2010

Programming Excel/VBA: Part I

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For module material log in to https://moodle.city.ac.uk or alternatively to the lecturer's web page: http://www.staff.city.ac.uk/o.castro-alvaredo/

Surgery hours

➢ My office is **C126**, located on the 1st floor of **Tait Building.**

➢ If you want to ask me something in private (about the lectures or the Labs) you can arrange an appointment with me by email.

➢ My email addresses are:

  o.castro-alvaredo@city.ac.uk or **sa702@city.ac.uk**

Lectures and Labs material

➢ My lectures will be delivered as today, by using a Power Point presentation.

➢The same **lecture notes** that I use every week for my presentation will be made available to you for **downloading through Moodle (see later) from my web-page.**

➢ You will be able to print the notes every week **before the lecture** and bring them along to the lecture. You may still take your own notes during the lecture.

➢Today's notes are already available from the web page.

➢Also **Lab's exercise sheets and solutions**, as well as **previous years tests** can be obtained from the same page.

Lectures and Labs material

➢All the material for the course (and, in principle all other courses you are doing this year) is accessible through the Virtual Learning Environment called "Moodle".

➢You can access Moodle by going to:

https://moodle.city.ac.uk

Or by clicking on the **moodle icon** if you are using a City University Computer.

➢This week (Maths students), instead of having a programming Lab on Thursday from 13:00 to 15:00, will get an introduction to Moodle. Similar arrangements should have been made for Actuarial Science students.

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General Information about the module: progress tests

Structure of the module

Programming MA1603 is divided into two parts, contributing a total of 15 credits. **Part I** will be lectured in term 1 and **Part II** in term 2. During both terms you will have a 1 hour lecture and 2 hour lab per week (slightly different for Act. Sci. students).

For Actuarial Science students, Programming is just half of their AS1054 module. The other half is Computational Mathematics which some Mathematics students take as a separate module with code MA1616.

Assesment method

For Maths students, the final mark for the module will be obtained as the average of the marks of the two tests that will be carried out in January (for Part I) and in May (for Part II). In order to pass the module this average must be **at least 40%**, although **it is not** necessary to achieve 40% for each of the tests individually.

For Act. Sci. students, their final mark for AS1054 will be obtained as the average of the Programming and Computational Mathematics marks.

General Information about the module

About the tests	Each test will consist of **4 questions**, each question being worth 25%. During the test, you will have a PC at your disposal in order to work out any of the questions and you will be given a workbook in which to **write your answers**. **The tests will be open-book.** You will be able to take all your notes to the test, as well as any notes provided by the lecturer, hand-outs, previous years tests etc. You will need to take the material **in printed form (no USB keys etc.)** You will not be allowed to take any books with you.
About the re-sit examination	If the average of both tests is lower than 40% you will have to re-sit the test in August. There will be a single re-sit exam for all students, consisting of 2 questions from Part I and 2 questions from Part II. **Even if you have only failed one of the tests originally, you will still be asked questions about both parts of the module.**

Excel & Visual basic applications (VBA)

> Create and manipulate tables of data
> Present data in diagrams

> Automatic manipulation of tables
 • modify existing routines
 • create new applications

> Applications: Widespread use in Industry, Finance & Engineering

> Excel 2007 is part of the Office 2007 Package.
  Besides Excel it contains:
  • Word for creating text documents
  • Powerpoint for creating presentations (like this one)
 • Access for creating databases
  • Outlook for email

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Reading list

➢The lecture notes for this module are partly based on several text books which can be useful for different parts of the module.

➢The lecture notes and your class notes should be sufficient for you to understand every aspect of the module.

➢If you have used Excel before, you will find the first few weeks of lectures very easy (it will get harder!)

➢ The following text books will be helpful for different parts of the module. Some books concentrate only on Excel, others cover only VBA. They are also of different levels.

➢Copies of all these books are available in our library.

Books for complete beginners (as they appear on the library catalogue at http://library.city.ac.uk/)

Excel 2007 VBA programming for dummies / by John Walkenbach
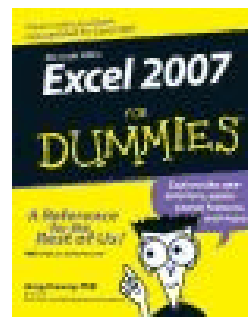Walkenbach, John.

AVAILABLE – Main Lib 7 Day – 005.54 WAL –
+Show all 2 available copies/volumes +Show all 5 copies/volumes
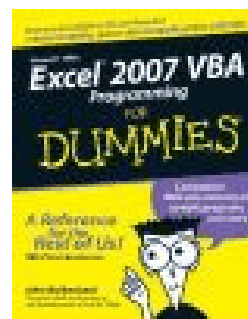
VBA

Microsoft Office Excel 2007 for dummies / by Greg Harvey
Harvey, Greg.

DUE 28-07-11 – Cass Loan – 005.54 HAR –
+Show all 3 copies/volumes

Excel

Excel VBA / Ed Robinson
Robinson, Ed,

– Show copies on order
2 copies ordered for Main Lib 7 Day on 01-07-2010.

Excel & VBA

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More advaced books (as they appear on the library catalogue at http://library.city.ac.uk/)
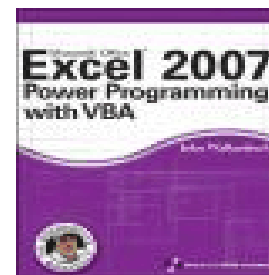
Excel 2007 power programming with VBA [multimedia] / by John Walkenbach
Walkenbach, John.

AVAILABLE - Main Lib 7 Day - 005.54 WAL -

+ Show all 2 copies/volumes
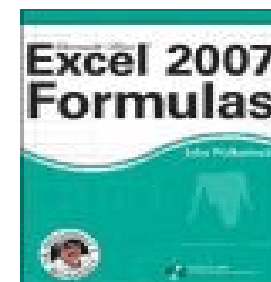
VBA

Excel 2007 formulas [multimedia] / John Walkenbach
Walkenbach, John.

AVAILABLE - Main Lib Loan - 005.54 WAL -

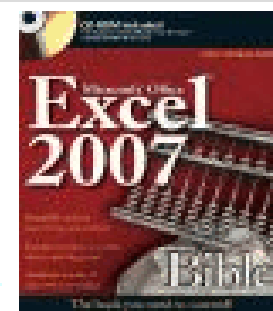+ Show all 2 copies/volumes

Excel

Excel 2007 bible [multimedia] / John Walkenbach
Walkenbach, John.

AVAILABLE - Cass Loan - 005.54 WAL -
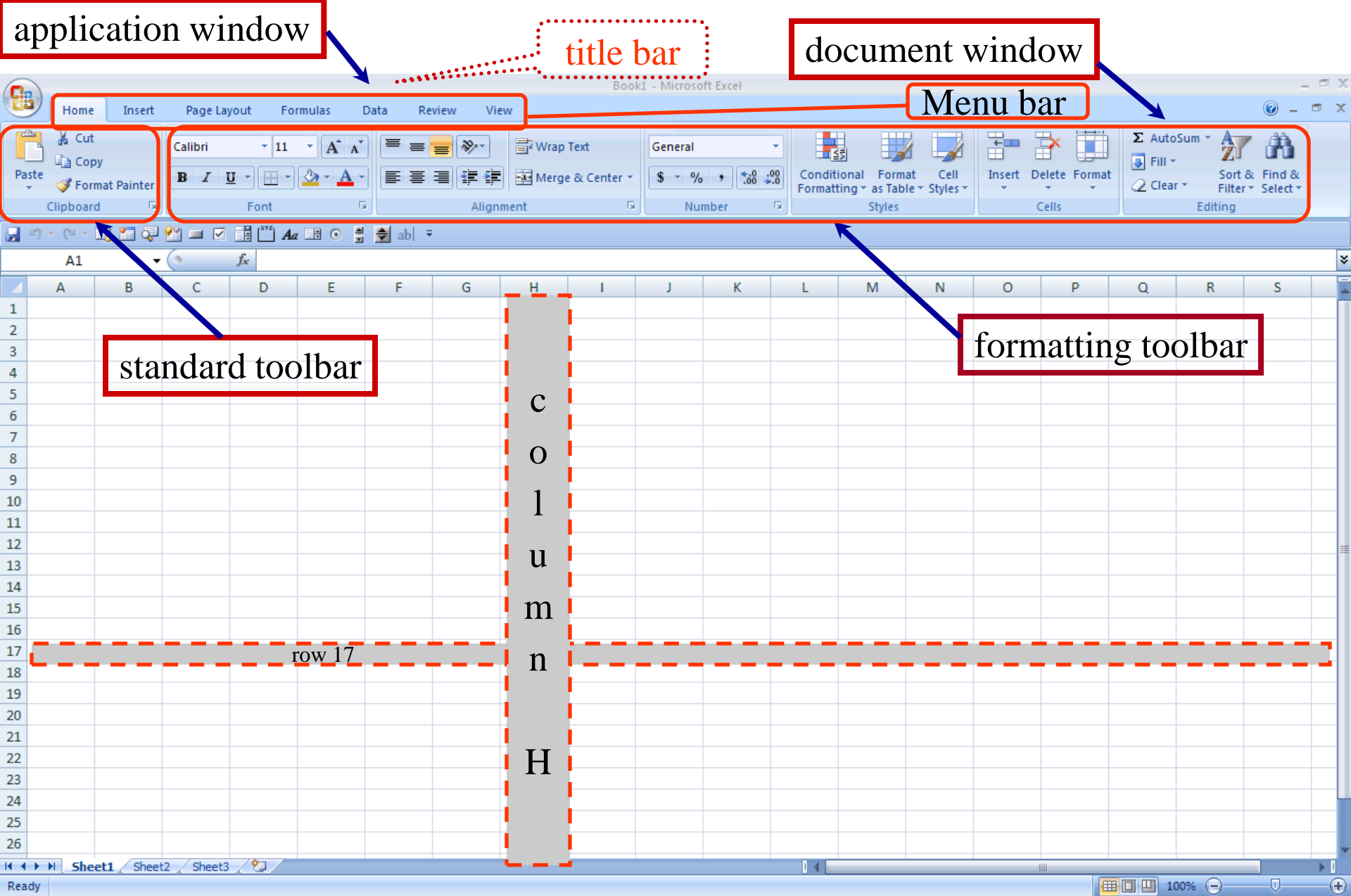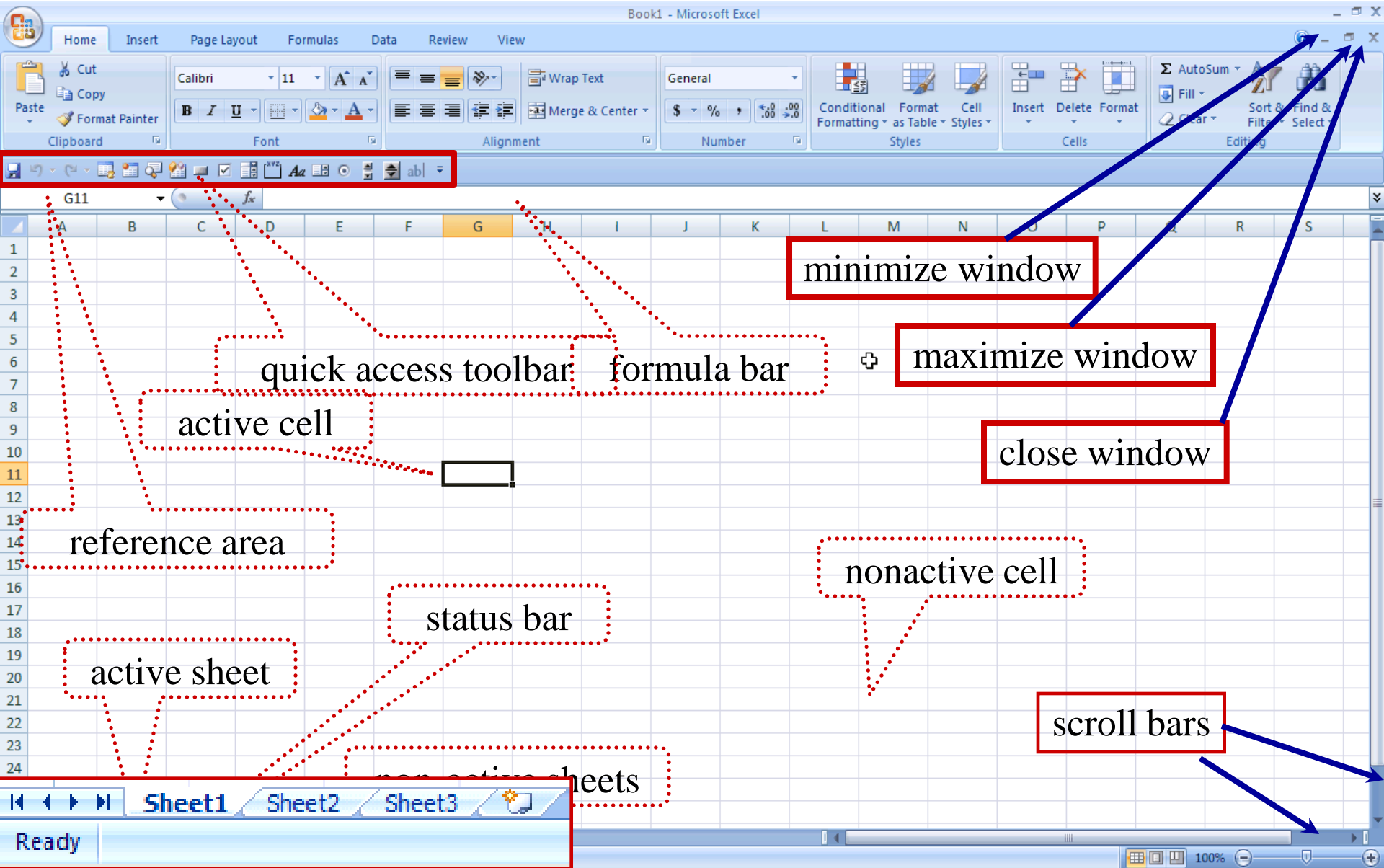+ Show all 2 available copies/volumes + Show all 3 copies/volumes

Excel

➢ <u>Getting Started</u>

- Log into the City University system
- *Select Excel in the following way*

    → Start → Programs → M to N→ Microsoft Office →

    Microsoft Office Excel 2007

⇒

application window

title bar

document window

Menu bar

standard toolbar

formatting toolbar

column H

row 17

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Book1 - Microsoft Excel

Home   Insert   Page Layout   Formulas   Data   Review   View

minimize window

maximize window

close window

quick access toolbar   formula bar

active cell

reference area

nonactive cell

status bar

active sheet

scroll bars

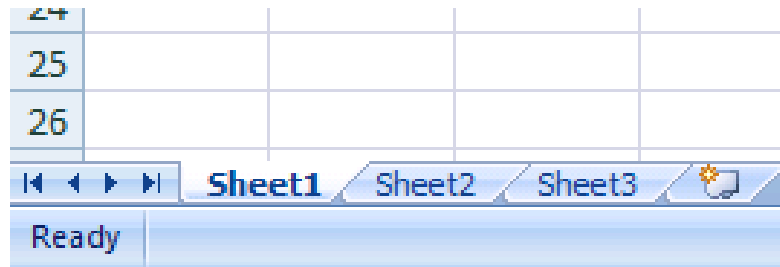non-active sheets

Sheet1   Sheet2   Sheet3

Ready

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Basic Excel terminology and features

➢ The data are collected in a table called a **worksheet** (WS).

- WS have names which can be changed, such as "task",
  "income", ... The names are displayed at the bottom of the page.

24		
25		
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|◄ ◄ ► ►| **Sheet1** / Sheet2 / Sheet3 /

Ready

- The **active worksheet** is the one highlighted, e.g. above it is
  "Sheet1". A new sheet can become the active sheet by clicking
  on its name, e.g. "Sheet2" or "Sheet3".
- One can insert new sheets, delete, rename, move and copy
  existing ones by right clicking on the name.
- WS consist of vertical columns labeled by letters A,B,C... and
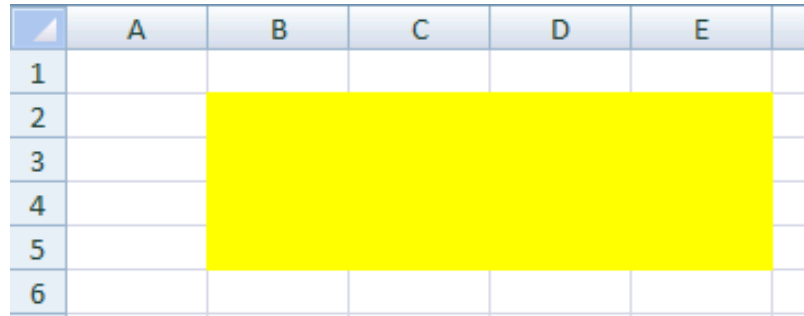 horizontal rows labeled by numbers 1,2,3,...

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➤ The intersection of a row and a column is called a **cell** referred to by the letter of the column and number of the row, e.g. B5, AF1,...

• An **active cell** is the cell currently in use. It is marked by a bold black frame.

formula bar

reference area
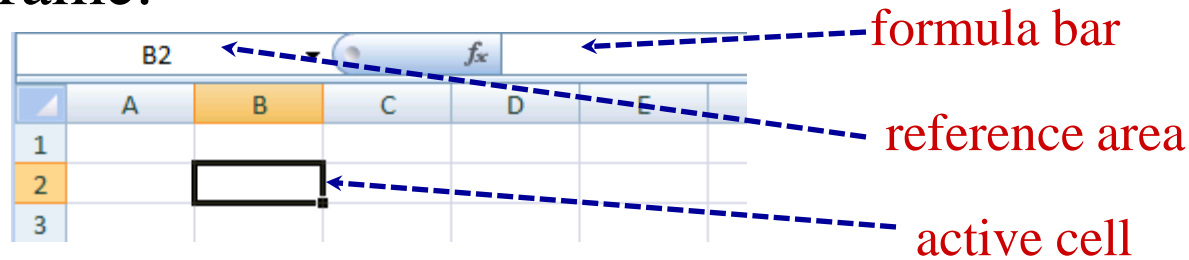
active cell

• The **formula bar** displays the content of the active cell.

• The **reference area** indicates the position of the active cell, e.g. "B2"

• An active cell can be de-activated by clicking on another cell, which then becomes the new active cell.

• Data are manipulated on the WS in the active cell.

➢A collection of cells is called a **range**.
  • It is referred to by the name of the cell in the top left corner and the cell in the lower right corner, e.g. "B2:E5" are 16 cells.


  • One can select a range by enlarging the active cell area. This is done by placing the screen pointer into the active cell, pressing the left mouse button and dragging the pointer down to the right to define the lower right corner of the range. Releasing the left mouse button will leave a bold frame surrounding the range.
➢A collection of worksheets is called a **workbook** (WB).
  • The name of the workbook is displayed in the **title bar**, e.g. "Examplebook"

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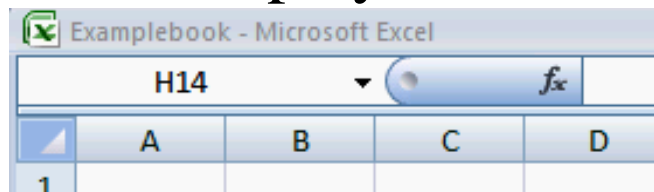
➢   The Excel window consists of two windows, the document window and the application window.

➢The **document window** contains the worksheets, scroll bars, ...
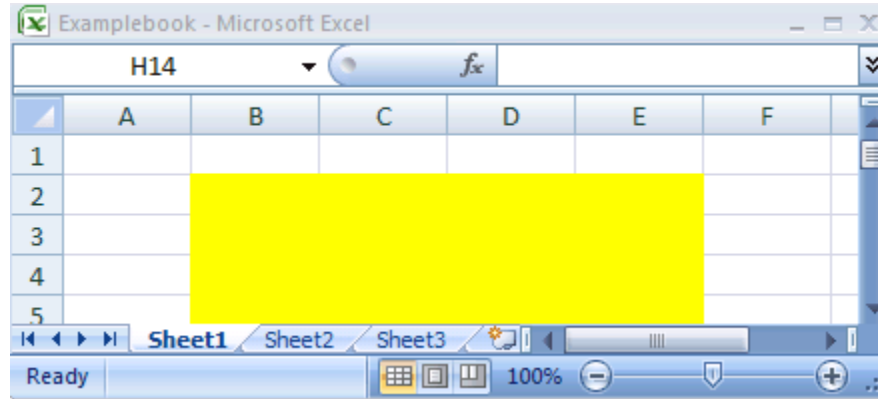
- the **scroll bars** allow to move to parts of the window which are currently invisible, e.g. the range K4:P25.

- the **minimize button** skrinks the document window

- the **maximize button** enlarges the window to the full size of the application window

- the **close button** closes the document window

➢ The **application window** contains the Excel commands, menues...

- **menu bars** contain the main Excel commands, File, Edit,...., which by themselves contain a wide range of commands

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- **control windows** (minimize, maximize, close) allow to resize move, close and restore the application window
- **standard toolbars** offer various options such as copying, printing, cutting, pasting, etc.
- **formatting toolbars** offer various options to change the format of the individual cell and the entire WS
- **quick access toolbar** allows you to add commands that are used frequently and are not accessible from the default toolbars.
- the **status bar** displays the progress of the commands or operations which are currently executed, e.g "Edit" when text is being edited or "Ready" when no command is executed