Chapter 8: Spreadsheet Tool — OpenOffice Calc-I

Solutions

Summative Assessment

Multiple-Choice Questions (MCQs)

1. Which of the following is a combination of cells, rows, and columns?
   a. Worksheet b. Cell
   c. Formula d. Function

Ans. a

2. Which of the following allows you to add duplicate entries or fill data series in the cells of a worksheet?
   a. Full handle b. Fill handle
   c. Data handle d. Series handle

Ans. b

3. Which of the following is an extension of the OpenOffice Calc?
   a. .dos b. .sod
   c .ods d. .calc

Ans. c

4. Which one of the following functions is used to calculate the average of a specified range?
   a. MAX() b. SUM()
   c. AVERAGE() d. MIN()

Ans. a

5. Which of the following functions compares two values and returns one of them, depending on some predefined set of conditions?
   a. COUNT() b. IF()
   c. COUNTA() d. MAX()

Ans. b

6. Suppose a range of cells contains three number and two text values. Which function will you use to compute the total number of cells that contains the number values and ignores the text values?
   a. COUNT() b. MAX()
   c. AVERAGE() d. COUNTA()

Ans. d

7. Which one of the following functions will you use to calculate the grade of students?
   a. SUM() b. AVERAGE()
   c. IF() d. PERCENTAGE()

Ans. c

Very Short Answer Questions

8. The intersection of a row and a column is called ..... .

Ans. Cell

9. In a cell address, F18:

   F refers to .....

   18 refers to .....

Ans. Column, row

10. Which function returns the largest value from a set of arguments?

Ans. MAX ()

Short Answer Questions

11. Which key combination is used to select an entire worksheet?

Ans. The CTRL+A key combination is used to select the entire worksheet.

12. Which key combination allows you to select the current column completely (all rows in the current column)?

Ans. The Ctrl+Shift+Spacebar key combination allows you to select the current column completely (all rows in the current column).

13. Which key combination allows you to select all the columns in the current row?

Ans. The Shift+Spacebar key combination allows you to select all the columns in the current row.

14. List the options contained in the Delete Contents dialog box.

Ans. The Delete Contents dialog box contains the following options:

- Delete All
- Numbers
- Formulas
- Formats
- Text
- Date & time
- Notes
- Objects

15. What happens if you do not use the equal (=) sign with a formula?

Ans. If you do not use the equal (=) sign with a formula, then Calc considers the data as a label or value of the cell.

Long Answer Questions

16. List any three functions along with their functionalities.

Ans. The three functions along with their functionalities are as follows:

1. **SUM():** It is used to add all the numbers in a range of cells, and the result is displayed in the active cell containing the formula.
2. **AVERAGE():** The AVERAGE() function is used to get the average (arithmetic mean) of all the passing arguments.
3. **COUNT():** The COUNT() function is used to count the cells that contain numbers.

17. Describe different ways of cell referencing in Calc.

Ans. Cell referencing is the method by which you refer to a cell or series of cells in a formula. Cell references are an important part of creating formulas in a spreadsheet program. Using cell references allows your formulas to update automatically if the value in a particular cell changes and can also assist you in updating formulas as cells are copied or moved. Cell referencing is of three types:

- **Relative cell referencing:** In relative cell referencing, when a formula is copied to a new location in a worksheet, cell references in the formula change in relation to the new location of the formula.
- **Absolute cell referencing:** In absolute cell referencing, cell references in a formula remain the same even when the formula is copied to a new location. For absolute cell referencing, you need to use the $ (dollar) symbol as prefix before the column and row names in a formula.
- **Mixed cell referencing:** You have already learnt that a cell address has two parts— first is the column letter and second is the row number. If you put the $ sign before both these parts (row number and column letter), the cell address becomes an absolute cell reference. When you do not put the $ sign before any of the parts, the cell address remains a relative cell reference. However, if you use the $ symbol with only one part of the cell address, either with the column letter or the row number, it is called the mixed cell referencing. In mixed cell referencing, one part of the cell address is an absolute reference while the other part is a relative reference.

18. How copying a range is different from moving a range?

Ans. Copying a range means copying the desired content in the spreadsheet and pasting it at the required location in the same spreadsheet. When we copy a range, the data remains available at its original location. On the other hand, moving a range means moving the data from its original location and placing it at a new location. In other words, the data is no more present at its original place.

19. What is the difference between absolute referencing and relative referencing?

Ans. In absolute cell referencing, cell references in a formula remain the same even when the formula is copied to a new location. On the other hand, in relative cell referencing, when a formula is copied to a new location in a worksheet, cell references in the formula change in relation to the new location of the formula. In addition, if you put the $ sign before both these parts (row number and column letter), the cell address becomes an absolute cell reference. When you do not put the $ sign before any of the parts, the cell address remains a relative cell reference.

20. What do you understand by an argument?

Ans. Arguments refer to the values or cell references that are passed to a function. The arguments are passed within the parentheses used in functions. The argument can be of any type, such as numbers, text, and Boolean values, such as true or false. In addition, you can also pass formulas or other functions as arguments.

21. What is the procedure to clear the content of a worksheet?

Ans. Perform the following steps to clear a worksheet:

1. *Select* a worksheet by clicking the Select All button or by pressing Ctrl+A keys, as shown in Figure 1:

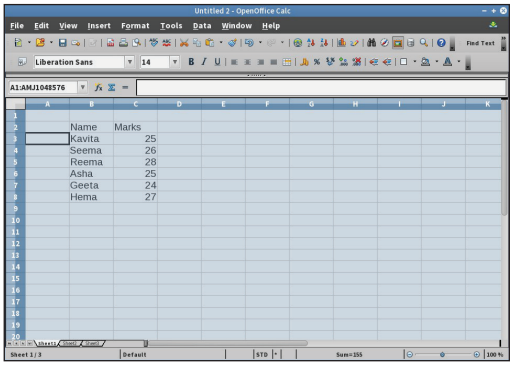


Figure 1: Selecting the Entire Worksheet

2. *Press* the Delete key on the keyboard. The Delete Contents dialog box appears (Figure 2).
3. *Select* the Delete All option (Figure 2).
4. *Click* the OK button, as shown in Figure 2:

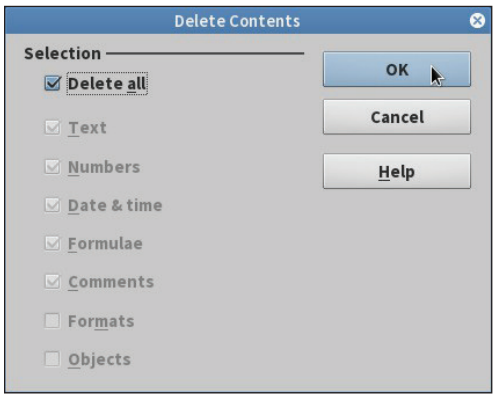


Figure 2: Displaying the Delete Contents Dialog Box

22. How can you insert blank cells in your worksheet?

Ans. The OpenOffice Calc allows you to insert one or more blank cells in your worksheet. Perform the following steps to insert blank cells:

1. *Select* a range of cells where you want to insert the blank cells.

In our case, we have selected B2:C8, as shown in Figure 3:

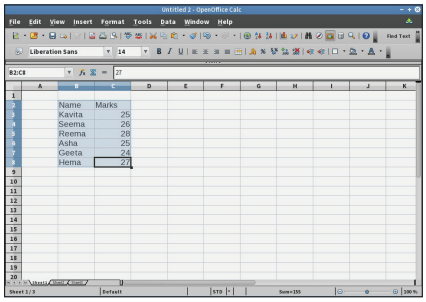


Figure 3: Selecting Cell Ranges

2. *Select* the Insert Cells option through the Menu bar, as shown in Figure 4:

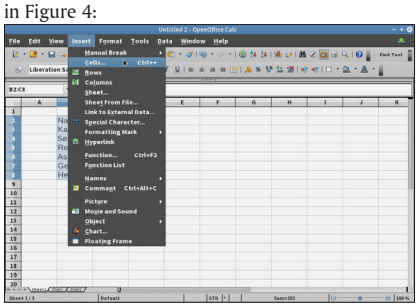


Figure 4: Selecting the Cells Option

The Insert Cells dialog box appears (Figure 5).

3. *Select* a desired option for shifting the existing cells to make way for the new blank cells. In our case, we have selected the Shift cells right option (Figure 5).
4. *Click* the **OK** button, as shown in Figure 5:

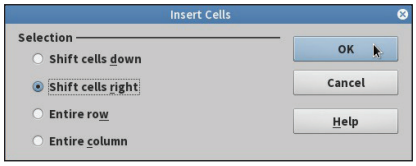


Figure 5: Displaying the Insert Cells Dialog Box

As you click the OK button, the selected number of blank cells gets inserted in your worksheet, as shown in Figure 6:

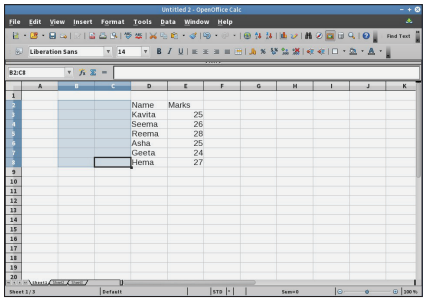


Figure 6: Displaying the Document After Inserting Columns

If you want to stop the process of insertion of cells, *click* the Cancel button in the Insert Cells dialog box (Figure 5).

23. Write steps to insert three columns in a worksheet.

Ans. Perform the following steps to insert a column in a worksheet:

1. *Select* a column before an existing column where you want to insert a new column in your worksheet. In our case, we have selected column E (Figure 7).
2. *Select* the Insert menu on the menu bar. A drop-down menu appears (Figure 7).
3. *Select* the Columns option in the drop-down menu, as shown in Figure 7:

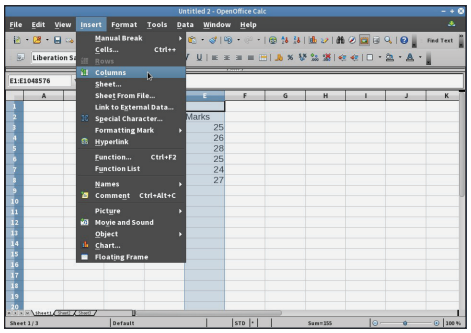


Figure 7: Inserting a Column

Now, the column is inserted. Similarly, you can insert two more columns, as shown in Figure 8:

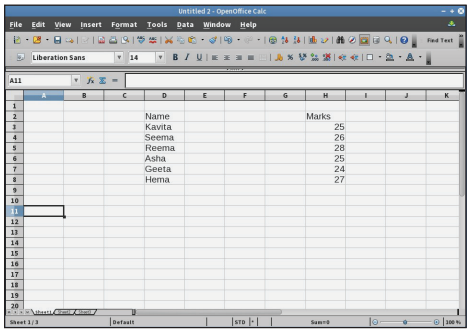


Figure 8: Displaying the Document After Inserting Three Columns

24. State the names of two important parts of a function.

Ans. The following are the two important parts of a function:

- **Arguments:** Refer to the values or cell references that are passed to a function. The arguments are passed within the parentheses used in functions. The argument can be of any type, such as numbers, text, and Boolean values, such as true or false. In addition, you can also pass formulas or other functions as arguments.
- **Structure:** Refers to the structure of a function, which starts with the name of the function and ends with the opening and closing parenthesis. In the function structure, the arguments are separated by comma (,). To use a function in a worksheet, first you need to type the equal (=) sign in front of the function name.

25. Differentiate between the MIN() and MAXA() functions.

Ans. The Min() function returns the smallest number from a list of arguments. On the other hand, the MaxA() function is similar to the Max() function. The MaxA() function also includes the text and logical entries.

26. What is the use of the AVERAGE() function?

Ans. The Average() function is used to get the average (arithmetic mean) of all the passing arguments. The syntax of the Average() function is shown in following code line:

=Average(number1; number2; …; number10)

Perform the following steps to use the Average() function:

1. *Type* some values in your worksheet (Figure 9).
2. *Place* the control in a blank cell or where you want to calculate the average.
3. *Type* the function in that cell as = Average (reference of cells, which consists the exact values). In our case, we have typed the function as = Average (C3:C8).
4. *Press* the Enter key on your keyboard.

   The average marks are calculated, as shown in Figure 9:

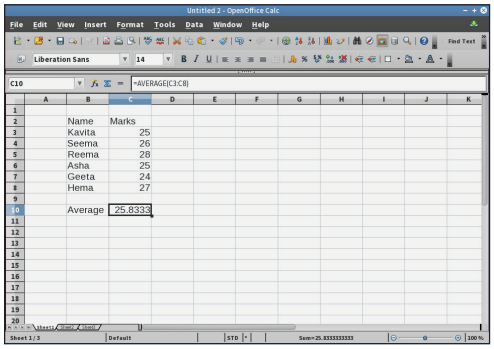


Figure 9: Calculating the Average Marks

27. Explain the following function: =IF(10>20; "Ok"; "too large")

Ans. The preceding function returns the "too large" value because the condition 10>20 is false as 10 is smaller than 20.

Formative Assessment

Application-Oriented Questions

1. Answer the following questions:

a. Tick (✓) the following option(s) that shows the use of a spreadsheet program.

- Controlling output from scanner.
- Drawing picture of the car you want to buy.
- Calculating loan repayments.
- Writing application to the bank manager.
- Estimating future spending.
- Displaying the balance carried forward each month of the year in a graph.

b. Tick (✓) the option representing the space a spreadsheet file (.ods) uses on a back-up storage device.

- 100MB
- 1GB
- 10KB
- 30bytes
- 0bits

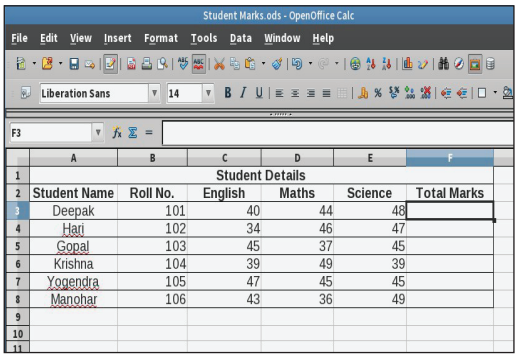
Ans. a.

- Controlling output from scanner.
- Drawing picture of the car you want to buy.
- Calculating loan repayments. (✓)
- Writing application to the bank manager.
- Estimating future spending.
- Displaying the balance carried forward each month of the year in a graph. (✓)

b.

- 100MB
- 1GB (✓)
- 10KB
- 30bytes
- 0bits

2. The Student Details table that contains the information related to the student's marks is shown as follows:



Answer the following questions based on the preceding worksheet:

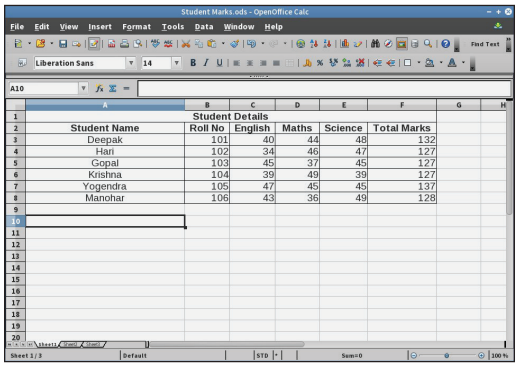
a. Use the SUM() function in the Total Marks column to add total marks in three subjects of all the students.

b. Count the total number of students whose records are added in the Student Details table.

c. Find out the maximum marks in English.

d. Find out the minimum marks in Maths.

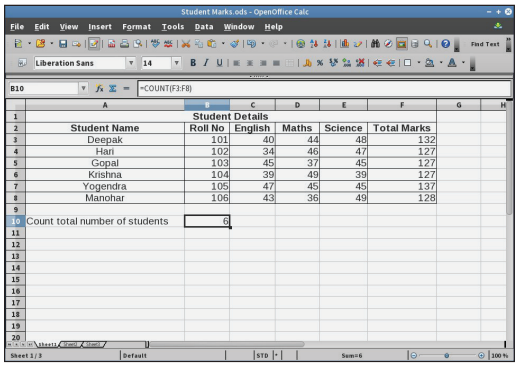
Ans. a. To add total marks in three subjects of all the students, you need to type the =Sum(C3:E3) formula in the F3 cell and press the Enter key from the keyboard. After this, copy and paste the formula in the F4 to F8 cells to add total marks of other student. The result is shown in Figure 10:



	Student Details				
Student Name	Roll No	English	Maths	Science	Total Marks
Deepak	101	40	44	48	132
Hari	102	34	46	47	127
Gopal	103	45	37	45	127
Krishna	104	39	49	39	127
Yogendra	105	47	45	45	137
Manohar	106	43	36	49	128

Figure 10: Using the Sum() Function

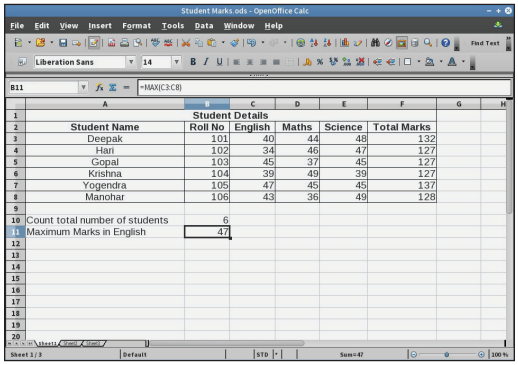
b. To count the total number of students whose records are added in the Student Marks table, you need to type the =Count(F3:F8) and press the Enter key from the keyboard. The result is shown in Figure 11:



	Student Details				
Student Name	Roll No	English	Maths	Science	Total Marks
Deepak	101	40	44	48	132
Hari	102	34	46	47	127
Gopal	103	45	37	45	127
Krishna	104	39	49	39	127
Yogendra	105	47	45	45	137
Manohar	106	43	36	49	128
Count total number of students	6				

Figure 11: Counting Total Numbers of Students

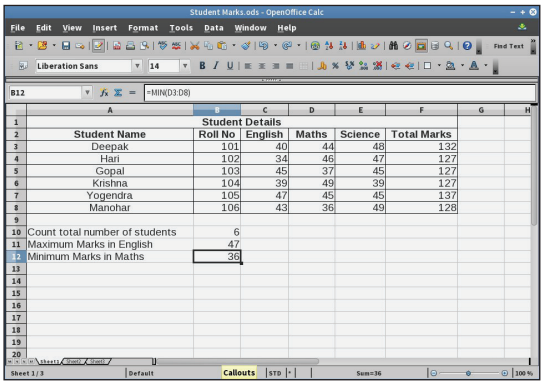
c. To find out the maximum marks in English, you need to type the =Max(C3:C8) and press the Enter key from the keyboard. The result is shown in Figure 12:



	Student Details				
Student Name	Roll No	English	Maths	Science	Total Marks
Deepak	101	40	44	48	132
Hari	102	34	46	47	127
Gopal	103	45	37	45	127
Krishna	104	39	49	39	127
Yogendra	105	47	45	45	137
Manohar	106	43	36	49	128
Count total number of students	6				
Maximum Marks in English	47				

Figure 12: Displaying the Highest Marks in English

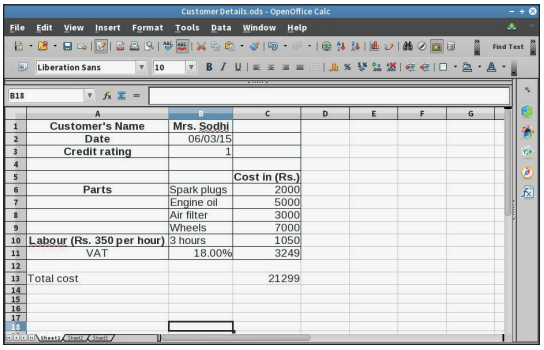
d. To find out the minimum marks in Maths, you need to type the =Min(D3:D8) and press the Enter key from the keyboard. The result is shown in Figure 13:



	Student Details				
Student Name	Roll No	English	Maths	Science	Total Marks
Deepak	101	40	44	48	132
Hari	102	34	46	47	127
Gopal	103	45	37	45	127
Krishna	104	39	49	39	127
Yogendra	105	47	45	45	137
Manohar	106	43	36	49	128
Count total number of students	6				
Maximum Marks in English	47				
Minimum Marks in Maths	36				

Figure 13: Displaying the Minimum Marks in Maths

3. A car mechanic maintains the details of his customers and bills in the following worksheet:



Customer's Name	Mrs. Sodhi	
Date	06/03/15	
Credit rating	1	
		Cost in (Rs.)
Parts	Spark plugs	2000
	Engine oil	5000
	Air filter	3000
	Wheels	7000
Labour (Rs. 350 per hour)	3 hours	1050
VAT	18.00%	3249
Total cost		21299

Answer the following questions based on the preceding worksheet:

a. After creating the complete bill, the mechanic realizes that he has entered the cost of wheels incorrectly. The correct cost of wheels is ₹ 5500.00. Now complete the sentences using the words given in the list:

- Cut
- C9
- B9
- Select
- Rename

The mechanic can edit the cell to enter the new cost.

b. Which two cell values automatically change with the change in the cost of wheels?

Ans. a. C9, Select

b. C11, C13

4. a. The mechanic wants to purchase an air filter from an online store.
   - Write the labels in the correct order to show how the mechanic could do this.
   - Pay using a credit/debit card.
   - Go to the online store using a Web browser.
   - Look at the search results and select the required air filter.
   - Type the keywords, such as air filter, and press the search button.

   b. The mechanic is using a search engine to find an online store to purchase the air filter. Give two reasons why the mechanic should search Indian websites only.

   c. The mechanic gives customers a credit rating from 1 to 3 as per the following scale:

Pays promptly and in full on collecting the car	1
Pays within three weeks of collecting the car	2
Money still due after a month	3

A customer who pays after a month is given the same credit rating as a customer who does not pay.

- Give one limitation of this code system designed in Calc.
- Try to design a better coding system.

Ans. a. Answers of the following questions are given as follows:

- The following labels in the correct order are shown as follows:
  - First Name
  - Last Name
  - Address
  - Payment Mode (by credit card, debit card, and cash)
- Advantages of using the credit or debit card for payments are as follows:
  - You can buy the goods easily and at any time.
  - You are not required to carry cash.
  - You have full records of your purchase.
- Disadvantages of using the credit or debit card for payment are as follows:
  - You have to pay additional charges, such as annual fees and service tax.
  - You have to pay amount, if your credit or debit card has been stolen and misused by other.
- Searching the online stores to buy air filter in India, as shown in Figure 14:

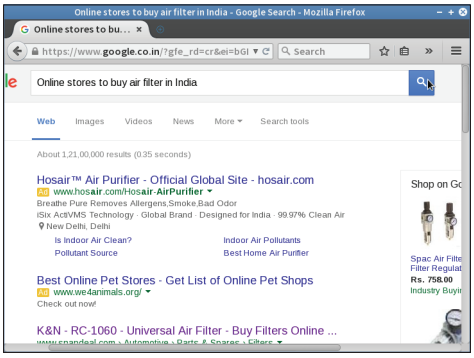


Figure 14: Searching Online Stores to Buy Air Filter

The search result is shown in Figure 15:

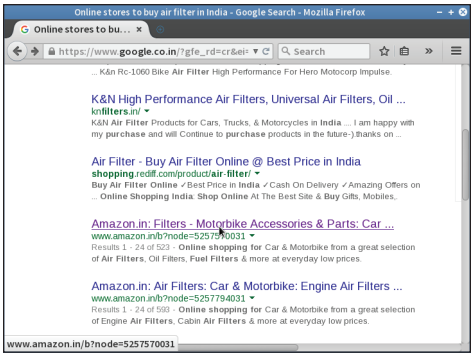


Figure 15: Displaying the Result of Searching

We click the Amazon.in: Filters – Motorbike Accessories & Parts: link. The related page is opened as shown in Figure 16:

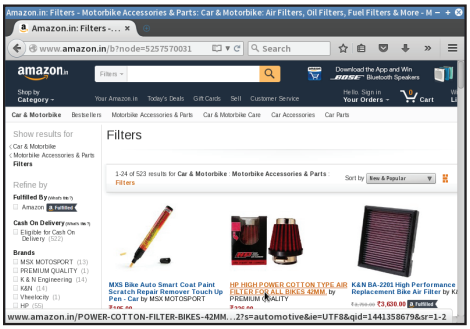


Figure 16: Opening the Selected Web Page

Click on the required product. The following Web page gets opened, as shown in Figure 17:

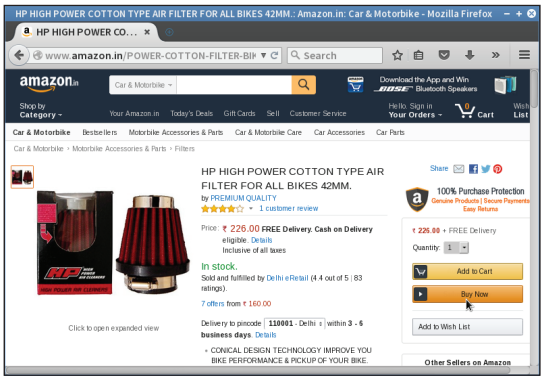


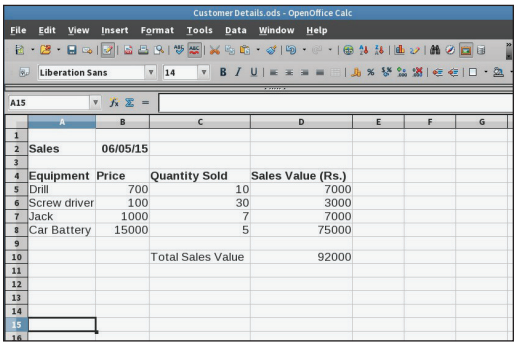
Figure 17: Clicking on the Required Product

b. The two reasons for searching the required information on Indian websites only are as follows:
   1. Fast delivery
   2. Low cost because if the mechanic purchases an air filter from the foreign market, then the cost would also include import duties.

c. Answers of the following questions are given as follows:
   - The limitation of this system is that it does not generate the correct credit rating for the customers as it always provides 3 credit ratings for the customers who pay after one month and who does not pay at all.
   - We modify the preceding coding system for better and correct output, which is shown as follows:

Pays promptly and in full on collecting the car	1
Pays within three weeks of collecting the car	2
Pay after a month	3
Defaulter (Payment is not made at all)	4

5. An accountant uses the following worksheet to maintain sales record for an equipment shop:



Answer the following questions based on the preceding worksheet:

a. Give the label of the formula in cell D5.

b. Give the label of the formula in cell D10.

c. The price of the car battery has decreased to 12000.
   i. How can you edit the worksheet?
   ii. Give the cell references that change automatically when you edit the worksheet.

Ans. a. = (B5*C5)

b. =Sum(D5:D8)

c.
   i. Perform the following steps to edit the Car Battery value:
      1. *Select* the B8 cell
      2. *Type* the 12000 value in the B8.
   ii. D8 and 10

6. Now, you have a fairly good knowledge of the OpenOffice Writer as well as the OpenOffice Calc. Write down three instances where the Writer is a better choice to organize data than Calc. Similarly, write down three instances where Calc is a better choice to organize data than Writer.

S	A	S	D	F	E	G	D	C	T	X	C
P	F	O	R	M	U	L	A	S	E	V	E
R	Q	I	A	L	E	W	R	T	E	L	L
E	R	W	L	G	T	K	G	F	H	W	L
A	T	F	N	L	S	C	U	W	S	Y	P
D	N	A	U	B	H	V	M	H	K	A	O
S	R	F	M	N	Y	A	E	A	R	Z	I
H	B	D	Z	U	T	D	N	P	O	S	N
E	S	G	T	Q	S	I	T	D	W	G	T
E	K	O	O	B	K	R	O	W	L	B	E
T	Z	A	D	S	W	Y	T	N	X	E	R
A	C	T	I	V	E	C	E	L	L	C	J

Find the words from the above-given word box using the following hints:

a. It is a software package that is used to enter, calculate, manipulate, and analyze different sets of data.

b. It contains various cells that constitute a grid of rows and columns.

c. It is a collection of multiple worksheets.

d. It is the intersection of a row and a column.

e. It refers to the boundary of a cell and indicates the active cell.

f. The cell in which you are currently working.

g. It refers to the values or cell references that are passed to a function.

h. It describes the relationship between various cells.

i. It refers to a predefined formula that is used to perform basic or complex operations on a specified range of cells.

j. It is a group of contiguous cells that appears like a rectangular shape.

k. It enables you to add duplicate entries or fill data series in the cells of a worksheet.

l. It adds all the numbers in a range of cells and the result is displayed in the active cell containing the formula.

Ans. The three instances where Writer is the best choice to organize data are:

1. As a student, Writer is used to create notes and articles.
2. In office, Writer is used to create letter and other official document.
3. As a scientist, Writer is used to create thesis and note down details about experiments.

The three instances where Calc is the best choice to organize data are:

1. In school, Calc is used to maintain students and teachers details.
2. In Office, Calc is used to maintain employees personal details and offices expenses details.
3. At home, Calc is used to maintain daily expenses details.

The words from the above-given word box are as follows:

a. Calc
b. Spreadsheet
c. Workbook
d. Cell
e. Cell Pointer
f. Current or Active Cell
g. Arguments
h. Formula
i. Function
j. Range
k. Fill handle
l. SUM