**Excel Assignment 3**

1. What do you mean by “Relative Cell Referencing” in MS Excel and “Absolute cell referencing”?
2. **A Relative cell reference changes when copying or moving the formula or cell value to a different location in the worksheet**. Relative references are very useful when you have a range of cells and you want the references to relatively change as and when you copy the formula down to other cells.

Relative reference is the default cell reference in Excel. It is simply **the combination of column name and row number without any dollar ($) sign**. When you copy the formula from one cell to another the relative cell address changes depending on the relative position of column and row.

**Absolute reference**is the cell reference in which the row and column are made constant by adding the dollar ($) sign before the column name and row number. The absolute reference does not change as you copy the formula from one cell to other. If either the row or the column is made constant then it is known as a **mixed reference**. You can also press the F4 key to make any cell reference constant. $A$1, $B$3 are examples of absolute cell reference.

For example, We want to multiply the sum of marks of two subjects, entered in column A and column B, with the percentage entered in cell C2 and display the result in column D. Here, we will use absolute reference so that the address of cell C2 remains constant and does not change with the relative position of column and rows.

2.How to secure an excel workbook, demonstrate it with an example.

Protect a worksheet

To prevent other users from accidentally or deliberately changing, moving, or deleting data in a worksheet, you can lock the cells on your Excel worksheet and then protect the sheet with a password. Say you own the team status report worksheet, where you want team members to add data in specific cells only and not be able to modify anything else. With worksheet protection, you can make only certain parts of the sheet editable and users will not be able to modify data in any other region in the sheet.

## Password Protect an Excel Workbook File

Let's start off by protecting an entire Excel file (or workbook) with a password to prevent others from opening it.

This is a breeze to do. While working in Excel, navigate to the **File**tab choose the **Info**tab. Click on the **Protect Workbook**dropdown option and choose **Encrypt with Password.**

As is the case with any password, choose a strong and secure combination of letters, numbers, and characters, bearing in mind that passwords are case-sensitive.

## Password Protect Your Excel Sheet Structure

Next up, let's learn how to protect the **structure**of an Excel workbook. This option will ensure that no sheets are deleted, added, or re-arranged inside of the workbook.

If you want everyone to be able to access the workbook, but limit the changes they can make to a file, this is a great start. This protects the structure of the workbook, and limits how the user can change the sheets inside of it.

To turn on this protection, go to the **Review**tab on Excel's ribbon and click on **Protect Workbook.**

# 3.Explain the pivot tables and their implementations.

A. **A PivotTable is an interactive way to quickly summarize large amounts of data**. You can use a PivotTable to analyze numerical data in detail, and answer unanticipated questions about your data. A PivotTable is especially designed for: Querying large amounts of data in many user-friendly ways.

A PivotTable is an interactive way to quickly summarize large amounts of data. You can use a PivotTable to analyze numerical data in detail, and answer unanticipated questions about your data. A PivotTable is especially designed for:

* Querying large amounts of data in many user-friendly ways.
* Subtotaling and aggregating numeric data, summarizing data by categories and subcategories, and creating custom calculations and formulas.
* Expanding and collapsing levels of data to focus your results, and drilling down to details from the summary data for areas of interest to you.
* Moving rows to columns or columns to rows (or "pivoting") to see different summaries of the source data.
* Filtering, sorting, grouping, and conditionally formatting the most useful and interesting subset of data enabling you to focus on just the information you want.
* Presenting concise, attractive, and annotated online or printed reports.

# 4. Explain lookup in excel with suitable examples.

# A.Use LOOKUP, one of the lookup and reference functions, when you need to look in a single row or column and find a value from the same position in a second row or column. For example, let's say you know the part number for an auto part, but you don't know the price.a

* **ookup\_value**    Required. A value that **LOOKUP** searches for in an array. The ***lookup\_value*** argument can be a number, text, a logical value, or a name or reference that refers to a value.
  + If **LOOKUP** can't find the value of ***lookup\_value***, it uses the largest value in the array that is less than or equal to ***lookup\_value***.
  + If the value of ***lookup\_value*** is smaller than the smallest value in the first row or column (depending on the array dimensions), **LOOKUP** returns the #N/A error value.
* **array**    Required. A range of cells that contains text, numbers, or logical values that you want to compare with lookup\_value.

The array form of **LOOKUP** is very similar to the **HLOOKUP** and **VLOOKUP** functions. The difference is that **HLOOKUP** searches for the value of ***lookup\_value*** in the first row, **VLOOKUP** searches in the first column, and **LOOKUP** searches according to the dimensions of array.

* + If array covers an area that is wider than it is tall (more columns than rows), **LOOKUP** searches for the value of ***lookup\_value*** in the first row.
  + If an array is square or is taller than it is wide (more rows than columns), **LOOKUP** searches in the first column.
  + With the **HLOOKUP** and **VLOOKUP** functions, you can index down or across, but **LOOKUP** always selects the last value in the row or column.

# 5.What is Data validation, and how to implement it in Excel?

**How to Validate Data in Excel?**

1. Select the cell you want to validate. Go to the Data tab > Data tools, and click on the Data Validation button. ...
2. On the settings tab, specify your validation criteria.
3. You can enter the input message if you want. This step is optional.
4. You can also set your custom error message. ...
5. Click OK.

# Excel can restrict data entry to certain cells by using data validation, prompt users to enter valid data when a cell is selected, and display an error message when a user enters invalid data.

1. Select the cell(s) you want to create a rule for.
2. Select **Data >Data Validation**.
3. On the **Settings** tab, under **Allow**, select an option:
   * **Whole Number** - to restrict the cell to accept only whole numbers.
   * **Decimal** - to restrict the cell to accept only decimal numbers.
   * **List** - to pick data from the drop-down list.
   * **Date** - to restrict the cell to accept only date.
   * **Time** - to restrict the cell to accept only time.
   * **Text Length** - to restrict the length of the text.
   * **Custom** – for custom formula.
4. Under **Data**, select a condition.
5. Set the other required values based on what you chose for **Allow** and **Data**.
6. Select the **Input Message** tab and customize a message users will see when entering data.
7. Select the **Show input message when cell is selected** checkbox to display the message when the user selects or hovers over the selected cell(s).
8. Select the **Error Alert** tab to customize the error message and to choose a **Style**.
9. Select **OK**.