FACULTYOFMANAGEMENT
OSMANIAUNIVERSITY
Practical Question Bank for B.B.A (Business Analytics) Semester– III w.e.f 2021

SUBJECT:Descriptive Business Analytics

TotalMarks: 35Marks

Record:10Marks
Practicals:20Marks
Viva:5Marks

RECORDWORK:

1. **INPUT:**
   - Students must write the Procedure /steps for the givenquestion/problem
2. **PROCESS:**
   - StudentsmustwriteSteps/Navigationstoexecute
3. **OUTPUT:**
   - StudentsmustshowtheResult/Output

MS EXCEL

1. From the table given below,

Purchase Order Data

Supplier	Order No.	Item No.	Item Description	Item Cost	Quantity	Cost per order	A/P Terms (Months)	Order date	Arrival date
Hulkey Fasteners	Aug11001	1122	Airframe fasteners	$ 4.25	19500	$ 82,875.00	30	05-08-2011	13-08-2011
Alum Sheeting	Aug11002	1243	Airframe fasteners	$ 4.25	10000	$ 42,500.00	30	08-08-2011	14-08-2011
Fast-Tie Aerospace	Aug11003	5462	Shielded Cable/ft.	$ 1.05	23000	$ 24,150.00	30	10-08-2011	14-08-2011
Fast-Tie Aerospace	Aug11004	5462	Shielded Cable/ft.	$ 1.05	21500	$ 22,575.00	30	15-08-2011	22-08-2011
Steelpin Inc.	Aug11005	5319	Shielded Cable/ft.	$ 1.10	17500	$ 19,250.00	30	20-08-2011	27-08-2011
Fast-Tie Aerospace	Aug11006	5462	Shielded Cable/ft.	$ 1.05	22500	$ 23,625.00	30	20-08-2011	26-08-2011
Steelpin Inc.	Aug11007	4312	Bolt-nut package	$ 3.75	4250	$ 15,937.50	30	20-08-2011	26-09-2011
Durrable Products	Aug11008	7258	Pressure Gauge	$ 90.00	100	$ 9,000.00	45	25-08-2011	28-08-2011
Fast-Tie Aerospace	Aug11009	6321	O-Ring	$ 2.45	1300	$ 3,185.00	30	25-08-2011	04-09-2011
Fast-Tie Aerospace	Aug11010	5462	Shielded Cable/ft.	$ 1.05	22500	$ 23,625.00	30	25-08-2011	02-09-2011
Steelpin Inc.	Aug11011	5319	Shielded Cable/ft.	$ 1.10	18100	$ 19,910.00	30	25-08-2011	05-09-2011
Hulkey Fasteners	Aug11012	3166	Electrical Connector	$ 1.25	5600	$ 7,000.00	30	27-08-2011	29-08-2011
Hulkey Fasteners	Aug11013	9966	Hatch Decal	$ 0.75	500	$ 375.00	30	28-08-2011	30-09-2011
Steelpin Inc.	Aug11014	5234	Electrical Connector	$ 1.65	4500	$ 7,425.00	30	01-09-2011	05-09-2011
Steelpin Inc.	Sep11001	4312	Bolt-nut package	$ 3.75	4200	$ 15,750.00	30	01-09-2011	10-09-2011

Find the following.

a. Define the data types of each of the columns.
b. Smallest and largest quantity of any item ordered.
c. Total order costs
d. Average number of months per order for accounts payable
e. Number of purchase orders placed in a month.

2. From the above table calculate the following:
   a. Number of orders with A/P (accounts payable) terms shorter than 30 months
   b. Total cost of all Air Frame Fasteners
   c. Total cost of Air Frame Fasteners purchased from Alim Sheeting
   d. Duration between the order date and arrival date

e. List out the top five orders.

3. The file Mobile Loyalty contains spending on products ($) during a three month period by a sample of 15 customers receiving incentives through a mobile loyalty program.

Mobile Loyalty Incentives							
$59.35	$22.90	$67.50	$46.10	$57.45	$108.25	$50.75	$35.29
$78.32	$50.65	$63.15	$59.72	$41.55	$ 56.65	$52.60	

a. Arrange in the ascending order of the incentives.
b. Find the top five incentives.
c. How many incentives are above $70?
d. What is the Maximum incentive and the Minimum incentive paid.
e. What is second largest incentive paid and the second least incentive paid?

4. From the given data, find the following:

Name	Type 1	Type 2	Total Stats
Mankey	Fighting		305
Poliwrath	Water	Fighting	510
Victreebel	Grass	Poison	490
Tentacool	Water	Poison	335
Magneton	Electric	Steel	465
Dewgong	Water	Ice	475
Cloyster	Water	Ice	525
Onix	Rock	Ground	385
Dragonair	Dragon		420
Pidgeotto	Normal	Flying	349
Rattata	Normal		253
Beedrill	Bug	Poison	395
Duduo	Normal	Flying	310
Kingler	Water		475
Nidoqueen	Poison	Ground	505
Hitmonchan	Fighting		455
Charmeleon	Fire		405
Arbok	Poison		438
Gastly	ghost	Poison	310
Magikarp	Water		200

a. Count the number of observations given?
b. Count how many rows are given?
c. Count the number of blank cells?
d. Count how many values are above 300?
e. Count how many values are between 300 and 500?
f. Count how many “Water” observations in the second column?

5. The table given below is the list of cost of orders of a particular product based on the quantities ordered.

Cost per Order										
10800	82875	42500	24150	22575	19250	23625	15937.5	9000	3185	23625
19910	7000	375	7425	15750	103530	6875	8002.5	15562.5	65875	17040
38250	10800	7837.5	53125	23750	7062.5	63750	16276.75	6781.25	2940	18150
14910	16625	6075	15087.5	7425	6562.5	6277.5	14910	63000	3705	6125
58800	61625	6750	42000	17250	4562.5	3847.5	4425	7062.5	76500	5293
3300	7245.25	16330	13650	3562.5	5365.5	121000	2700	44625	64500	9045
81937.5	72250	3062.5	17775	110000	10050	96750	127000	9547.5	27750	25000
3675	27125	74375	25350	77400	3150	25900	525	82.5	26250	10450

You are required to find:

a. How many values are given in the table and how many values are above 50,000?
b. How many values are between 40,000 and 80,000 and How many values are less than 50,000?
c. How many values are above average and what is the average of the cost of orders
d. Average of the values greater than 50,000and also calculate the average values between 30,000 and 80,000.
e. Average of the values less than 40,000and also calculate the average of the top ten values.

6. From the table given below,

Name	Type	Speed
Bulbasaur	Grass	45
Ivysaur	Grass	60
Venusaur	Grass	80
Charmander	Fire	65
Charmeleon	Fire	80
Charizard	Fire	100
Squirtle	Water	43
Wartprtle	Water	58
Blastoise	Water	78

You are required to find

a. Sum of speed
b. Sum of speed for Type – Grass
c. Sum of speed for Type – Water
d. Sum of speed for Type – Fire
e. Sum of the values greater than 43 and below 78

7. From the above data you are required to find
   a. Average speed
   b. Average speed of Type -Grass using AVERAGEIF function
   c. Average speed of Type-fire using AVERAGEIF Function
   d. Average speed of Type-Water using AVERAGEIFS Function
   e. Average speed of Type-Grass using AVERAGEIFS function
8. For the table given in Q.No. 5 , create a Bin and Frequency, Pareto chart Cumulative

frequency, and Histogram chart.

9. A garment manufacturer manufactures T-shirts of five different colors, i.e., White, Black, Pink, Green, and Beige. He produces these T-shirts in seven different sizes, i.e. 2, 4, 6, 8, 10, 12, 14. He has two Warehouses. In both the warehouses number of a particular colour and size rage from 20 to 180 (multiples of 10).
    a. Create a Table of 50 observations with columns Colour, Size, No. of Shirts in Warehouse 1, No. of Shirts in Warehouse 2.
    b. How many Pink T Shirts are there in total.
    c. How many White T Shirts of Size 12 are there in both the warehouses.
    d. How many Black T Shirts of Size 14 are there in Warehouse 1.
    e. Create a table of Green T Shirts.
10. From the Table created in Q. No. 10, find the following:
    a. Sort the Date as per the colour of T Shirt.
    b. Use SubTotal function to find the Total number of T Shirts as per colour.
    c. Use Subtotal function to find the number of T Shirts as per the warehouse.
    d. What are the different levels of subtotals that are formed.
    e. Find the maximum and minimum of the quantity available in both the warehouses.
11. The file Mobile Loyalty contains spending on products ($) during a three month period by a sample of 15 customers receiving incentives through a mobile loyalty program.

Mobile Loyalty Incentives							
$59.35	$22.90	$67.50	$46.10	$57.45	$108.25	$50.75	$35.29
$78.32	$50.65	$63.15	$59.72	$41.55	$ 56.65	$52.60	

    a. Find Mean.
    b. Find the average of the Mobile Loyalty incentives which are less than $50.
    c. Find the average of the Mobile Loyalty incentives which are greater than $30 and Less than $70.
    d. Find the average of the Mobile Loyalty incentives which are greater than $60.
    e. Find the value below the average.

12. The meal costs of

Meal costs at Center City Restaurants																								
29	29	88	58	29	62	64	54	29	36	78	45	40	67	49	33	83	76	63	29	32	60	22	40	65
63	45	56	76	64	50	99	48	56	34	59	69	53	71	69	35	56	40	75	43	93	46	72	95	57

From the above table find the following

    a. Median
    b. First Quartile
    c. Third Quartile
    d. 35^{th}Percentile
    e. 8^{th} Decile

13. From the tables given below

Meal costs at Center City Restaurants																								
29	29	88	58	29	62	64	54	29	36	78	45	40	67	49	33	83	76	63	29	32	60	22	40	65
63	45	56	76	64	50	99	48	56	34	59	69	53	71	69	35	56	40	75	43	93	46	72	95	57

Meal costs at Metro Area Restaurants																								
63	62	30	51	58	47	36	26	14	25	38	43	22	44	44	23	39	32	29	25	52	47	44	59	21
31	43	53	53	25	52	54	26	49	48	29	31	36	31	54	29	41	26	21	36	24	33	50	68	37

a. Calculate Median of both the data sets
b. Calculate the First Quartile of the data sets
c. Calculate the Third Quartile of the data sets
d. Create box plots for both the data sets
e. Compare and give the analysis.

14. An examination was held to decide the awarding of a scholarship. The weights of various subjects were different. The marks obtained by 3 candidates (out of 100 in each subject) are given below:

Subject	Weight	Students		
		A	B	C
Mathematics	5	94	68	62
Physics	4	92	83	77
Chemistry	4	55	53	60
English	3	67	77	49
II Lang	3	85	96	80

Using MS-Excel, calculate the Weighted Arithmetic Mean to award the scholarship.

15. The file indices contains data that represent the total rate of return percentage for the Dow Jones Industrial Average(DJIA) , the Standard & Poor's 500 (S&P 500) , and the technology -heavy NASDAQ Composite (NASDAQ) from 2011 through 2014. These data are:

Year	DJIA	S&P 500	NASDAQ
2011	5.5	0	-1.1
2012	7.3	13.4	15.9
2013	26.5	29.6	38.3
2014	7.5	11.4	13.4

a. Compute Geometric mean rate of return per year from DJIA, S&P 500, NASDAQ from 2011 to 2014.
b. What conclusions can you reach concerning the Geometric mean rates of return per year of the three market indices.
c. Calculate the average rate of return per year from DJIA, S&P 500, and NASDAQ from 2011 to 2014.

d. Compare the results of mean with the results of Geometric mean.
e. Give your inferences.

16. The file SUV contains the overall miles per gallon (MPG) of 2015 small SUVs.

26	38	26	30	24	26	28	28	24	26	24	39
32	23	22	24	28	37	31	40	25	25	33	30

a. Compute Maximum and minimum values
b. Compute mean, median and mode.
c. Compute the Standard Deviation
d. Compute Variance and coefficient of variation
e. Compute the range of the data.

17. The file Hotel Away contains the average room price (in US $) paid by various nationalities while travelling abroad (away from their home country) in 2014.

145	170	120	110	70	70	45	65	68	130
150	146	134	115	85	98	72	88	92	87

a. Compute Standard deviation.
b. Compute the variance and coefficient of Variation.
c. Construct the box plot.
d. Compute skewness
e. Compute Kurtosis.

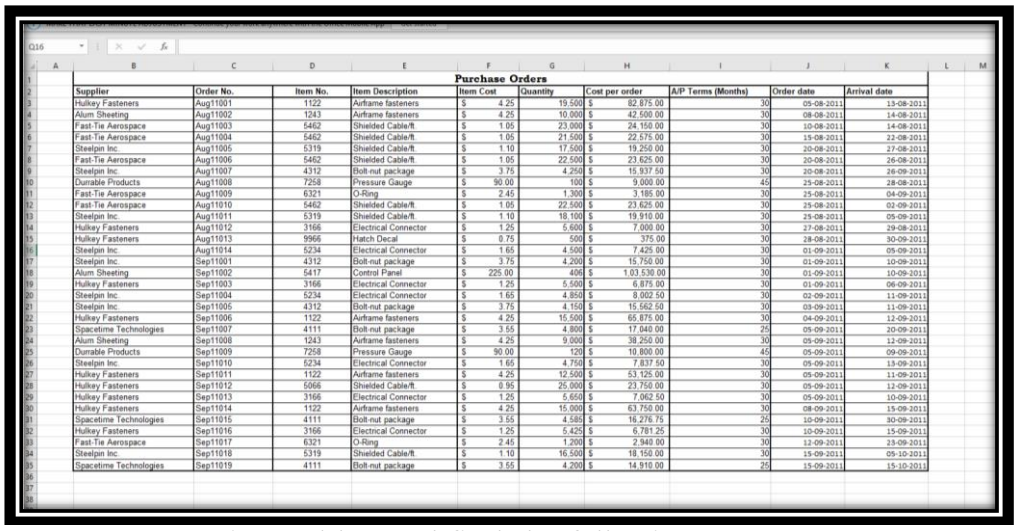
18. From the table given in Q. No. 18, give inferences on
a. Explain the results of box plot.
b. Explain Standard Variation.
c. Is the data skewed. If so, how?
d. From the Kurtosis value. Give your inferences.
e. What conclusions can you reach concerning the room price.

19. Marks of students of two classes are given below.

Marks of students of two classes in English subject																			
A	65	33	95	53	29	82	59	53	32	93	100	46	90	61	43	40	69	63	50	92
B	80	48	22	43	78	37	99	24	31	76	57	75	60	89	77	91	22	32	39	53

a. Compute Standard deviation of both the classes separately.
b. Compute the coefficient of variation of both the classes separately.
c. Compute the skewness of both the classes separately.
d. Compute the kurtosis of both the classes separately.
e. Give your inferences of the performance of both the classes.

20. From the following data



Purchase Orders

Supplier	Order No.	Item No.	Item Description	Item Cost	Quantity	Cost per order	A/P Terms (Months)	Order date	Arrival date
Hulkey Fasteners	Aug11001	1122	Airframe fasteners	$ 4.25	19,500	$ 82,875.00	30	05-08-2011	13-08-2011
Alum Sheeting	Aug11002	1243	Airframe fasteners	$ 4.25	10,000	$ 42,500.00	30	08-08-2011	14-08-2011
Fast-Tie Aerospace	Aug11003	5462	Shielded Cable/ft	$ 1.05	23,000	$ 24,150.00	30	10-08-2011	14-08-2011
Fast-Tie Aerospace	Aug11004	5462	Shielded Cable/ft	$ 1.05	21,500	$ 22,575.00	30	15-08-2011	22-08-2011
Steelpin Inc.	Aug11005	5319	Shielded Cable/ft	$ 1.10	17,500	$ 19,250.00	30	20-08-2011	27-08-2011
Fast-Tie Aerospace	Aug11006	5462	Shielded Cable/ft	$ 1.05	22,500	$ 23,625.00	30	20-08-2011	26-08-2011
Steelpin Inc.	Aug11007	4312	Bolt-nut package	$ 3.75	4,250	$ 15,937.50	30	20-08-2011	26-09-2011
Durrable Products	Aug11008	7258	Pressure Gauge	$ 90.00	100	$ 9,000.00	45	25-08-2011	28-08-2011
Fast-Tie Aerospace	Aug11009	6321	O-Ring	$ 2.45	1,300	$ 3,185.00	30	25-08-2011	04-09-2011
Fast-Tie Aerospace	Aug11010	5462	Shielded Cable/ft	$ 1.05	22,500	$ 23,625.00	30	25-08-2011	02-09-2011
Steelpin Inc.	Aug11011	5319	Shielded Cable/ft	$ 1.10	18,100	$ 19,910.00	30	25-08-2011	05-09-2011
Hulkey Fasteners	Aug11012	3166	Electrical Connector	$ 1.25	5,600	$ 7,000.00	30	27-08-2011	29-08-2011
Hulkey Fasteners	Aug11013	9966	Hatch Decal	$ 0.75	500	$ 375.00	30	28-08-2011	30-09-2011
Steelpin Inc.	Aug11014	5234	Electrical Connector	$ 1.65	4,500	$ 7,425.00	30	01-09-2011	05-09-2011
Steelpin Inc.	Sep11001	4312	Bolt-nut package	$ 3.75	4,200	$ 15,750.00	30	01-09-2011	10-09-2011
Alum Sheeting	Sep11002	5417	Control Panel	$ 225.00	406	$ 1,03,536.00	30	01-09-2011	10-09-2011
Hulkey Fasteners	Sep11003	3166	Electrical Connector	$ 1.25	5,500	$ 6,875.00	30	01-09-2011	06-09-2011
Steelpin Inc.	Sep11004	5234	Electrical Connector	$ 1.65	4,850	$ 8,002.50	30	02-09-2011	11-09-2011
Steelpin Inc.	Sep11005	4312	Bolt-nut package	$ 3.75	4,150	$ 15,562.50	30	03-09-2011	11-09-2011
Hulkey Fasteners	Sep11006	1122	Airframe fasteners	$ 4.25	15,500	$ 65,875.00	30	04-09-2011	12-09-2011
Spacetime Technologies	Sep11007	4111	Bolt-nut package	$ 3.55	4,800	$ 17,040.00	25	05-09-2011	20-09-2011
Alum Sheeting	Sep11008	1243	Airframe fasteners	$ 4.25	9,000	$ 38,250.00	30	05-09-2011	12-09-2011
Durrable Products	Sep11009	7258	Pressure Gauge	$ 90.00	120	$ 10,800.00	45	05-09-2011	09-09-2011
Steelpin Inc.	Sep11010	5234	Electrical Connector	$ 1.65	4,750	$ 7,837.50	30	05-09-2011	13-09-2011
Hulkey Fasteners	Sep11011	1122	Airframe fasteners	$ 4.25	12,500	$ 53,125.00	30	05-09-2011	11-09-2011
Hulkey Fasteners	Sep11012	5066	Shielded Cable/ft	$ 0.95	25,000	$ 23,750.00	30	05-09-2011	12-09-2011
Hulkey Fasteners	Sep11013	3166	Electrical Connector	$ 1.25	5,650	$ 7,062.50	30	05-09-2011	10-09-2011
Hulkey Fasteners	Sep11014	1122	Airframe fasteners	$ 4.25	15,000	$ 63,750.00	30	08-09-2011	15-09-2011
Spacetime Technologies	Sep11015	4111	Bolt-nut package	$ 3.55	4,585	$ 16,276.75	25	10-09-2011	30-09-2011
Hulkey Fasteners	Sep11016	3166	Electrical Connector	$ 1.25	5,425	$ 6,781.25	30	10-09-2011	15-09-2011
Fast-Tie Aerospace	Sep11017	6321	O-Ring	$ 2.45	1,200	$ 2,940.00	30	12-09-2011	23-09-2011
Steelpin Inc.	Sep11018	5319	Shielded Cable/ft	$ 1.10	16,500	$ 18,150.00	30	15-09-2011	05-10-2011
Spacetime Technologies	Sep11019	4111	Bolt-nut package	$ 3.55	4,200	$ 14,910.00	25	15-09-2011	15-10-2011

Use Pivot tables and find the following:

a. Sum of item cost by supplier.
b. Sum of cost per Order by supplier
c. Sum of item No. Sum of Quantity and Count of order
d. Count of Order No. , Sum of Quantity and Sum of A/P Terms(Monthly)
e. Sum of Item cost by Supplier

21. Calculate the Mean and Standard Deviation of the Probability Distribution in MS-Excel.

Number of persons (X)	2	3	4	5	6	7	8
Probability P(X)	0.22	0.48	0.25	0.05	0.04	0.32	0.34

22. One ticket is drawn at random from bag containing 30 tickets numbered from 1 to 30. Find the probability that is a multiple of 5 or 7 using MS-Excel.
23. Find the probability of getting a total of 7 or 11 in a single roll of two dice.
24. In a school there are 200 students who play either cricket, football or badminton. No. of students who play Cricket is 70, Football is 60, and Badminton 40. 20 students play Cricket and Football, 15 students play Football and Badminton, 10 students play Badminton and Cricket. 5 students play all the three games and 30 students play none of the games. Draw Venn-Diagram in MS-Excel.
25. A problem in business statistics is given to five students : A, B, C, D and E. Their chances of solving it are $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}, \frac{1}{6}$. What is the probability that the problem will be solved. Use Ms-Excel to solve the above problem.
26. A University examination paper has 12 questions and candidates are required to answer 4 questions. How many combinations of 4 questions are there.
27. In how many ways first, second and third prizes can be distributed to three contestants out of 10 contestants.
28. The Human Resources department of a company has records which show the following analysis of its 200 engineers.

Age	Bachelor's Degree only	Master's degree	Total
Under 30	90	10	100
30-40	20	30	50
Over 40	40	10	50
Total	150	50	200

If one engineer is selected at random from the company, find:

(a) The probability he has only a bachelor's degree

(b) The probability he has a master's degree, given that he is over 40

(c) The probability he is under 30, given that he has only a bachelor's degree.

29. A study of speeding violations and drivers who use cell phones produced the following data.

Phone Usage	Speeding violations in the last year	No speeding violations in the last year
Use cell phones while driving	25	280
Does not use cell phone while driving	45	405

Use contingency table and find

a. The probability of the driver who is a cell phone user.
b. The probability who had no speed violations in the last year.
c. The probability of Driver who has not violation in the last year and was a cell phone user.
d. The probability of driver is a cell phone user or has no violation in the last year.
e. The probability of the driver is a cell phone user and had a violation last year.
f. The probability of the driver has no violation last year and driver was not a cell phone user.

30. Bayes' theorem Problem:

A manufacturing firm produces pipes in three plants, plant A produces 50% of total output, plant B produces 25% and plant C produces 25% of total output. From the past experience the fraction of defective items in the output of these plants were 0.005, 0.008 and 0.010. Find out the probability of a defective item selected at random is from A , B and C plants using MS-Excel.

31. Find the distribution function for the frequency function given below. Also show the graph of the frequency and distribution functions.

X	1	2	3	4	5	6	7	8	9	10
F(X)	0.12	0.25	0.08	0.14	0.09	0.17	0.06	0.27	0.4	0.28

32. A pair of fair dice is rolled. Let 'X' denote the sum of the number of dots on the top faces. Construct the probability distribution of X for a pair of fair dice along with a histogram diagram in Ms-Excel.
33. A coin is flipped 10 times. Calculate the probability of getting 5 heads using a Binomial distribution formula using MS-Excel.
34. Ten unbiased coins are tossed simultaneously. Find the probability of
    a. Exactly 6 heads
    b. At-least one head
35. Fit a binomial distribution for the following data using MS-Excel.

X	0	1	2	3	4	5	6	7
f	7	6	19	35	30	23	7	1

36. Fit a poison distribution for the following data using MS-Excel.

X	0	1	2	3	4
Y	211	90	19	5	0

37. Six coins are tossed 6400 times. Find the probability to get 6 heads in 2 tosses using poisson distribution using MS-Excel.
38. From the data given below calculate probability distribution function in Excel.

Employee ID	Emp113	Emp 112	Emp105	Emp101	Emp103	Emp111	Emp109	Emp102	Emp110	Emp107	Emp 106	Emp 108	Emp 104
Weight	30	35	40	45	50	55	60	65	70	75	80	85	90

39. The distribution of heights of Indian women aged 18 to 24 is approximately normally distributed with a mean of 65.5 inches and a standard deviation of 2.5 inches. What percentage of these women is taller than 68 inches? Show the steps in MS-Excel to calculate Normal Distribution using NORM.S.DIST function.
40. The golf scores for a school team were normally distributed with a mean of 68 and a standard deviation of 3. Find the probability that a golger scored between 66 and 70 in MS-Excel.
41. Download the data set from Kaggle with the URL. https://www.kaggle.com/datasets/gagandeep16/car-sales
42. Extract the needed information on types of cars.
43. Extract the information on the top cars sold.
44. Extract the information on which manufacturer has the highest sales.
45. Extract the information on what factors the car sales are dependent on.
46. Which field has more outliers and give your inferences.
47. Between which fields the correlation is high.
48. Which manufacturer car model has more sales
49. What are the top ten car models and justify your answer.
50. Give descriptive statistics of car sales data set.