Technical Report Writing

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The Form of a report

- Title
- Summary
- Acknowledgement
- Introduction
- Table of Contents
- List of Symbols
- Equipment Description

- Procedure Results
- Discussion of Results
- Conclusions
- Recommendations
- References
- Appendix

1. Title

- The most widely part of a report
- Must be brief and indicative to readers
- Title Should allow classification
- A separate cover page may be used for title and includes: Name, University, or company, and may have an identification number or code.. A Circulation list may be added

A Report on Steel Rod Performance in the ABC Company

Submitted to : Dr. Mohamed Khamis
POM Group Manager

Task Force:

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Engineer Salwa Khalil
Tel: 03-597666/Fax:403-5978458
CC: PPC Manager

2. Summary or Abstract

- Should be written after the report has been completed
- A general description of the field covered and the conclusions reached
- Self-Contained and Understandable when detached from the report
- New ideas, not covered by the report, must not be included in the summary

Example of a Summary

“This report describes performance experiments performed on steel rods produced by the ABC company.

It describes the test procedures and the apparatus used. Tensile and shear together with fatigue strength of the sample displayed satisfactory results.”

3. Acknowledgements

- Must be made when important assistance has been obtained to the author or work.
- Express appreciation to facilities, financial support, and expert advice.

Example of Acknowledgements

“This report is the result of the cooperation between ABC company and the G-Group. Many thanks should go to prof. Aly for his help and guidance. Financial Support from the K-team is appreciated. This work would not be completed without the advice from Dr. Mohamed. “

4. Introduction

- Provides the reader with more detailed information about the subject
- The first paragraph explains the work and the method of approach
- Following this, helpful background information, short history of the subject. References are helpful data.

Example of an Introduction

- Steel and Iron industry in the world
- How to test steel rods?
- Who did research in this area?
- Type of experiments in ABC Company
- How test is performed?
- Briefly explain results.

5. Table of Contents

6. List of Symbols

A = Cross Sectional area (nm^2)

A_I = Area after Test (nm^2)

B = Tensile Force (Mpa)

C = Constant in equation (42)

d = Density

7. Description of apparatus

- This part is the core of the report
- It must be concise and scientific
- Illustrate the different features of the apparatus, use graphs and figures as necessary
- Discuss the accuracy and calibration procedure

How to insert figures

- Figures may be inserted in between texts to illustrate the idea..

- Figure caption may be written under the figure.

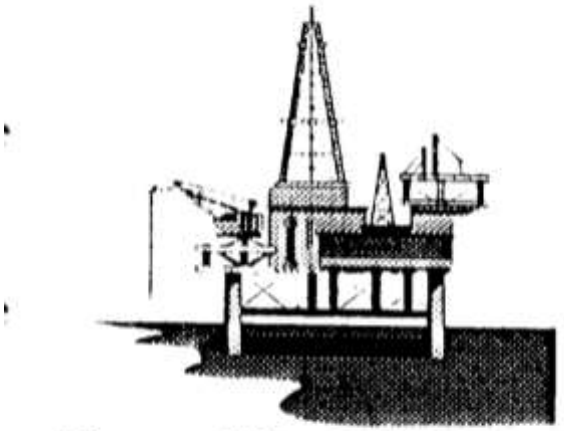


Figure (10). Offshore Rig

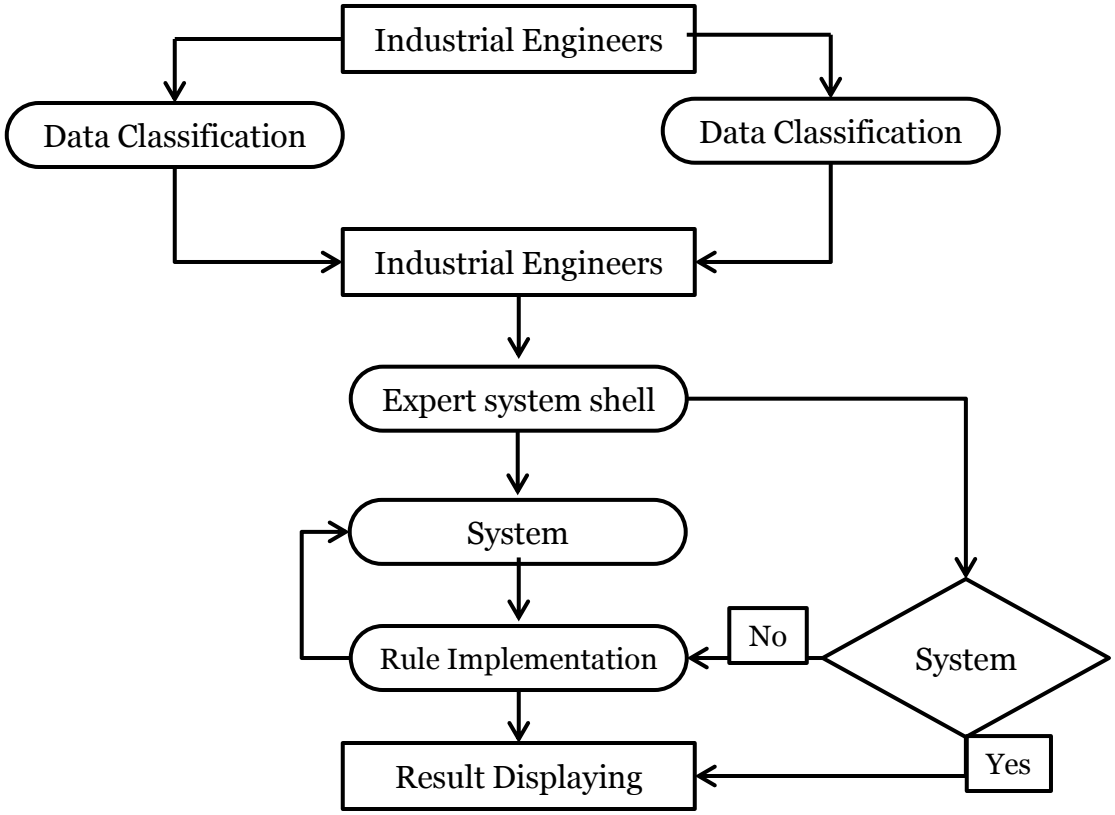
Experimental Procedure

- Usually written in past tense
- Briefly discuss the operation and the applications
- Design of the experiment should be discussed
- It should contain sufficient information to allow the reader to repeat the experiment

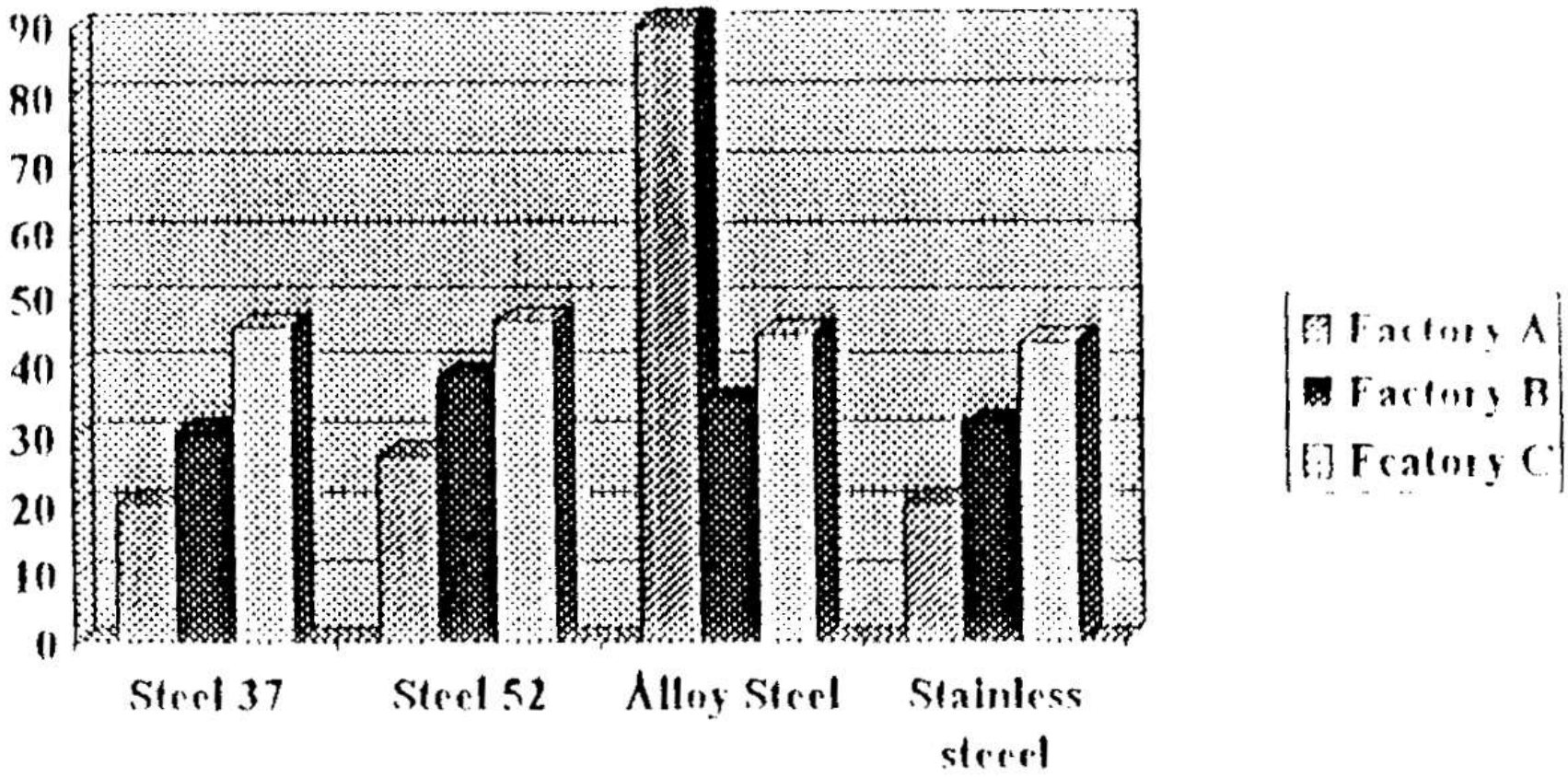
Results

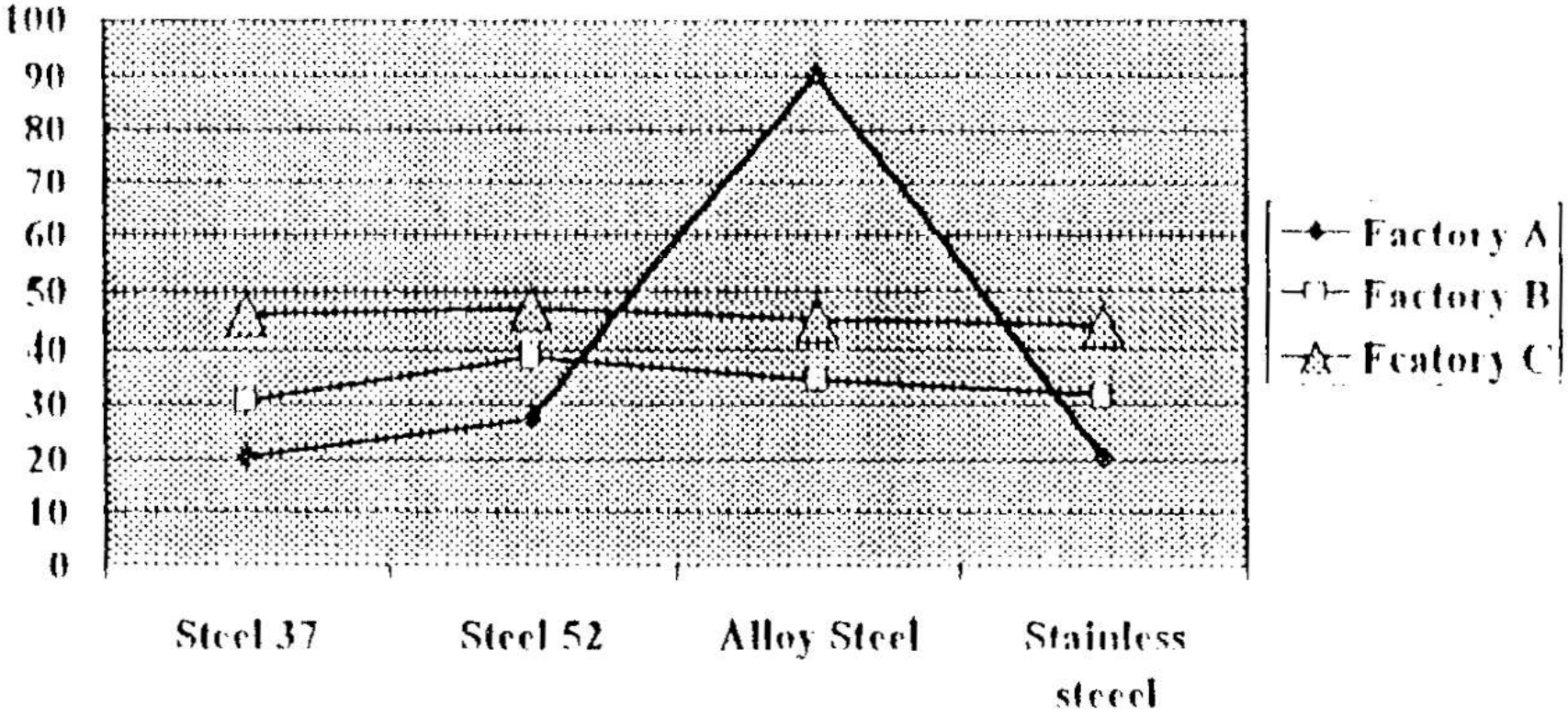
- Results should be presented graphically or by tables as necessary.
- Calculations and equations used must be presented unless a novel approach is used.
- It is not required to include long computer printouts but flowcharts are appropriate

Example Flow Chart

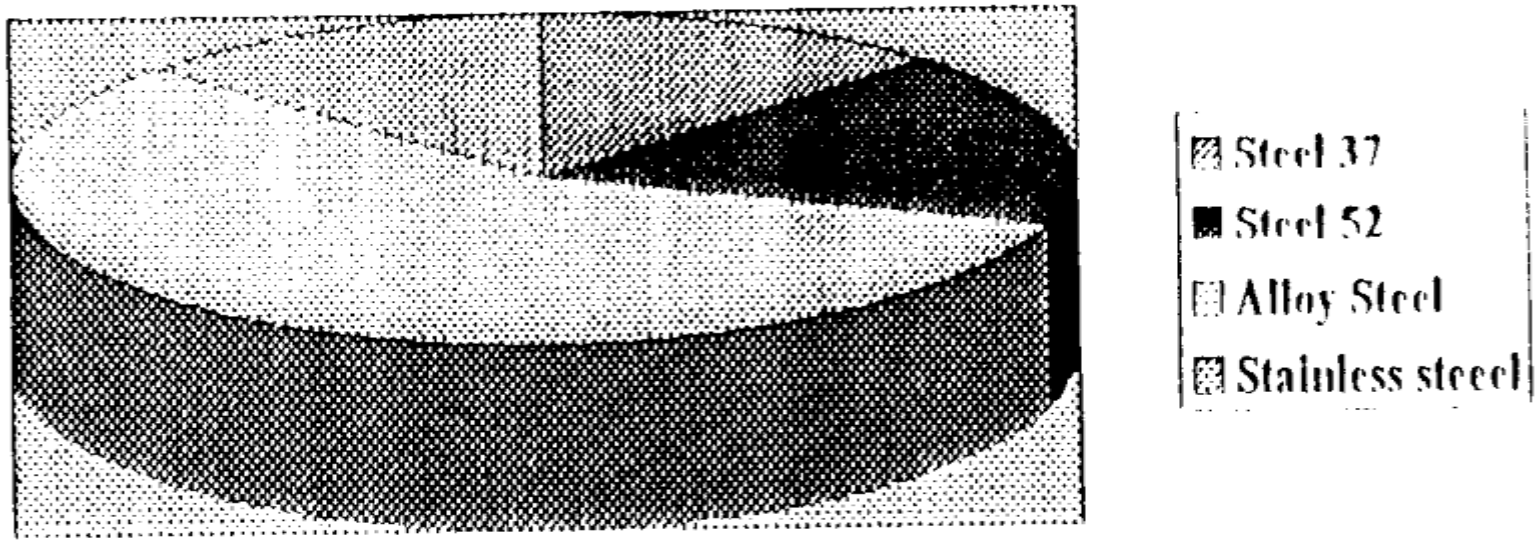


Example Chart




100
90
80
70
60
50
40
30
20
10
0
Steel 37
Steel 52
Alloy Steel
Stainless steel
Factory A
Factory B
Factory C

Example Chart (3)



10. Discussion of results

- This part interprets the results achieved as compared to previous work.
- Comparison should also be made between theory and practical results.
- It explains why the results have certain values and trends from the author view point

11. Conclusion

- The conclusion summarizes the discussion.
- Self-contained as the abstract, and it should be understood even if detached from the remainder of the report
- It should not include new ideas not covered in the report .. But it may include proposal for future work.

12. Recommendations

- If the report is written to check the solution for a certain engineering problem … the report may include recommendations to overcome this problem
- It may include maintenance procedures, use of special equipment, adoption of certain techniques etc.

13. References

- Within text of the reports other people's work are mentioned with references at the end of the report
- Reference must include:

- Authors Names and Title of paper or book
- Title of Journal or edition of book
- Volume Number
- Date of publication
- Page Number

Example of a Reference

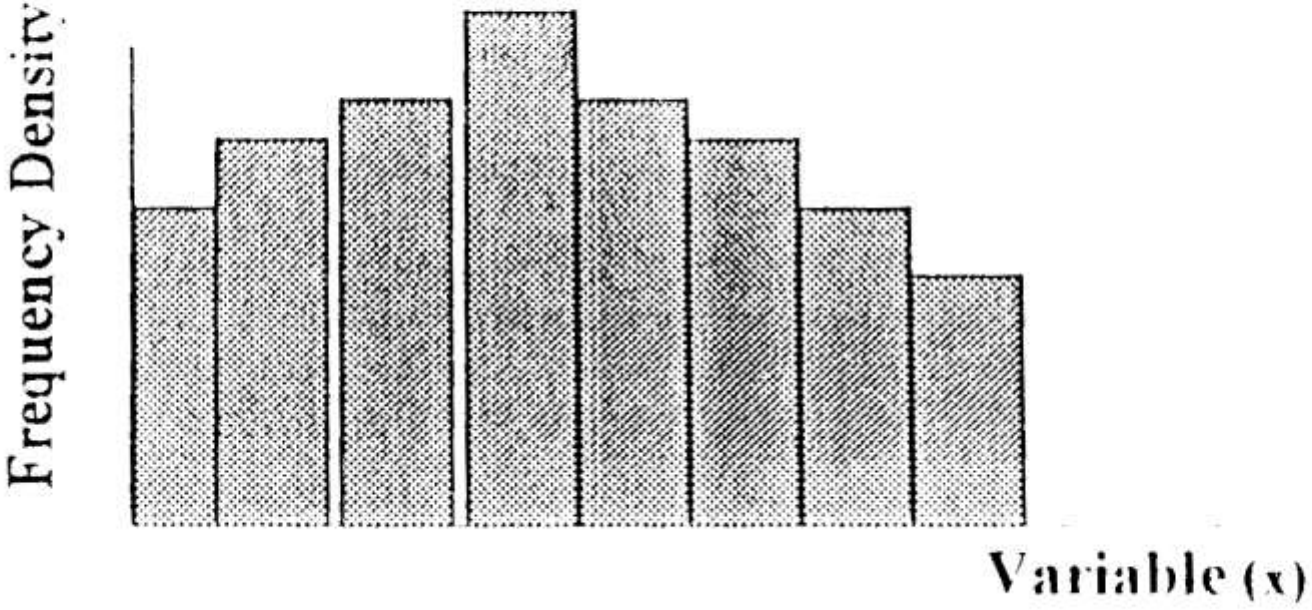
- “Carbon dioxide concentration reached 100 ppm3 in city of Agraba [2] ..”
- [2] T .J. Williams, M.R., I.B. Mohamed, and J.S.Anderson, “Effect of CO_2 on the Air Quality in Alexandria”, J. Mech. Eng. Sci., Vol 11 (No.2), 1989, pp 133-145.

Appendix

- Use appendices to present information which is helpful to the subject and may be helpful to the reader, but if included in the main body of the report would interfere with the smooth presentation.
- Examples: Math. Proofs, sample calculations, flowcharts, and computer programs.

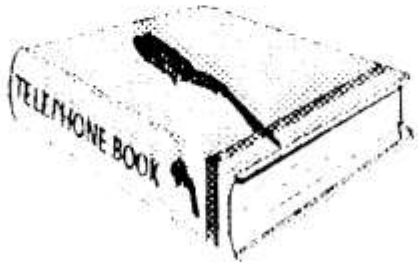
Some Statistical Data

- **Histogram**

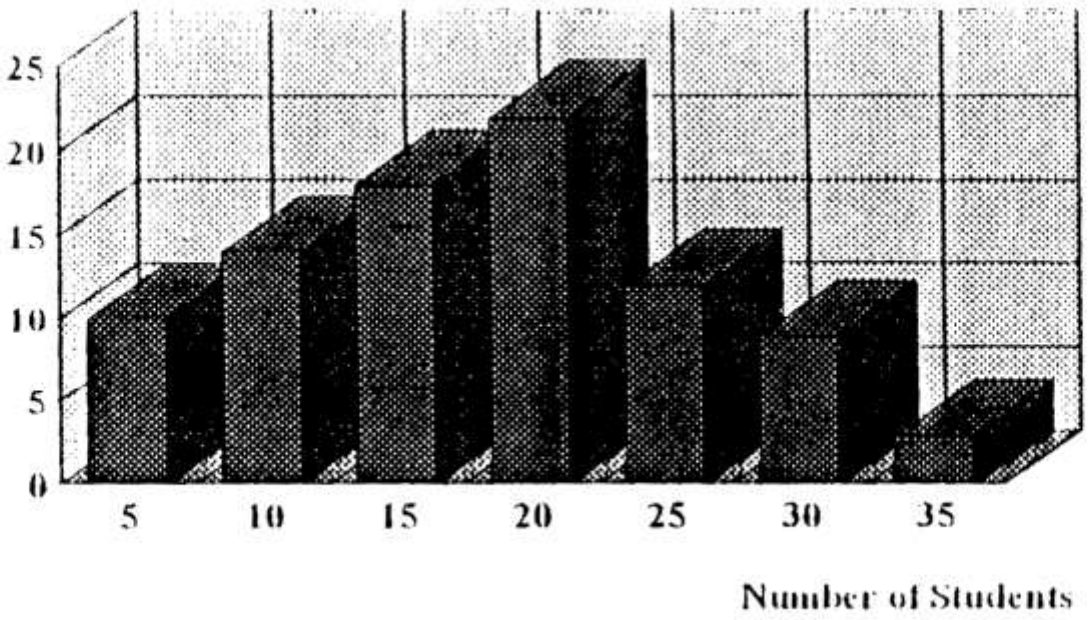


Histogram Data

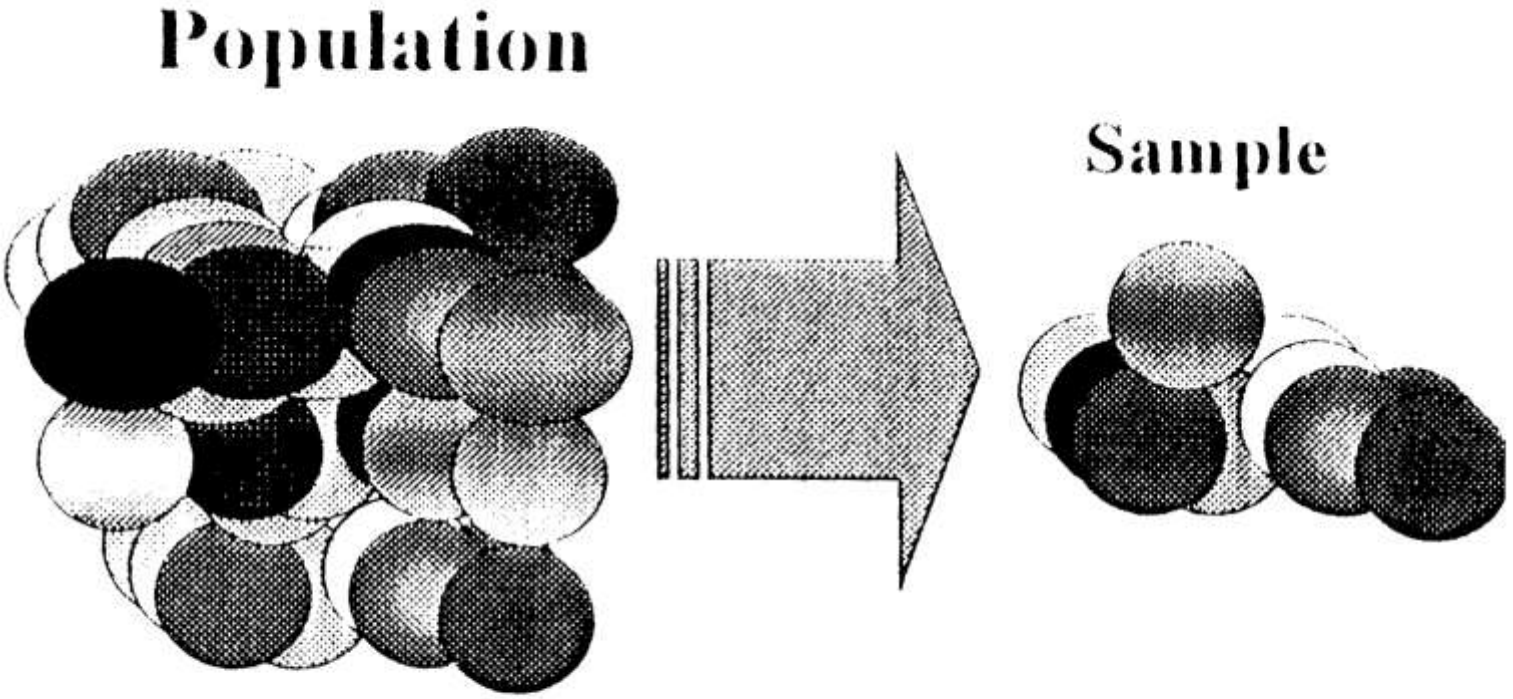
Number of Students	5	10	15	20	25	30	35
Frequency of Occurrence	10	14	18	22	12	9	3



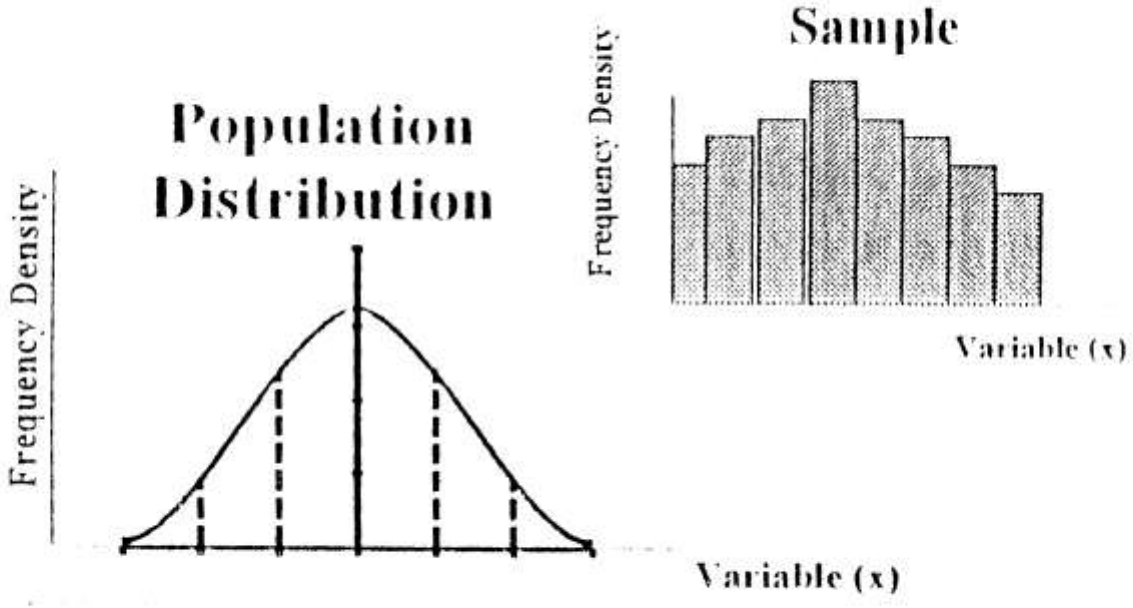
Histogram Graph



Samples and Population



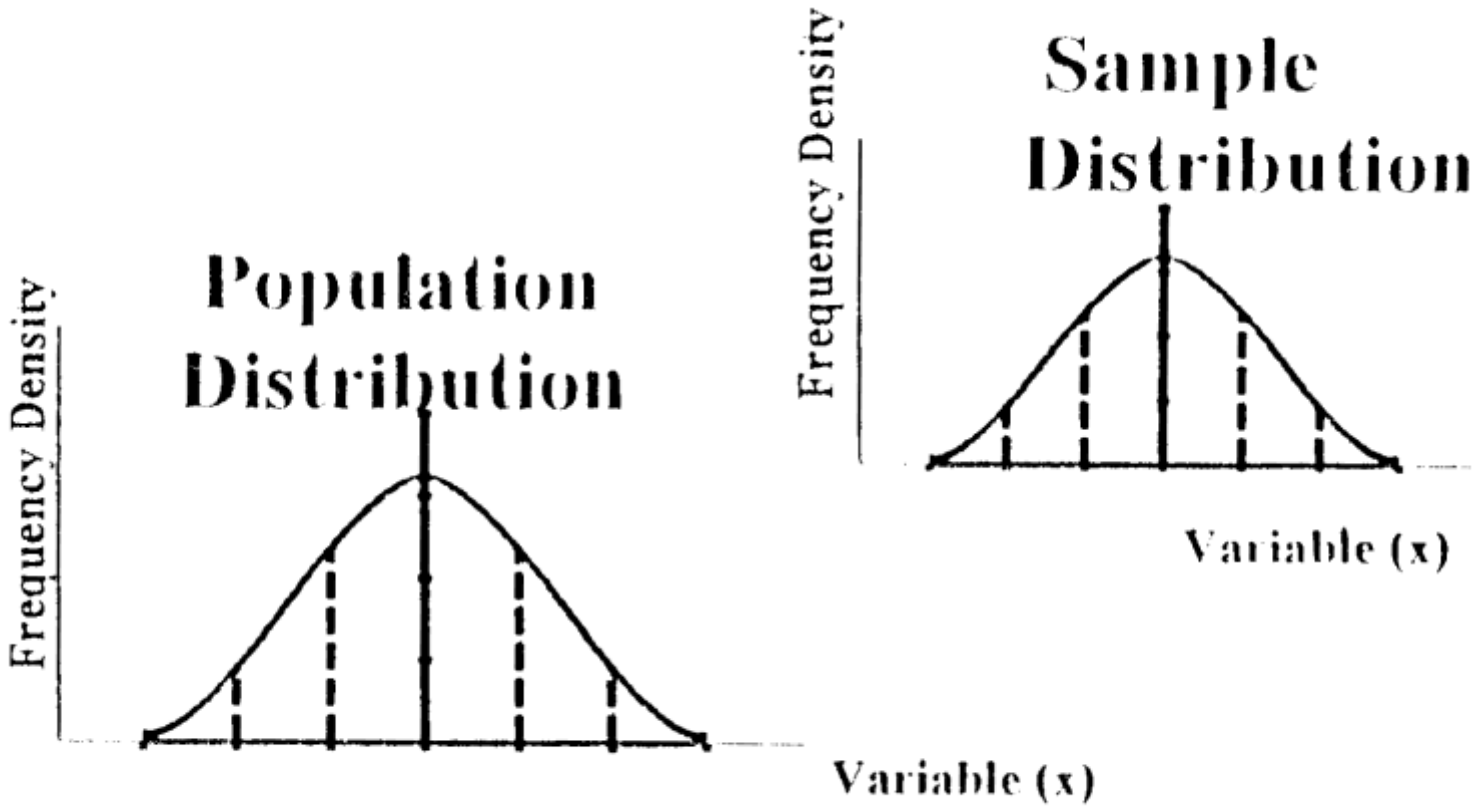
Populations and Samples



Populations and Samples

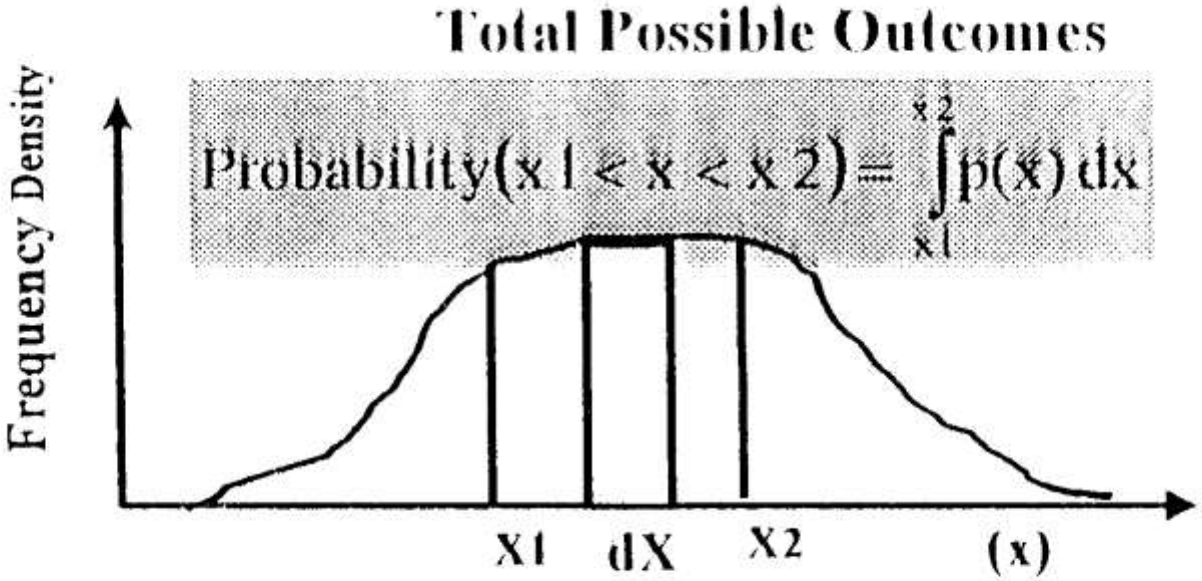
- As the sample size of the continuous variable is increased, the class width may be reduced while the frequency density remains unchanged. The histogram becomes a smooth curve representing the distribution of the population.

Populations and Samples



Frequency and Probability

Probability = Successful Outcomes



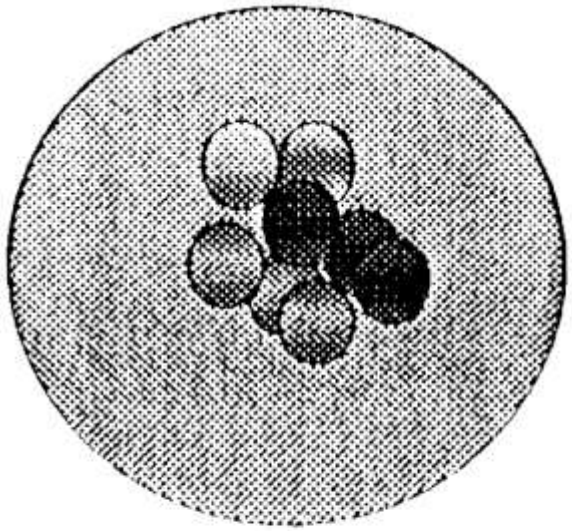
Sample Parameters

- Mode
- Median
- Mean
- Rage
- Mean Deviation
- Standard Deviation

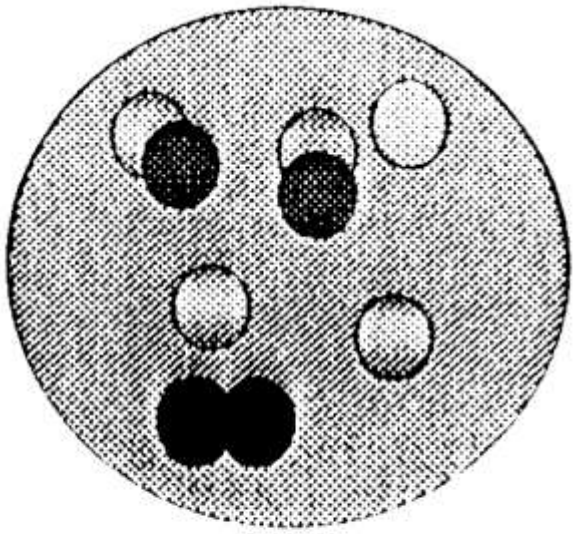
Measures of Central tendency

Measures of Central Dispersion

Sample Parameters



Central Tendency



Dispersion

Measures of Central Tendency

- Mode : Value with greatest frequency
- Median: Arithmetic mean of two middle values
- Mean : Most useful parameters

$$\bar{x} = \sum_{i=1}^{1} x_i / n$$

Measures of Dispersion

- Range: difference between largest and smallest values
- Mean deviation: $\sum(x - \bar{x})/n$
- Standard Deviation:

$$s^2 = \frac{\sum(x-\bar{x})^2}{n}$$

Sample Parameters

Data (A) 20.48 26.62 18.73 28.61 34.32 27.14 23.2

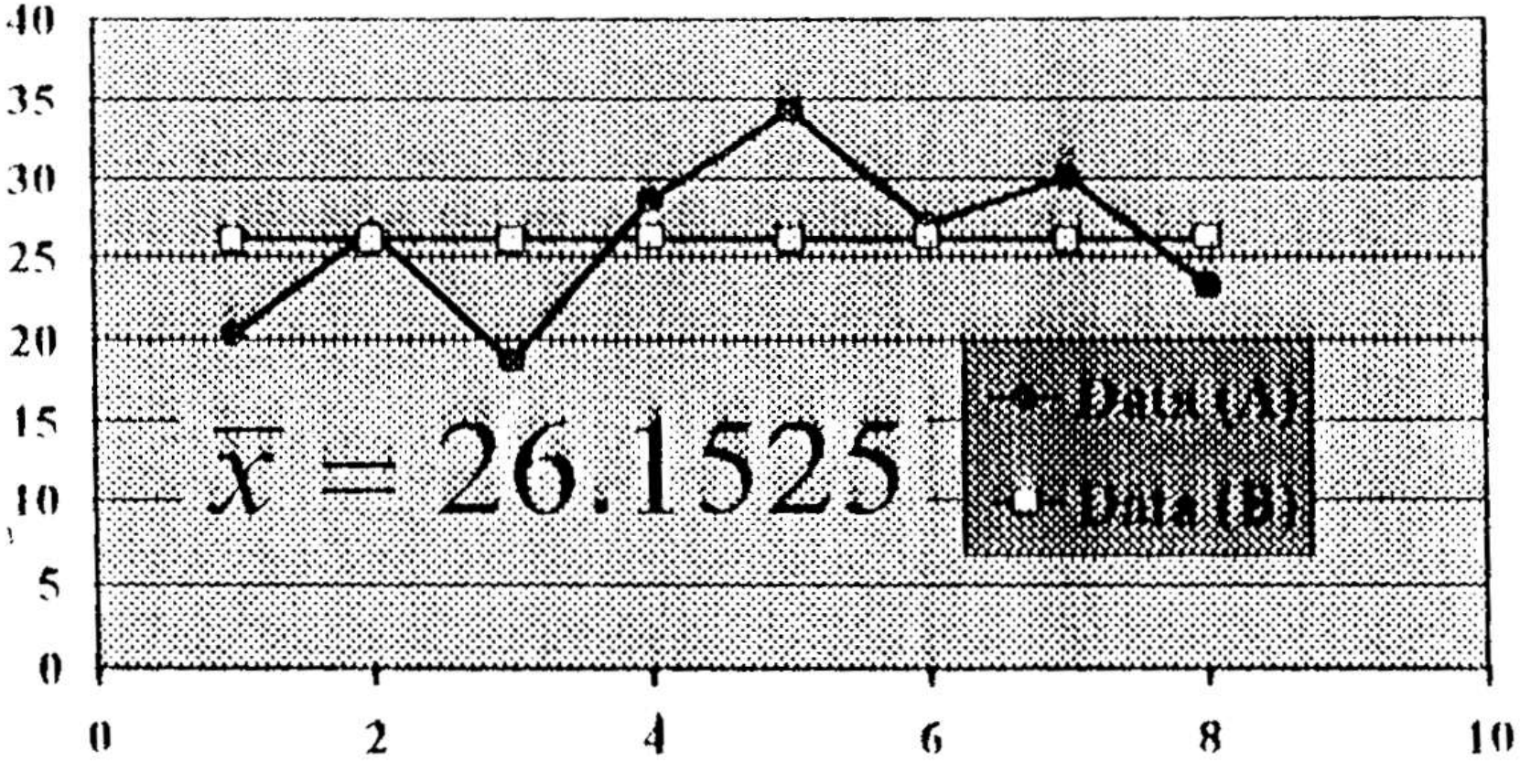
Date (B) 26.11 26.12 26.20 26.16 26.20 26.12 26.2

$$\bar{x} = 26.1525$$

Both Data sets have Same Mean but different standard Deviations

Two sets of Data

Both data sets have **Same Mean** but different standard deviation



Two Sets of Data

Both Data sets have **Same Mean** but different standard deviation