Projects

Project 1: Design the attractive Digital India poster in OpenOffice Writer using images and text formatting, and take the print out of the same.

Solution: Perform the following steps to create a poster:

1. Open the **OpenOffice Writer** application.

2. Select the **Format → Page** option from the Menu bar. The **Page Style: Default** dialog box appears. Click the **Landscape** radio button for the Orientation option in the **paper Format** section of the **Page** tab. Click the **OK** button in the **Page Style: Default** dialog box to apply the changes.

3. Open the **Page Style: Default** dialog box again, select the **Borders** tab and click the **Set All Four Borders** icon under the **Default** option of the **Line arrangement** section.

4. Select the **Yellow green 4** option from the **Colour** drop-down list under the Line section to specify colour to the border. Also, select the **9.00pt** option from the **Style** list box under the **Line** section to specify the line style to the border. Click the **OK** button.

5. Type the line '**DIGITAL INDIA**' and select the line using the mouse or keyboard.

6. Select the font name as **Tinos** from the **Font Name** combo box and the font size as **36** from **Font Size** combo box for the selected text on the **Formatting** toolbar.

7. On the **Formatting** toolbar, click the **B** icon to apply bold style and click the **Centred** icon to centrally align the selected text.

8. Click the down-arrow of the **Font Colour** icon on the Formatting toolbar. The Font colour panel appears. Select the **Red** colour in the Font colour panel. The selected text becomes red. Press the **Enter** key on the keyboard.

9. Select the **Insert → Picture → From File** option. The **Insert picture** dialog box appears. Navigate to the location where the image is saved. Select the image and click the **Open** button. The selected image appears in the document.

10. Resize the position the image as per your requirement by dragging the mouse pointer on any corner of the image. Press the **Enter** key on the keyboard.

11. Type the line '**Go Cashless, Go Digital**' and apply **Tinos** font with the font size **36**. Also, make the text bold and align it centrally. Select the **Green 5** colour in the Font colour panel to apply the colour to the selected line. Press the **Enter** key three times on the keyboard.

12. Type the line '**Using Technology For Citizen**' and apply **Tinos** font with the font size **36**. Also, make the text bold and align it centrally. Select the **Black** colour in the Font colour panel to apply the colour to the selected line. Press the **Enter** key three times on the keyboard.

13. Type the line **Source: http://digitalindia.gov.in/** and apply **Tinos** font with the font size **22**. Align the text in the centre. Select the Black colour for the selected text from the **Font colour** panel.

14. Select the **File → Save** As option from the Menu bar. The **Save as** dialog box appears. Type the name of the poster as '**poster**' in the File name combo box. Click the **Save** button.

The poster is saved as a Writer document with the name **poster.odt**, as shown in Figure 1.
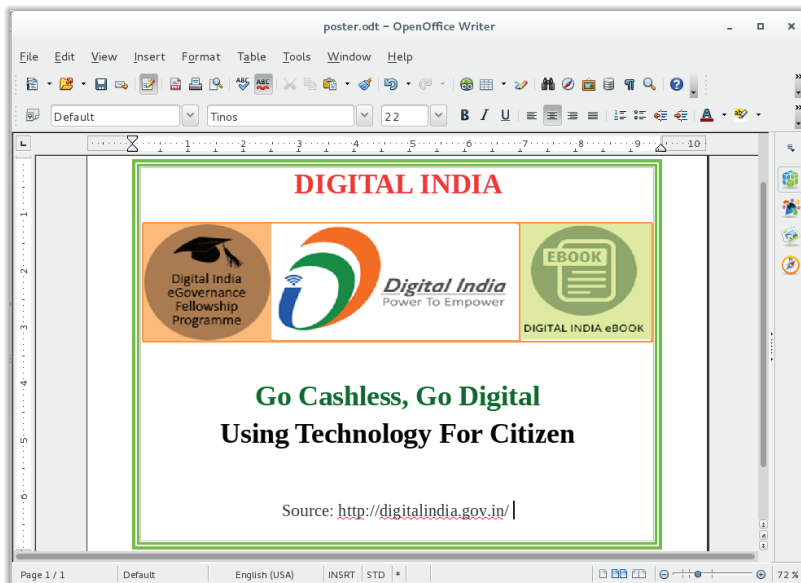
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Figure 1: Poster

Project 2: Suppose you are a class teacher and you want to send a letter to the parents of your class students in order to inform them regarding their ward's performance. Hence, you are providing your official contact details in case of meetings demanded by parents. Use mail merge feature of OpenOffice Writer to create the letters for the parents with the necessary details.

Table 1: Sample Data for mail Merge

STUDENT NAME	CLASS	CLASS_TEACHER	MOBILE_NUMBER	EMAIL	CONTACT_TIMING
Rakesh Singh	5th	Sunita Arora	9999444333	rakesh.singh@abcschool.com	12:00 to 12:30PM
Varun Grover	7th	Nitin Chopra	9955446622	varun.grover@abcschool.com	12:00 to 12:30PM
Puneet Singh	9th	Javed Khan	7415652123	puneet.singh@abcschool.com	12:30 to 1PM
Vinayak Kumar	10th	Priya Singh	8521788945	vinayak.kumar@abcschool.com	12:30 to 1PM
Puja Mishra	4th	Yogesh Garg	9554466622	Puja.mishra@abcschool.com	1:00 to 1:30PM

Dated Nov 15, 2018

Dear parents/Guardian,

I am the class teacher of your ward **[Student Name]** studying in **[Class]**. As a teacher, it is my duty to guide your ward and provide him/her every opportunity to excel in his/her studies. As we know that much of the learning of a child takes place at home, your cooperation is vital for the child's overall development. Please feel free to share your views with me in this regard. You can get in touch with me on my mobile number **[Mobile_Number]** or mail me at **[Email]** I am generally available from **[Contact_Timing]**.

Yours sincerely,

[Class_Teacher]

Class teacher of **[Class]**

ABC Public School, New Delhi

Figure 2: Formal Letter

Solution: Perform the following steps to create and save the mail merge in OpenOffice Writer:

1. Open the OpenOffice Calc application and enter the data as shown in Table 1 in the opened worksheet named Sheet 1.

2. Select the File → Save As option from the Menu bar. The Save as dialog box appears. Type data in the File name combo box to give a name to the workbook. Now, click the Save button.

3. Select the File → Exit option to close the OpenOffice Calc application.

4. Open the OpenOffice Writer application and type the content of the letter in the same format as shown in Figure 2.

5. Select the File → Wizards → Address Data Source option. The Address book Data Source Wizard opens.

6. Select the Other external data source radio button and click the Next button to move on to the next step.

7. Click the Settings button. The Create Address Data Source wizard opens.

8. Select the Spreadsheet option from the Database type drop-down list. Click the Next button to move on to the next step. The Database properties Connection settings wizard appears.

9. Click the Browse button to specify the path to the spreadsheet the containing data.

10. Click the Test Connection button. If the spreadsheet is connected successfully, then a message box appears with message The Connection was established successfully. Click the Ok button to close the message box.

11. Click the Finish button to close the Database properties → Connection settings wizard.

12. Click the Next button to move on to the next step of the Address book Data Source Wizard.

13. Type Addresses6 in the Address book name text box to give a title under which you want to register the data source. Now, click the Finish button to close the Address Book Data Source Wizard.

14. Select the View → Data Sources option from the Menu bar. The Data Source View pane opens.

15. Double click the Sheet1 option under the Addresses6 → Tables node. The database table opens on the right side of the Data Source View pane.

16. Drag and drop the fields from the database table. For example, drag and drop a field <Class_Teacher> on the place of [Class_Teacher] in the letter.

17. Save the document with name 'Mail_Merge.odt'.

18. Select the File → print option from the Menu bar. A message box appears with the message Your document contains address database fields. Do you want to print a form letter? Click the Yes button to print a form letter. A Mail Merge dialog box appears.

19. Select the File radio button under the Output section. The Save merged document section gets enabled. By default, the Save as a single document radio button is selected. Now, click the Ok button, The Save as dialog box appears.

20. Select the location to save the mail merged document. Type 'mail_merged_letter' in the File name combo box and click the Save button.

21. Open the mail_merged_letter.odt document. You can see that the document has one page for every record of the table.

The snapshot of the mail merge writer document is shown in Figure 3.
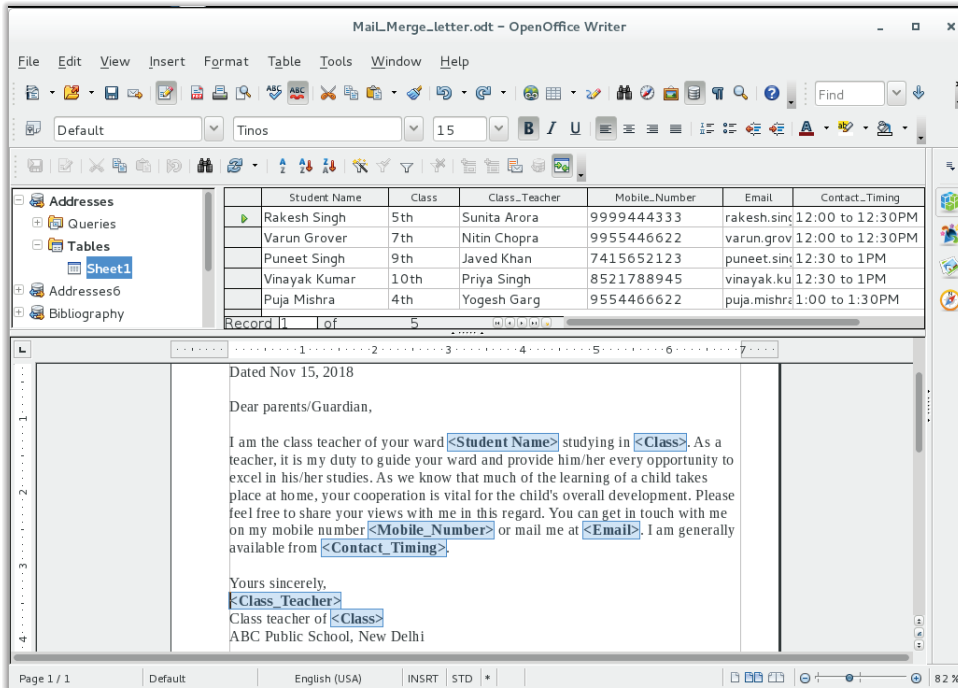

Figure 3: The Mail Merge Document

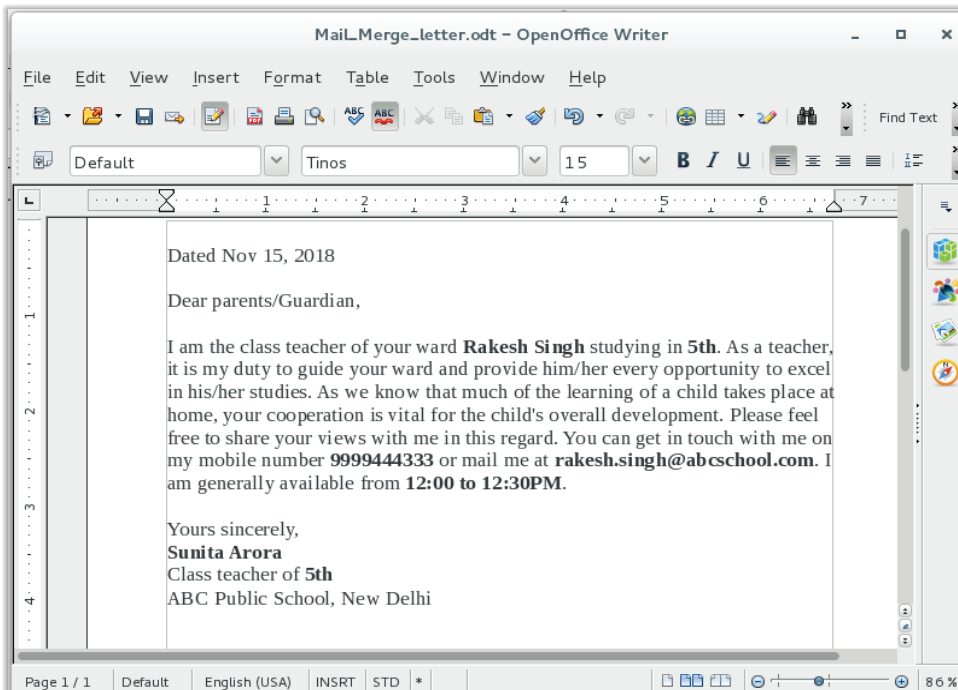The snapshot of the final letter is shown in Figure 4.

Figure 4: Final letter with actual data from the Data Source

Project 3: Create a report in OpenOffice Calc and make a line chart on the basis of data given in the table to show variations in the minimum and maximum temperatures of the six days. The weather forecast of a city for six days is given in the following Table.

Table 2: Sample Data for line chart

| DATE | TEMPERATURE (°C) | | WEATHER FORECAST |
	MINIMUM	MAXIMUM	
Apr 23, 2018	23	42	Clear sky
Apr 24, 2018	23	43	Clear sky
Apr 25, 2018	23	44	Clear sky
Apr 26, 2018	24	43	Partly cloudy sky
Apr 27, 2018	24	43	Partly cloudy sky
Apr 28, 2018	24	43	Clear sky

Solution: Perform the following steps to create a report and a line chart in OpenOffice Calc:

1. Open the OpenOffice Calc application. A blank workbook opens with Sheet1. Now, type the content of Table 2 into Sheet1.

2. Select the cells from A3 to C9. Now, select the Insert → Chart option from the Menu bar. The Chart Wizard is displayed on the screen.

3. Select the Line chart type from the Choose a chart type list box and click the Points and Lines icon. Now, click the Next button three times. The Chart Elements step appears.

4. Type **Weather Forecasting, Date, and Temperature** in the title, x-Axis and y-Axis text boxes, respectively. Click the Finish button to close the wizard. A line chart showing variations in the maximum and minimum temperatures is displayed.

5. Save the report with the name 'Weather_Report' in the appropriate folder.

The report is saved as a Calc workbook with the name Weather_Report.ods, as shown in Figure 5.
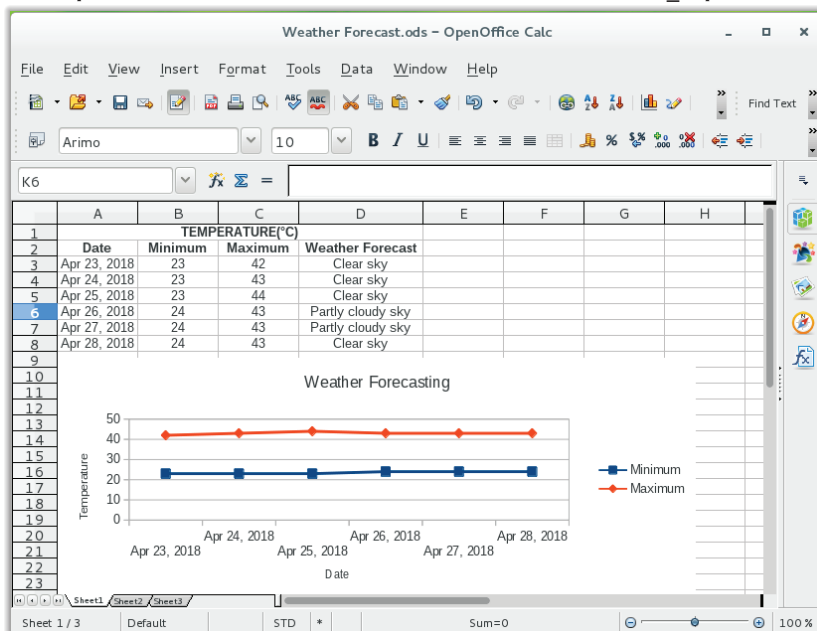

Figure 5: Weather Forecasting report

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Project 4: Create a sheet in OpenOffice Calc with the following data:

Table 3: Sample Data

CUSTOMER NAME	MRP (IN. ₹.)	DISCOUNT	AMOUNT TO BE PAID
Anil Yadav	52,500		
Animesh	25,000		
Dipankar	37,800		
Gajendra	31,000		
Gaurav Rajput	41,200		

Now, perform the following tasks on the sheet:

i. Give discount to the customer as per the given criteria:

MRP > 50,000 = 20% discount

MRP >= 40,000 = 15% discount

MRP >= 30,000 = 10% discount

MRP < 30,000 = 5% discount

ii. Calculate the amount to be paid by each customer after deducting the discounted amount.

Solution:

i. Perform the following steps to calculate discount to the customer:

1. *Open* the **OpenOffice Calc** application. A **blank workbook** opens with Sheet1. Now, enter the content in sheet 1 as given in Table 3.
2. *Type* the formula =IF(B2>50000;B2%*20;IF(B2>=40000;B2%*15;IF(B2>=30000;B2%*10;IF(B2<30000;B2%*5)))) in the **C2** and press the **Enter** key to apply the formula on the cell.
3. *Place* the cursor on the cell C2, move the mouse over the fill handle, and drag the mouse along with column C till the last row of data. The formula on the cell C2 is applied to all the other cells of the same column.

The discounted amount gets displayed, as shown in Figure 6.

ii. Perform the following steps to calculate the amount to be paid by each customer after deducting the discounted amount:

1. *Type* the formula =B2-C2 in the **D2** and press the **Enter** key to apply the formula on the cell.
2. *Place* the cursor on the cell D2, move the mouse over the fill handle, and drag the mouse along with column D till the last row of data. The formula on the cell D2 is applied to all the other cells of the same column.

The amount to be paid by each customer after deducting the discounted amount gets displayed, as shown in Figure 6.

Figure 6: Customer table

Project 5: Create a presentation in OpenOffice Impress on the topic 'Pollution and Global Warming'. Note that this presentation will have text as well as images. Each slide should appear with different transition effect.

Figure 7: Content of the slides for the presentation on 'Pollution and Global Warming'

Solution: Perform the following steps to create a presentation in OpenOffice Impress on 'Pollution and Global Warming':

1. *Open* **OpenOffice Impress**. The **Presentation Wizard** appears.

2. *Select* the Empty presentation radio button under the Type section of Presentation Wizard. Click the Next button.

3. *Select* the **Presentation Backgrounds** option from the drop-down list under the select a slide design section. Now, select the **Blue Border** from the list box. Click the **Next** button.

4. *Click* the **Create** button to create the presentation. The OpenOffice Impress application window opens with a blank slide. The slide contains the design you have selected.

5. *Select* the **Title** Slide layout from the Layouts pane under the properties panel and type Pollution and Global Warming in the **Click to add title** text box.

6. *Select* the **Insert → picture → from File** option. The Insert picture dialog box appears.

7. *Select* the image and click the Open button. The selected image appears on the slide. Resize the image as per your requirement.

8. *Select* the **Insert → Slide** option from the Menu bar. A new slide is added to the presentation. Similarly, add four more slides to the presentation.

9. *Select* the Title, Content layout from the Layouts pane for each slide.

10. *Type* the content as shown in Figure 7 for each slide.

11. *Add* an image in the third slide by performing steps 6 and 7.

12. *Save* the presentation with the name '**pollution**' in the appropriate folder.

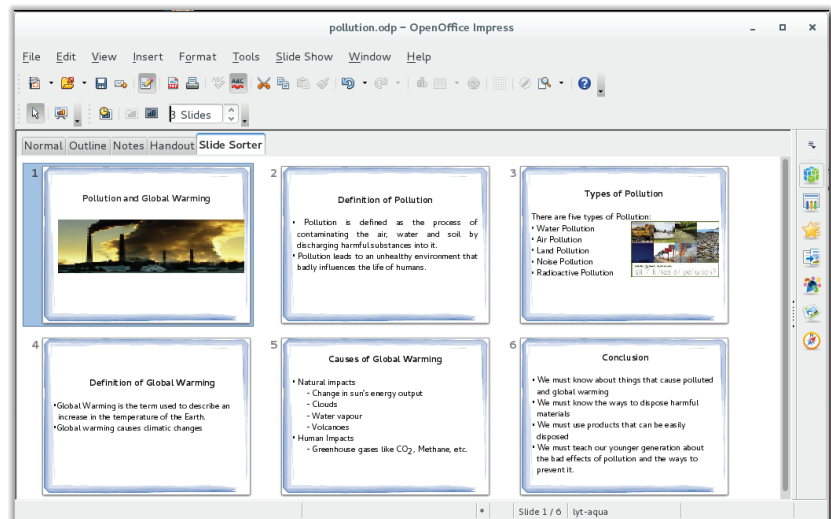The presentation is saved as an impress presentation with the name pollution.odp, as shown in Figure 8.

Figure 8: The slide sorter view of the presentation on 'Pollution and Global Warming'.

Project 6: Create a presentation for product advertisement in OpenOffice Impress to provide information related to popular smartphones. Each slide must appear with different background colour, animation and sound.

Kids' Learning Laptop	Overview	Features
	○ Kid's Learning Laptop is an educational tool for ○ kids up to 5 years. ○ It assists in learning letters, words, and numbers ○ with fun and without any stress. ○ Kids can also play games in this laptop.	○ Type – Educational toys ○ Battery required – 4 AA size ○ Screen Size – 4*6 inches
Skills Enhancement	**Product Highlights**	**How to Purchase?**
○ Stage 1 – Alphabet recognition ○ Stage 2 – Learning spellings and pronunciation ○ Stage 3 – Learning numbers and tables ○ Stage 4 – Playing games, melodies and musical notes	○ Product Code – 265962 ○ Product Category – Toys ○ Average Customer Review – 5 out of 5 stars ○ Kid's Learning Laptop Price – 1249.00	○ You can purchase it from our website www.kidslearninglaptop.com ○ This product is also available on various online shopping websites.

Figure 9: Content of the Slides for the presentation on the Advertisement of a product

Solution: Perform the following steps to create and save the presentation in OpenOffice Impress:

1. Open OpenOffice Impress. The presentation Wizard is displayed on the screen. Select the Empty Presentation radio button Under the Type section of Presentation Wizard. Click the Next button.

2. Select the presentation Backgrounds option from the drop-down list under the Select a slide design section. Now, select the Blue Border design from the list box. Click the Next button.

3. Click the Create button. The OpenOffice Impress application window opens with a black slide. The slide contains the design you have selected.

4. Select the Title Slide layout from the Layouts pane under the properties panel and type 'Kids Learning Laptop' in the **Click to add title** text box.

5. Select the Insert → Picture → From File option. The Insert picture dialog box appears.

6. Select the image and click the Open button. The image appears on the slide. Resize the image as per as your requirements.

7. Select the insert → Slide option from the Menu bar. A new slide is added to the presentation. Similarly, add four more slides to the presentation.

8. Select the Title, Content layout from the Layouts pane for each slide. Type the content given in Figure 9 in all slides.

9. Click the Slide Transition icon from the Sidebar and select the Other Sound option from the Sound drop-down list under the Modify transition section. The Open dialog box appears.

10. Locate the audio file and click the Open button to add the audio file to the slide. Select the Loop until next sound check box for playing the current music and click the Apply to all slides button under the Advance slide section to apply the sound effect on every slide of the presentation.

11. Save the presentation with the name 'product_advertisement' in the appropriate folder, as shown in Figure 10.
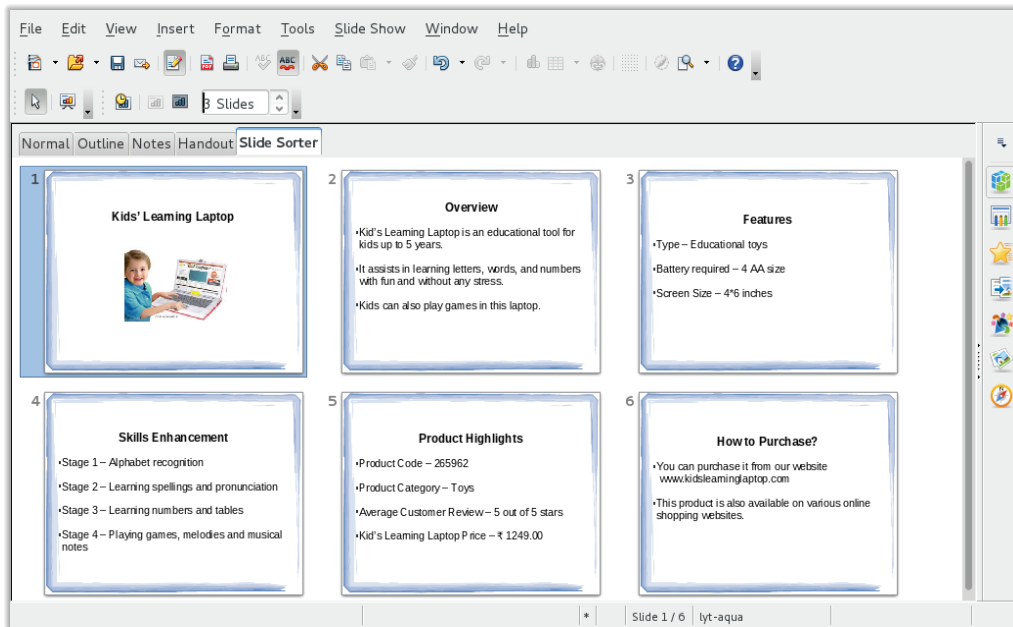

Figure 10: The slide sorter view of the presentation for the advertisement of a product.

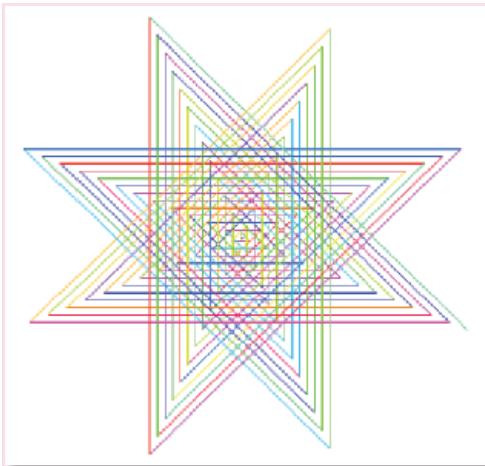**Project 7**: Create a Scratch program for the following colourful star.

Figure 11: Colourful star

Solution: Perform the following steps to create the scratch program of colourful star:

1. Open Scratch. You will see the Scratch Mascot, i.e. a cat, at the Stage.

2. Drag and drop the **When flag clicked** event from the **Events** block category to the Script area.

3. Drag and drop the **set x to** block from the **Motion** block category to the Script area at the bottom of the **When flag clicked** event. Set the **x** to **0**.

4. Drag and drop the **set y to** block from the **Motion** block category to the Script area at the bottom of the **set x** block. Set the **y** to **0**.

5.   Make a variable **step** under Data block category and Drag and drop the **set step to** block from the **Data** block category to the Script area at the bottom of the **set y** block. Set the **step** variable to **0**.

6.   Drag and drop the **clear** block from the **Pen** block category to the Script area at the bottom of the **set to** block.

7.   Drag and drop the **pen down** block from the **Pen** block category to the Script area at the bottom of the **set to** block.

8.   Drag and drop the **set pen color to** block from the **Pen** block category to the Script area at the bottom of the **pen down** block. Set the **pen color** to **green**.

9.   Drag and drop the **repeat** control from the **Control** block category to the Script area at the bottom of the set pen color block. Set the repeat to 100.

10. Drag and drop the **change pen color by** block from the **Pen** block category to the Script area inside **repeat** control.

11. Drag and drop the **pick random to** block from the **Operators** block category to the Script area inside change **pen color by** block. Set the number from 1 to 100.

12. Drag and drop the **move 10 steps** block from the **Motion** block category to the Script area at the bottom of the **change pen color by** block and inside **repeat** control. Set the number of steps for moving to **step** variable.

13. Drag and drop the **turn 15 degrees** block (Clockwise) from the **Motion** block category to the Script area at the bottom of the **move 10 steps** block and inside **repeat** control. Set the number to 135.

14. Drag and drop the **change by** block from the **Data** block category to the Script area at the bottom of the **turn 15 degrees block** and inside **repeat** control. Set the step by 3.

15. Drag and drop hide block from Looks block category to the Script area at the bottom of the repeat control block.

16. Click the **When flag clicked** event in the Script area.

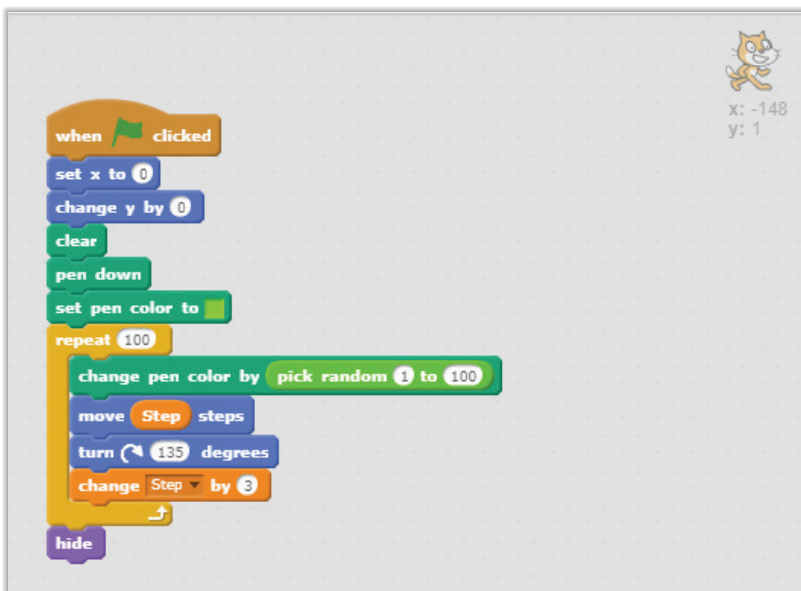17. A Colourful star is drawn in the Stage, as shown in Figure 11.

Figure 12: Coding of colourful star in Scratch

DID YOU Know

The steps to create a variable in Scratch are as follows -

1. Click Make a Variable under Data block category. The new variable window opens.

2. Type the name of the variable in the Variable name Text box. In our case, variable name is step.

3. Click Ok.

The variable is created.

OR

Project 7: Write a Python program to calculate square root of an entered number.

Solution: Perform the following steps to create square root program in Python:

1. Open the gedit editor.

2. Write the code in the editor given in Listing 1.

3. Save the file with Square_root.py

LISTING 1: Code of Square_root.py file

```
1.    # Python Program to calculate the square root
2.    num = float(input('Enter a number: '))
3.    num_sqrt = num ** 0.5
4.    print('The square root of %0.3f is %0.3f'%(num ,num_sqrt))
```

4. Open the Terminal window, and navigate to the location where the Square_root.py is saved.

5. Type python3 ./Square_root.py command to execute the code of Listing 1.

The output of Listing 1 is as follows:

Enter a number: 25

The square root of 25.000 is 5.000

Project 8: Create a Scratch program with customized Sprite and backdrop, and also add blocks in the Script area to play music.

Solution: Perform the following steps to create the scratch program of customized Sprite:

1. Open Scratch. You will see the Scratch Mascot, i.e. a cat, at the Stage.

2. Drag and drop the **When key pressed** event from the **Events** block category to the Script area. Set **key** to **space**.

3. Drag and drop the **say block** from the **Looks** block category to the Script area at the bottom of the When key pressed event. Set to **I can play guitar.**

4. Drag and drop the **repeat** control from the **Control** block category to the Script area at the bottom of the **say** block. Set the **repeat** to **20**.

5. Drag and drop the **play note** block from the **Sound** block category to the Script area inside **repeat** control. Set **play note** to **64** for **0.5** beats.

6. Drag and drop the **play note** block from the **Sound** block category to the Script area inside **repeat** control. Set **play note** to **62** for **0.5** beats.

7. Drag and drop the **play note** block from the **Sound** block category to the Script area inside **repeat** control. Set **play note** to **60** for **0.5** beats.

8. Press the **space** key in the keyboard, the sprite starts to play music, as shown in Figure 14.

Figure 13: Coding of Customized Sprite in Scratch

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Figure 14: Customized Sprite in Scratch

OR

Project 8: Write a Python program to calculate the area of a triangle on the basis of length of its three sides entered by a user.

Solution: Perform the following steps to create area of a triangle program in Python:

1. Open the gedit editor.
2. Write the code given in Listing 2.
3. Save the file with Area_triangle.py

LISTING 2: Code of the Area_triangle.py

```
1.    # A Python program to find the area of a triangle
2.    a = float(input('Enter first side: '))
3.    b = float(input('Enter second side: '))
4.    c = float(input('Enter third side: '))
5.    # calculate the semi-perimeter
6.    s = (a + b + c) / 2
7.    # calculate the area
8.    area = (s*(s-a)*(s-b)*(s-c)) ** 0.5
9.    print('The area of the triangle is %0.2f' %area)
```

4. Open the Terminal window, and navigate to the location where the Area_triangle.py is saved.
5. Type python3 ./Area_triangle.py command to execute the code of Listing 2.

   The output of Listing 2 is as follows:

   Enter first side: 8

   Enter second side: 6

   Enter third side: 4

   The area of the triangle is 11.62