

“ A Number speaks more than thousand words.”

Data Analysis Using Microsoft Excel



Statistics (Data and its types) and Technology
(MS-EXCEL comparison with Other software)

-Bijay Lal Pradhan, Ph.D.





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Statistics, Data and its types

- The process of **collection**, **organization**, **presentation**, **analysis** and **interpretation** of number facts.



Collection

Digital Survey

- Survey Using Special Instruments supported by software
- Online Survey

क. तालिममा सहभागीहरूको व्यक्तिगत विवरण

नाम:		दर्ता नं.:	
ठेगाना:	स्थायी: जिल्ला:	गा.वि.स. / न.प.	वडा नं.:
	अस्थायी: जिल्ला:	गा.वि.स. / न.प.	वडा नं.:
पेशा/ व्यावसाय:		कार्यरत संस्था:	
पद:		योग्यता/ तह:	
अनुभव: <input type="checkbox"/> छ <input type="checkbox"/> छैन	यदि छ भने सम्बन्धित क्षेत्रमा कति वर्षको अनुभव छ ?		<input type="checkbox"/>
उमेर: <input type="checkbox"/>	लिंग: <input type="checkbox"/> पुरुष <input type="checkbox"/> महिला		
वैवाहिक स्थिति:	<input type="checkbox"/> विवाहित	<input type="checkbox"/> अविवाहित	<input type="checkbox"/>
जाति / वर्ग:	<input type="checkbox"/> श्रमिक	<input type="checkbox"/> मजदुर	<input type="checkbox"/>
विशेष अवस्था:	<input type="checkbox"/> अपाङ्ग	<input type="checkbox"/> इकल महिला	<input type="checkbox"/> मजदुरी <input type="checkbox"/> मिया <input type="checkbox"/> मा <input type="checkbox"/>

ख. तालिम प्रदायक संस्था, शुल्क सम्बन्धि विवरण

तालिमको नाम	
तालिम सञ्चालन गर्ने संस्था	
तालिम सञ्चालन भएको स्थान	
तालिमको समयावधि	प्रशिक्षकको संख्या
तालिम बारे कडाबाट जानकारी पाउनुभयो ?	<input type="checkbox"/> पत्रपत्रिका <input type="checkbox"/> एफएम रेडियो <input type="checkbox"/> साप्तीक <input type="checkbox"/> इन्टरनेट
	<input type="checkbox"/> म गरिरहेको संस्थाबाट <input type="checkbox"/> निय कार्यालय अन्य.....
तपाईंले तालिम पूर्व तालिममा सहभागी हुनको लागि कुनै किसिमको लिखित, मौखिक परिक्षा दिनुभयो ?	
	<input type="checkbox"/> लिखित परिक्षा दिए <input type="checkbox"/> मौखिक परिक्षा दिए <input type="checkbox"/> दुवै परिक्षा दिए <input type="checkbox"/> नि पनि दिइन
तपाईंले तालिममा सहभागी हुन कुनै शुल्क बुझाउनु भयो ?	<input type="checkbox"/> बुझाए <input type="checkbox"/> निशुल्क थियो बुझाएको भए कति ? <input type="checkbox"/>
तालिममा त्रैतिक भत्ता पाउनुभयो कि पाउनुभएन ?	<input type="checkbox"/> पाए <input type="checkbox"/> पाईन पाउनुभएको भए दिनको कति पाउनुभयो ? <input type="checkbox"/>



Organization

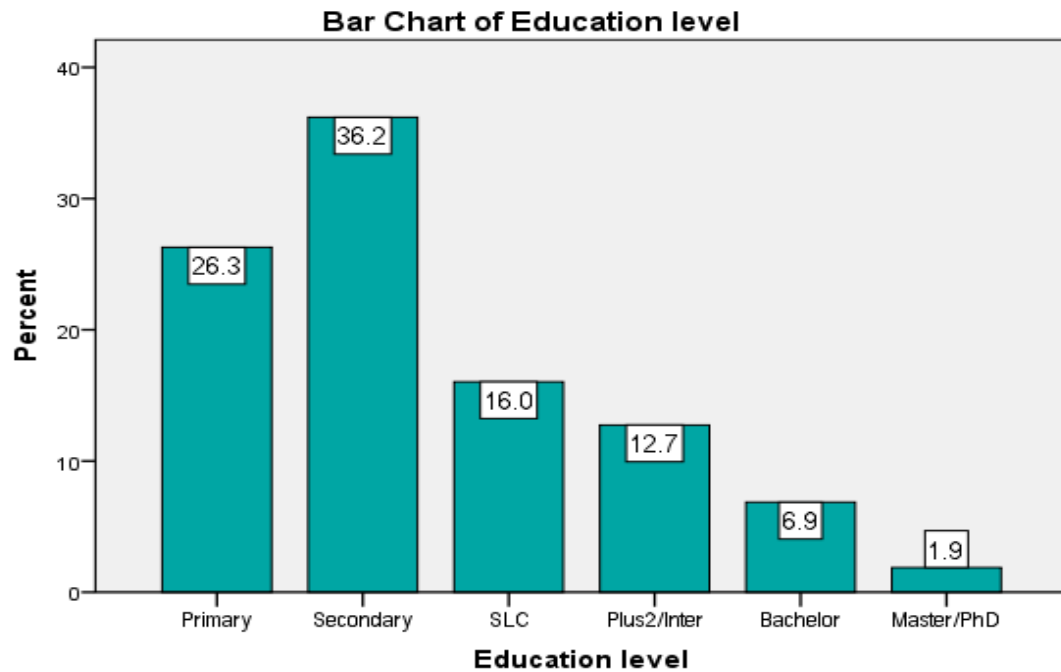
- Define Variables
- Arrange in datasheet
 - Paper and pencil tally
 - Word processing table
 - Spreadsheet
 - Custom database
- Coding and Editing
- By Computer
 - Excel (spreadsheet)
 - Microsoft Access (database mgt)
 - SPSS (statistical software)
 - Epi info
 - CSV (can be used everywhere)

९. पेशा/ व्यावसाय.(Occu)	१०. कार्यरत संस्था.(Org)
११. पद.(Position)	१२. योग्यता/तह.(Quali)
१३. अनुभव.(Experi) 1= छ 2= छैन्	१४. यदि छ भने सम्बन्धित क्षेत्रमा कति वर्षको अनुभव छ ? (Yrs_Experi) <input type="text"/>
१५. उमेर (Age)	१६. लिङ्ग.(Gender) 1= पुरुष 2= महिला 3= अन्य
१७. वैवाहिक स्थिति. (Marital)	1= अविवाहित 2= विवाहित 3= एकल
१८. जाति /वर्ग: (Caste)	1= दलित 2= जनजाति 3= अन्य
१९. विशेष अवस्था. (Spe_case)	1= अपाङ्ग 2=एकल महिला 3= कमलरी 4= कमेया 5 = हलिया 6= मधेशी



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Presentation



Freq Distribution of Education Level		
Level	Freq	%
Primary	4635	26.3
Secondary	6383	36.2
SLC	2829	16.0
Plus2/Inter	2248	12.7
Bachelor	1209	6.9
Master/PhD	332	1.9
Total	17636	100.0



Analysis and Interpretation

Q1	Q2	Q3
13.0	24.0	42.0

The above table approximately says that there are

- 25% individuals whose age is ≤ 13.0 years,
- 25% individuals whose age is > 13 years but ≤ 24 years,
- 25% individuals whose age is > 24 years but ≤ 42 years, and
- 25% individuals whose age > 42.0



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Data and its types

- Qualitative and Quantitative data
- Discrete and Continuous



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Nominal



Examples:
Gender
Caste
Marital status
House No
Brand No

Ordinal



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First....
Second....
Third.....
Examples:
Quality Ranking
Class
Army Ranking
Market position



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Scale



Examples
Length
Weight
Height
Age
Cost
Sales
time



Scales of Measure

Scale	Basic Characteristics	Examples	Examples	Permissible Statistics	
				Descriptive	Inferential
Nominal	Numbers identify & classify objects	Social Security nos., numbering of football players	Brand nos., store types, Gender, caste	Percentages, mode	Chi-square, binomial test
Ordinal	Nos. indicate the relative positions of objects but not the magnitude of differences between them	Quality rankings, rankings of teams in a tournament	Preference rankings, market position, social class	Percentile, median, quartile deviation	Rank-order correlation, Friedman ANOVA
Scale	Zero point is fixed, ratios of scale values can be compared	Length, weight	Age, sales, income, costs	Arithmetic, Geometric harmonic mean range MD SD	Z test, t-test, ANOVA test all other tests



Example

A study was conducted to know the attitude of a bank's customer towards the bank. The question asked to the customer was:

- “Do you feel safe in your transactions with the bank?”
- The respondents were to answer the question on a seven-point scale (1 = Strongly Disagree, 7 = Strongly Agree). There were other variables mentioned below on which data was collected.
- Strongly disagree 1 Little agree 5
- Moderately disagree 2 Moderately agree 6
- Little disagree 3 Strongly agree 7

Additional Information

1. Sex of the respondent
Male - 1 Female - 2
2. Marital status
Married - 1 Single - 0
3. Income of the respondent (in Rs.)
4. Age of the respondent (in years)
5. Edu. background of the respondent
Below higher secondary - 1
Higher secondary - 2
Graduate - 3
Post graduate - 4



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Technical Aspect of Data Analysis

There are many software which are useful for data analysis

- MS Excel (Easily Available almost all PCs and user friendly)
- SPSS
- Stata
- R
- Python



Microsoft Excel

- Microsoft Excel helps you to organize, attractively present and analyze data.
- A spreadsheet is the computer equivalent of a paper ledger sheet. It consists of a grid made from columns and rows. It is an environment that can make number manipulation easy and somewhat painless.



Excel has many applications

- Sorting and organizing data
- Creating visual representations of the data
- Addition, Subtraction, Division, Multiplication, percentage of Cells
- Statistical analysis
 - Average (Mean)
 - Median
 - Quartile
 - Standard deviation
 - Estimation
 - Test of hypothesis (parametric and non-parametric)
 - Correlation and regressions...
- Matrix Operations
 - Addition/Subtraction
 - Multiplying
 - Inverse
- Optimization
 - Linear programming
 - Transportation
 - Assignments
- And many more...



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