Chapter 9: Spreadsheet Tool — OpenOffice Calc-II

Solutions

Summative Assessment

Multiple-Choice Questions (MCQs)

1. Doughnut is a type of ..... chart.
   a. Bar b. Column
   c. Line d. Pie

Ans. d

2. Which chart is used to show the comparison of data items within a specified time period?
   a. Area chart b. Column
   c. Line d. Pie

Ans. b

3. In which step, do you need to enter the values of Title, Subtitle, X-axis, and Y-axis?
   a. Chart Type b. Chart Elements
   c. Data Series d. Data Range

Ans. b

Very Short Answer Questions

4. Give one difference between a bubble chart and a pie chart?

Ans. A pie chart demonstrates the proportional size of an item with respect to the sum of all the items; whereas, a bubble chart is used for representing relations among three variables

5. Define legend.

Ans. In a chart showing different data series, a unique color or pattern is assigned to each data series. This unique color or pattern is known as a legend.

6. Write a characteristic of a doughnut chart.

Ans. Doughnut chart displays the data as fractions of a whole.

Short Answer Questions

7. List the difference between a column and a bar chart.

Ans. A column chart is used to emphasize comparison of data items within a specified time period. To highlight the changes within a specified time period, the column chart organizes the values vertically and categories horizontally. On the contrary, a bar chart is used to demonstrate comparison among individual items. It is mainly used to highlight a comparison of values; therefore, it organizes values horizontally and categories vertically.

8. Define the stock chart and list its two characteristics.

Ans. The stock chart is used to demonstrate the market movement in terms of the opening price, bottom price, top price, and closing price. It also displays the transaction volume.

The following are some characteristics of the stock chart:

- The stock chart uses the lines with markers to show the data series.
- The height of the marker helps you to measure the value.

Long Answer Questions

9. Explain the different types of charts available in Calc.

Ans. Calc supports various types of charts, which includes: Area chart, Column chart, Line chart, XY (Scatter) chart, Column and Line chart, Pie chart, Bar chart, Net chart, Stock chart, and Bubble Chart.

- **Area Chart:** An area chart is generally used to highlight change over time.
- **Column Chart:** A column chart is used to emphasize comparison of data items within a specified time period.
- **Line Chart:** A line chart is a type of graph that displays data trends at regular intervals.
- **Scatter Chart:** To depict the relationship among numerical values using a variety of data series, you can use the XY (scatter) chart.
- **Column and Line Chart:** The combination of the line and column charts is known as the column and line chart.
- **Pie Chart:** A pie chart is a round chart that is divided into zones, which demonstrate the proportional size of an item with respect to the sum of all the items.
- **Bar Chart:** A bar chart is used to demonstrate comparison among individual items.
- **Net Chart:** A net chart is used to display data as points connected by some lines in a grid or net that looks like a spider net or a radar tube display.
- **Stock Chart:** A stock chart is used to demonstrate the market movement in terms of the opening price, bottom price, top price, and closing price.
- **Bubble Chart:** A bubble chart is used for representing relations among three variables.

10. Define formatting. How is it useful in a spreadsheet program?

Ans. Arranging data in a particular style or format is known as formatting. Data formatting helps in enhancing the appearance of your worksheet. It also helps in making your data bold, italic, and underlined to attract the viewer's attention. Data formatting has numerous forms, such as number formatting, date and time formatting, and text formatting.

11. List various components of a chart.

Ans. Various components of a chart are as follows:

- **X-axis:** Refers to a horizontal axis, which is also known as category axis
- **Y-axis:** Refers to a vertical axis also known as value axis
- **Data Series:** Refer to a set of data that you want to display in a chart
- **Chart Area:** Refers to the total space that is enclosed by a chart
- **Plot Area:** Refers to the main region of a chart in which your data is plotted
- **Chart Title:** Denotes the type of data plotted in a chart
- **Axes Titles:** Mention the name or title for X , Y and Z axes
- **Legend:** Refers to a unique color or pattern that is assigned to a data series
- **Gridlines:** Refer to the horizontal and vertical lines within the plot area in a chart
- **Data Label:** Provides additional information about a value in the chart that is coming from a work-sheet cell

12. Explain the following terms:

a. Chart sheet b. Embedded chart

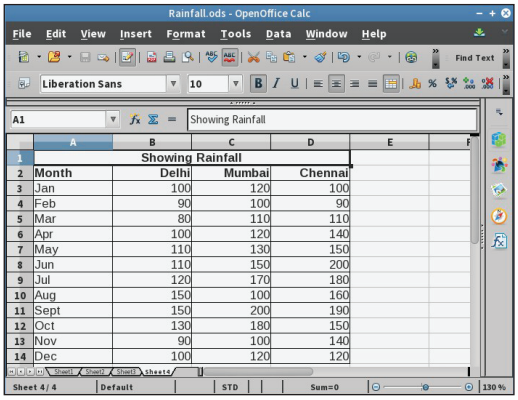
Ans. a. **Chart sheet**: A chart sheet contains only one chart and does not display the source data. It is mainly used when you want to view or print the chart.

b. **Embedded chart**: An embedded chart and its source data both are placed in the same worksheet.

Formative Assessment

Application-Oriented Questions

1. Consider the following worksheet, which shows the rainfall of three states named Delhi, Mumbai, and Chennai.



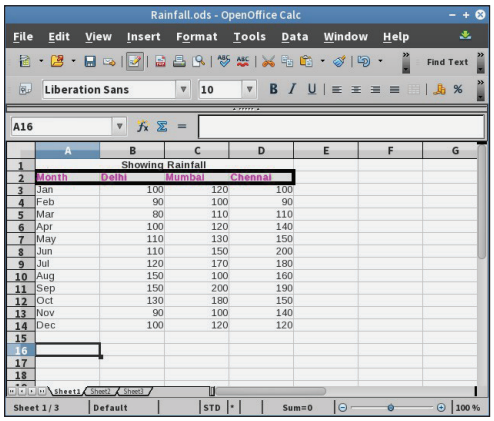
a. Select the range A2 to D2 and apply the following settings:

- **Font color**: Magenta
- **Border type**: Set Outer Border Only
- **Border line style**: 4.00pt
- **Border color**: Black
- **Background color**: Light gray

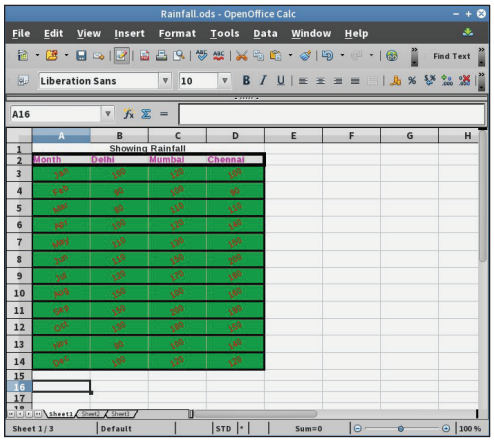
b. Select the range A3 to D14 and apply the following settings:

- **Font color**: Red
- **Text orientation**: 28 Degrees
- **Reference edge**: Text Extension Inside Cell
- **Border type**: Set Outer Border and Horizontal Lines
- **Border line style**: 2.50pt
- **Border color**: Black
- **Background color**: Green 4

Ans. a. The output after applying the mentioned settings is shown in the following figure:

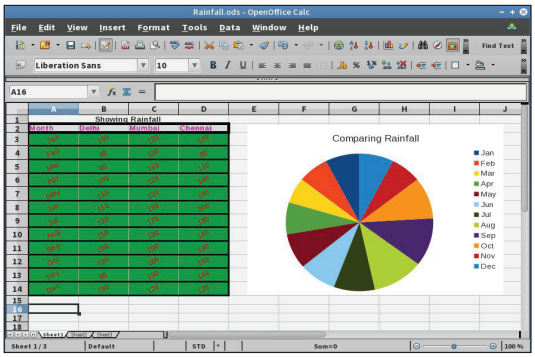


b. The output after applying the mentioned settings is shown in the following figure:

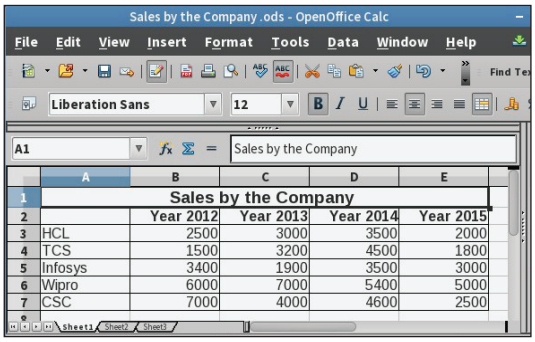


2. Using the preceding worksheet, named Rainfall.ods, create a pie chart for it. The title of the pie chart is Comparing Rainfall.

Ans. The pie chart of the given data is shown in the following figure:



3. Which chart will you use to present the information given in the following worksheet? In addition, mention the entire procedure of presenting information in a chart.

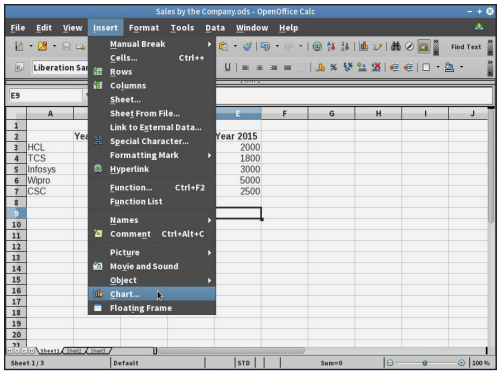


	A	B	C	D	E
1	Sales by the Company				
2		Year 2012	Year 2013	Year 2014	Year 2015
3	HCL	2500	3000	3500	2000
4	TCS	1500	3200	4500	1800
5	Infosys	3400	1900	3500	3000
6	Wipro	6000	7000	5400	5000
7	CSC	7000	4000	4600	2500

Ans. Area chart.

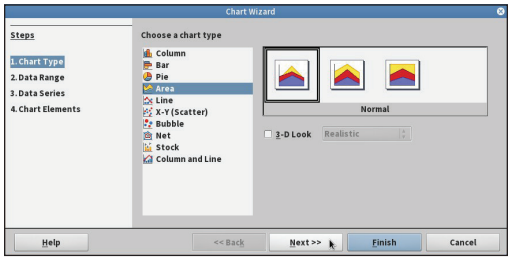
The procedure for presenting the preceding application in a chart is as follows:

1. *Select* the cell range that contains the source data whose chart we want to make. In our case, we have selected A2:E7.
2. *Select* **Insert→Chart** from the **Menu** bar, as shown in the following figure:



The **ChartWizard** dialog box appears.

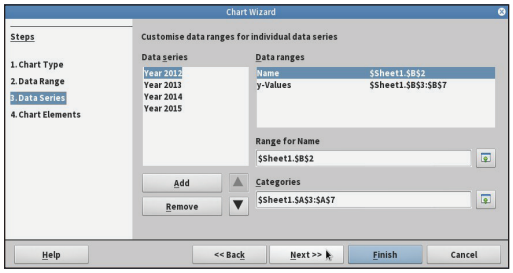
3. In the **Chart Wizard** dialog box, *select* a chart type in the **Choose a chart type** list box and *click* the **Next** button, as shown in the following figure:



The **Data Range** section appears.

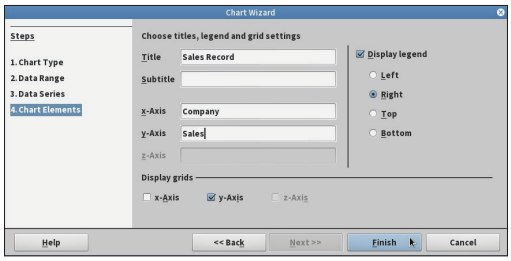
4. *Select* the **Data series in columns** radio button under the **Choose a data range** group.
5. *Select* both check boxes—**First row as label and First column as label** and *click* the **Next** button, as shown in the following figure:

6. Click the **Next** button, as shown in the following figure:

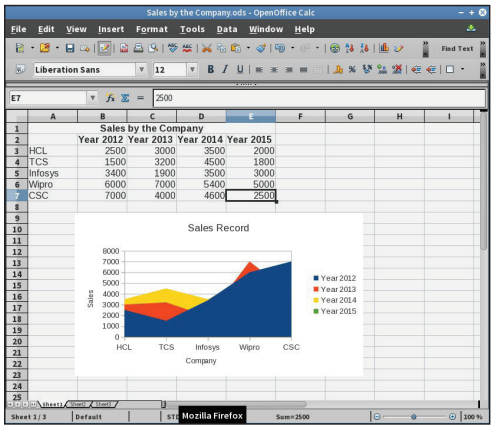


The **Chart Elements** section appears.

7. *Type* the title of the chart in the **Title** text box.
8. *Type* X axis and Y axis titles in **X axis** and **Y axis** boxes and click the **Finish** button, as shown in the following figure:

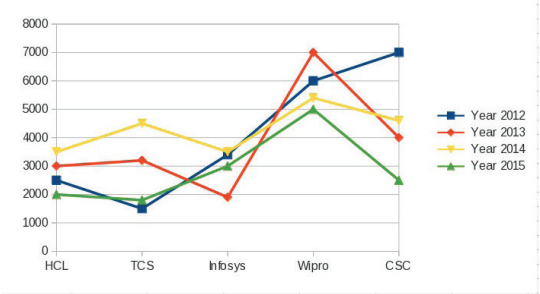


The chart is created and displayed in your worksheet, as shown in the following figure:



4. The following chart is based on the information given in the worksheet of Question 3.

Answer questions (a) to (c) based on the following chart and the worksheet of Question 3:



a. Identify the type of chart.

b. What information is conveyed by the green line on the chart?

c. Does the preceding chart convey the complete information given in the worksheet? If no, then which chart will you suggest to use and why.

Ans. a. Line chart

b. Sales by companies in 2015

c. Column and line chart, as it is clearly depicting the sales of all the companies on the year basis.

5. Create a salary table for calculating salary of your school's teachers.

a. The salary table contains the following fields:

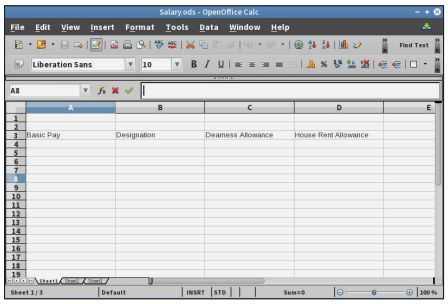
- Basic Pay
- Designation
- Dearness Allowance
- House Rent Allowance (HRA)

b. Create a salary table that includes all these 4 components for 10 teachers.

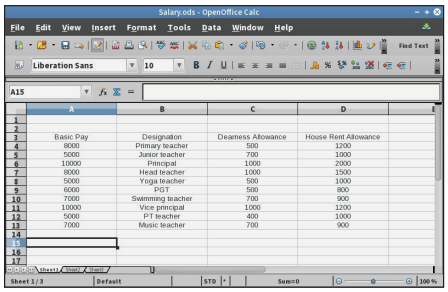
c. After entering all the information, calculate the total salary of each teacher using a formula.

d. Now, calculate the total amount of salary of all the teachers using a formula.

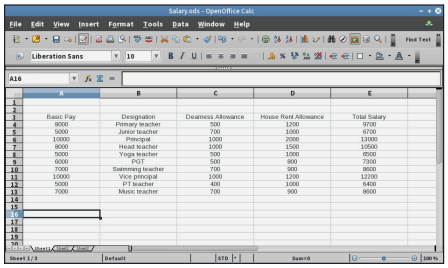
Ans. a. The Salary table having the mentioned fields is shown in the following figure:



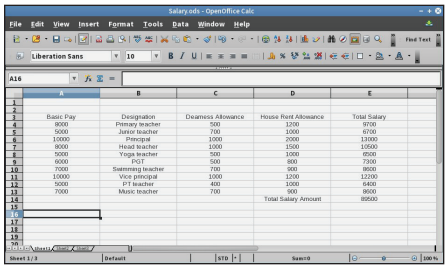
b. The salary table that includes all these 4 components for 10 teachers is shown in the following figure:



c. The total salary of each employee (teacher) is calculated by adding all the fields except the Designation field. The total salary of each employee is shown in the following figure:

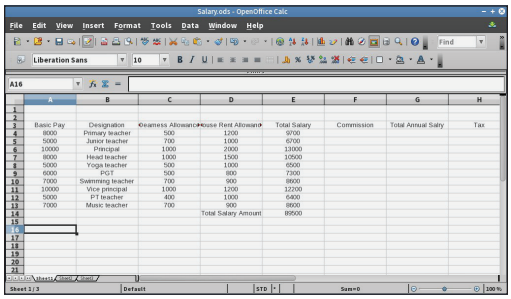


d. The total amount of salary of all the teachers is calculated by using the =Sum(G4:G13) formula. The result is displayed in the following figure:



6. Considering the information provided in Question 5, perform the following tasks:
   a. Include the following fields in the salary table:
      - Commission
      - Total annual salary
      - Tax
   b. When you insert the Commission and Tax columns in the salary table, you need to mention the commission rate according to the designation, such as the commission rate for a teacher is 1% of the total salary, 0.50% for peon, 1.25% for vice principal, and 2% for principal. Similarly, you need to mention the taxes according to the annual salary of each of these persons. For example, persons drawing salary more than ₹ 3 lakh have to give 5% tax and persons drawing salary between 1 lakh and 3 lakh have to give 3 % tax. A person drawing an annual salary less than 1 lakh need not give any tax.
   c. Add 3 more entries for the peon, sports teacher, and library teacher.
   d. Calculate the total salary including the rate of commission on the basic salary using a formula.
   e. Calculate the net salary for each of these persons.
   f. After that, calculate the net salary by deducting tax.
   g. Now, calculate the total of all the net salaries.

Ans. a. The Salary table after adding the four fields is shown in the following figure:

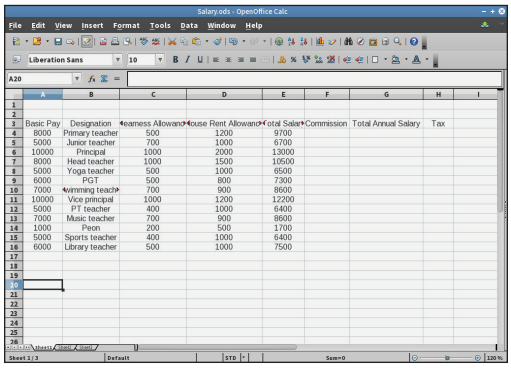


Basic Pay	Designation	Teamness Allowance	House Rent Allowance	Total Salary	Commission	Total Annual Salry	Tax
8000	Primary teacher	500	1200	9700			
5000	Junior teacher	700	1000	6700			
10000	Principal	1000	2000	13000			
8000	Head teacher	1000	1500	10500			
5000	Yoga teacher	500	1000	6500			
6000	PGT	500	800	7300			
7000	Swimming teacher	700	900	8600			
10000	Vice principal	1000	1200	12200			
5000	PT teacher	400	1000	6400			
7000	Music teacher	700	900	8600			
			Total Salary Amount	89500			

b. You can calculate the commission for a teacher on the total salary using the formula: (E4*1/100). The commission for other designations can also be calculated using their percentage of commission.

Similarly taxes can be calculated depending on the given percentage on the total salary.

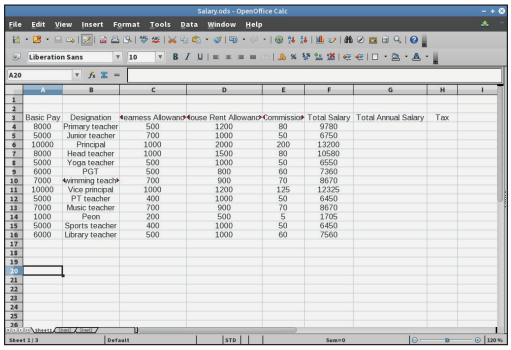
c. Add three more entries for the peon, vice principal, and principal as shown in the following figure:



Basic Pay	Designation	Teamness Allowance	House Rent Allowance	Total Salary	Commission	Total Annual Salary	Tax
8000	Primary teacher	500	1200	9700			
5000	Junior teacher	700	1000	6700			
10000	Principal	1000	2000	13000			
8000	Head teacher	1000	1500	10500			
5000	Yoga teacher	500	1000	6500			
6000	PGT	500	800	7300			
7000	Swimming teacher	700	900	8600			
10000	Vice principal	1000	1200	12200			
5000	PT teacher	400	1000	6400			
7000	Music teacher	700	900	8600			
1000	Peon	200	500	1700			
5000	Sports teacher	400	1000	6400			
6000	Library teacher	500	1000	7500			

d. You can calculate the total salary including the rate of commission on the basic salary using a formula: (A4*1/100)+A4+C4+D4

The Salary table after calculating the total salary including the rate of commission on the basic salary is shown in the following figure:

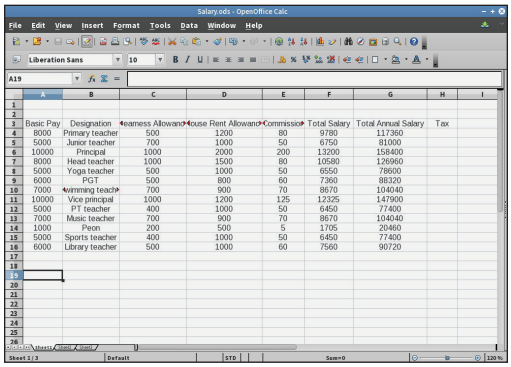


Basic Pay	Designation	Teamness Allowance	House Rent Allowance	Commission	Total Salary	Total Annual Salary	Tax
8000	Primary teacher	500	1200	80	9780		
5000	Junior teacher	700	1000	50	6750		
10000	Principal	1000	2000	200	13200		
8000	Head teacher	1000	1500	80	10580		
5000	Yoga teacher	500	1000	50	6550		
6000	PGT	500	800	60	7360		
7000	Swimming teacher	700	900	70	8670		
10000	Vice principal	1000	1200	125	12325		
5000	PT teacher	400	1000	50	6450		
7000	Music teacher	700	900	70	8670		
1000	Peon	200	500	5	1705		
5000	Sports teacher	400	1000	50	6450		
6000	Library teacher	500	1000	60	7560		

e. You can calculate the annual salary for each of these persons by using the following formula:

=(F4*12)

The Salary table after calculating the annual salary for each of these persons is shown in the following figure:

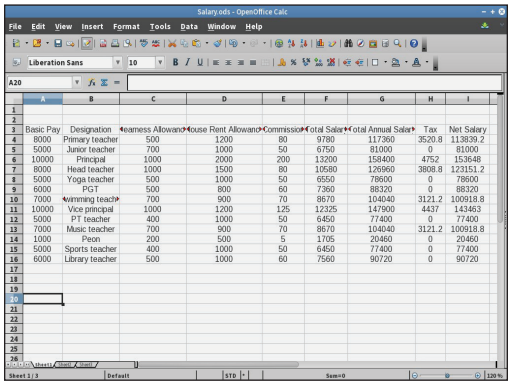


Basic Pay	Designation	Teamness Allowance	House Rent Allowance	Commission	Total Salary	Total Annual Salary	Tax
8000	Primary teacher	500	1200	80	9780	117360	
5000	Junior teacher	700	1000	50	6750	81000	
10000	Principal	1000	2000	200	13200	158400	
8000	Head teacher	1000	1500	80	10580	126960	
5000	Yoga teacher	500	1000	50	6550	78600	
6000	PGT	500	800	60	7360	88320	
7000	Swimming teacher	700	900	70	8670	104040	
10000	Vice principal	1000	1200	125	12325	147900	
5000	PT teacher	400	1000	50	6450	77400	
7000	Music teacher	700	900	70	8670	104040	
1000	Peon	200	500	5	1705	20460	
5000	Sports teacher	400	1000	50	6450	77400	
6000	Library teacher	500	1000	60	7560	90720	

f. You can calculate the net salary by deducting tax by using the following formula: =(G4-H4)

Similarly copy and paste the formula in the I5:I16 cells range.

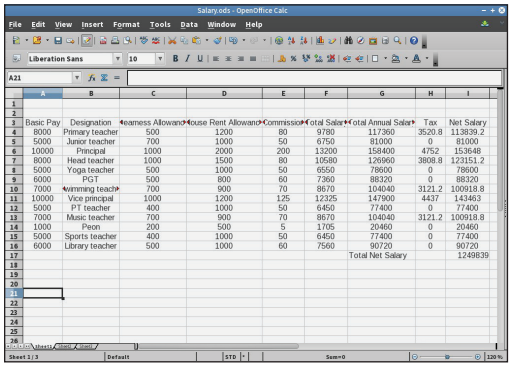
The Salary table after calculating the net salary for each of these persons is shown in the following figure:



Basic Pay	Designation	Teamness Allowance	House Rent Allowance	Commission	Total Salary	Total Annual Salary	Tax	Net Salary
8000	Primary teacher	500	1200	80	9780	117360	3520.8	113839.2
5000	Junior teacher	700	1000	50	6750	81000	0	81000
10000	Principal	1000	2000	200	13200	158400	4752	153648
8000	Head teacher	1000	1500	80	10580	126960	3808.8	123151.2
5000	Yoga teacher	500	1000	50	6550	78600	0	78600
6000	PGT	500	800	60	7360	88320	0	88320
7000	Swimming teacher	700	900	70	8670	104040	3121.2	100918.8
10000	Vice principal	1000	1200	125	12325	147900	4437	143463
5000	PT teacher	400	1000	50	6450	77400	0	77400
7000	Music teacher	700	900	70	8670	104040	3121.2	100918.8
1000	Peon	200	500	5	1705	20460	0	20460
5000	Sports teacher	400	1000	50	6450	77400	0	77400
6000	Library teacher	500	1000	60	7560	90720	0	90720

g. You can calculate the total of all the net salaries by using the following formula: =Sum(I4:I16)

The Salary table after calculating the total of all the net salaries is shown in the following figure:

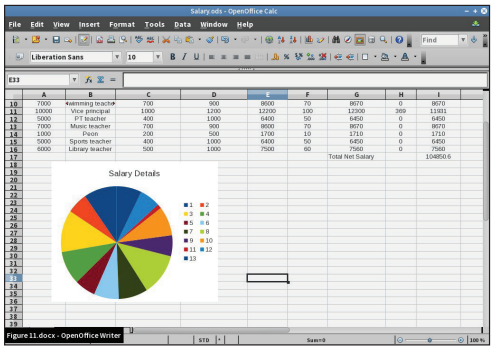


Basic Pay	Designation	Teamness Allowance	House Rent Allowance	Commission	Total Salary	Total Annual Salary	Tax	Net Salary
8000	Primary teacher	500	1200	80	9780	117360	3520.8	113839.2
5000	Junior teacher	700	1000	50	6750	81000	0	81000
10000	Principal	1000	2000	200	13200	158400	4752	153648
8000	Head teacher	1000	1500	80	10580	126960	3808.8	123151.2
5000	Yoga teacher	500	1000	50	6550	78600	0	78600
6000	PGT	500	800	60	7360	88320	0	88320
7000	Swimming teacher	700	900	70	8670	104040	3121.2	100918.8
10000	Vice principal	1000	1200	125	12325	147900	4437	143463
5000	PT teacher	400	1000	50	6450	77400	0	77400
7000	Music teacher	700	900	70	8670	104040	3121.2	100918.8
1000	Peon	200	500	5	1705	20460	0	20460
5000	Sports teacher	400	1000	50	6450	77400	0	77400
6000	Library teacher	500	1000	60	7560	90720	0	90720
						Total Net Salary		1249839

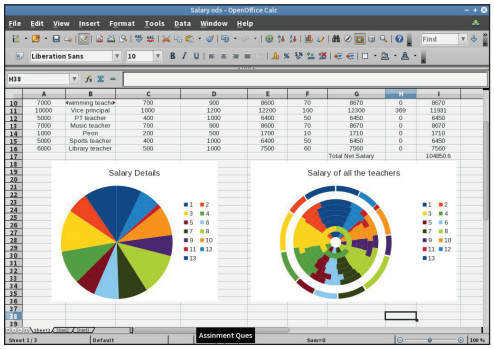
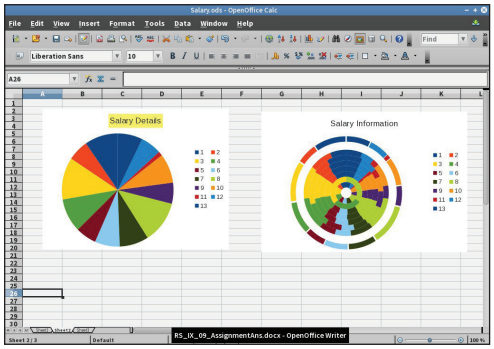
7. Create a chart for the salary table.
   a. Insert a pie chart that depicts all the components of the salary table.
   b. Insert a doughnut chart to depict all the plotter values.
   c. Copy/place both charts in different sheets and change the background color of the title of the pie chart.

   After that, change the title of the doughnut chart.

Ans. a. The pie chart that depicts all the components of the Salary table is shown in the following figure:



b. The doughnut chart to depict all plotter values table is shown in the following figure:



c. The output as per the given instructions is shown in the following figure: