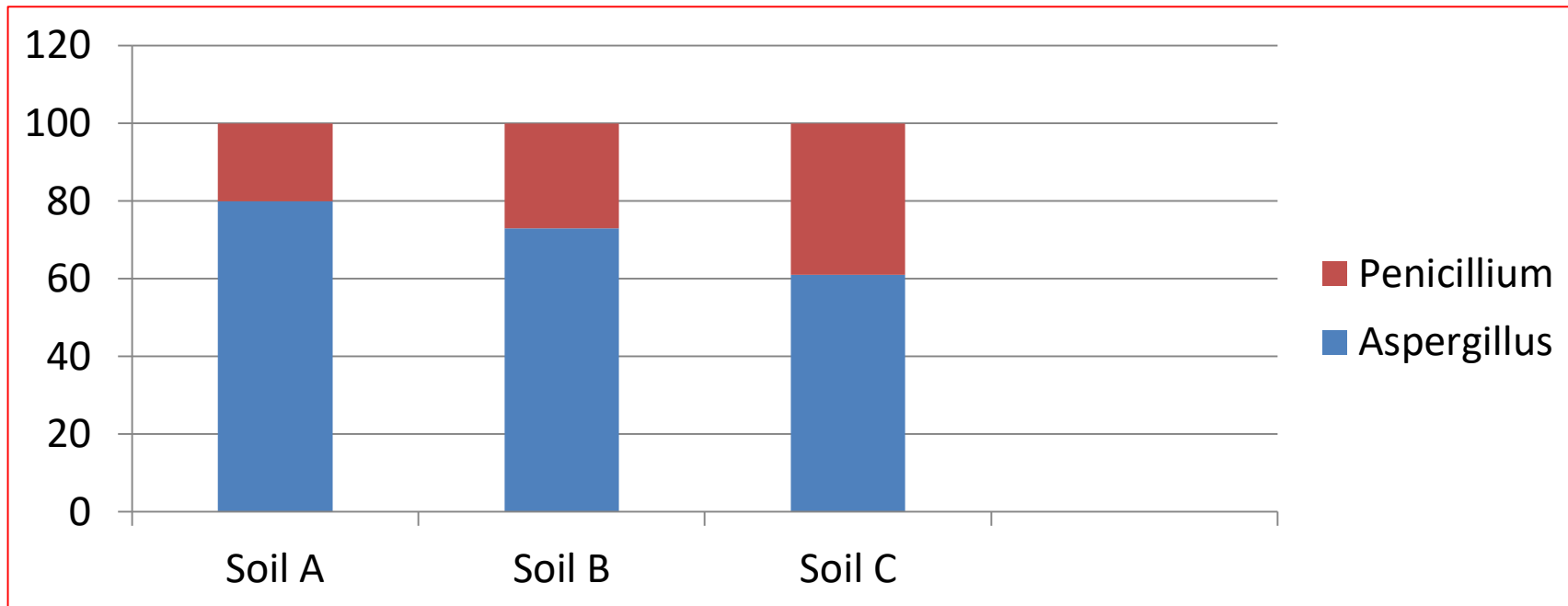
3. Pie Diagram

- **Data presented in the form of a circle**

- **Also called circle diagram or angular diagram**

- **It is an area diagram represented as two dimensional**

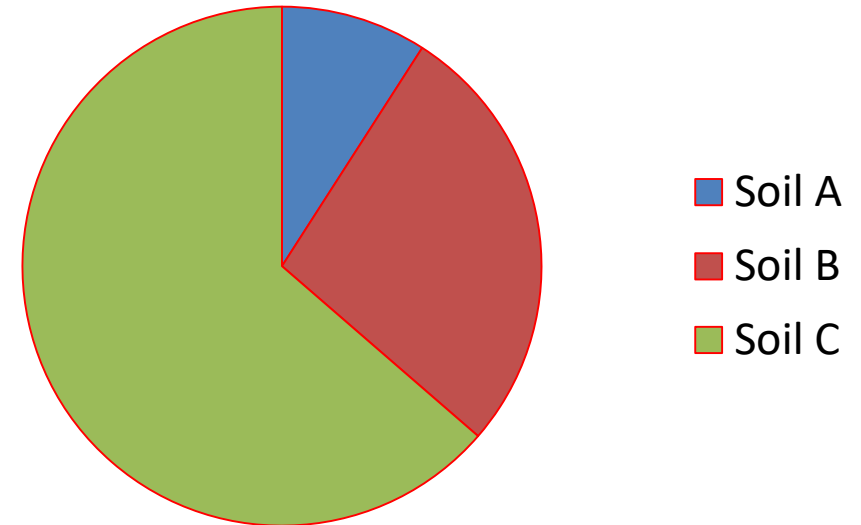- **The values are added to get the total and converted into degrees**

Pie Diagram

Site	Fungus Isolated	
	Aspergillus	*Penicillium*
Soil A	4	1
Soil B	8	3
Soil C	11	7

Aspergillus

- Soil A
- Soil B
- Soil C

Penicillium

- Soil A
- Soil B
- Soil C
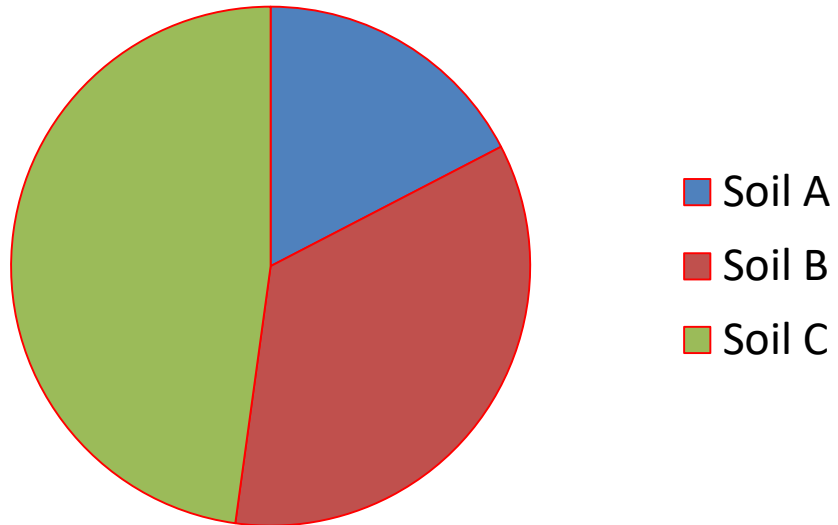
4. Pictogram

- **Data drawn in the form of pictures**
- **The pictures may be actual figures or symbolic images**
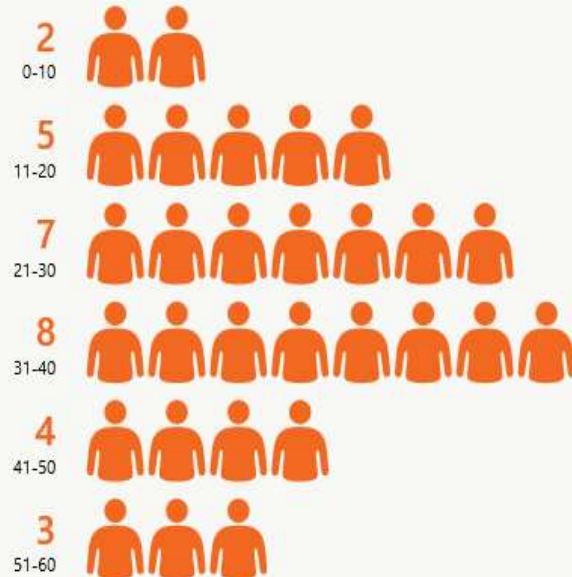
5. Cartograms

- **A cartogram (also called a value-area map or an anamorphic map, is a thematic map of a set of features (countries, provinces, etc.), in which their geographic size is altered to be directly proportional to a selected ratio-level variable**
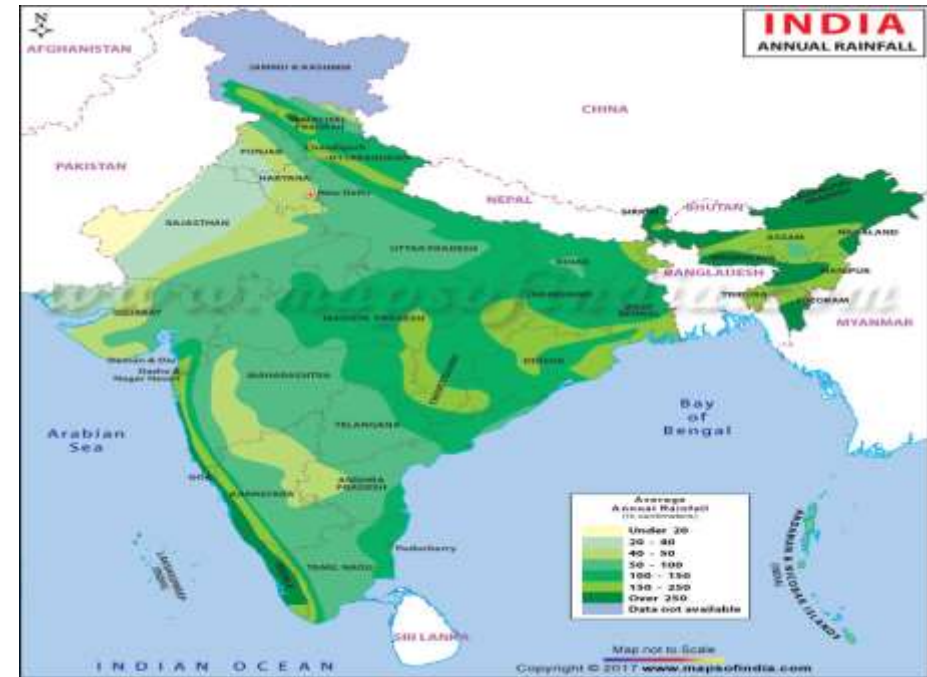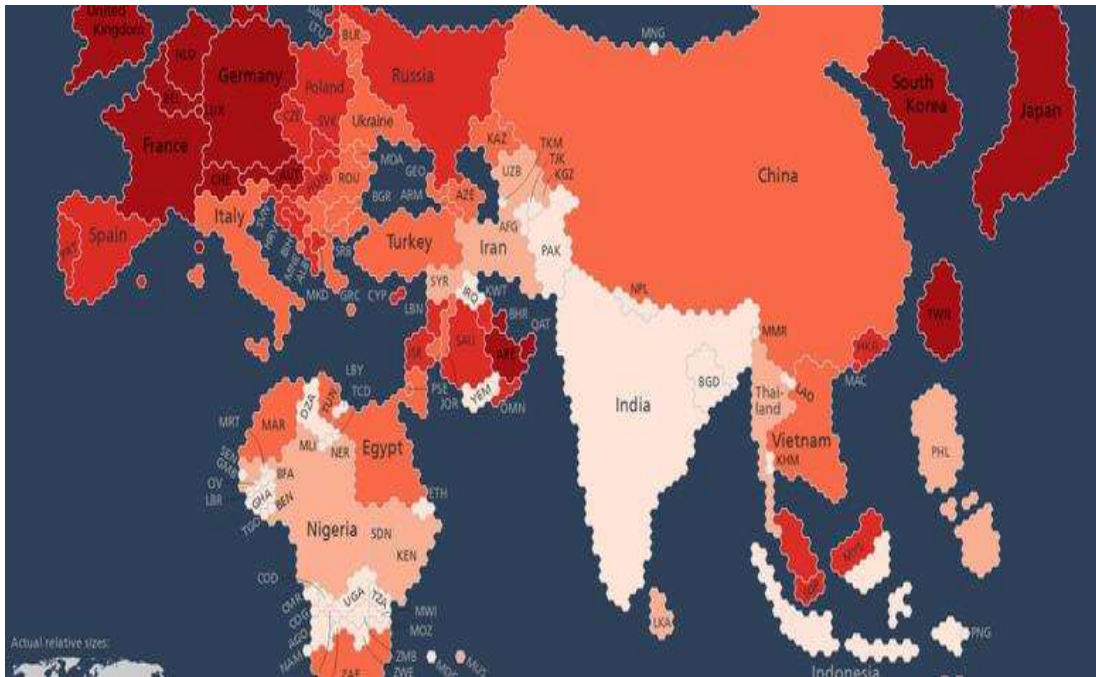
C. Graphical Presentation

- **A graph is the geometrical image of a data**

- **Usually drawn on graph paper**

- **It has two intersecting lines called X axis and Y axis**

- **A suitable scale is given to each axis**

- **Usually independent variables are marked on X axis and dependent variables are marked on Y axis**

- **A title is given to a graph**

1. Graph

- **Graphs can be classified into two main groups**
1. **Graphs of time series or Line Graph – Represented by straight lines**
   - **One variable**
   - **Two or more variable**
   - **Range chart**
   - **Band graph**
2. **Graphs of frequency distribution – Represented through frequency distribution**
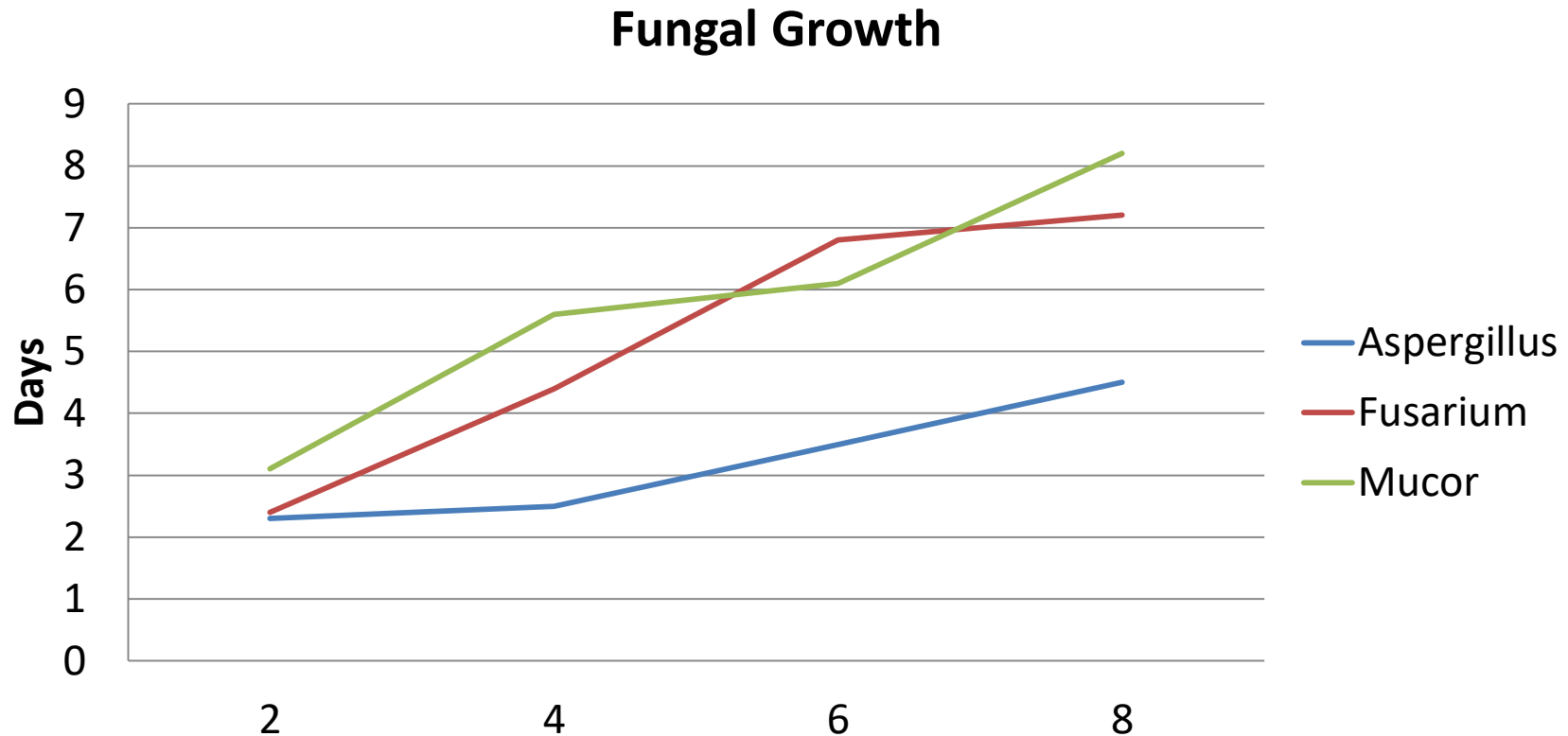   - **Histogram**

One variable

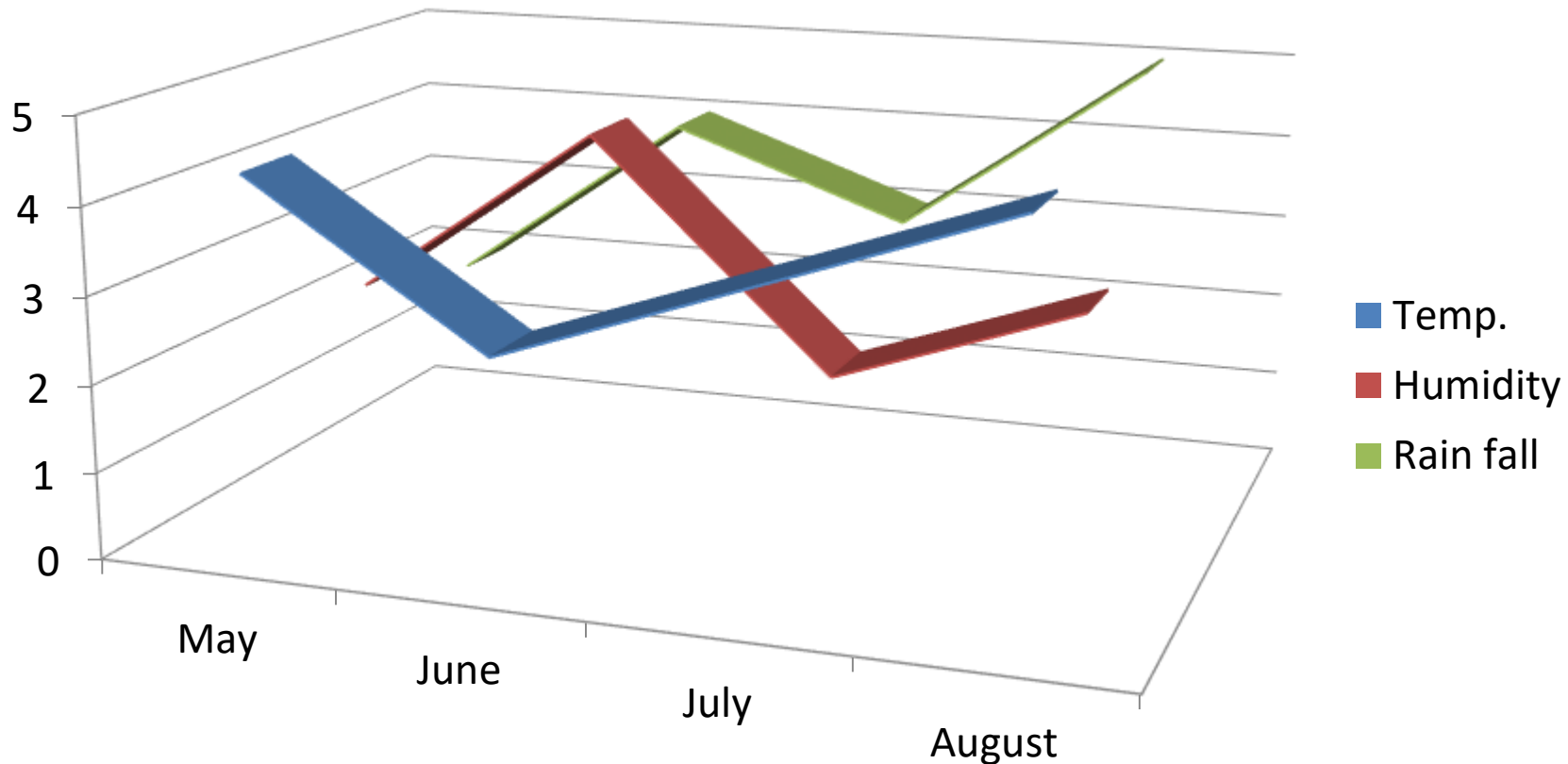- **Time variable on X axis and Value of variable on Y axis on a suitable scale. The points are joined by straight line**
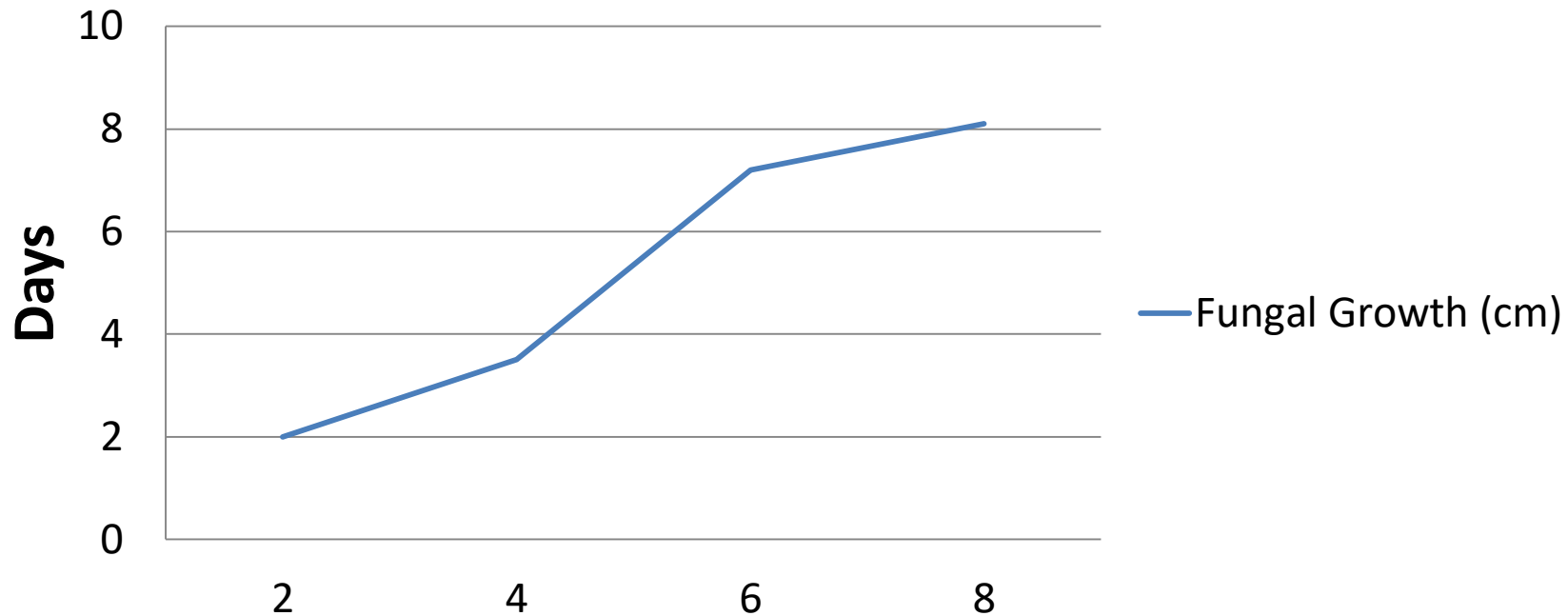
Two or more variable
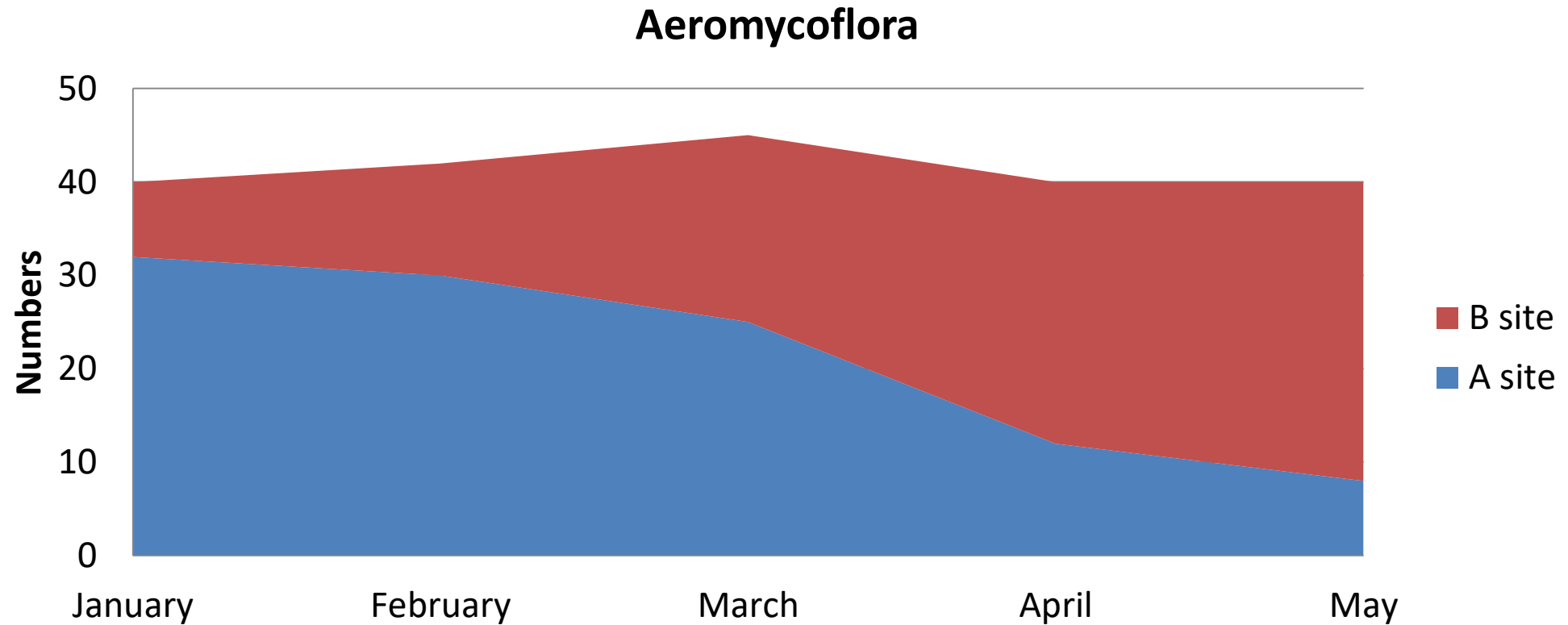
- **Multi variable are compared through a common graph**

Fungal Growth

Range chart

- **Used to exhibit the minimum and maximum values of a variable**

Band graph

• **Components are represented in the form of bands one above the other**

Aeromycoflora

Histogram

- **Vertical adjacent rectangles**
- **Class intervals are marked on X axis and Frequency on the Y axis**
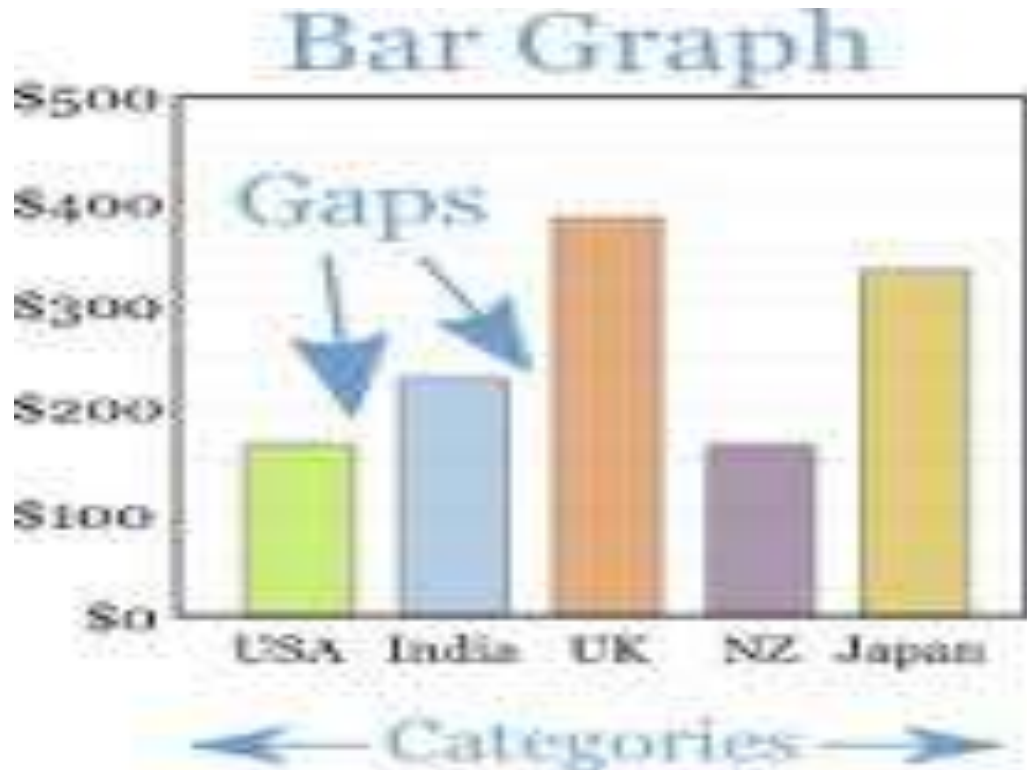
Difference

Bar chart	Histogram
• It is a diagram	• It is a graph
• It is one dimensional	• It is two dimensional
• Height alone is as per data, width has no significance	• Height and width both are as per data
• The rectangles are drawn with gaps	• Total are represents the frequency
• May be used to represent discrete frequency distribution	• The rectangles are drawn side by side without any gap
	• It is used to represent grouped continuous frequency distribution