Bharath
INSTITUTE OF HIGHER EDUCATION AND RESEARCH
(Declared as Deemed - to - be - University under section 3 of UGC Act 1956)

DEPARTMENT OF MANAGEMENT STUDIES

REGULATION 2020

LAB MANUAL

SUBJECT CODE: P20MBMJ18

SUBJECT NAME: BUSINESS APPLICATION SOFTWARE LAB

SECOND SEMESTER

M.B.A. – MASTER OF BUSINESS ADMINISTRATION

Prepared by

Dr. A. Balamurugan, Professor

Mr. Gowtham Aashirwad Kumar, Assistant Professor

BHARATH INSTITUTE OF HIGHER EDUCATION AND RESEARCH

DEPARTMENT OF MANAGEMENT STUDIES

BUSINESS APPLICATION SOFTWARE LAB

VISION

The Department of Management Studies, aspires to be a leading Management Institution with a passion for Academic Excellence, uncompromising Human Values and an abiding commitment for the development of Business and Society through excellence in grooming Leadership, Entrepreneurial Talent and Research.

MISSION

M1: To imbibe Entrepreneurial Culture through Curriculum, Pedagogy, Mentoring and foster excellence by providing Quality Education in Business Management.

M2: To cultivate the principles of Social Responsibility, Ethics and Spiritual Values among budding Managers.

M3: To build intellectual capabilities based on the twin pillars of Research & Innovation.

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

PEO1 - Career Achievements – Our budding Managers will demonstrate their skills in solving challenges in the corporate world through the core foundation and knowledge acquired in Business Management.

PEO2 - Professionalism – Our budding Managers will exhibit leadership, make decisions with societal and ethical responsibilities, function and communicate effectively in multidisciplinary settings.

PEO3 - Life-long Learning – Our budding Managers will recognize the need for sustaining and expanding their Managerial competence and engage in learning opportunities throughout their careers.

PEO4 - SKILL- Our budding Managers will be trained for developing soft skills such as proficiency in many languages, Business communication, verbal, logical, analytical, comprehension, team building, inter personal relationship, group discussion and leadership skill to become a better professional.

PEO5 - ETHICS – Our budding Managers will apply the ethical and social aspects of modern Business with a sense of Corporate Social Responsibility.

PROGRAMME OUTCOMES (PO)

PO1: An Ability to apply conceptual foundations to solve practical decision – making problems.

PO2: An ability to develop a systematic understanding of changes in business environment.

PO3: An ability to function effectively in a team.

PO4: An ability to analyze a problem, and use the appropriate managerial skills for obtaining its solutions.

PO5: An ability to understand and analyze global, economic, legal and ethical aspects of business and apply them in organizational settings.

PO6: An understanding of professional integrity.

PO7: An ability to communicate effectively.

PO8: An ability to use information and knowledge effectively.

PO9: An awareness about the society.

PO10: An ability to use practical managerial analysis skills.

P20MBMJ18	BUSINESS APPLICATION SOFTWARE LAB	L	T	P	C
	Total Contact Hours: 60	2	0	4	4
	Course Designed by: Mr Gowtham Aashirwad Kumar				

UNIT I FUNCTIONAL AREA PACKAGES: 12

FINANCE PACKAGES: Tally – Preparation of Purchase and Sales – Orders – Preparation of Invoices – Various Accounting Reports – EX – SAMP Metastock - Evolution of ERP – ERP and the Internet – Maximizing ERP Value.

UNIT II MARKETING PACKAGE: 12

SPSS – Set of Market Research Data – Summarize, Describe, Present Data and Graphics Methods – Calculate standard Deviation – Maximum, Minimum Mean Median Mode.

UNIT III OPERATION RESEARCH PACKAGE: **12**

POM – TORA – Linear Programming – Transportation – Assignment & Network.

UNIT IV PRESENTATION 12

Creating a presentation, Editing, Sorting, Layout, Set-up row, rehearse timing.

UNIT V Fundamentals of Excel 12

Creating Basic Work Books, Using Ranges, Creating Formulas, Columns & Rows, Formatting Worksheets, Pivot Tables.

TOTAL: 60 PERIODS

References:

1. Management Information Systems–Managing the Digital Firm, Kenneth C Laudon & Jane P Laudon, 14th Edition, 2017 ,Pearson India Education Services Pvt. Ltd,.
2. Succeeding in Business with Microsoft Excel 2013 – A Problem Solving Approach, Debra Gross, Frank Akaiwa, Karleen Nordquist, Cengage Learning, 1stEdition, 2014.
3. Computer Networks, Andrew S.Tanenbaum, 4th Edition, 2007,Pearson Education.
4. Business Application Software by Ait Johri, Himalaya Publication House, 1st Edition, 2012.

COURSE OVERVIEW

Dear Students,

This course is designed to start you on a path toward future studies in web development and design, no matter how little experience or technical knowledge you currently have. The web is a very big place, and if you are the typical internet user, you probably visit several business application softwares every day, whether for business, entertainment or education. But have you ever wondered how these websites actually work? How are they built? How do browsers, computers, and mobile devices interact with the web? What skills are necessary to build a website? With almost 1 billion websites now on the internet, the answers to these questions could be your first step toward a better understanding of the internet and developing a new set of internet skills.

Chapter 1 introduces the reader to study about the Functional Area Packages such as Tally – Preparation of Purchase and Sales – Orders – Preparation of Invoices – Various Accounting Reports – EX – SAMP Metastock - Evolution of ERP – ERP and the Internet – Maximizing ERP Value.

Chapter 2 provides students with a detailed overview of the SPSS – Set of Market Research Data – Summarize, Describe, Present Data and Graphics Methods – Calculate standard Deviation – Maximum, Minimum Mean Median Mode.

Chapter 3 provides students with a overview of Operations Research Packages. POM – TORA – Linear Programming – Transportation – Assignment & Network.

Chapter 4 provides students with a detailed overview of the Creating a presentation, Editing, Sorting, Layout, Set-up row, rehearse timing.

Chapter 5 provides students with a detailed overview of the Cloud, Organization and Information Systems, Social Media Information Systems, Business Intelligence Systems, Information System Security.

Course Objective

This course is designed to Introduces and develops foundational skills in applying essential and emerging business productivity information technology tools. The focus of this course is on business productivity software applications, including SPSS, Tally

Learning Outcomes

To Remember concepts and terminology used in development, implementation, and operation of business computer applications.
To understand the application of various software's such as SPSS, Tally and Operational Research Package to support existing business and strategies

To apply the SPSS, Tally, TORA and Other Linear Programming Softwares to enhance business activities
To analyze the problematic datas such as mean, median, mode.
To evaluate the performance of the business using the prescribed software
To create the structure to evaluate the performance of an business.
To evaluate different Measures of dispersion-Range, Mean deviation, standard deviation
To evaluate the performance of business through finance packages, marketing package and or package to find the current status of the firm.

EVALUATION PROCEDURE FOR EACH EXPERIMENT

S.No	Components	Marks
1.	Aim and Procedure	10
2.	Record Submissions	20
3.	Experimentation and Outputs	50
4.	Viva Voce	10
	Total	100

INTERNAL ASSESSMENT FOR LAB

S.No	Components	Marks
1.	Observation	25
2.	Executing the Program	50
3.	Internal Assessment Exams	25
	Total	100

LIST OF EXPERIMENTS

S.NO	PROGRAM NAMES
1.	Calculating Mean Using SPSS
2.	Calculating Median Using SPSS
3.	Calculating Mode Using SPSS
4.	Calculating Standard Deviation Using SPSS
5.	One sample T – test, Paired sample Test and Independent Sample Test
6.	One way ANOVA
7.	Tally-Company Creation
8.	Tally-Ledger Creation
9.	Tally-Inventory Creation
10.	Tally-Voucher creation
11.	Tally – Display Of Balance Sheet
12.	Solving Transportation Problem Using Tora
13.	Solving Linear Programming Using Tora
14.	Import the legacy data from different sources
15.	Business Intelligence Systems

EXPERIMENT 1: CALCULATING MEAN USING SPSS

Learning Outcomes:

- **Calculating Mean Using SPSS**

AIM:

To calculate Mean of the given data using SPSS.

ALGORITHM:

STEP 1: Open SPSS software 20.0.

STEP 2: In the 'Variable View" create Marks variable.

STEP 3: Click and select "Data View".

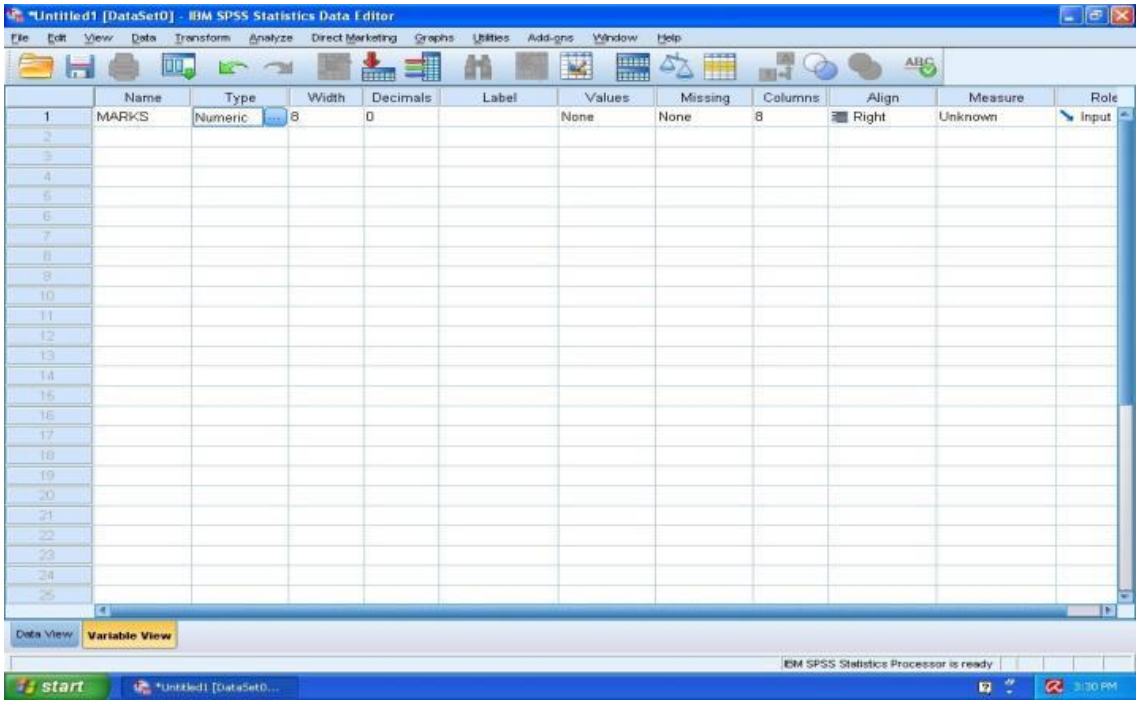
STEP 4: Type the marks of the students in the marks column.

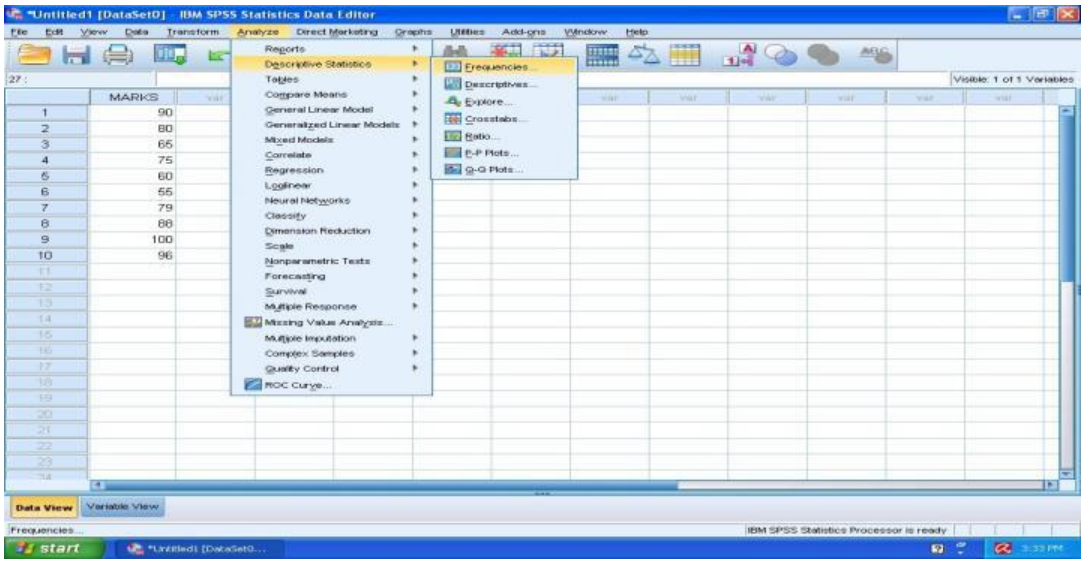
STEP 5: Click on <Analyze><Descriptive Statistics><Frequencies>

STEP 6: Select the marks and add to Variable list in "Frequency" Dialogue Box and then click on "Statistics" button.

STEP 7: In "Frequencies: Statistics" dialogue box select "Mean" in the Central Tendency Menu. Then Click on "Continue" and "OK"

STEP 8: The solution tables and report will be generated.

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File Edit View Data Transform Analyze Direct Marketing Graphs Utilities Add-ons Window Help
Reports
Descriptive Statistics
Tables
Compare Means
General Linear Model
Generalized Linear Models
Mixed Models
Correlate
Regression
Loglinear
Neural Networks
Classify
Dimension Reduction
Scale
Nonparametric Tests
Forecasting
Survival
Multiple Response
Missing Value Analysis...
Multiple Imputation
Complex Samples
Quality Control
ROC Curve...
Frequencies...
Descriptives...
Explore...
Crosstabs...
Ratio...
P-P Plots...
Q-Q Plots...
MARKS
1 90
2 80
3 65
4 75
5 60
6 55
7 79
8 88
9 100
10 96
Data View
Variable View
Frequencies...
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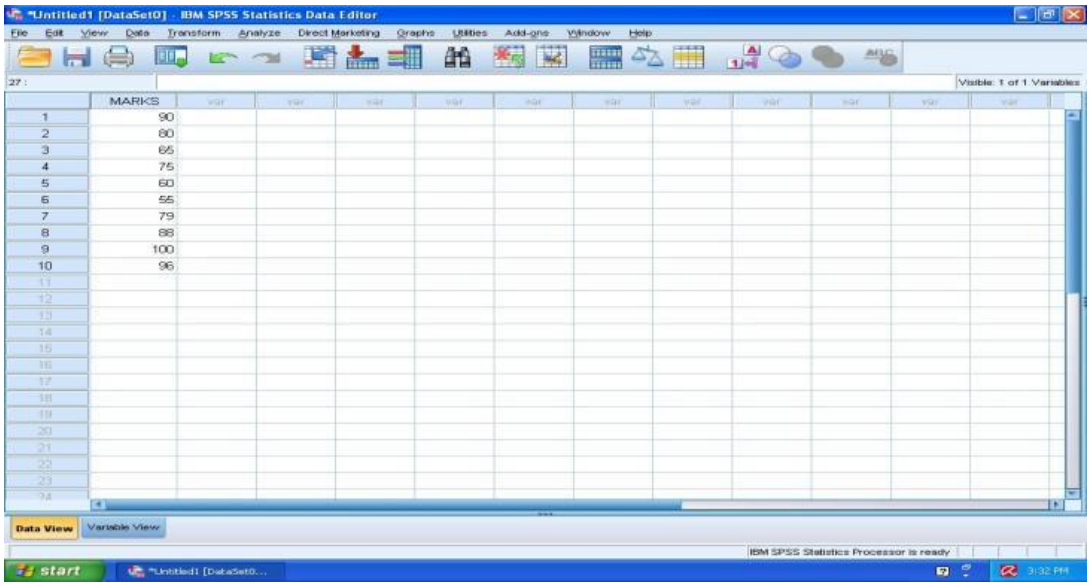
start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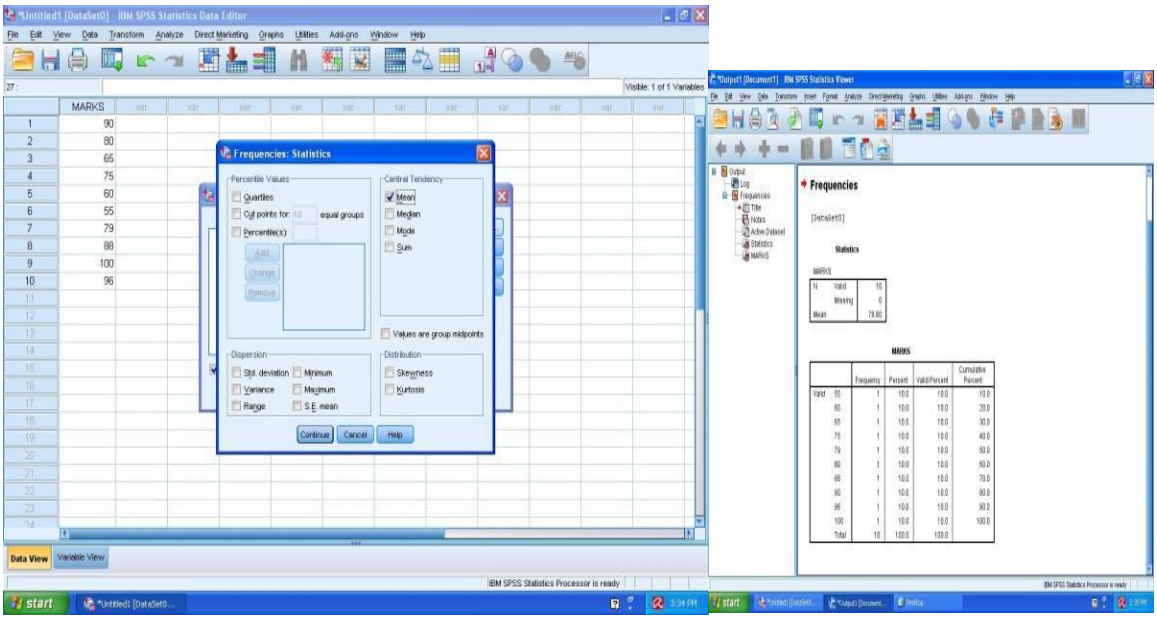
File Edit View Data Transform Analyze Direct Marketing Graphs Utilities Add-ons Window Help
MARKS
1 90
2 80
3 65
4 75
5 60
6 55
7 79
8 88
9 100
10 96
Data View
Variable View
IBM SPSS Statistics Processor is ready
start



RESULT:

Thus the required Mean has been calculated for given data using SPSS Successfully.

EXPERIMENT 2: CALCULATING MEDIAN USING SPSS

Learning Outcomes:

- **Calculating Median Using SPSS**

AIM:

To calculate Median of the given data using SPSS

ALGORITHM:

STEP 1: Open SPSS software 20.0.

STEP 2: In the 'Variable View" create Age variable.

STEP 3: Click and select "Data View".

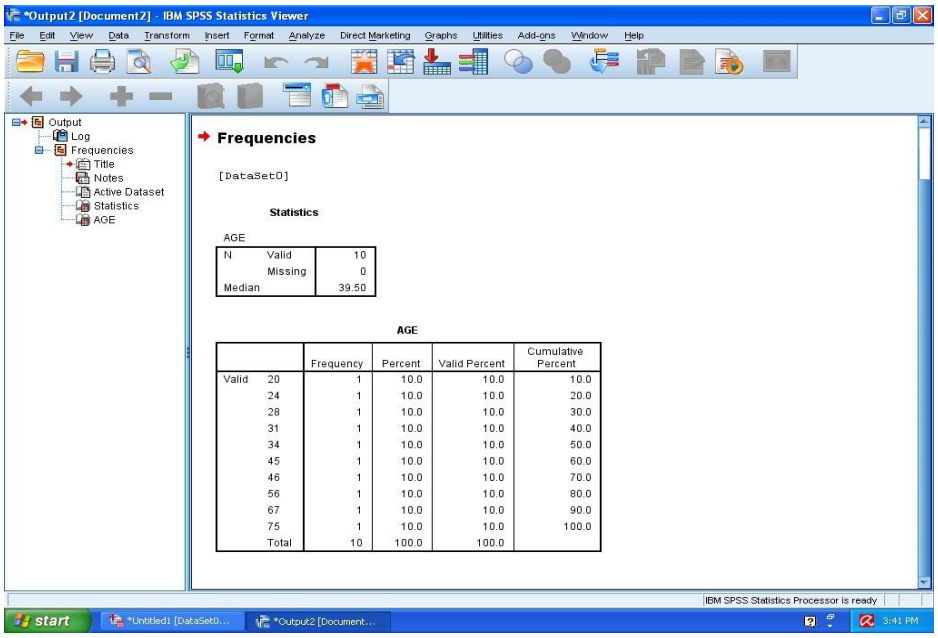
STEP 4: Type the age of the students in the Age column.

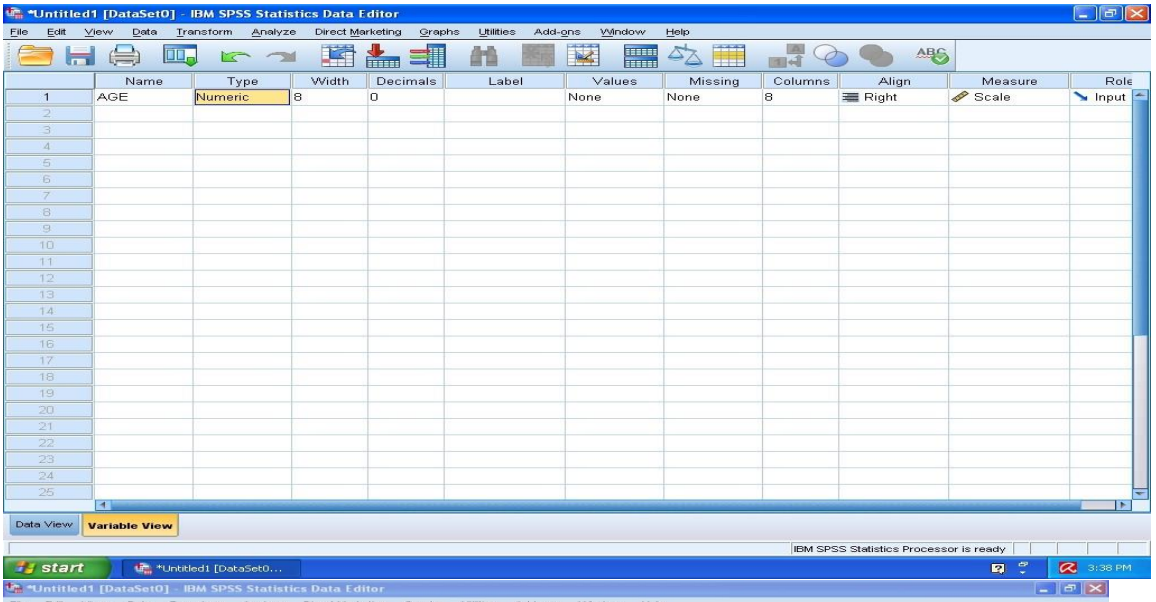
STEP 5: Click on <Analyze><Descriptive Statistics><Frequencies>

STEP 6: Select the marks and add to Variable list in "Frequency" Dialogue Box and then click on "Statistics" button.

STEP 7: In "Frequencies: Statistics" dialogue box select "Median" in the Central Tendency Menu. Then Click on "Continue" and "OK"

STEP 8: The solution tables and report will be generated..




*Untitled1 [DataSet0] - IBM SPSS Statistics Data Editor
File Edit View Data Transform Analyze Direct Marketing Graphs Utilities Add-ons Window Help
Name Type Width Decimals Label Values Missing Columns Align Measure Role
1 AGE Numeric 8 0 None None 8 Right Scale Input
Data View Variable View
IBM SPSS Statistics Processor is ready
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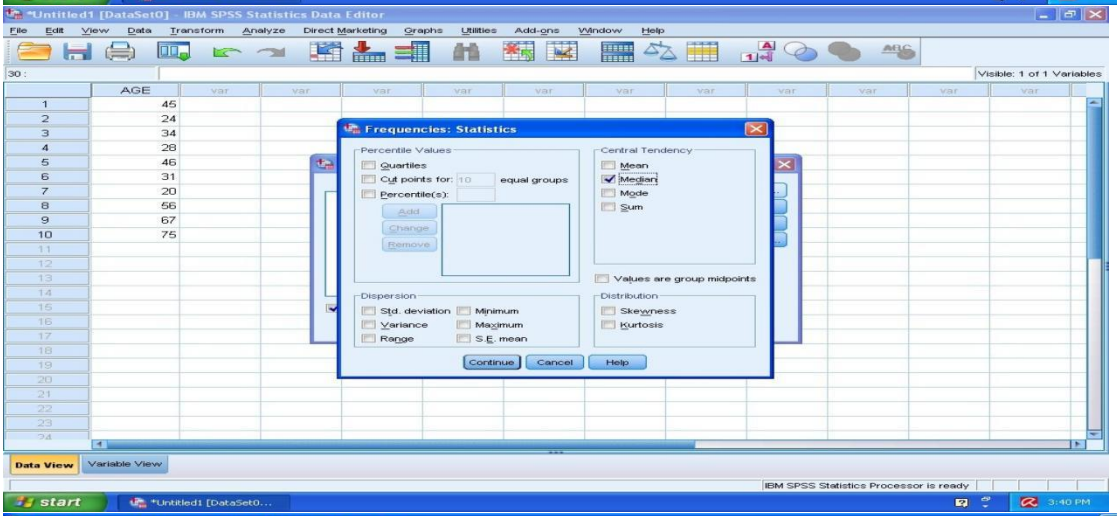
*Untitled1 [DataSet0] - IBM SPSS Statistics Data Editor
Visible: 1 of 1 Variables
AGE
1 45
2 24
3 34
4 28
5 46
6 31
7 20
8 56
9 67
10 75
Frequencies: Statistics
Percentile Values
Quartiles
Cut points for: 10 equal groups
Percentile(s):
Add
Change
Remove
Central Tendency
Mean
Median
Mode
Sum
Values are group midpoints
Dispersion
Std. deviation
Minimum
Variance
Maximum
Range
S.E. mean
Distribution
Skewness
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Continue
Cancel
Help
Data View
Variable View
IBM SPSS Statistics Processor is ready
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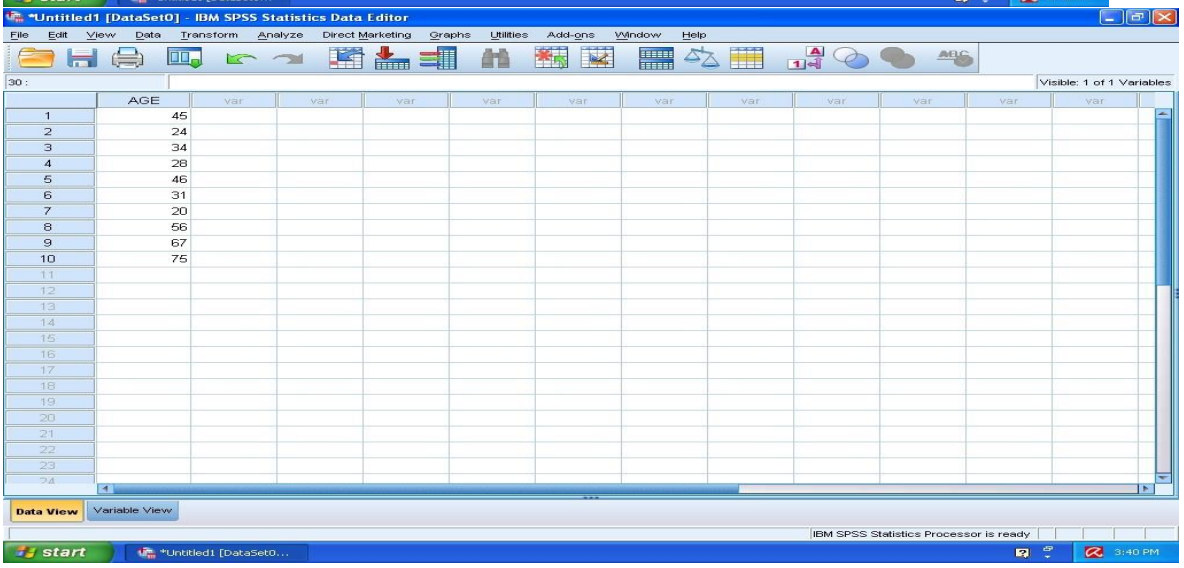
*Untitled1 [DataSet0] - IBM SPSS Statistics Data Editor
Visible: 1 of 1 Variables
AGE
1 45
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3 34
4 28
5 46
6 31
7 20
8 56
9 67
10 75
Data View
Variable View
IBM SPSS Statistics Processor is ready
start *Untitled1 [DataSet0... 3:40 PM

RESULT:

Thus the required Median has been calculated for given data using SPSS

EXPERIMENT 3: CALCULATING MODE USING SPSS

Learning Outcomes:

- **Calculating Mode using SPSS**

AIM

To calculate Mode of the given data using SPSS.

ALGORITHM:

STEP 1: Open SPSS software 20.0.

STEP 2: In the 'Variable View" create Salary variable.

STEP 3: Click and select "Data View".

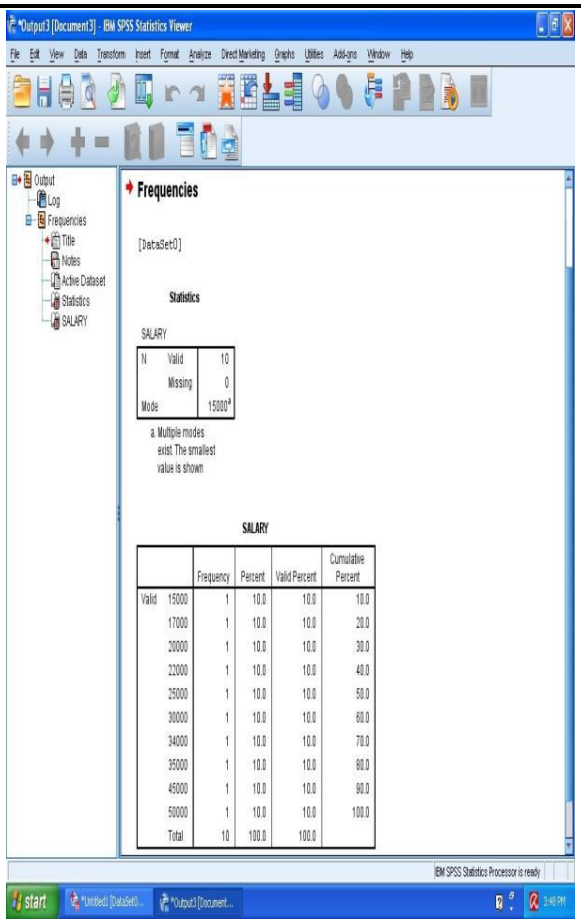
STEP 4: Type the salary of the employees in the Salary column.

STEP 5: Click on <Analyze><Descriptive Statistics><Frequencies>

STEP 6: Select the marks and add to Variable list in "Frequency" Dialogue Box and then click on "Statistics" button.

STEP 7: In "Frequencies: Statistics" dialogue box select "Mode" in the Central Tendency Menu. Then Click on "Continue" and "OK"

STEP 8: The solution tables and report will be generated.



RESULTS

Thus the required Mode has been calculated for given data using SPSS.

NOTES

EXPERIMENT 4: CALCULATING STANDARD

Learning Outcomes:

- Calculating Median Using SPSS

AIMS

To calculate Median of the given data using SPSS

STEP 1: Open SPSS software 20.0.

STEP 2: In the 'Variable View" create Age variable.

STEP 3: Click and select "Data View".

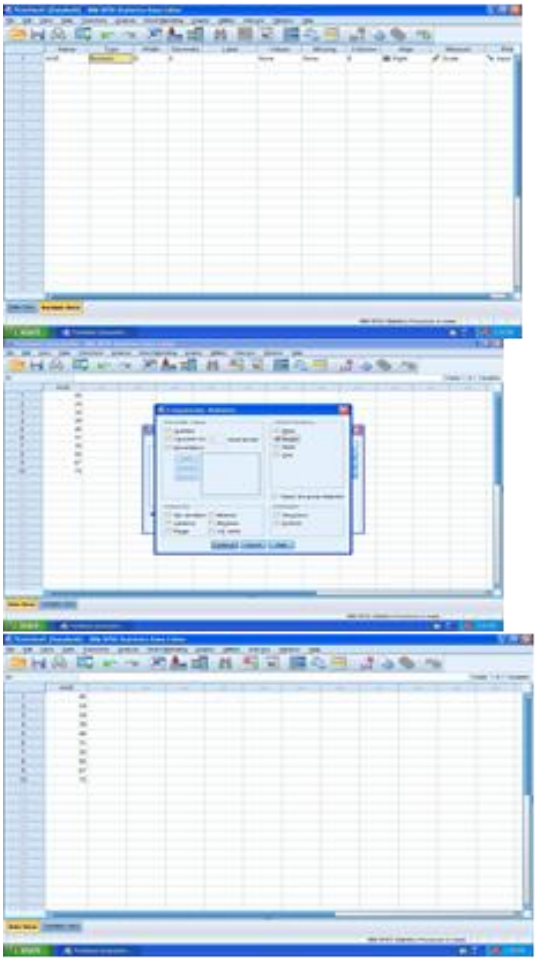
STEP 4: Type the age of the students in the Age column.

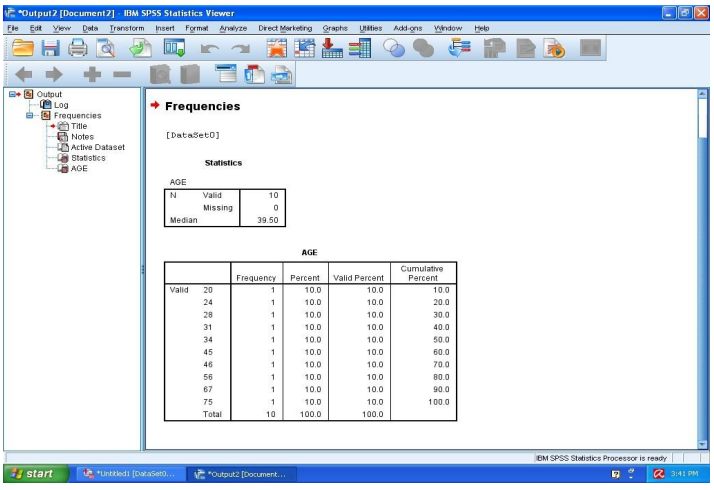
STEP 5: Clickon <Analyze><Descriptive Statistics><Frequencies>

STEP 6: Select the marks and add to Variable list in "Frequency" Dialogue Box and then click on "Statistics" button.

STEP 7: In "Frequencies: Statistics" dialogue box select "Median" in the Central Tendency Menu. Then Click on "Continue" and "OK"

STEP 8: The solution tables and report will be generated**.**

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Output
Log
Frequencies
Title
Notes
Active Dataset
Statistics
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Frequencies
[DataSet0]
Statistics
AGE
N Valid 10
Missing 0
Median 39.50
AGE
Frequency Percent Valid Percent Cumulative Percent
Valid 20 1 10.0 10.0 10.0
24 1 10.0 10.0 20.0
28 1 10.0 10.0 30.0
31 1 10.0 10.0 40.0
34 1 10.0 10.0 50.0
45 1 10.0 10.0 60.0
46 1 10.0 10.0 70.0
56 1 10.0 10.0 80.0
67 1 10.0 10.0 90.0
75 1 10.0 10.0 100.0
Total 10 100.0 100.0
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*Output2 [Document...
3:41 PM

RESULT:

Thus the required Median has been calculated for given data using SPSS.

EXERCISE NO: 05

(ONE SAMPLE T TEST, PAIRED SAMPLE TEST AND INDEPENDENT SAMPLE T TEST)

AIM:

To analyze the given problem using one sample T test, Paired sample T test and Independent sample T test by SPSS.

ALGORITHM:

SSTEP 1: Select the analyze menu.

STEP 2: Click on compare means and then one sample T-test to open sample T- test dialog box.

STEP 3: Select the variable you require and click on the 1> button to move the variables intothe test variables(s): box.

STEP 4: In the test value: box type the mean score.

STEP 5: Click on options → Enter the confidence interval → continue and click okSTEP 6:

Select the analyze menu.

STEP 7: Click on compare means and then paired sample T-test to open sample T- test dialog box.

STEP 8: Select the variable you require and click on the 1> button to move the variables intothe test variables(s): box.

STEP 9: Click on options→enters the confidence interval → continue.

STEP 10: Click on ok

STEP 11: Select the analyze menu.

STEP 12: Click on compare means and then independent sample T-test to open sample T-test dialog box.

STEP 13: Select the variable you require and click on the 1> button to move the variables into the test variables(s): box.

STEP 14: Select the variable you require and click on the 1> button to move the variables into the grouping variable(s): box.

STEP 15: Click on options→enters the confidence interval → continue.

QUESTION:

Indian Oil has developed a formulation with increased use of ethanol in petroleum products, which increases engine efficiency with less harmful emissions. 30 cars were test driven with and without the ethanol and the number of kilometers per liter were recorded. The cars used for the tests were having either automatic or manual transmission.

Label: Car Coding: 1 (Automatic), 2 (Manual)

The earlier trial shows that mean number of kilometer per liter was 12. Indian Oil wants to know:

1. Second trial efficiency of cars is better than the previous trial. (use one sample T test)
2. Whether efficiency of engine improves with added ethanol.(Paired T test)
3. Whether efficiency of engine with and without the ethanol differ between manual and automatic cars. (Independent group T test)

Frame hypothesis and determine the significant difference between two set of scores

Car	1	1	2	2	1	2	1	2	1	2	1	2	1	1	2	1	2	1	1	2
With Ethanol (in kms)	15	16	20	22	18	20	10	19	9	8	6	15	16	11	19	14	20	18	25	16
Without Ethanol (in kms)	15	15	19	18	15	18	11	20	9	8	6	14	13	10	18	12	19	17	20	15

Car	1	2	1	1	2	1	2	1	1	1	2	1	2	1	1
With Ethanol (in kms)	15	12	20	19	24	11	10	16	26	28	20	19	11	16	23
Without Ethanol (in kms)	14	13	19	20	22	10	9	17	20	20	19	15	10	13	21

OUTPUT:

ONE SAMPLE T TEST

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
WETO	35	16.77	5.31	.90

One-Sample Test

	Test Value = 12					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
WETO	5.312	34	.000	4.77	2.95	6.60

PAIRED SAMPLE T TEST

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	WETO	16.77	35	5.31	.90
	WOETO	15.26	35	4.28	.72

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	WETO & WOETO	35	.934	.000

Paired Samples Test

	Paired Differences					t	df	Sig.
			95% ConfidenceInterval of the Difference					
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Pair 1 WETO - WOETO	1.51	2.02	.34	.82	2.21	4.435	(2-tailed)34	.000

INDEPENDENT SAMPLE T TEST

Group Statistics

CAR		N	Mean	Std. Deviation	Std. Error Mean
WETO	automatic	21	16.71	5.68	1.24
	MANUAL	14	16.86	4.91	1.31
WOETO	automatic	21	14.86	4.25	.93
	MANUAL	14	15.86	4.42	1.18

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
WETO	Equal variances assumed	.027	.871	-.077	33	.939	-.14	1.86	-3.93	3.64
	Equal variancesnot assumed			-.079	30.679	.937	-.14	1.81	-3.83	3.54
WOETO	Equal variances assumed	.175	.678	-.672	33	.506	-1.00	1.49	-4.03	2.03
	Equal variancesnot assumed			-.666	27.230	.511	-1.00	1.50	-4.08	2.08

(i) H_0: There is no significant difference in efficiency of cars between previous & present trail.

H_1: There is significant difference in efficiency of cars between previous & presenttrail.

(ii) H_0:There is no significant difference between the efficiency of engine with & without ethanol.

H_1:There is significant difference between the efficiency of engine with & withoutethanol.

(iii)H_0:There is no significant difference in efficiency of engine with and without ethanol between the automatic and manual car

H_1: There is significant difference in efficiency of engine with and without ethanolbetween the automatic and manual car

CONCLUSION

1. Significant value= 0.000 < 0.05. H_0 is rejected and H_1 is accepted. Hence, there is a significant difference in efficiency of cars between previous & present trail.
2. Significant value = 0.000 < 0.05. . H_0 is rejected and H_1 is accepted. Hence, there is significant difference between the efficiency of engine with & without ethanol.
3. Significant value = 0.500 < 0.05 for with ethanol. F(0.27) (3,33). H_0 is accepted and H_1 is rejected. F(0.775)= (33,33) for without ethanol. Hence, the levene test significant value is > 0.05. Then equal variance assumed is considered, where p is > 0.05. So there is significant difference in efficiency of enginewith & without ethanol between manual and automatic in the car.

RESULT: Thus, the given problem using one way sample T-test, paired sample T-test and independent sample-test by using SPSS was executed.

EXERCISE NO: 06 (ONE WAY ANOVA)

To Conduct a one way Anova with post-hoc analysis using SPSS

ALGORITHM:

STEP1: Select the analyze menu.

STEP2: Click on compare means and 1 way Anova to open the 1 way Anova dialog box.

STEP3: Select the dependent variables and click on the right button to move the variable into the dependent list box.

STEP4: Select the independent variable and click on the right button to move the variable into the factor box.

STEP5: Click on the options command push button to open the one way Anova options sub-dialog box.

STEP6: Click on the check boxes for descriptive and homogeneity of variance.

STEP7: Click on Continue.

STEP8: Click on the post hoc command push button to open the one anova post hoc multiple comparison sub-dialog box, you will notice that a number of multiple comparison options are available. In this eg: you will use the Tukey's HSD multiple comparison on test.

STEP9: Click on the check box for Tukey.

STEP10: Click on continue and then OK.

QUESTION:

(i) Gupta wants to compare the scores of CBSE students from four metro cities of India i.e Delhi, Kolkata, Mumbai, Chennai. He Obtained 10 participant scores based on random sampling from each of the four metro cities, Collecting 40 responses. He made the following hypothesis

Note: This is an independent design, since the respondents are from different cities. Use One – way between groups ANOVA.

Label For City : 1 – Delhi , 2 – Kolkata, 3-Mumbai, 4 – Chennai

City	Scores of the Student									
1	400	450	499	480	495	300	350	356	269	298
2	389	398	399	498	457	400	300	298	369	348

3	488	469	425	450	399	385	299	298	389	390
4	450	400	428	398	359	360	310	295	322	365

(ii) Sekar Kapoor wants to know the sales in four different metro cities of India in Diwali season. He assumes the sales contrast of 2:1:-1:-2 for Delhi: Kolkata: Mumbai: Chennai, respectively. He collects sales data from 10 respondents each from the four metro cities. Frame the required hypothesis, do the analysis using the One-way between groups ANOVA with planned Comparisons and show the result. Calculate F ratio along with Post Hoc analysis.

City	Sales in Rs (Lacs)									
1	500	498	478	499	450	428	500	498	486	469
2	500	428	389	378	498	469	428	412	410	421
3	421	410	389	359	369	359	349	349	359	400
4	289	269	259	299	389	349	350	301	297	279

(iii) Deepak wants to know the sales in four different cities of India in Christmas Season. He assumes the sales contrast of 5: 3: 4: -4 for Delhi: Bangalore: Mumbai: Hyderabad, respectively. He collects sales data from 10 respondents each from the four cities, collecting a total of 40 sales data.

City	Sales in (RsCrores)
Delhi	50,48,47,49,40,42,50,98,86,69
Bangalore	40,38,43,38,39,87,69,48,41,40
Mumbai	41,10,89,39,36,39,49,29,59,40
Hyderabad	28,29,59,99,39,34,30,31,29,39

Frame the required hypothesis, Analyzes through One-way between groups ANOVA with planned comparisons, Calculate F ratio along with Post Hoc analysis.

OUTPUT:

One way:

Descriptives

sales in rs (lacs)

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
delhi	10	480.60	24.88	7.87	462.80	498.40	428	500
kolkata	10	433.30	42.34	13.39	403.01	463.59	378	500
mumbai	10	376.40	26.45	8.37	357.48	395.32	349	421
chennai	10	308.10	41.34	13.07	278.53	337.67	259	389
Total	40	399.60	73.28	11.59	376.16	423.04	259	500

Test of Homogeneity of Variances

sales in rs (lacs)

Levene Statistic	df1	df2	Sig.
1.421	3	36	.253

ANOVA

sales in rs (lacs)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	166071.8	3	55357.267	45.936	.000
Within Groups	43383.800	36	1205.106		
Total	209455.6	39			

Post hoc test: **Homogeneous subset:**

Multiple Comparisons

Dependent Variable: sales in rs (lacs)Tukey HSD

(I) metro cities	(J) metro cities	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
delhi	kolkata	47.30*	15.52	.021	5.49	89.11
	mumbai	104.20*	15.52	.000	62.39	146.01
	chennai	172.50*	15.52	.000	130.69	214.31
kolkata	delhi	-47.30*	15.52	.021	-89.11	-5.49
	mumbai	56.90*	15.52	.004	15.09	98.71
	chennai	125.20*	15.52	.000	83.39	167.01
mumbai	delhi	-104.20*	15.52	.000	-146.01	-62.39
	kolkata	-56.90*	15.52	.004	-98.71	-15.09
	chennai	68.30*	15.52	.001	26.49	110.11
Chennai	delhi	-172.50*	15.52	.000	-214.31	-130.69
	kolkata	-125.20*	15.52	.000	-167.01	-83.39
	mumbai	-68.30*	15.52	.001	-110.11	-26.49

*. The mean difference is significant at the .05 level.

sales in rs (lacs)

Tukey HSD[a]

metro cities	N	Subset for alpha = .05			
		1	2	3	4
chennai	10	308.10			
mumbai	10		376.40		
kolkata	10			433.30	
delhi	10				480.60
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 10.000.

One way ANOVA test:

Descriptives

sales in (crores)

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
delhi	10	57.90	19.76	6.25	43.76	72.04	40	98
banglore	10	48.30	16.48	5.21	36.51	60.09	38	87
mumbai	10	43.10	20.51	6.49	28.43	57.77	10	89
hyderabad	10	41.70	22.16	7.01	25.85	57.55	28	99
Total	40	47.75	20.11	3.18	41.32	54.18	10	99

Test of Homogeneity of Variances

sales in (crores)

Levene Statistic	df1	df2	Sig.
.175	3	36	.913

ANOVA

sales in (crores)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1615.500	3	538.500	1.369	.268
Within Groups	14164.000	36	393.444		
Total	15779.500	39			

Multiple Comparisons

Dependent Variable: sales in (crores)Tukey HSD

(I) different cities of india	(J) different cities of india	Mean Difference(I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
delhi	banglore	9.60	8.87	.702	-14.29	33.49
	mumbai	14.80	8.87	.355	-9.09	38.69
	hyderabad	16.20	8.87	.278	-7.69	40.09
banglore	delhi	-9.60	8.87	.702	-33.49	14.29
	mumbai	5.20	8.87	.936	-18.69	29.09
	hyderabad	6.60	8.87	.879	-17.29	30.49
mumbai	delhi	-14.80	8.87	.355	-38.69	9.09
	banglore	-5.20	8.87	.936	-29.09	18.69
	hyderabad	1.40	8.87	.999	-22.49	25.29
hyderabad	delhi	-16.20	8.87	.278	-40.09	7.69
	banglore	-6.60	8.87	.879	-30.49	17.29
	mumbai	-1.40	8.87	.999	-25.29	22.49

sales in (crores)

Tukey HSD[a]

different cities of india	N	Subset for alpha = .05
		1
hyderabad	10	41.70
mumbai	10	43.10
banglore	10	48.30
delhi	10	57.90
Sig.		.278

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 10.000.

(i) **NULL HYPOTHESIS:** There is no significant difference in scores between different metro cities of India.

ALTERNATE HYPOTHESIS: There is significant difference in scores between different metro cities of India.

(ii) **NULL HYPOTHESIS:** There is no significant difference between the sales in the four different metro cities of India during Diwali season

ALTERNATE HYPOTHESIS: There is significant difference between the sales in the four different metro cities of India during Diwali season

(iii) **NULL HYPOTHESIS:** There is no significant difference between the sales in the four different metro cities of India during Christmas season

ALTERNATE HYPOTHESIS: There is significant difference between the sales in the four different metro cities of India during Christmas season

CONCLUSION:

(ii) The P value is 0.784 > 0.05. So the H0 is accepted and H1 is rejected. F-ratio (3, 36) =0.358. Hence there is no significant difference in scores between different metro cities of India.

(iii) The P value is 0.000 < 0.05. H0 is rejected and H1 is accepted F-ratio (3, 36) = 45.936. Hence, There is significant difference between the sales in the four different metro cities of India during Diwali season

(iv) The P value is 0.208 > 0.05. So the H0 is accepted and H1 is rejected. F ratio (3, 36) = 1.369. Hence, There is no significant difference between the sales in the four different metro cities of India during Christmas season

RESULT:

Thus, one way ANOVA with post-Hoc analysis using SPSS was obtained.

EXPERIMENT 7: TALLY - COMPANY CREATION

Learning Outcomes:

- **Creating Company Using Tally**

AIM

To create a Company using Tally.

ALGORITHM:

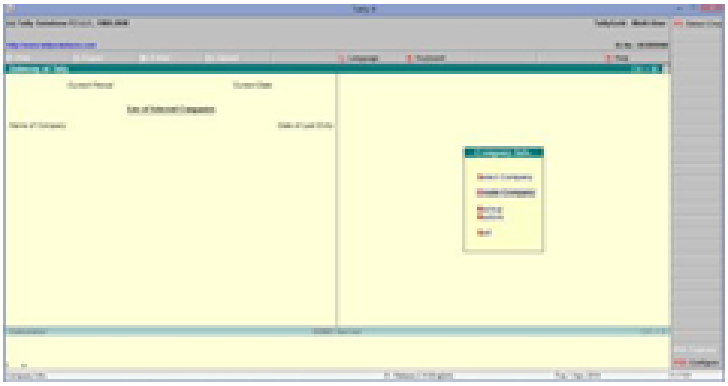
STEP 1: To open Tally. Start ► All ⟶ Programs Tally 9.1.1

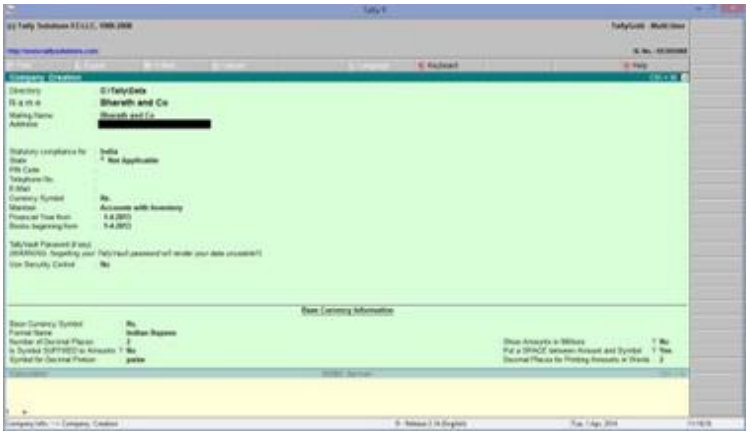
STEP 2: In the 'Gateway of Tally' windowpress Alt+F1(Shut Cmp) – the presently open company would be closed.

STEP 3: Choose "Create Company" from Company Info Menu by pressing 'C' on the keyboard.

STEP 4: Fill in the details of the Company to be created in the window provided.

STEP 5: Save and return to 'Gateway of Tally' window





RESULT:

Thus the required Company has been created in Tally successfully.

EXPERIMENT 8: TALLY - LEDGER CREATION

L earning Outcomes:

- **Creating Ledger Using Tally**

AIM:

To create the required Ledgers according to the given account entries

ALGORITHM:

STEP 1 : Start Tally.

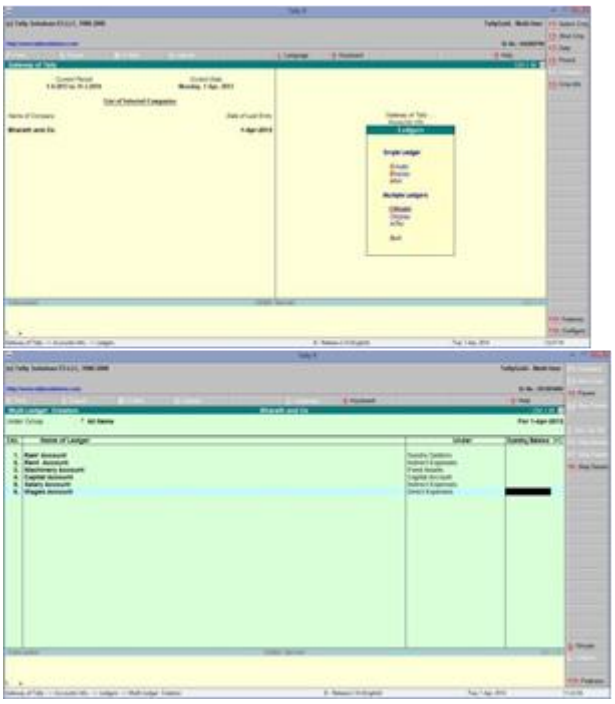
STEP 2: Select Accounts Info from "Gateway of Tally" Menu by pressing 'A' on the keyboard.

STEP 3: Select 'Ledger' from the 'Accounts Info' Menu by pressing 'L' on the Keyboard.

STEP 4: Under 'Ledgers' Menu select 'Create' under Multiple Ledger sub-menu by pressing 'R' on the Keyboard.

STEP 5 : Under 'All Items' Group, create the required Ledgers.

STEP 6 : Accept the entries and return to 'Gateway of Tally' window.



RESULT

Thus the required Ledgers have been created in Tally successfully

EXPERIMENT 9: TALLY - INVENTORY CREATION

L earning Outcomes:

- Creating Inventory Using Tally

AIM:

To Create the required Inventories as per the details given.

ALGORITHM:

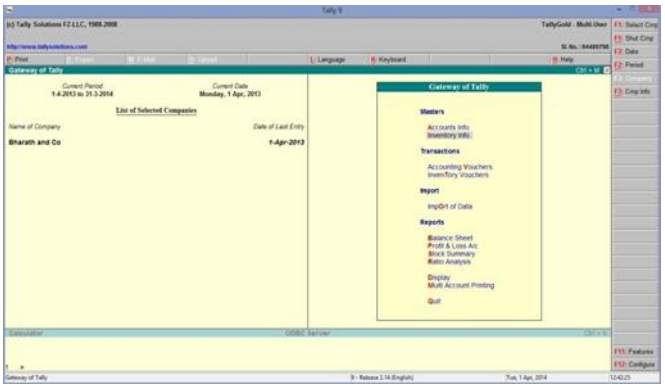
STEP 1 : Start Tally

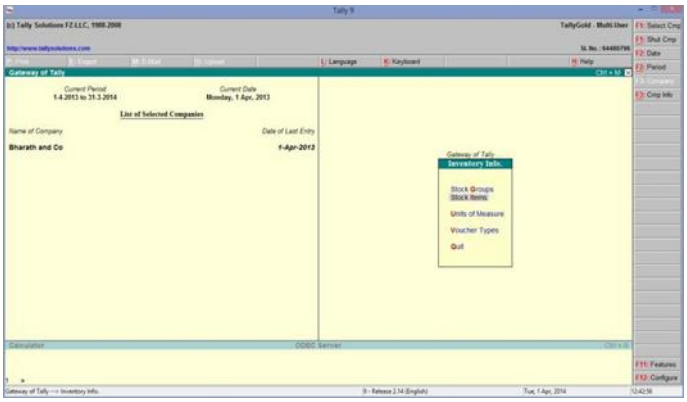
STEP 2 : Select Inventory Info from "Gateway of Tally" Menu by pressing 'I' on the keyboard.

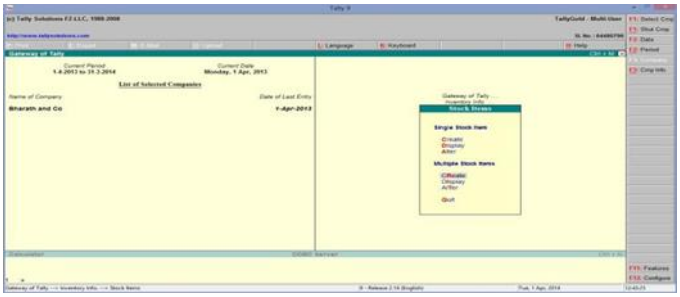
STEP 3 : Select 'Stock Items' from the 'Inventory Info' Menu by pressing 'I' on the Keyboard.

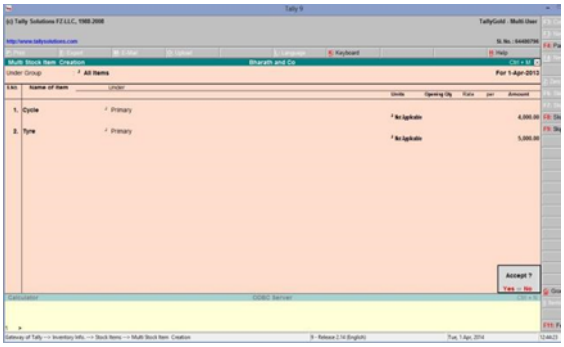
STEP 4 : Select 'Create' under 'Multiple Stock Items' sub-menu from the 'Stock Items' menu by pressing 'R' on the Keyboard.

STEP 5 : Accept the entries and return to 'Gateway of Tally' window









RESULT:

Thus the required Inventories have been created in Tally successfully.

EXPERIMENT 10: TALLY - VOUCHERCREATION

Learning Outcomes:

- **Creating Voucher Using Tally**

AIM:

To create the required Voucher entries as per the given data.

ALGORITHM

STEP 1 : Start Tally.

STEP 2 : Select 'Accounting Vouchers' from "Gateway of Tally" Menu by pressing 'V' on the keyboard.

STEP 3 : Useany of the follwing Function keys as per the data given

F4 : Contra Entry

F5 : Payment Entry

F6 : Receipty Entry

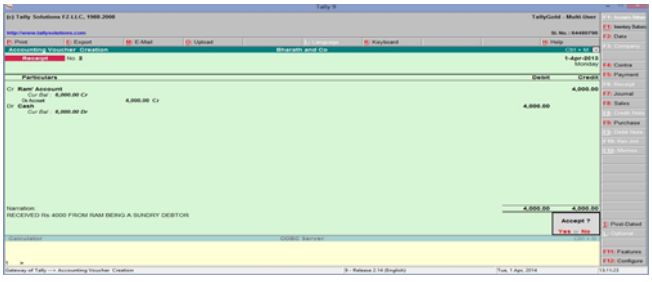
F7 : Journal Entry

F8 : Sales Entry

F9 : Purchase Entry

STEP 4 : Enter the required Voucher Data in the Window provided.

STEP 5 : After entering all the required Voucher entries, accept the data and return to 'Gateway of Tally' window.



RESULT

Thus the required Vouchers have been created in Tally successfully.

EXPERIMENT 11: TALLY - BALANCE SHEET CREATION

Learning Outcomes:

- Creating Balance Sheet Using Tally

AIM:

To display the Balance Sheet for the given data.

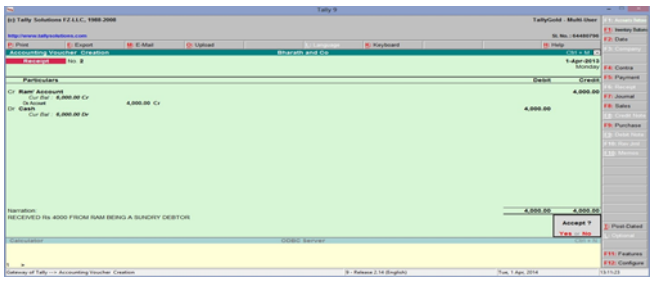
ALGORITHM:

STEP 1 : Start Tally.

STEP 2 : Select 'Balance Sheet' from "Gateway of Tally" Menu by pressing 'B' on the keyboard.

STEP 3 : In the Balance Sheet Window, the required Balance Sheet would be displayed

STEP 4 : You can toggle between Condensed and Detailed Views by pressing Alt + F1



RESULT:

Thus the required Balance SHeet have been created in Tally successfully

EXPERIMENT 12:

SOLVING TRANSPORTATION PROBLEM USING TORA

Learning Outcomes:

- **Solving Transportation Problem Using TORA**

AIM:

To solve Transportation problem for the below given data using TORA:

ALGORITHM:

S**TEP 1 :** Start TORA.

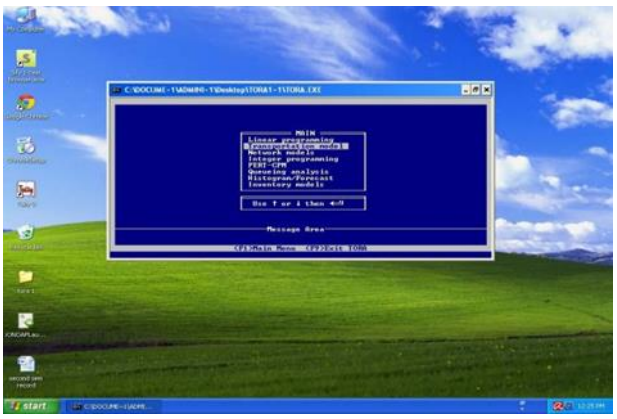
STEP 2 : In "Main" window select 'Transportation Model' by using 'down arrow key' and press 'Enter' and choose 'New Data' when prompted.

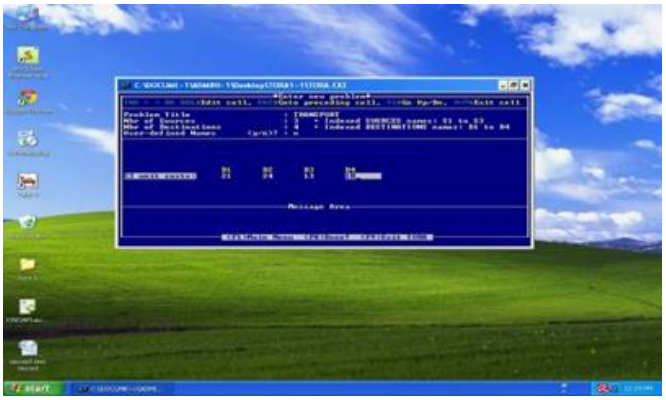
STEP 3 : In "Enter new Problem" window, enter '3' for "number of sources" and '4' for "number of destinations"

STEP 4 : Then, when prompted, enter the given supply amounts, destination amounts and unit costs as given in the problem.

STEP 5 : Press 'F8' to solve the problem.

STEP 6 : The "OPTIMUM TRANSPORTATION SOLUTION" windowdisplays the solution to the given problem.





RESULT:

Thus the required Balance Sheet have been created in Tally successfully.

EXPERIMENT 13:
CREATE A POWERPOINT SLIDE WITH DESIGN TEMPATE

Aim:

To create a powerpoint Slide with various features embedded in it.

Algorithm:

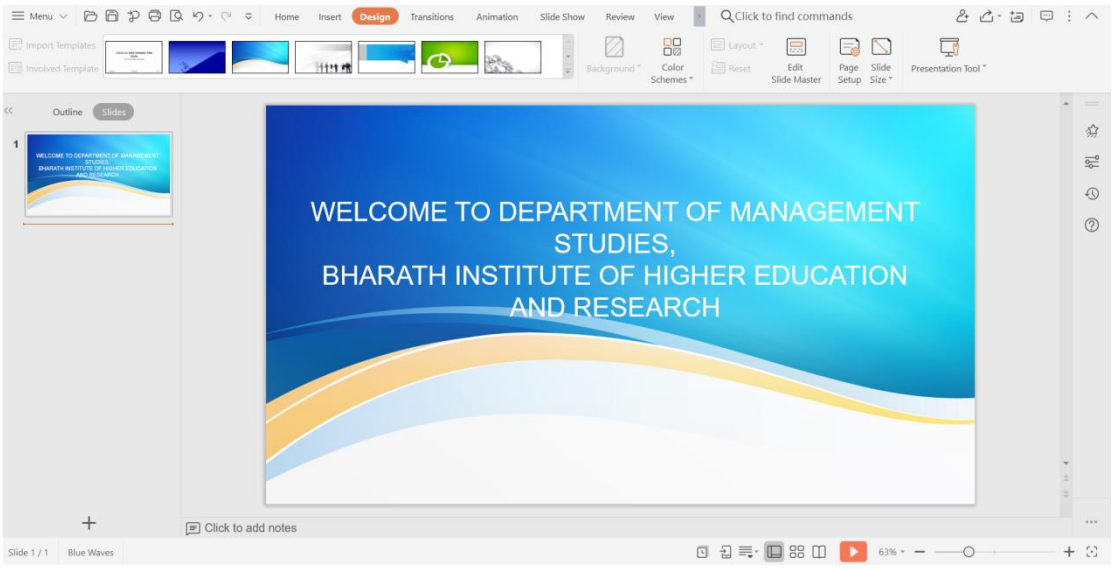
Step1: Open Microsoft Powerpoint.

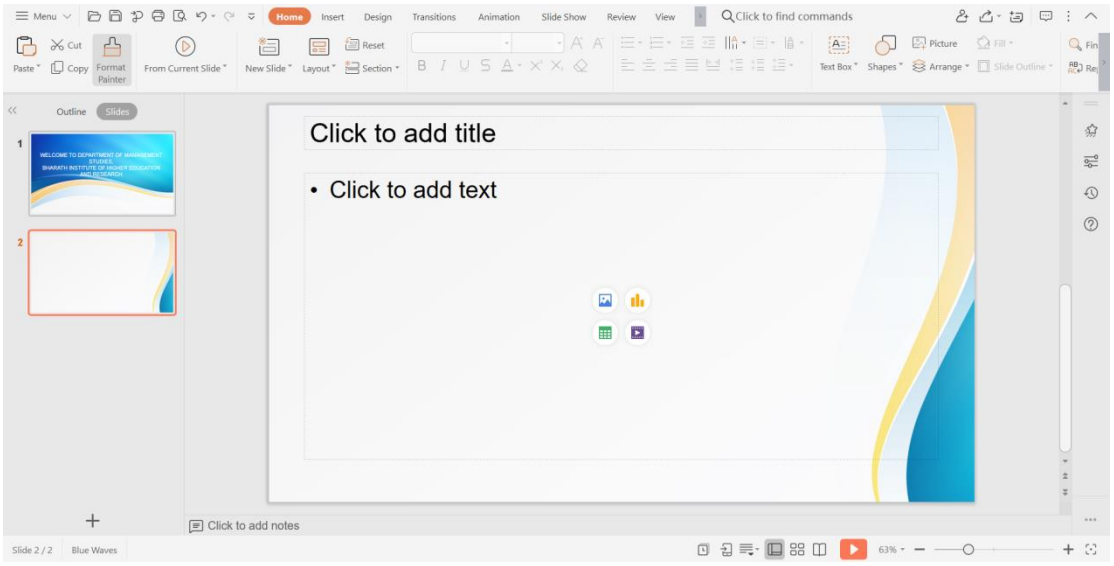
Step2: Go to File at the top of the screen and click New. A box that says “New Presentation” should appear on the right side of your screen.

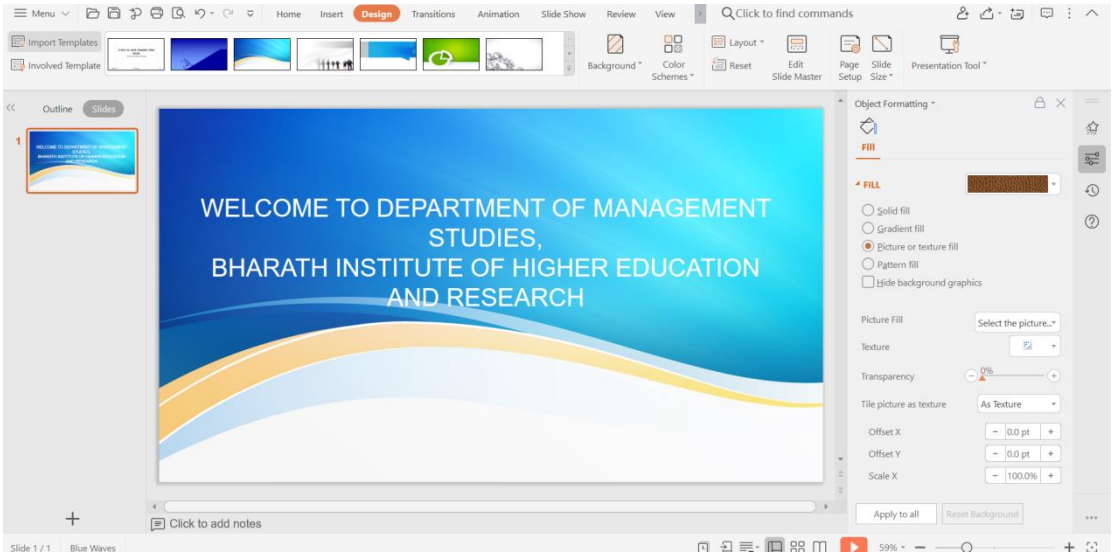
Step3: In the “New Presentation” dialog box, click on “From Design Template.” You may then scan through design templates and choose one that you like.

Step 4: Slide Design Select a design template by clicking on the template you like. You may choose a different color for your template by clicking on “Color Schemes” in the “New Presentation” dialog box.1

Step 5: Click Apply to all to apply design to all slides.







RESULT:

Thus the above experiment has been completed successfully.

EXPERIMENT NO 14 : SLIDE LAYOUT

Aim:

To create a Slide Layout View using MS Powerpoint.

Algorithm:

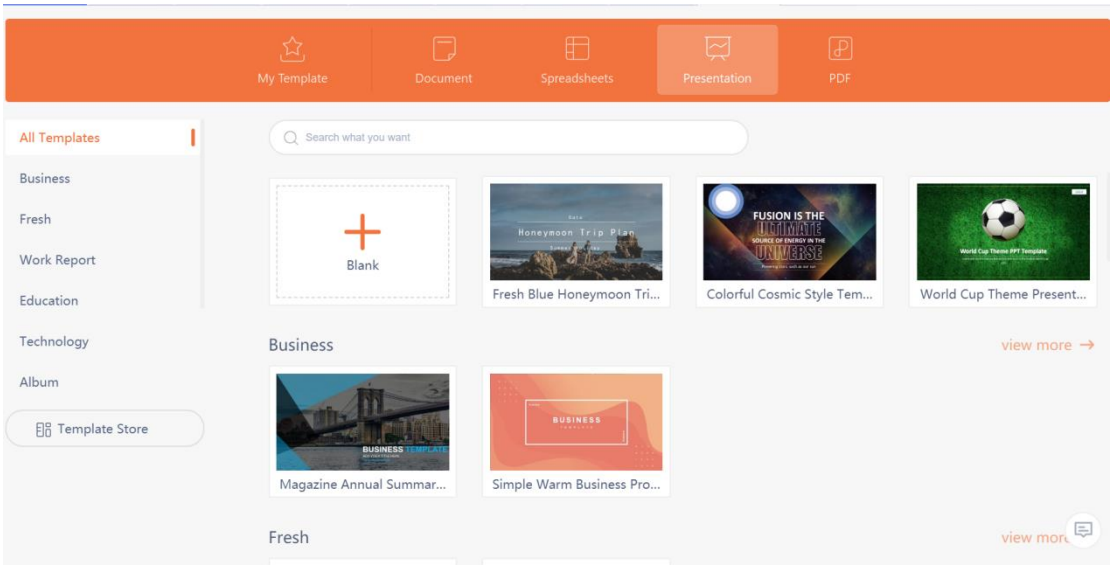
Step1: Open Microsoft Powerpoint.

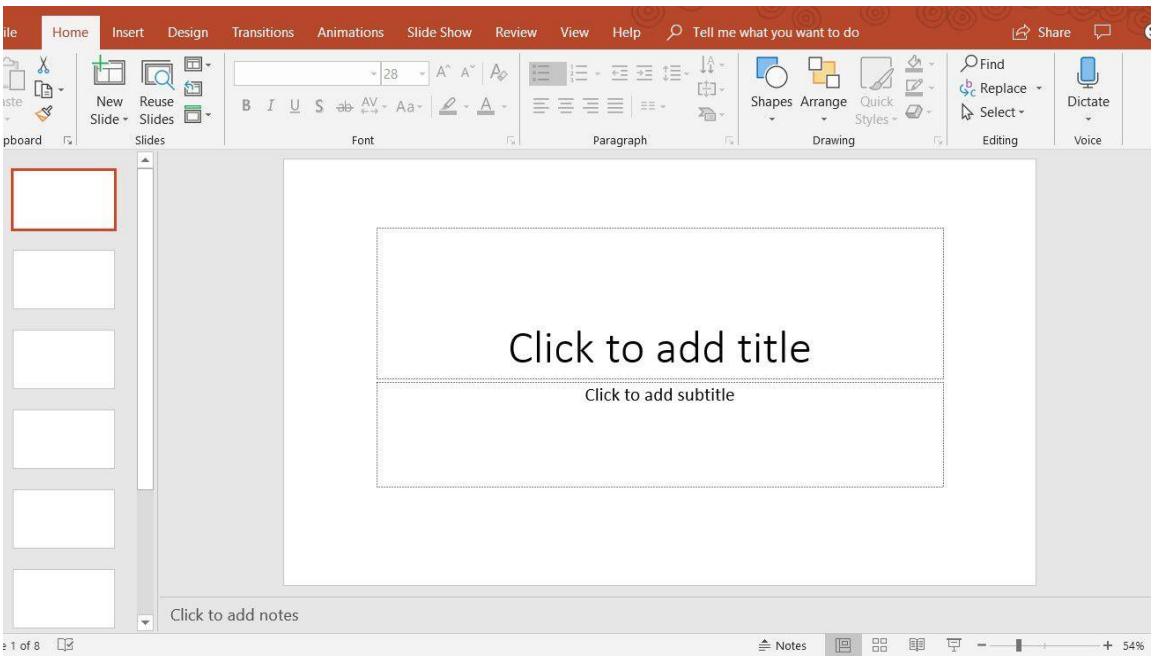
Step2: Go to File at the top of the screen and click New. A box that says “New Presentation” should appear on the right side of your screen.

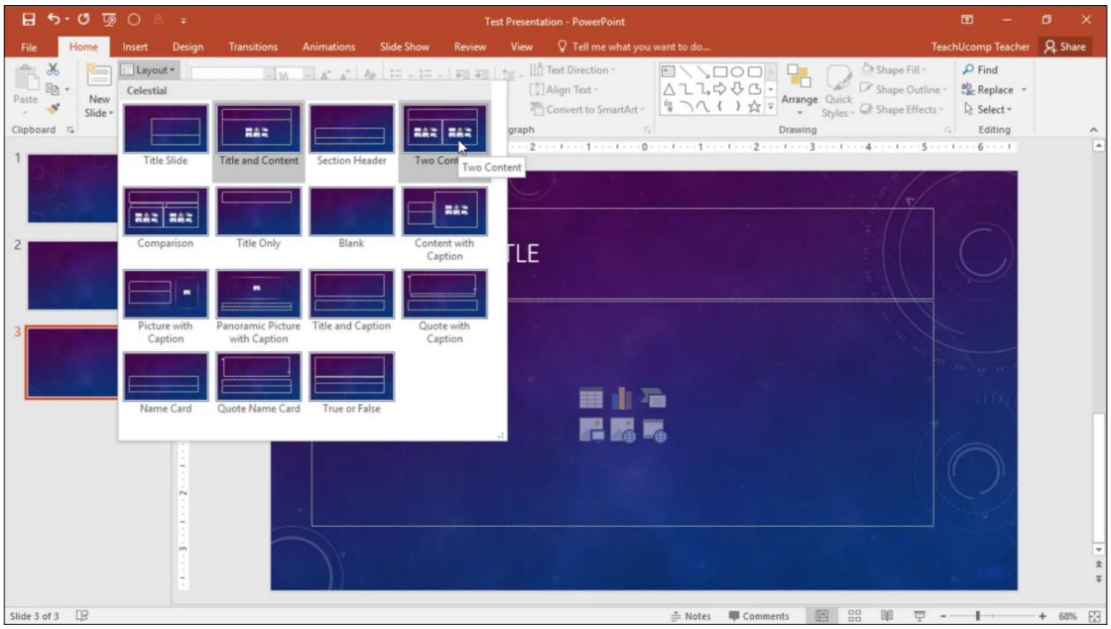
Step3: In the “New Presentation” dialog box, click on “From Blank Presentation or Design Template.” You may then scan through design templates and choose one that you like or choose blank presentation.

Step 4: Slide Design Select a design template by clicking on the template you like. You may choose a different color for your template by clicking on “Color Schemes” in the “New Presentation” dialog box. 1

Step 5: Go to Slide Layout Change the Slide Layout. You may change the slide layout (how information is presented in the slide) by going to the top of the screen and clicking on “Format” – “Slide Layout.” A box will appear on the right side of your screen (where “New Presentation” appeared) labeled “Slide Layout.” You may select a design by clicking on it.







RESULT:

Thus the above experiment has been completed successfully.

Experiment 15: Business Intelligence Systems

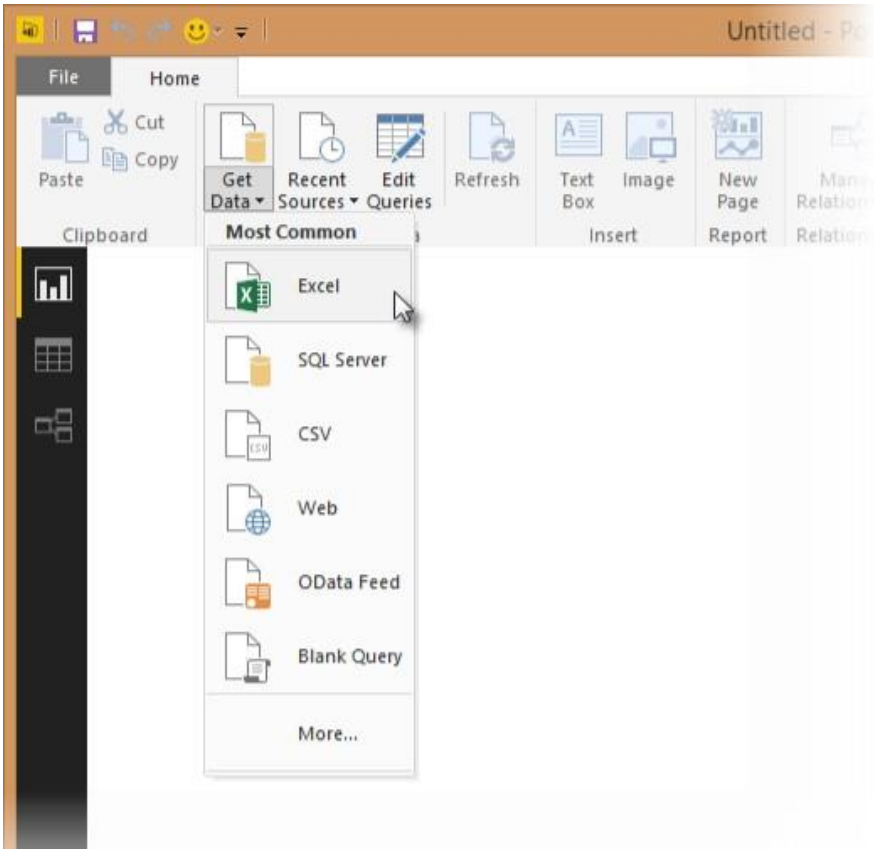
Aim

Import the legacy data from different sources such as (Excel,SqlServer, Oracle etc.) and load in the target system.

Importing Excel Data

STEP 1: Launch Power BI Desktop.

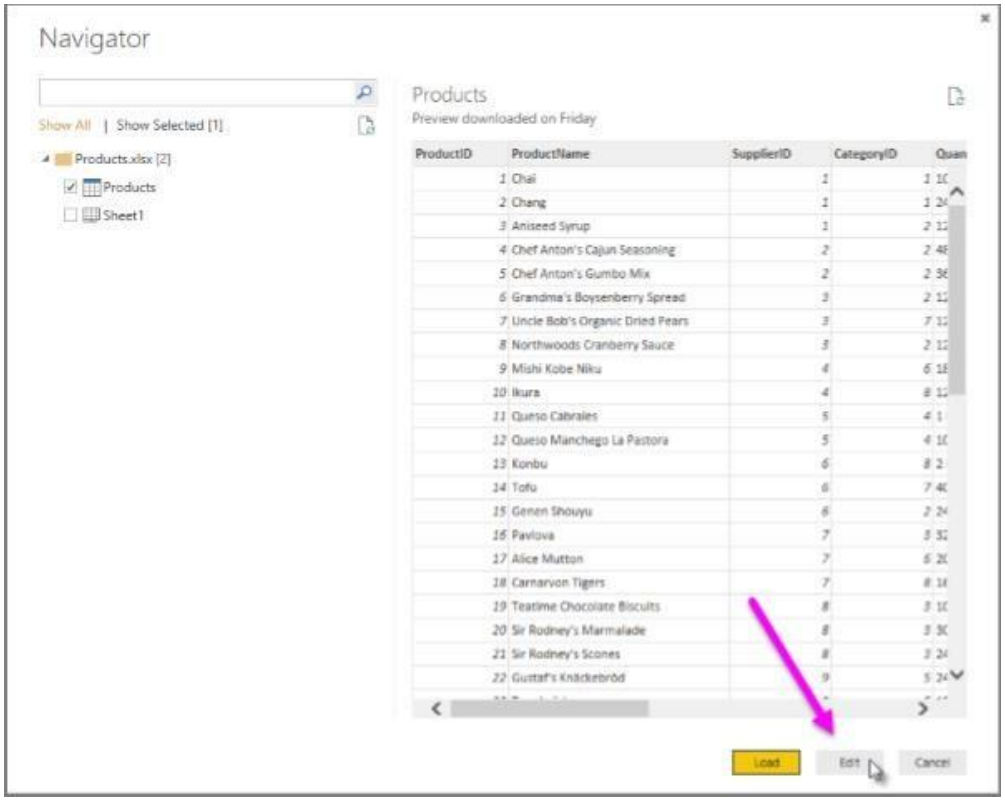
STEP 2: From the Home ribbon, select Get Data. Excel is one of the Most Common data connections, so you can select it directly from the Get Data menu.



STEP 3: If you select the Get Data button directly, you can also select FIle > Excel and select Connect.

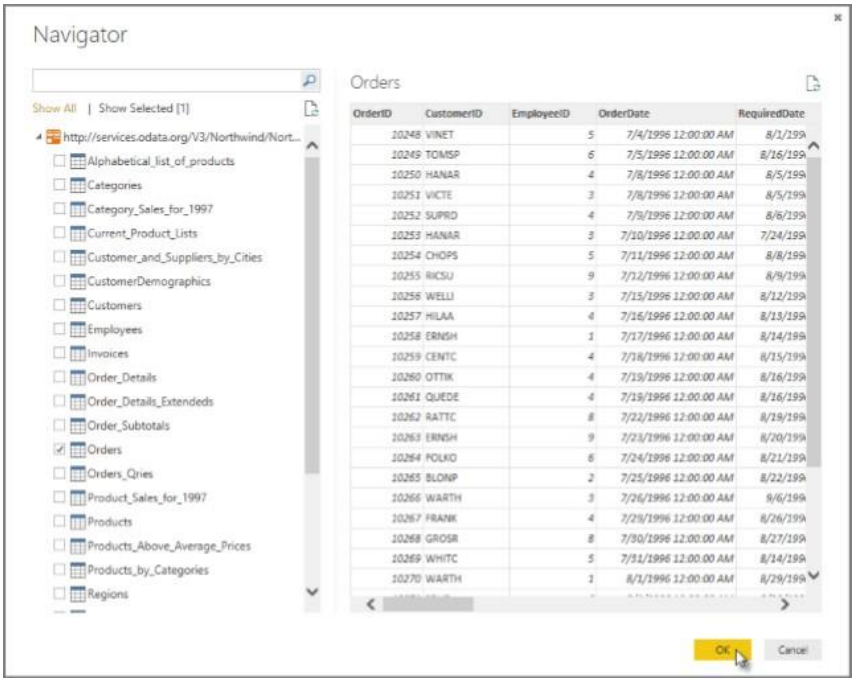
STEP 4: In the Open File dialog box, select the Products.xlsx file.

STEP 5: In the Navigator pane, select the Products table and then select Edit.



Connect to an OData feed:

1) From the Home ribbon tab in Query Editor, select Get Data.
2) Browse to the OData Feed data source.
3) In the OData Feed dialog box, paste the URL for the Northwind OData feed.
4) Select OK.
5) In the Navigator pane, select the Orders table, and then select Edit.



REPORT:

You can click a table name, without selecting the checkbox, to see a preview.