Information Technology

NVEQ Level 2 – Class X

IT204-NQ2012-Spreadsheet (Intermediate)

Student's Handbook

Student Details

Student Name:_____

Student Roll Number:_____

Batch Start Date:_____

Acknowledgements

Preface

The National Curriculum Framework, 2005, recommends that children's life at school must be linked to their life outside the school. This principle makes a departure from the legacy of bookish learning which continues to shape our system and causes a gap between the school, home, community and the workplace.

The student workbook on **"Spreadsheet (Intermediate)"** is a part of the qualification package developed for the implementation of National Vocational Education Qualification Framework (NVEQF), an initiative of Ministry of Human Resource Development (MHRD), Government of India to set common principles and guidelines for a nationally recognized qualification system covering Schools, Vocational Education and Training Institutions, Technical Education Institutions, Colleges and Universities. It is envisaged that the NVEQF will promote transparency of qualifications, cross-sectoral learning, student-centred learning and facilitate learner's mobility between different qualifications, thus encouraging lifelong learning.

This student workbook, which forms a part of vocational qualification package for student's who have passed Class IX or equivalent examination, was created by a group of experts. The IT-ITeS Skill Development Council approved by the National Skill Development Corporation (NSDC) for the IT/ITeS Industry developed the National Occupation Standards (NOS). The National Occupation Standards are a set of competency standards and guidelines endorsed by the representatives of IT Industry for recognizing and assessing skills and knowledge needed to perform effectively in the workplace.

The Pandit Sunderlal Sharma Central Institute of Vocational Education (PSSCIVE), a constituent of National Council of Educational Research and Training (NCERT) in association with Wadhwani Foundation has developed modular curricula and learning materials (Units) for the vocational qualification package in IT/ITes sector for NVEQ levels 1 to 4; level 1 is equivalent to Class IX. Based on NOS, occupation related core competencies (knowledge, skills, and abilities) were identified for development of curricula and learning modules (Units).

This student workbook attempts to discourage rote learning and to bring about necessary flexibility in offering of courses, necessary for breaking the sharp boundaries between different subject areas. The workbook attempts to enhance these endeavours by giving higher priority and space to opportunities for contemplation and wondering, discussion in small groups and activities requiring hands-on-experience. We hope these measures will take us

significantly further in the direction of a child-centred system of education outlined in the National Policy of Education (1986). The success of this effort depends on the steps that school Principals and Teachers will take to encourage children to reflect their own learning and to pursue imaginative and on-the-job activities and questions. Participation of learners in skill development exercises and inculcation of values and creativity is possible if we involve children as participants in learning, and not as receiver of information. These aims imply considerable change in school routines and mode of functioning. Flexibility in the daily time-table would be a necessity to maintain the rigour in implementing the activities and the required number of teaching days will have to be increased for teaching and training.

About Your Workbook

This workbook is to assist you with completing the Unit of Competency **IT204-NQ2012: Spreadsheet (Intermediate).** You should work through the workbook in the classroom, at the workplace or in your own time under the guidance and supervision of your teacher or trainer.

This workbook contains sessions which will help you to acquire relevant knowledge and skills (soft and hard) on various aspects of the unit of competency. Each session is small enough to be easily tackled and digested by you before you move on to the next session. Animated pictures and photographs have been included to bring about visual appeal and to make the text lively and interactive for you. You can also try to create your own illustrations using your imagination or taking the help of your teacher. Let us now see what the sections in the sessions have for you.

Section1: Introduction

This section introduces you to the topic of the Unit. It also tells you what you will learn through the various sessions covered in the Unit.

Section 2: Relevant Knowledge

This section provides you with the relevant information on the topic (s) covered in the session. The knowledge developed through this section will enable you to perform certain activities. You should read through the information to develop an understanding on the various aspects of the topic before you complete the exercise (s).

Section 3: Exercise

Each session has exercises, which you should complete on time. You will perform the activities in the classroom, at home or at the workplace. The activities included in this section will help you to develop necessary knowledge, skills and attitude that you need for becoming competent in performing the tasks at workplace. The activities should be done under the supervision of your teacher or trainer who will guide you in completing the tasks and also provide feedback to you for improving your performance. To achieve this, prepare a timetable in consultation with your teacher or trainer and strictly adhere to the stipulated norms or standards. Do not hesitate to ask your teacher or trainer to explain anything that you do not understand.

Section 4: Assessment

The review questions included in this section will help you to check your progress. You must be able to answer all the questions before you proceed to the next session.

SESSION 1: USE AUTOSUM IN CELLS

RELEVANT KNOWLEDGE

You have learnt to navigate in a spreadsheet, populate cells, and perform calculations. As you know, a spread sheet offers various mathematical functions to perform the calculations. Sum is one of the functions available in the spread sheet to perform addition of selected numbers in the sheet. In this exercise, you will learn how to use **autosum** function to perform addition in a spread sheet.

Autosum is used for adding the values given in cells automatically without writing the formula to perform the operation.

Open a new spread sheet and enter the following data.

	A	B	C	D	E	F	G	H
1	S.No	Name	English	Hindi	Maths	Science	Total	
2	1	Abhas	86	79	92	91		
3	2	Anita	90	84	94	85		
4	3	Raja	75	85	91	98		
5	4	Subbu	78	89	91	77		
6	5	Priya	94	93	100	87		
7								
8								

Figure 1

Now to total the marks of each of the students, do the following:

- Go to cell G2. While the cell G2 is selected, click on the *AutoSum* option available under *Editing* Group in the *Home* tab.
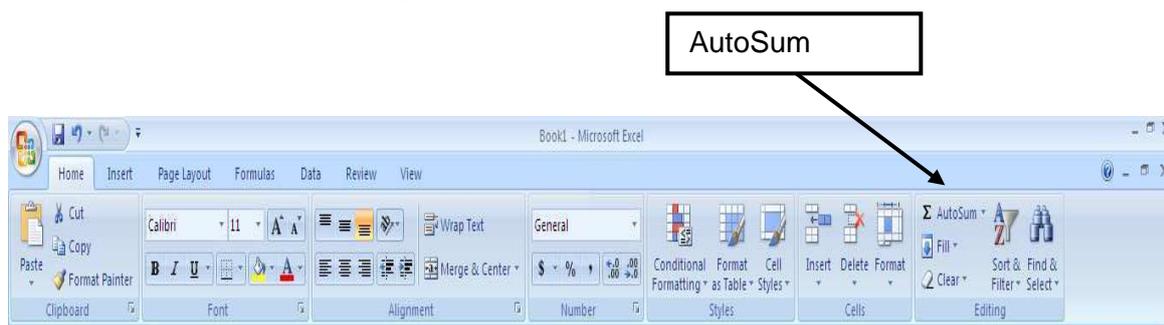
AutoSum

Figure 2

- The values in the cells from c2 to f2 will be automatically selected as shown below.

Figure 3

- Press **Enter**.
  - o The total marks of Abhas appears in cell G3.
  - o Similarly, calculate the total marks of the rest of the students.

Figure 4

Note: Autosum automatically selects the values around the cells either horizontally or vertically. In the above example you want to perform addition of numbers listed from left to right, after finding the total of two persons when you try to perform autosum for another person the values on top of the current cell get selected. In that case, you have to select the cell values that you want to perform addition.

Now change the marks of one of the students in one or more subjects. The total marks of that student will get calculated automatically. *Automatic calculation* of formulas is one of the most powerful features of electronic spreadsheets.

EXERCISE

Perform the following activities till you are confident:

S.No.	Activities
1.	Calculate without writing the formulae using the Autosum function
2.	Create a list of all your personal expenses made during the month and calculate the total expenses using the autosum function
3.	Create a list of names of the month and holidays in that month. Add and calculate the total number of holidays in a year using the autosum function

Fill in the blanks

1. _____ _____of formulas is one of the most powerful features of electronic spreadsheets.

2. _____ is used for adding the values given in cells automatically without writing the formula.

3. AutoSum option is available in _____ group under the Home tab.

4. <u>Autosum</u> automatically selects the values around the cells either _____ or _____.

RELEVANT KNOWLEDGE

Conditional formatting allows you to change the formatting (font color, border, shading) of the cells based on the values in it. Yes, you can do that manually, but it can be a tiresome task if you have a huge amount of data. So, you specify a condition for the values in the cell, and if the condition is satisfied then automatically the formatting of the cell changes. This feature would be very useful if you were working on a profit and loss spreadsheet, or a temperature variance spreadsheet, or a marksheet. You could highlight cells that have values are greater than a defined rule with one color and those less than another with a different color.

Basically, you can select one or more cells, and create rules (conditions) for when and how those cells are formatted. The conditions can be, based on the selected cell's contents, or based on the contents of another cell.

You can control the following formats:

- Number format
- Font, font style, and font colour (but not font size)
- Fill colour and fill pattern
- Border colour and border style (but not border thickness)

Open a new spreadsheet and enter the following data.

	A	B	C	D	E	F
1	Name	Production in 2008	Production in 2009	Production in 2010	Production in 2011	
2	Copper	87	81	75	90	
3	Iron	67	88	94	95	
4	Zinc	77	85	72	65	
5	Manganese	88	68	79	84	
6						

Figure 5

Now to apply conditional formatting for the data do the following.

- Select all the cells you want to format conditionally.

	A	B	C	D	E	F
1	Name	Production in 2008	Production in 2009	Production in 2010	Production in 2011	
2	Copper	87	81	75	90	
3	Iron	67	88	94	95	
4	Zinc	77	85	72	65	
5	Manganese	88	68	79	84	
6						

Figure 6

- Click on **Conditional Formatting** option available under **Styles** group in the **Home** tab. A drop down list appears.

Figure 7

Click on **Highlight Cells Rules** option, a submenu appears.

- Note: you can select the condition listed according to your needs. In this example if you want to highlight the values that are greater than 75, select "Greater Than…" available under the submenu. A dialog box appears.
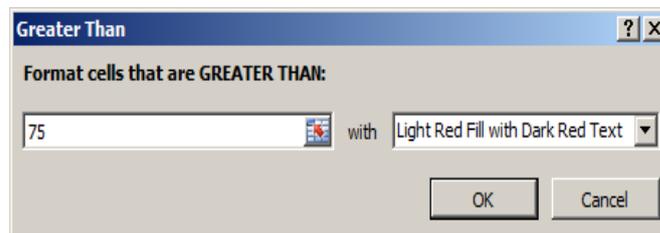

Figure 8

- Specify the value in the box and click on the down arrow next to the **with** field and select a predefined format for the condition from the drop down list. If you want to highlight the cell contents with your own formatting style click **Custom Format** option in the dropdown list.
- A **Format Cells** dialog box appears. You can select a different font color under Font tab, border style and color under Border tab and fill color under Fill tab.
- Go ahead and create the data below and format it in the manner displayed.

	A	B	C	D	E	F
1	Name	Production in 2008	Production in 2009	Production in 2010	Production in 2011	
2	Copper	87	81	75	90	
3	Iron	67	88	94	95	
4	Zinc	77	85	72	65	
5	Manganese	88	68	79	84	
6						

Figure 9

Note: Similarly you can set various conditions for the selected value like less than, equal to, between etc.

Optionally, you can also specify the cell address where the value is stored. This can be very helpful as simply changing the value in one place can change the conditional formatting all over the previously selected range. An example is shown in the figure below.
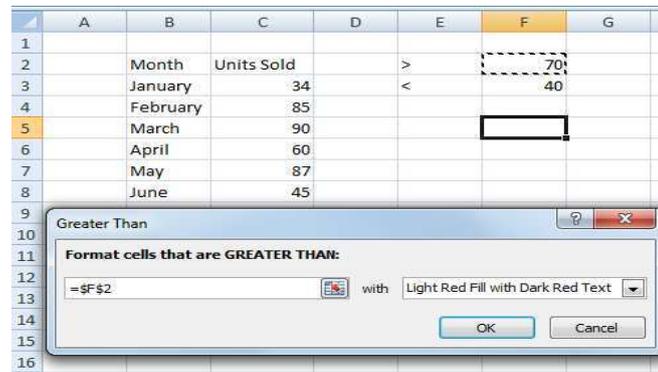

Figure 10

The result is displayed below.

Figure 11

EXERCISE

Perform the following activities till you are confident:

S.No.	Activities
1.	Perform conditional formatting on a data subset
2.	Create a student mark list of at least 10 students and five subjects. Highlight the marks of the students who got marks greater than 80 with green colored text with blue fill. Save the worksheet as Marks_{your name}.

13

Fill in the blanks

1. _____conditional formatting allows you to change the formatting (font color, border, shading) of the cells based on the values in it.
2. Conditional formatting is available under _____ Styles group in Home tab.

Answer the following:

1. List any five conditions/formats/items that can be used for conditional formatting.

RELEVANT KNOWLEDGE

Sometimes you have data in rows and columns which are needed for formulas or charts, but you do not want the data to be visible. A very handy feature of a spreadsheet is the ability to hide a row/column that is not to be shown to the end user. The data in hidden row/column is available for calculations though not visible!

Freezing rows and columns is another helpful feature in a spreadsheet. When you are dealing with a huge amount of data that spans several rows or columns, you may want the headers to remain constant (frozen) while you scroll through the data so that you can see the identifying names of the rows/columns.

Open a new spreadsheet. To hide a row or column, do the following:

- In order to hide any row or column you can either select the particular row or column that is to hidden or just one cell in the corresponding row or column (for example B3).
- Click on *Format* option available under *Cells* group in the *Home* tab.

Format

Figure 12

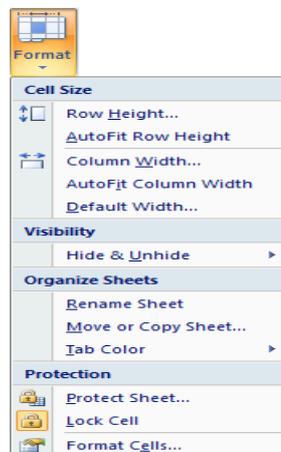- A dropdown list appears as shown below.

Figure 13

15

- Click on *Hide & Unhide* > *Hide Rows*. The spread sheet will be displayed as shown below.

Note: Alternatively, you can select the row/column, right click and select *Hide*.

Figure 14

Note: In this example the cell in the 3rd row of the spread sheet was selected and then Hide Rows option was selected. So, the 3rd row is hidden. What would have happened if you had selected *Hide Columns* instead?

- In order to unhide the row or column that is hidden you have to select any cells before and after the cell that is hidden then click *Unhide Rows* in the *Format* option available under *Home* tab.

To freeze the rows or columns do the following.

- Open a new spread sheet.
- In order to freeze rows or columns click on *Freeze Panes* option available under *Window* group in *View* tab.
- A drop down list appears as shown below. Click on Freeze Panes. Doing so will freeze all the rows above and all the columns to the left of the selected cell. Scroll your mouse in the spreadsheet the frozen rows and columns remain constant.

Figure 15

Note: The panes are formed where your cursor is placed. Select the option again and notice the change in the available options! Go ahead and try the other options too. You can also freeze the entire row or column by selecting the entire row or column and click "Freeze Panes" to freeze the entire row or column.

Perform the following activities till you are confident:

S.No.	Activities
1.	Hide/unhide rows/columns
2.	Freeze/unfreeze rows/columns
	Create the worksheet given below, keeping your cursor on B2, try all the options of freezing cells and observe the effect. Take specific note of column and row movements. Save the worksheet as expenses_{your name}.

	G6			f_x	680				
	A	B	C	D	E	F	G	H	I
1	Name	January	February	March	April	May	June		
2	House Rent	2500	2550	2550	3000	3500	3600		
3	Electric Bill	700	750	800	850	900	625		
4	Grocery Expenses	1000	1200	950	850	1500	1250		
5	Travelling Expenses	500	600	750	680	1000	950		
6	Phone/Mobile Bill	400	500	350	600	800	680		
7									
8									
9									

ASSESSMENT

Fill in the blanks:

1. When you freeze a row, _____ remains constant.

2. Freeze Panes option is available under _____ group in _____ tab.

3. The panes are formed where your _____ is placed.

RELEVANT KNOWLEDGE

To print a worksheet with the exact number of pages that you want, you can adjust the page breaks in the worksheet before printing it. This feature is very useful especially when printing huge sheets. You can use the Page Break view to see how other changes (e.g. changing row height / column width) affect the automatic page breaks.

In this exercise you will learn how to set page breaks in the spreadsheet.

Open a new spread sheet and create the sheet below. On the *View* tab, in the *Workbook Views* group, click *Page Break Preview*.

Figure 16

Now to set the page break do the following.

- To insert a vertical page break, select the row below where you want to insert the page break. To insert a horizontal page break, select the column to the right of where you want to insert the page break.
- Click on *Breaks* down arrow under *Page Setup* group in the *Page Layout* tab. A dropdown appears as shown below.
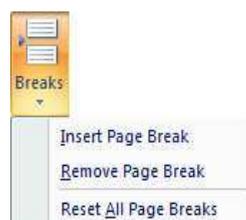

Figure 17

- Click on *Insert Page Break* option. The spread sheet will be displayed as shown below. The content you have typed comes in the first page and you can print it.
- To move a page break, simply drag the page break to the desired location.
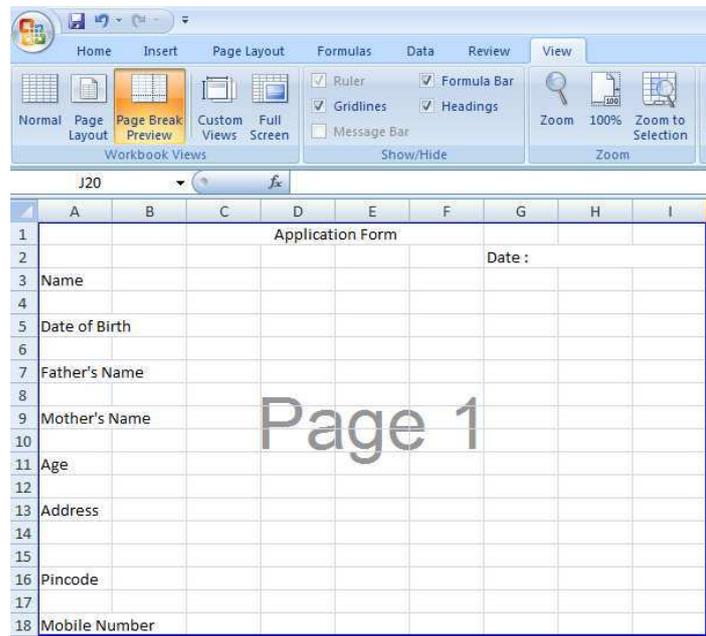

Figure 18

Note: You can also remove the page breaks by clicking the *Remove Page Break* option in *Breaks* drop down list.

To return to Normal view after you finish working with the page breaks, click **Normal** in the **Workbook Views** group under the **View** tab.

EXERCISE

Perform the following activities till you are confident:

S.No.	Activities
1.	Set, move and delete page breaks
2.	Create the worksheet given below. Calculate the closing balance. Add 10 more items to the list and set page breaks for printing. Move page breaks if contents do not fit onto one page. Save this file to be used in the following exercise with the name items_{your name}.

	A	B	C	D	E
1	S.No.	Item Code	Item Name	Opening Balance	Closing Balance
2	1	A001	Pencils - HB	800	
3	2	A002	Pencils - 1H	102	
4	3	A003	Copy - English	176	
5	4	A004	Copy - Maths	213	
6	5	A005	Registers	112	
7	6	A006	Geometry Box	35	
8	7	A007	Set of 6 sketch pens	75	
9	8	A008	Fountain Pens	79	
10	9	A009	Ball point pens	231	
11	10	A010	Staplers	12	

ASSESSMENT

Fill in the blanks

1. To insert a _____ page break, select the row below where you want to insert the page break.

2. To insert a _____ page break, select the column to the right of where you want to insert the page break.

3. The Breaks option is available under_____ group in the Page Layout tab.

4. To return to Normal view after you finish working with the page breaks, you need to click _____ in the _____ group under the **View** tab.

SESSION 5: SET PAGE LAYOUT

If you have a worksheet that contains a huge amount of data with many charts and you want a professional looking printout, what would you do? Spread sheet software provides various page layout options for organizing pages using the Page Layout option. In this exercise, you will learn how to set the page layout options in the spread sheet application. Open a new spread sheet.

To set the page layout options, do the following:

- Click on *Page Layout* option under *Workbook Views* group on *View* tab. The spreadsheet will be displayed as shown below. You can set the

  - o Margins
  - o Orientation
  - o Page headers and footers
  - o Hide or display grid lines
  - o Size of the page
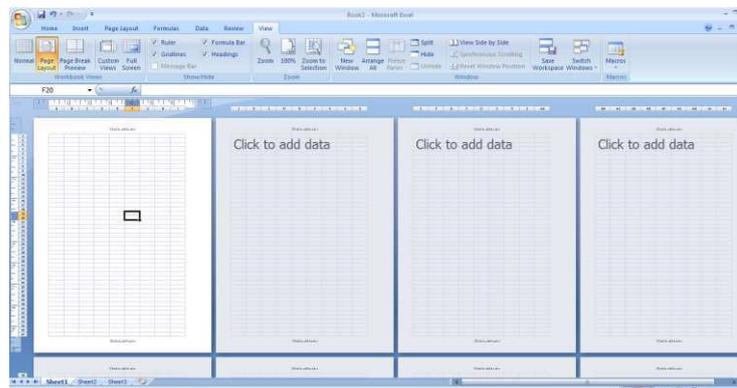 - o Define the print area
  - o Specify the background

Figure 19

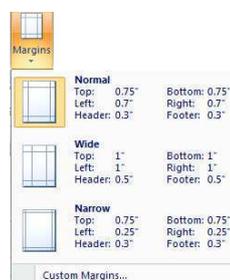- Click on *Margins* option under *Page Setup* group, a dropdown list appears as shown in figure 20.

Figure 20

- You can either select anyone of the predefined margin option available or else you can define your own margin settings by clicking *Custom Margins..* option. A dialog box appears.
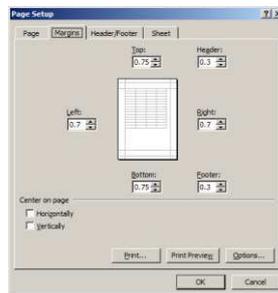

Figure 21

- You can set the margin values manually from the options available under the dialog box.
- You can set the orientation of the page to either Portrait or Landscape by clicking the *Orientation* option under *Page Setup* group in the *Page Layout* tab.
- You can set the size of the page by clicking the *Size* option under *Page Setup* group in the *Page Layout* tab.
- You can specify the area to be printed by selecting the area and then clicking *Print Area* option under *Page Setup* group in the *Page Layout* tab. A drop down list appears as shown below.
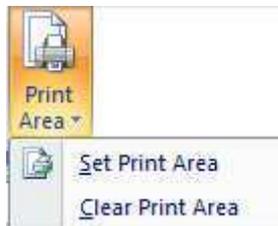

Figure 22

- Click on *Set Print Area* to set the selected to get printed. You can also clear the print area by clicking the *Clear Print Area* option.
- You can specify a background for your sheet using the *Background* option under *Page Setup* in the *Page Layout* tab.

EXERCISE

Perform the following activity till you are confident:

S.No.	Activity
1.	Reopen the worksheet created in the previous exercise named items_{your name}. Modify the margins, view the document using

	print preview and observe the changes

Fill in the blanks:

1. Spread sheet software provides various page layout options for organizing pages using the _____ View.

2. Margins option is available under_____ group in the _____ tab.

3. Two types of page orientation are _____ & _____.

SESSION 6: MANAGE WORKBOOK VIEWS

RELEVANT KNOWLEDGE

Spread sheet offers the users with variable views for the purpose of viewing the outcome of the sheet while printing.

There are five types of views available in the spreadsheet.

- Normal
- Page Layout
- Page Break Preview
- Custom Views
- Full Screen

You can select one of the above said views by clicking the appropriate option under Workbook Views in the View tab.
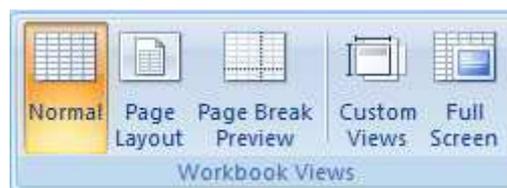

Figure 23

Normal View: The default view of the spreadsheet application is the Normal. It's a collection of cells arranged in the work area.

Page Layout: You can select the Page Layout view in order to quickly fine tune a worksheet that contains many charts or huge amounts of data and achieve professional looking results.

Page Break Preview: This option is similar to the Page Layout option except you can set the area that is to be set as a page after inserting page break.

Custom Views: If you would like to view selected areas of a document , you can use the custom view option. For example, if you would like to point out certain row and column, you can add that to the Custom view.

Full Screen: Selecting this option makes the workbook cover the entire screen. All tabs are hidden from view. To get back the tabs, click on *File*> *Restore*.

Additionally, in spreadsheet, you can open multiple windows that display the current spreadsheet and then arrange those windows in a variety of ways. You can also open and arrange multiple workbook windows.

To open a second instance of a workbook in a separate window:

- Click the *New Window* button on the *View* tab, in the *Window* group.

To arrange multiple program windows:

- Click **Arrange All** button in the **Window** group. An **Arrange Windows** dialog box appears.
- Click either **Tiled**, **Horizontal**, **Vertical**, or **Cascade** options.
- To include only windows displaying views of the current workbook, select the **Windows of active workbook** check box.
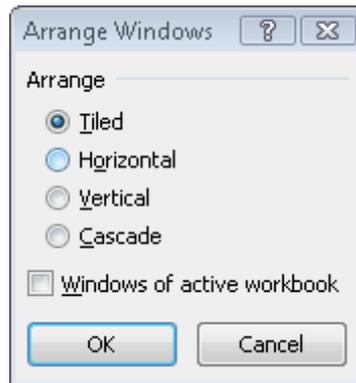- Click **OK**.

.

Figure 24

EXERCISE

Perform the following activities till you are confident:

S.No.	Activities
1.	Reopen the worksheets created in the exercises SS 2 named Marks_{your name}, SS3 named expenses_{your name} and SS 4 named items_{your name} Using the commands in the Window group on the View menu, tile the three windows, and then arrange them so that they overlap. Move each window separately and observe what happens in the others. Try the Cascade and Tile options too
2.	Use the New Window command to open a second instance of one of the workbooks. Then arrange only the two windows of the active workbook horizontally

ASSESSMENT

Fill in the blanks

1. Different types of views are available under _____ in the View tab.
2. The five types of views available are _____ , _____, _____, _____ & _____.
3. The _____ helps you to view a selected area of a workbook.

SESSION 7: APPLY CELL AND RANGE NAMES

RELEVANT KNOWLEDGE

You can assign names to cells in a worksheet and use it for quickly locating specific cells by entering the names. This could be useful when working with large spread sheets. For example, if you have a lengthy list of groceries and prices, you can use names to quickly locate and find total pricing of fruits from the entire list.

In this exercise, you will learn to work with cell and range names.

Open a new spreadsheet and enter the following (figure below):

Figure 25

Now to apply range names, do the following:

- Select the cost against the cells that have *Apple, Banana, Cherry, Grape, Guava, Mango, Pineapple* values (Keep the **Ctrl** key pressed and click on the cells – you will be able to select selective cells together!). Right click and select **Name a Range….** Alternatively, you can select **Define Name** under **Defines Names** group in the **Formulas** tab.
- A **New Name** dialog box appears prompting to enter a name. Enter **Fruits** in the **Name** field and click **OK** (figure below).
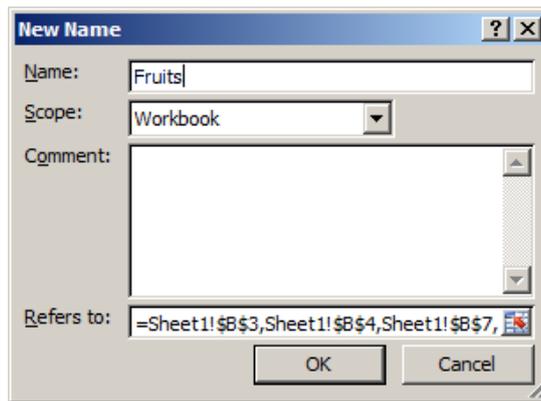
Figure 26

- Select the cost against the cells that have *Cabbage, Cauliflower, Chilli, Cucumber, Ginger, Potato, Pumpkin, Spinach, Tomato* values. Right click define the name **Vegetables** for this group.
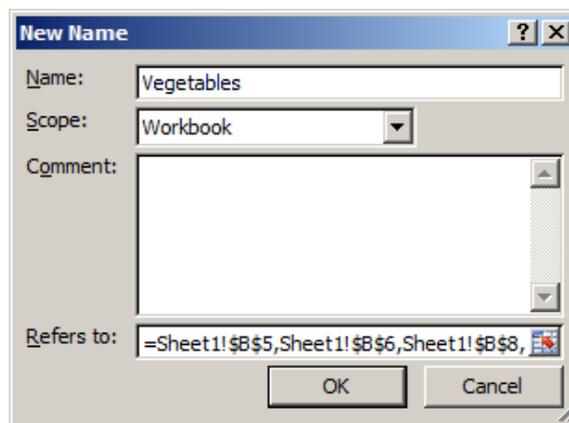

Figure 27

If you would like to calculate the total cost of fruits from the list,

- Select an empty cell
- Type Total Cost of Fruits and in the adjacent cell, Type **=SUM(Fruits)** and press **Enter**.

Notice the total cost of all items named as Fruits is displayed.

EXERCISE

Perform the following activities till you are confident:

S.No.	Activities
1.	Apply names to cells and cell ranges and use them in formulae
2.	Using the worksheet created in this exercise, calculate the cost of Vegetables. Save the workbook as Grocery_{your name}.

Fill in the blanks:

1. Assigning names to cells in a worksheet help you to _____ specific cells.

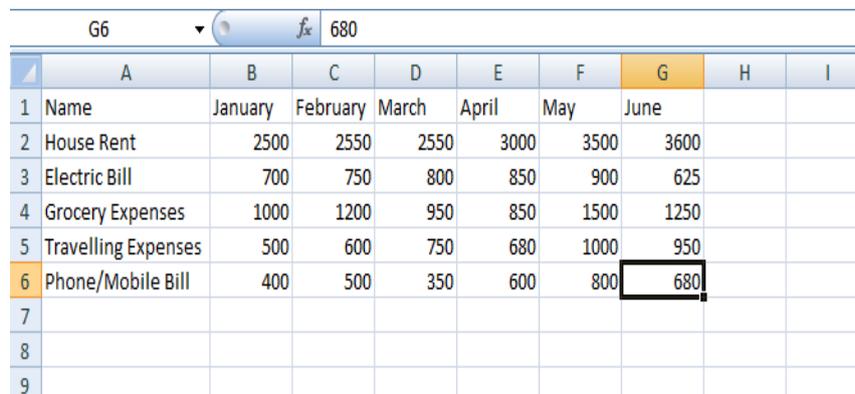2. The Define Name option is available under _____ group in the _____ tab.

RELEVANT KNOWLEDGE

A chart is a graphical representation of data, in which the data is represented by symbols, such as bars in a bar chart, lines in a line chart, or slices in a pie chart. A chart can represent tabular numeric data, functions or some kinds of qualitative structures.

A Spread sheet enables you to create, modify and format charts based on the data given in the spread sheet. In this exercise you will learn how to create, modify and format chart using the spreadsheet.

Reopen the worksheet expenses_{your name}.

	G6			f_x	680				
	A	B	C	D	E	F	G	H	I
1	Name	January	February	March	April	May	June		
2	House Rent	2500	2550	2550	3000	3500	3600		
3	Electric Bill	700	750	800	850	900	625		
4	Grocery Expenses	1000	1200	950	850	1500	1250		
5	Travelling Expenses	500	600	750	680	1000	950		
6	Phone/Mobile Bill	400	500	350	600	800	680		
7									
8									
9									

Figure 28

Now to create charts do the following.

- Select all the expenses data.
- Click on the chart type that you want from **Charts** group under the **Insert** tab.
- After selecting the chart type the spread sheet will be displayed as shown below.
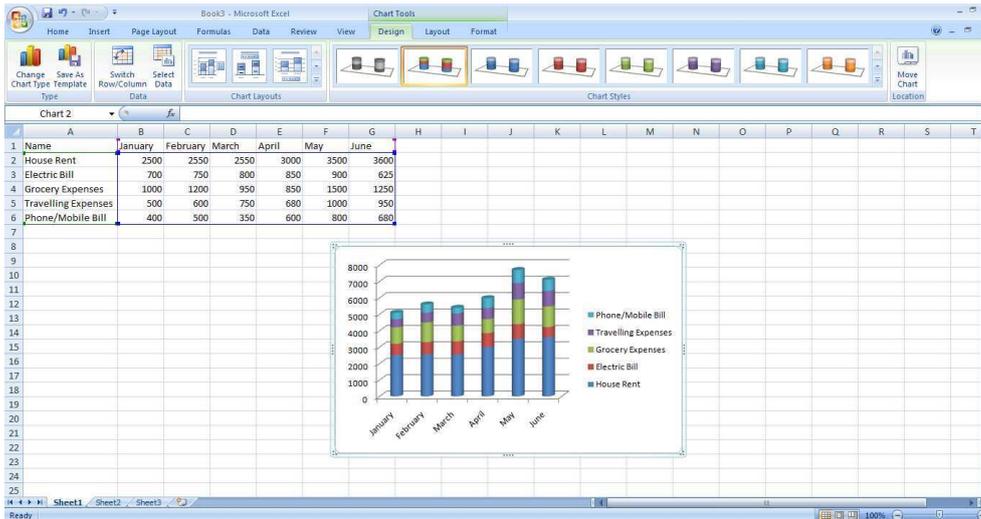
Figure 29

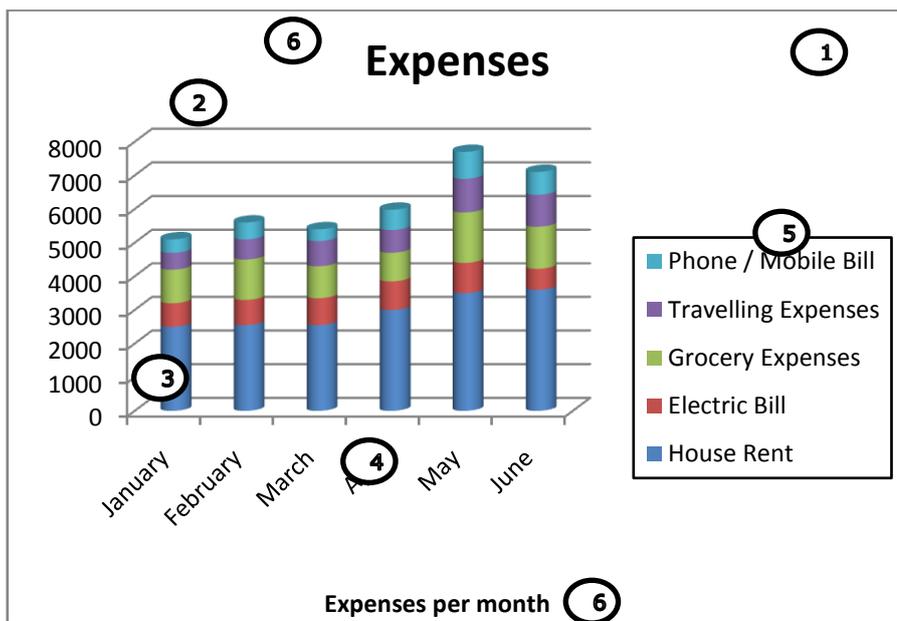- You can modify the chart values by making necessary modifications in the data table.

Figure 30

Chart has many elements; however, only some of the elements are displayed by default. Following is an description of the elements used in the above chart:

1. *Chart Area* of the Chart
2. *Plot Area* of the Chart
3. *Data Points* that are plotted in the chart
4. *Horizontal and Vertical Axis* in the chart
5. *Legend* of the chart
6. *Chart and Axis Title* used in the chart

7. *Data Label* for identifying details of data point in the chart

Note: Once you insert a chart in the spreadsheet three additional tabs are available on the Ribbon namely *Design*, *Layout* and *Format*. You can edit the chart, its design, layout and formatting options using the three tabs available. You can change the chart type, chart options etc. in the Design tab and can give the titles etc. in the Layout tab and set the borders, colors and size of the option under Format tab.
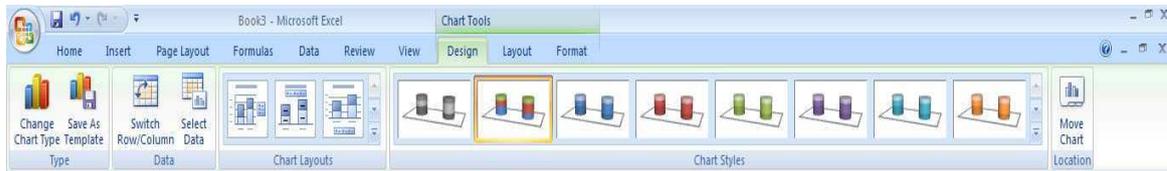

Figure 31

Choosing the right type of chart is very important. Different charts display data in very different ways. Using the best chart type and format helps you to display data visually in the most meaningful way.

Bar charts: A bar chart (horizontal bars) emphasizes the comparison between items at a fixed period of time. This chart type also includes cylinder, cone, and pyramid subtypes.

Column charts: A column chart, unlike a bar chart to which it is often compared, emphasizes variation over a period of time. This chart type also includes cylinder, cone, and pyramid subtypes

Line charts: A line chart shows the relationship of the changes in the data over a period of time.

Pie charts: Pie charts contain just one chart data series. A pie chart shows the relationship of the parts to the whole.

Area charts: An area chart shows the relative importance of values over time.

XY (Scatter) charts: Scatter charts are useful for showing a correlation among the data points that may not be easy to see from data alone.

EXERCISE

Perform the following activities till you are confident:

S.No.	Activities
1.	Create a chart
2.	Create a worksheet using the sales data given below:

	A	B	C	D	E
1	Location	January	April	July	October
2	Acapulco	10	5	208	145
3	Amsterdam	69	53	76	74
4	Anchorage	17	13	42.5	52
5	Dallas	48	87.5	62	118
6	Glasgow	110	50	61	112
7	Madrid	39	48	11	53
8	New York	99	100	115	86
9	Tokyo	101	121	189	172
10	Toronto	55.2	65.4	71	63.5

3.	Create bar and line charts using this data. Enhance the design of your chart to make it more presentable.
4.	Calculate the total sales for each city. Create a pie chart representing the total sales of each city.

ASSESSMENT

I. Fill in the blanks:

1. A chart is a _____ _____ of data, in which the data is represented by symbols, such as _____ in a bar chart, _____ in a line chart, or _____ in a pie chart.

2. The three tabs that are available after inserting the chart in the spreadsheet are _____ , _____ & _____ _____.

II. Answer the following:

1. List seven chart elements.

2. List five chart types available in spreadsheet.

RELEVANT KNOWLEDGE

Sort is a feature that helps you arrange the selected data either in an ascending or descending order. Filter is a feature used for extracting particular data using some conditions. Spread sheet offers both these features for sorting and filtering data in the spreadsheet.

Open a new spreadsheet and enter the following data:

Figure 32

Now to sort or filter the data do the following:

- Select the data to be sorted and then click on *Sort* option under *Sort & Filter* group in the *Data* tab. A dialog box appears as shown below.
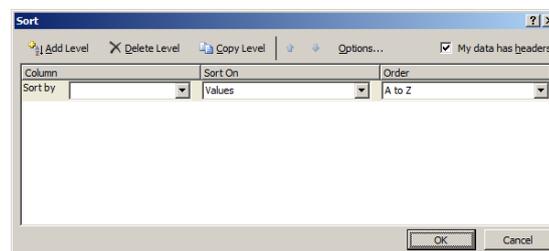
Figure 33

- You need to specify on what basis you are going to sort the data in the **Sort by** field and select the order that is ascending and descending and then click *OK*. For example, if you wanted to sort the data in Sales 2008, you would select the relevant detail in the Sort by list and click OK. The spreadsheet would be displayed as shown below. You can notice that the data has been sorted as per the data in 2008 and also that values in the Sales 2008 field are arranged in ascending order that is from smallest to largest.

Figure 34

To filter data, do the following:

- Click the *Filter* option available under *Sort & Filter* group in the *Data* tab. Before applying a filter you have to select the data along with the header as shown below.

Figure 35

- Once you click on filter, the headers will be displayed with a down arrow as shown below.

Figure 36

If you want to filter data that is greater than 75 in the Sales 2009 do the following.

- Click the down arrow available under Sales 2009 header, a dropdown list appears as shown below.
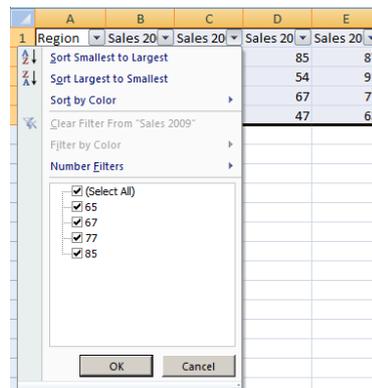

Figure 37

- You can specify the filter by selecting the available values in the list.
- You can also sort the filtered data by selecting *Sort Smallest to Largest* or *Sort Largest to Smallest* option available in the dropdown list.
- Click on Number Filters option under the dropdown list, once you click the following submenu appears.
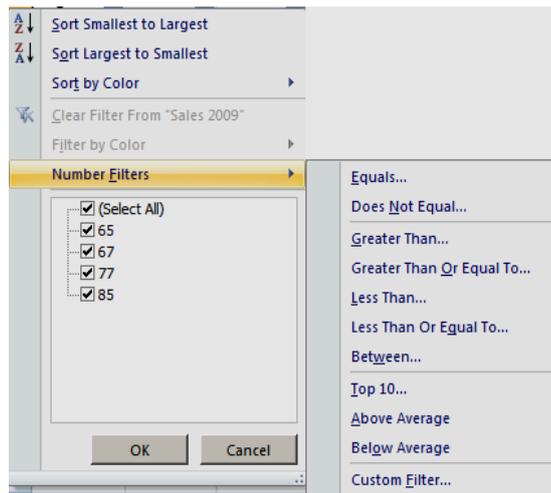
Figure 38

- Here you can select the condition that you want to specify for the data in the list, If you select **Greater Than..** option the following dialog box appears.
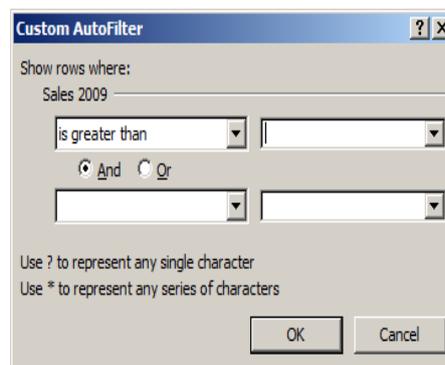

Figure 39

- Specify the value that you want in the value box, (here it is 75) and click **OK**. The spreadsheet will be displayed as shown below. Notice that only data greater than 75 is displayed under the Sales 2009.

Figure 40

EXERCISE

Perform the following activities till you are confident:

S.No.	Activities
1.	Sort a dataset in the required order
2.	Filter data on specified criteria

3.	Create a worksheet with the data given below. Create totals. Calculate percentages. Use this to sort data subject wise and also rank-wise. Save this file as Student_{your name}.

Students	Test 1	Test 2	Test 3	Test 4
Shilpa	50	65	57	77
Sheela	98	99	78	58
Avikal	76	78	98	96
Vaibhav	87	76	92	67
Abhijeet	56	88	66	88
Surbhi	68	85	92	99
Kavita	99	58	78	89
Tanishk	79	78	56	78
Vishwank	59	81	78	67

ASSESSMENT

Fill in the blanks:

1. Sort helps you arrange the selected data either in an_____ or _____ order.

2. Using filter you can extract data based on _____.

3. Sort option is available in _____ group under the Data tab.

4. Filter option is available in _____ group under the Data tab.

RELEVANT KNOWLEDGE

Suppose you were working at the head office maintaining had data for six regions, and you use exactly the same worksheet layout and labels to track the average sales of each region over the previous quarter. Each sheet contains headings by region (such as Region01, Region02 ….. Region06), and in cell H15 on each sheet, the calculated total sales for the quarter appear. If you want to obtain the average sales over the quarter, what would you do?

In this exercise you will learn how to perform calculations on data across different worksheets.

Open a new spreadsheet. Name sheet 1 as year1 and type the following data.

	A	B	C	D	E	F	G	H
1	Name	January	February	March	April	May	June	
2	House Rent	2500	2550	2550	3000	3500	3600	
3	Electric Bill	700	750	800	850	900	625	
4	Grocery Expenses	1000	1200	950	850	1500	1250	
5	Travelling Expenses	500	600	750	680	1000	950	
6	Phone/Mobile Phone	400	500	350	600	800	680	
7								

Figure 41

Now to calculate the data across worksheets do the following.

- Go to sheet 2, name it year2 sheet, and insert the same data in the Sheet2 for the next year.
- Go to sheet 2, name it Totals, and insert the same labels.
- Type the sum formula in cell B2, =sum(, while the parenthesis is opened go to year1 sheet and go to year2 sheet and press **Enter**. Repeat the same step to calculate sum for other expenses. Note the way the range is specified (sheetname!cellnumber).

Figure 42

To answer the question raised earlier, you could create a new sheet, called Quarter Summary. To find the average, enter the following formula in one of the cells in the Summary sheet: =AVERAGE(Region01: Region06!H15)

Spreadsheet calculates the average for all values stored in H15 on all sheets in the range Region01:Region06. If you move the Region06 sheet between Region04 and Region05, the software will adjust the calculation to include the sheets for Regions01, 02, 03, 04, and 06; Region05 will be omitted. Similarly, if you delete or add a sheet anywhere between Region01 and Region06, the software will include all the sheets located within the range in its calculation.

EXERCISE

Perform the following activities till you are confident:

S.No.	Activities
1.	Make calculations across worksheets
2.	Create 2 worksheets populated with subject and marks for 1st and 2nd terms. Create another worksheet called Average and calculate the average of marks for all subjects.

RELEVANT KNOWLEDGE

Spreadsheet also allows you to link the cells from various worksheets and from various spread sheets to summarize data from several sources. In this manner, you can create formulas that span different sources and make calculations using a combination of local and linked information. You can link data from other spreadsheets and keep the information up to date without editing multiple locations every time the data changes. For example, you can display data from multiple departments for an overview of details without sharing information between sources.

In this exercise you will learn how to link cells from different spreadsheet applications.

Open a new spread sheet and enter the following data:

Figure 43

To link cells from different worksheet do the following:

- Open a new spreadsheet workbook.
- Type some formula, for example sum formula in any cell =sum(, while the parenthesis is opened, click on *Switch Windows* option under *Window* group in the *View* tab. A dropdown list appears with the active workbook names.
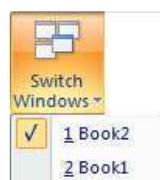

Figure 44

- Click on Book1 to select the earlier spreadsheet you had created and select the cells A2:D2.
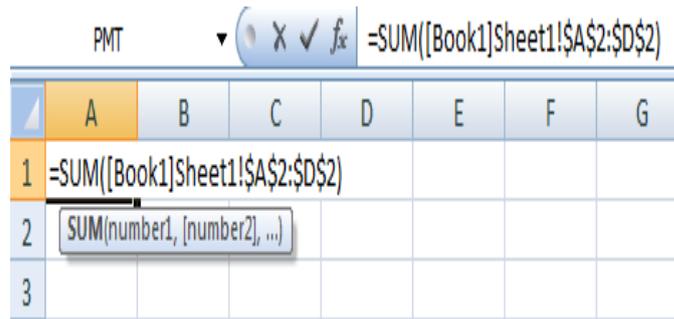
Figure 45

- Press **Enter**. You are back on the second spreadsheet. The cell where you were entering the formula has the total of the values in the first spreadsheet!. Note the way the software gives the cell reference. If you update any values in the first spreadsheet, automatically the sum value in the second spreadsheet is updated! Try this out.
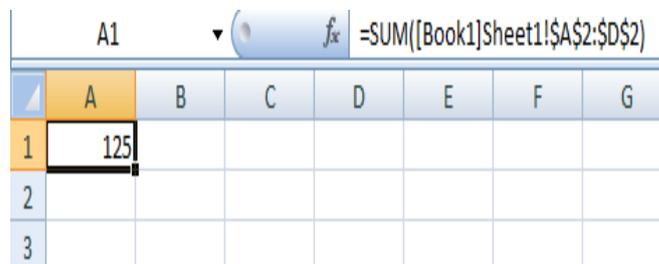

Figure 46

EXERCISE

Perform the following activities till you are confident:

S.No.	Activities
1.	Link cells and make calculations across workbooks

ASSESSMENT

Fill in the blanks:

1. Switch Windows option is available in _____ group under the View tab.
2. Linking cells from different _____ / _____ helps you to summarize data from different sources.
3. Linking data helps you help to keep information _____ without editing at multiple locations.
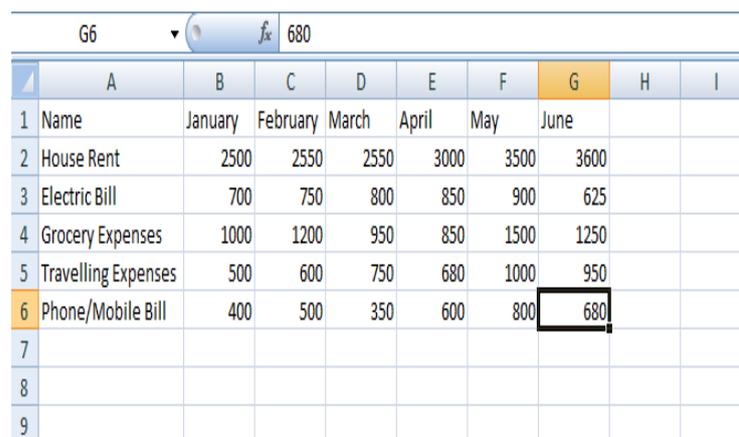
40

RELEVANT KNOWLEDGE

In most office settings, there is a shared drive where teams can store common files for everyone to use. This usually leads to sighting of the message: "The document [file name] is locked for editing by another user. To open a read-only copy of this document, click"!! This message appears because someone else already has the file open. Sometimes however, it is necessary to have multiple people working on a file at the same time. This can be to either speed up data entry or simply make things easier for collaboration purposes.

Spreadsheet software allows the user to share the workbook and place it in the network location where several users can access it simultaneously. In this exercise, you will learn how to share a worksheet.

Open a new spreadsheet and type the following.

	G6		f_x	680			
	A	B	C	D	E	F	G	H	I
1	Name	January	February	March	April	May	June		
2	House Rent	2500	2550	2550	3000	3500	3600		
3	Electric Bill	700	750	800	850	900	625		
4	Grocery Expenses	1000	1200	950	850	1500	1250		
5	Travelling Expenses	500	600	750	680	1000	950		
6	Phone/Mobile Bill	400	500	350	600	800	680		
7									
8									
9									

Figure 47

Now to share the spreadsheet do the following.

- Click on **Share workbook** option under **Changes** group in the **Review** tab.
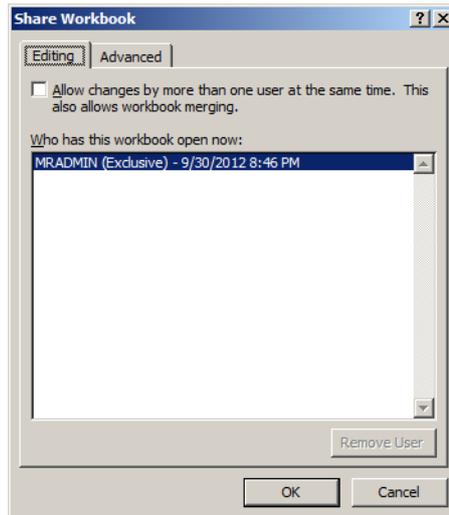- A dialog box appears as shown below.

Figure 48

- Check the option *Allow changes by more than one user at the same time. This also allows workbook merging.*
- Click *OK*.

Note: Most spreadsheet software automatically turn off some features in shared workbooks. This is to simplify the workbook since multiple people can be working on the file at the same time. For example, shared workbooks don't allow merging cells, conditional formatting, or inserting pictures/graphs/etc.

EXERCISE

Perform the following activity till you are confident:

S.No.	Activity
1.	Share worksheet data with other users.

ASSESSMENT

Fill in the blanks:

1. Share Workbook option is available in _____ group under the Review tab.

2. Shared workbooks don't allow _____-, _____ & inserting _____ or _____.