



INDIAN SCHOOL AL WADI AL KABIR

Class: X	Department: Computer Science
WORKSHEET-4	INFORMATION TECHNOLOGY (402) Part B-Unit 2-Chapter-4 Analyse Data using Scenarios and Goal Seek

A. Multiple choice questions

1. Which of the following feature is not used for data analysis in spreadsheet?

- a) Consolidating data
- b) Goal Seek
- c) Subtotal

d) Page layout

2. Which of the following office tool is known for data analysis?

- (a) Writer

(b) Calc

- (c) Impress
- (d) Draw

3. Which of the following operations cannot be performed using LibreOffice Calc?

- (a) Store and manipulate data
- (b) Create graphical representation of data
- (c) Analysis of data

(d) Mail merge

4. What is the extension of spreadsheet file in Calc?

- (a) .odb
- (b) .odt
- (c) .odg

(d) .ods

5. The default function while using Consolidate is _____.

- (a) Average

(b) Sum

- (c) Max
- (d) Count

6. Group by is used in _____ tool to apply summary functions on columns.

- (a) Consolidate function
- (b) Group and Outline
- (c) What-if scenario

(d) Subtotal tool

7. Which tool is used to predict the output while changing the input?

- (a) Consolidate function

(b) What-if scenario

- (c) Goal seek
- (d) Find and Replace

8. Which of the following is an example for absolute cell referencing?

- (a) C5
- (b) \$C\$5**
- (c) \$C
- (d) #C

9. _____ analysis tool works in reverse order, finding input based on the output.

- (a) Consolidate function
- (b) Goal seek**
- (c) What-if analysis
- (d) Scenario

B. State whether the following statements are True or False

1. Consolidate function is used to combine information from two or more sheets into one. -**TRUE**
2. Consolidate function cannot be used to view and compare data. -**FALSE**
3. Link to source data is checked updates the target sheet if any changes made in the source data. - **TRUE**
4. Using subtotal in Calc needs to use filter data for sorting. -**FALSE**
5. Subtotal tool can use only one type of summary function for all columns. -**FALSE**
6. Only one scenario can be created for one sheet. -**FALSE**
7. What-if analysis tool uses one array of cells. -**FALSE**
8. Goal seek analysis tool is used while calculating the output depending on the input. -**FALSE**
9. The output of What-if tool is displayed in the same cell - **FALSE**

C. Fill in the blanks

1. Consolidate function is used to combine information from multiple sheets to SUMMARIZE the information.
2. Data can be viewed and compared in a single sheet for identifying trends and relationships using CONSOLIDATE function.
3. SUBTOTAL under Data menu can be used to combine information from multiple sheets into one sheet to compare data.
4. The SUBTOTAL tool in Calc creates the group automatically and applies functions on the Grouped data.
5. WHAT-IF scenario is used to explore and compare various alternatives depending on changing conditions.
6. WHAT-IF TOOL is a planning tool for what-if questions.
7. What-if analysis tool uses TWO array of cells, one array contains input values and the second Uses the FORMULA AND DISPLAY OUTPUT.
8. GOAL SEEK helps in finding out the input for the specific output.

D. Answer the following questions

1. Define the terms

(a) Consolidate function:

Definition: Consolidate is a function which is used to combine data from the multiple sheets into one place to summarize the information.

Steps to consolidate the data are as follows –

- **Step 1:** Open Spreadsheet
- **Step 2:** Choose **Data > Consolidate** dialog box and select the function
- **Step 3:** Click on Source data area
- **Step 4:** Select the source range or type the cell address
- **Step 5:** Click on Add button
- **Step 6:** Select additional range and click Add
- **Step 7:** Specify where you want to save the result using Copy results to box
- **Step 8:** Press Ok

(b) Groups and subtotals:

Groups in LibreOffice – Group and Outline data is used when we want to group rows or columns together so that one can collapse (-) to hide it or expand (+) it using a single click on it. To select the data to be grouped Data > Group and Outline

The subtotal tool in Calc creates a group of data automatically and applies common functions like sum, average on the grouped data. The subtotal will display the data in the form of sorting in ascending or descending order.

Steps how to use subtotal –

- **Step 1:** Click on Data > Subtotals from menu bar
- **Step 2:** Select Column in which you want to use subtotal
- **Step 3:** Select functions like sum, average, count, max, min etc.
- **Step 4:** Click Ok.

(c) What-if scenario:

When we ask about the possible results of an activity then we use What-if, What-if helps to explore and compare various alternatives depending on changing conditions. It is used to optimize the output and helps to predict the output while changing the inputs.

Definition: The What-if scenario is a powerful technique, scenario is a set of cell values which is used within the calculation.

Use following steps to create scenarios in LibreOffice Calc-

- **Step 1:** Select the cells where you want to apply scenarios
- **Step 2:** Click Tools > Scenarios
- **Step 3:** Enter name of Scenarios
- **Step 4:** Click Ok Button.

(d) What-if analysis tool:

What-if tool is a planning tool for possible outcomes, you can open Multiple Operations from **Data > Multiple Operations**. Scenarios use a drop-down list to display the result based on the input rather than displaying the output in the same cells as the input but Multiple Operations tools creates a formula array to display the list of results.

Use following steps to create What-if analysis tool –

- Step 1: Enter the data in the cells
- Step 2: Create an array of input values on the basis of output what you generate
- Step 3: Select the cell range of input array and output array
- Step 4: Click on Data > Multiple Operations
- Step 5: Enter the cell address in formula box and Column input cell
- Step 6: Click on Ok

(e) Goal seek:

Goal Seek comes under What-if Analysis tools. Goal seek helps to find specific output from the given input. Goal seek can find the correct input when only the output is known.

Example – Suppose, you require a loan. You are aware of the amount you wish to borrow, you also know the interest rate of the Bank, and how much you can afford to pay each month. To find out what time you'll need to get in order to reach your loan target, use Goal Seek.

User following steps to create goal seek –

- **Step 1:** Enter Principal amount, time, rate of interest in the worksheet
- **Step 2:** Write a formula for Simple interest
- **Step 3:** Click on Tools > Goal Seek
- **Step 4:** Place the cursor on the Variable cell box and click on the cell

2. Give one point of difference between

(a) Subtotal and What-if:

- The Subtotal tool in Calc creates the group automatically and applies common functions like sum, and average on the grouped data. One can use any type of summary function for each column as per the requirement of data analysis.

-What-if tool uses Data > Multiple Operations and is a planning tool for what-if questions. • This tool uses two arrays of cells; one array contains the input values and the second array uses the formula and displays the result. A what-if analysis tool is very helpful when we want to know how much profit we earn for a particular product for a series of selling units.

(b) What-if Scenario and What-if tool

What-if scenario is used to explore and compare various alternatives depending on changing conditions. It can be used in the beginning of any project to optimize the output. This tool is used to predict the output while changing the inputs which reflects the output and thus one can choose the best plan of action based on it.

What-if tool uses Data > Multiple Operations and is a planning tool for what-if questions. This tool uses two arrays of cells, one array contains the input values and the second array uses the formula and displays the

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Ans.

Advantages of data analysis tools:

- Data analysis tool is used to retrieve, correlate, explore, and visualize the data. ▪ Data analysis tool is used to identify patterns, trends, and relationships.
- Data analysis tool is used to analyse the data and interpret the result from it.

4. Name any two tools for data analysis.

Ans.

Tools used for data analysis are:

Consolidating Data

Groups and Subtotals

What-if Scenarios Goal Seek

What-if Analysis Tool

5. What are the criteria for consolidating sheets?

Ans.

Criteria for Consolidation Sheets are:

- Open each sheet in the spreadsheet and check that the data types match which you want to consolidate.
- Match the labels from all the sheets which are used for consolidating.
- Enter the first column as the primary column based on which the data is to be consolidated.

6. Which tool is used to create an outline for the selected data?

Ans.

The Group and Outline tool in Calc is used to create an outline of the selected data and can group rows and columns together so that one can collapse (-) to hide it or expand (+) it using a single click on it.

7. What are Scenarios in a spreadsheet? Explain their use with an example.

Answer: Scenarios in a spreadsheet are sets of different input values that allow users to forecast or predict different outcomes. They are used for "what-if" analysis to understand the impact of different variables on the result.

For example, a business owner could use scenarios to predict the company's profit based on varying sales figures. By creating different scenarios such as "Best Case," "Worst Case," and "Most Likely Case," the owner can input different sales numbers for each scenario and see how each one affects the profit.

8. What is Goal Seek in a spreadsheet? How is it different from Scenarios?

Answer: Goal Seek is a tool in a spreadsheet that allows users to find the necessary input value to achieve a specific goal or result. Unlike Scenarios, which explore different outcomes based on various inputs, Goal Seek works backward from the desired result to determine the necessary input.

For example, if a student knows they need a final grade of 90% to pass a course, they can use Goal Seek to determine what score they need on their final exam to achieve that grade, given their current grades.

9. How can you create a Scenario in a spreadsheet? List the steps involved.

Answer: To create a Scenario in a spreadsheet, follow these steps:

1. Go to the Data menu and select What-If Analysis.
2. Choose Scenario Manager.
3. Click on Add to create a new scenario.
4. Enter the name for the scenario, such as "Best Case" or "Worst Case."
5. Specify the cells that will change in this scenario (changing cells).
6. Input the different values for these cells.
7. Click OK and then Add another scenario if needed.
8. Once all scenarios are added, click Show to view the different scenarios

10. Describe the process of using Goal Seek in a spreadsheet.

Answer: To use Goal Seek in a spreadsheet, follow these steps:

1. Click on the cell where you want the result to appear.
2. Go to the Data menu and select What-If Analysis.
3. Choose Goal Seek.
4. In the Set Cell box, select the cell that contains the formula you want to resolve.
5. In the To value box, enter the desired outcome or target value.
6. In the By changing cell box, select the cell that contains the variable you want to adjust to achieve the desired outcome.
7. Click OK to let Goal Seek calculate the input needed to achieve the target.

11. Explain the importance of Scenario Manager in financial modeling.

Answer: Scenario Manager is crucial in financial modeling because it allows analysts to evaluate multiple financial outcomes based on different assumptions. It helps in risk assessment and decision-making by providing a clear view of potential risks and rewards under different conditions. For instance, a financial analyst can use Scenario Manager to evaluate how changes in market conditions, such as interest rates or sales volumes, might impact the company's revenue and expenses.

12. How does Goal Seek help in making business decisions? Provide an example.

Answer: Goal Seek helps in making business decisions by enabling managers to determine the required input to achieve a specific goal. For example, a company might want to achieve a certain level of revenue for a quarter. By using Goal Seek, the manager can find out what the sales volume needs to be to reach the desired revenue, helping in planning and strategy

13. What are the limitations of using Scenarios and Goal Seek in spreadsheets?

Answer: The limitations of using Scenarios and Goal Seek in spreadsheets include:

- Scenarios are limited to only predefined sets of inputs and do not dynamically adjust to new data or changes outside the specified parameters.
- Goal Seek only works with one variable at a time and may not provide the most optimal solution if multiple variables need to be adjusted.
- Both tools can become cumbersome and less effective when dealing with large, complex datasets or models that require multi-variable adjustments

14. Differentiate between 'Changing Cells' and 'Result Cells' in the context of Scenario Manager.

Answer:

- Changing Cells are the cells where the user inputs different values to analyze their impact. These are the variables that change between different scenarios.
- Result Cells are the cells where the output or the result of the changes is observed. These cells contain formulas or calculations that display the impact of the changing cells on the overall model.

15. In what scenarios would you prefer using Goal Seek over Scenarios, and why?

Answer: You would prefer using Goal Seek over Scenarios when you have a specific target or goal and need to find the necessary input value to achieve it. For example, if a company needs to determine the price point at which it will break even given a set cost, Goal Seek is ideal because it works backward from the desired outcome to find the necessary input.

In contrast, Scenarios are more useful when exploring multiple outcomes and comparing results based on varying input conditions.