Source Book
of
Certificate Course in Business Computing

Table of Contents

1. **Course Objective:** The objective of this course is to provide essential knowledge of programming and expertise in Testing. Students who will complete this course can work in software testing.

2. **Eligibility Criteria:** Any Engineering /Science graduate with mathematics up to 10+2 level.

3. **Prerequisite:** Sound knowledge of Computing Fundamentals and Fundamentals of Programming.

4. **Teaching Schema:**

Sl. No.	Module Name	Hours
1	Fundamentals of Computer & OS Concepts	20
2	Advanced MS Office with Access	30
3	C Programming	30
4	Software Development Life Cycle	16
5	OOP with C++ and DS	40
6	Database Technologies	30
7	VB.NET as Front–End	54
8	Management Development Program	60
9	Project	40
	Total	**320**

5. **Suggested Schedule**

Week	Teaching Sessions & Academic Activity
1	Fundamentals of Computer & OS Concepts (20/20 Hours)
2	Advanced MS Office with Access (20/30 Hours)
3	Advanced MS Office with Access (10/30 Hours) **and** C Programming (10/30 Hours)
4	C Programming (20/30 Hours)
5	Software Development Life Cycle (16/16 Hours) **and** OOP with C++ and DS (4/40 Hours)
6	OOP with C++ and DS (20/40 Hours)
7	OOP with C++ and DS (16/40 Hours) **and** Database Technologies (4/30 Hours)
8	Database Technologies (20/30 Hours)
9	Database Technologies (6/30 Hours) **and** VB.NET as Front–End (14/54 Hours)
10	VB.NET as Front–End (20/504 Hours)
11	VB.NET as Front–End (20/54 Hours)
12	Management Development Program (20/60 Hours)
13	Management Development Program (20/60 Hours)
14	Management Development Program (20/60 Hours)
15	Project (20/40 Hours)
16	Project (20/40 Hours)
17	1st Day – Exam, Two Days – Project Evaluation, 5th Day – Re-exam

Note: Course Delivery is 4 hours per day, 5 days per week (20 hours per week)

6. Session wise Breakup

Note: Each single session is of two hours duration for all subjects mentioned below.

Fundamentals of Computer & OS Concepts

Theory 10 hours + Lab 10 hours

Session 1:

- Computer Fundamental
- Types of computer
- Primary and Secondary storage
- Input-output devices
- Disks, tapes and CD-ROMs.
- VDUs, printers and other output devices
- Introduction to windows operating systems
- The desktop, The window, application window, document window, Dialog Window
- The Icons, Explore Your Computer, The Start Button and Taskbar.
- My Computer, Windows Explorer, Starting and Closing Programs,
- Installing Operating System
- Performing a New Installation for Windows
- Installing a Software other than OS
- Setting up a printer
- Uninstalling software

Session 2:

- Overview of Operating systems
- Types of Operating System
- What is process and thread
- Process management

Session 3:

- Process Scheduling
- CPU Scheduling
- Preemptive vs Non-Preemptive

Session 4:

- Deadlocks
- Memory Management
- Memory and I/O Maps

Session 5

- File Management
- I/O Management
- IPC

Lab Assignments:

1. Installing OS and Install, Update and maintain Packages in OS
2. Practices Commands in Linux and Windows system
3. Problems solving on CPU scheduling
4. Implement to show the Synchronization of Threads using Semaphores.

Advanced MS Office with Access

Theory 16 hours + Lab 14 hours

Session 1 & 2

MS Office 2010

Installing MS Office 2010

- Microsoft Word 2010
- Introduction about Word
- Getting Started With Word Processor
- Menus and Menu Bars, Drop-Down Menus
- Word Processing Terminology
- Editing Document, Inserting, Deleting, Cut, Copy, Paste, Undo, Redo
- Searching test, Replacing, Find and Replace
- Formatting the Document, Tab Stops, Setting font, size, style
- Spell Check, replacing texts with synonymous words, Finding meaning of words, Word Dictionary
- Inserting Graphics in the Word documents, Formatting the images
- Table of Contents, Create a Table of Contents by using Built–in Heading Styles
- Printing and Getting Help
- Some Advanced Tool of Word
- Mail Merge
- Desktop publishing concepts and create business documents and forms
- Importing Files

Session 3 & 4:

- Microsoft Excel 2010
- Introduction
- MS Excel Basics, Editing Cell Contents
- The Spreadsheet and The Data sheet.
- Various Commands for Worksheet / Spread sheet
- Discussion on Useful Functions
- Formatting Data in Excel
- Creating Charts in Excel
- Creating Table of Contents
- Create a Table of Contents by using Built-in Heading Styles
- Importing Files from another application like word
- Create an Embedded object from an existing Worksheet or Chart
- Insert Data from Word to Excel
- Working with Multiple Spreadsheets/Workbooks,
- Referring to Cell in another Worksheet of same Workbook,
- Refer to the same Cell or Range on Multiple Sheets by using 3–D Reference,
- Referring to Cell in another Workbook,
- Create a Formula to Calculate Data on another Worksheet or Workbooks,
- What-If Analysis,
- Data Tables, Components Involved in Data Tables, Creating a One–Variable Data Table, Creating a Two–Variable Data Table

- Printing Worksheets / Charts,

Session 5:

- Microsoft Power point 2010
- Introduction
- Introduction to Presentation Graphics
- Steps to a PowerPoint Presentation
- Presentation templates and Presentation layouts
- Presentation Tips
- Physical Aspects of a Presentation
- Creating New Presentation
- Adding Animation and Transition effects
- Presentation Views
- Adding New Slides
- Editing and Formatting a Slides
- Adding Illustrations to Slides
- Creating Slides Shows
- Create an Embedded object from One Or More Slides or an Entire Presentation

Session 6:

- Microsoft Access 2010
- Introduction to database
- Difference between Excel and Access
- Database Functioning
- Designing a Database
- Introduction to object
- Starting MS Access
- Access Window, Creating Access Database
- Working with form
- Creating Database Using Wizards
- Discuss Field Properties,
- Working with tables
- Creating Tables, Creating Tables using the Table Wizards
- Create Table in Datasheet View
- Create Table in Design View
- Saving a Table
- Adding a Field to Table in Design View
- Entering Caption and Default Value for a Field
- Setting Field Properties: Size, Format etc,

Session 7 & 8:

- Viewing a Table
- Setting or Changing Primary Key
- Entering Data in a Table
- Editing Data in a Table
- Opening an existing Database
- Navigating in Table
- Table and Field Specifications

- Record Validation Rules,
- Sorting and Indexing
- Discussion on Useful Shortcuts Keys,
- Sorting and filtering records
- Database Queries
- Types of Queries,
- Designing Queries
- Relationships, Defining Relationships
- Types of Relationships
- Foreign Key and Referential Integrity
- Creating Queries
- Creating Select Query through Wizard
- Creating Select Query Manually in Design View
- Creating Parameter Query
- Sorting Records in Queries
- Consideration when sorting records in table, query, form, or report
- Sort Records by using the Design Grid of a query
- Deleting Multiple Records Using Queries
- Delete records from one table or tables in a one-to-one relationships
- Delete records by using query that includes both in a one-to-one relationships
- Reports, Creating reports
- Creating report With Report Wizards
- Formatting a Report
- Creating a Report in Design View
- Setting Group Ranges
- Mailing Labels
- Object Linking and Embedding
- Working With Multiple databases
- Printing the Records of a database

Lab Assignments:

1. MS Word, like most word processors, includes tools to make all your written work look attractive. Some of the tools you may not yet be proficient with include a spell-checker, graphic tools, and a mail-merge feature. In this lab assignment you will modify a sample resume and cover letter. You will generate 10 copies of the cover letter, each one addressed to a different potential employer. Finally, you'll create envelope labels for those same potential employers. We will **not actually print** any of the documents from this lab assignment, but you can use these skills when you do your own job search, or to send Christmas cards, and don't forget graduation!

Please use the following images and Pages as "starter" documents:

April 21, 2015
C-DAC, RMZ
Aundh, Pune

Dear <C-DAC Member:>
I am new graduate from Pune University with a _____ degree in _____ and ___ years of experience. I am hoping you'll find my coursework and experience have prepared me to start immediately with your company.
Here is a description of some of my skills.
(bulleted list goes here)

I would welcome the opportunity to further discuss my skills and this position. If you have questions or would like to schedule an interview, please contact me by phone at **[your phone number]** or by e-mail at **[your e-mail address]**. I have enclosed my resume for your review. I look forward to hearing from you.
Sincerely,
[Your Name]
Enclosure

Your Name Here
(02) 25503100
RMZ, C-DAC

Professional qualifications

Superior office management skills, thriving in a professional office environment.
Outstanding conflict resolution skills, dealing with a broad range of personality types and situations.
Strong computer skills, experience with various software packages.
Excellent problem solver and team player with natural leadership abilities.

Education

Bachelor of Science in Physical Education
August 2000
Minor in Office Administration,
Pune University, Pune

Work Experience

Job Title
Place of Employment Goes Here, TX
June '00 to present
General duties are daily office operations management, blah blah blah.
General duties are daily office operations management, blah blah blah.
General duties are daily office operations management, blah blah blah.

Another Job Title
Place of Employment, TX
Apr '96 to Aug. '98

General duties are daily office operations management, blah blah blah.
General duties are daily office operations management, blah blah blah.
General duties are daily office operations management, blah blah blah.

Professional Affiliations

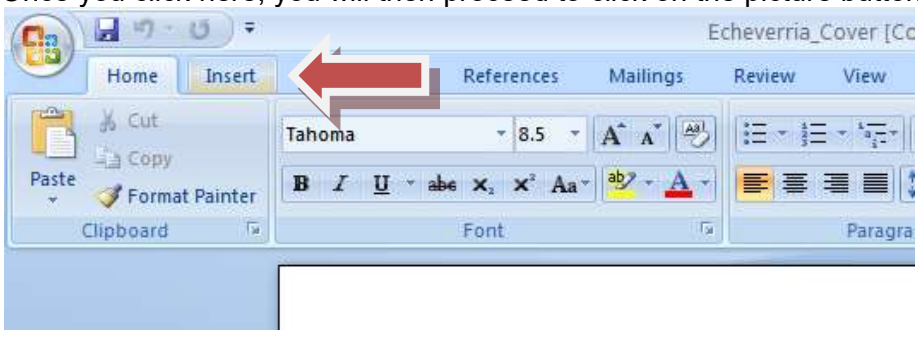
List clubs here or delete this entire section.

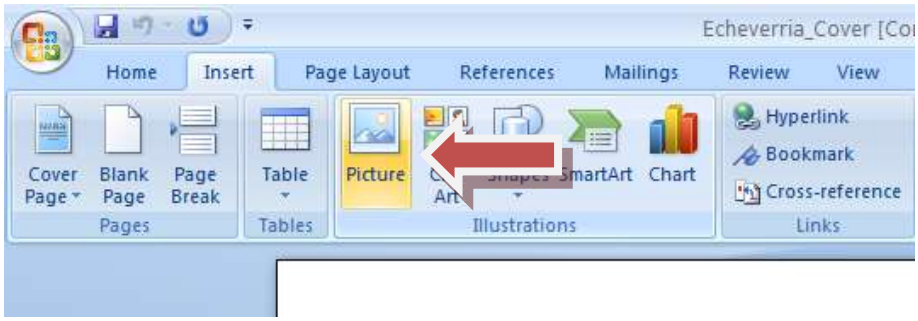
You need to do now:

Modify the Cover Letter
Open the sample cover letter that you downloaded from the course website. You can customize this letter according to your own preferences. Make sure you complete the following REQUIRED items:

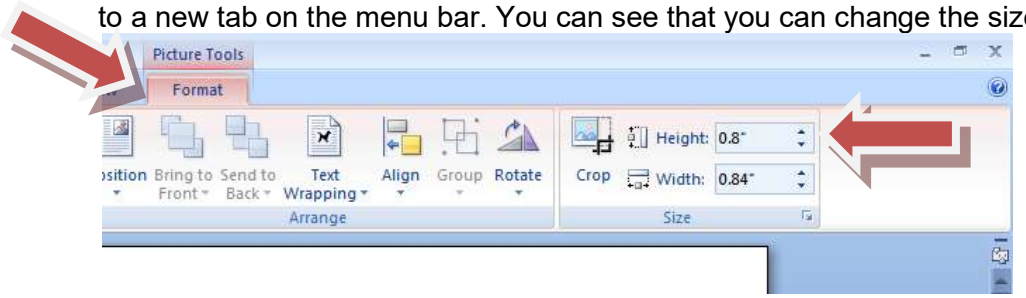
	Points
Save the cover letter with a new filename: Smith_Cover.doc or Jones_Cover.doc using YOUR last name.	4
Insert the image texanslogo.gif near the top of the document, (like a letterhead). ***(Instructions at the bottom)***	2
Resize the texanslogo image so that it is exactly .8" high	2
Format the date at the top of the document like "20 January 2005"	3
Make sure the date updates automatically each time the cover letter is opened.	4
Insert a bulleted list anywhere in the letter.	4
Correct the grammar and spelling of the document.	4
Include your email address somewhere in the letter and make it a real hyperlink to your Tarleton email address (mailto:st_yourname@vms.tarleton.edu)	4
Place your return address in the header of the document.	3

Inserting and Resize an Image -
To insert an image on your Word document, you must go at the top to the Menu bar and click on 'Insert.'
Once you click here, you will then proceed to click on the picture button.





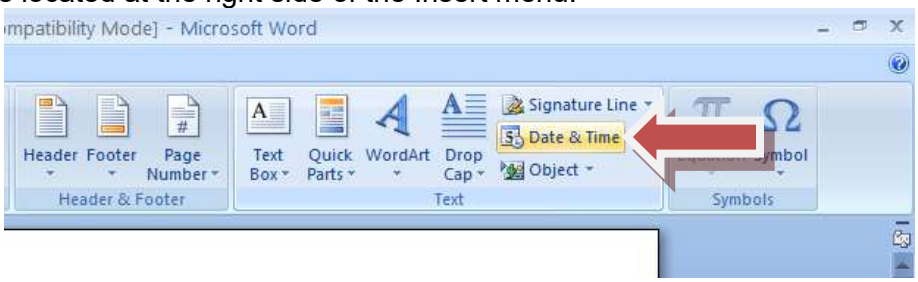
Next you will look for the texanlogo.gif file to add to your document. The image is too big so we need to resize it. When you first inserted your image, Microsoft Word automatically switched you to a new tab on the menu bar. You can see that you can change the size of the image.



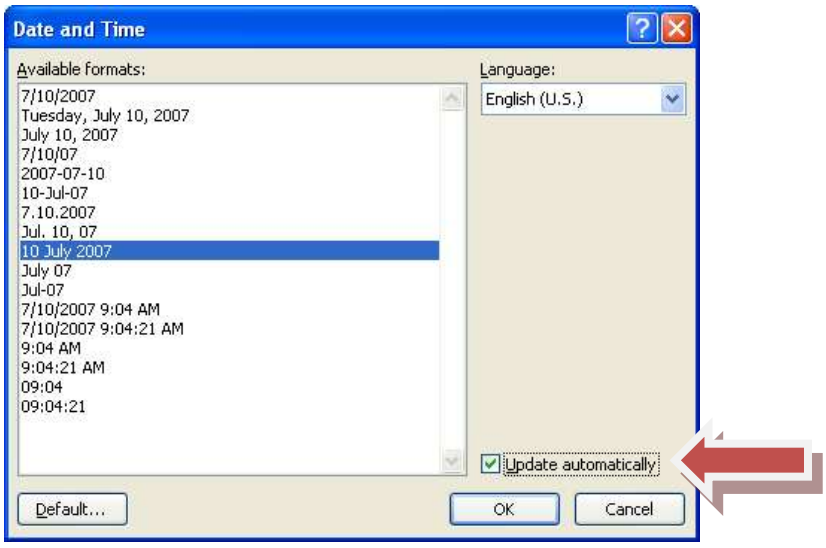
Finally click on 'Text Wrapping' and choose 'Top and Bottom.'

Make a date update automatically –

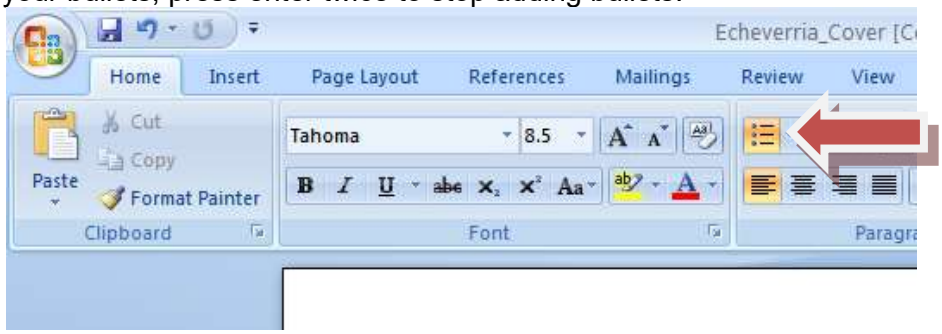
Erase the date. Click on 'Insert' just like you did to insert an image. Click on 'Date & Time' which is located at the right side of the Insert menu.



Finally, choose the date that matches "20 January 2005" and click on 'Update automatically.'



Insert a bulleted list –
First, erase '(bulleted list goes here).'
Next, click on the bulleted list button. To add more bullets press enter. Once you're done with your bullets, press enter twice to stop adding bullets.

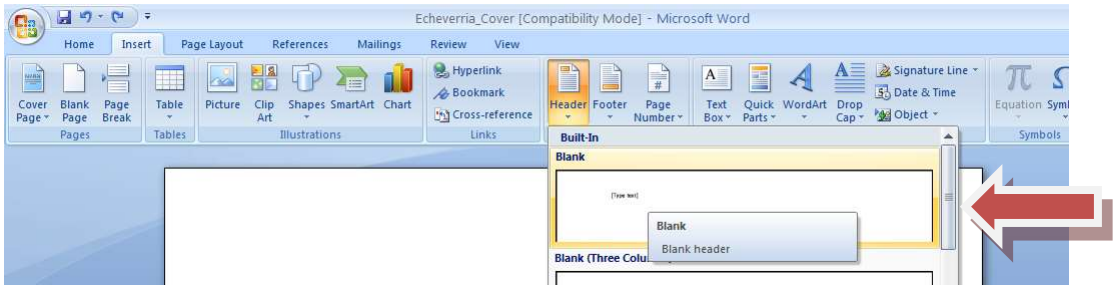


Correcting the grammar –
Go to the menu bar and click on 'Review' which is located at the middle of the menu bar. Finally, click on 'Spelling & Grammar.'

You will now be given the option to correct any mistakes found in the document. You can choose the correct word if it is misspelled, or it will show you grammatical errors and will give you suggestions. If for example a word is marked as incorrect, but you know it is correct, (for example a different last name), then click on 'Add to Dictionary.' This will tell Word to stop marking it as incorrect.

Your e-mail address –
Erase the [your e-mail address] and the period after it. Type your e-mail address and once you finish press the spacebar to turn your e-mail into a real hyperlink. Erase the extra space that is between your e-mail and the next sentence.

Return address –
To place text on the header or footer in your document, you must click on the 'Insert' tab on the menu bar just like you did when you inserted an image or the date. Next, click on the 'Header' button and click on 'Blank.' Type your return address. To exit out of the 'Header' area, double click anywhere on your document or on the right side button 'Close Header and Footer.'



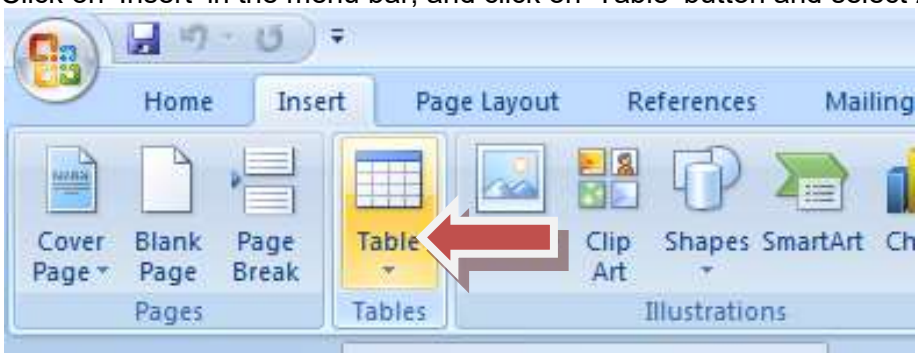
Modify the Resume

Open the sample resume file that you downloaded from the course website. You can customize this file to your liking, but make sure you include the following:

Save the file as YOURLASTNAME_Resume.doc	4
Put YOUR NAME at the top and center it.	3
Make consistent changes to the section titles (Education, Work Experience, Honors and Activities) like bold, font size, font face, etc. They should match each other but be noticeable different from the body text.	6
Update the sample content or delete it. Do this for the address, work experience, education, and professional affiliations. ***(Instructions at the bottom)***	6
Use a table structure somewhere in the document. You can force the borders to be invisible if you prefer. The table should have at least 2 rows and 2 columns.	6
Spell check the resume.	4

Adding a stable structure –

Click on 'Insert' in the menu bar, and click on 'Table' button and select 2 rows and 2 columns.



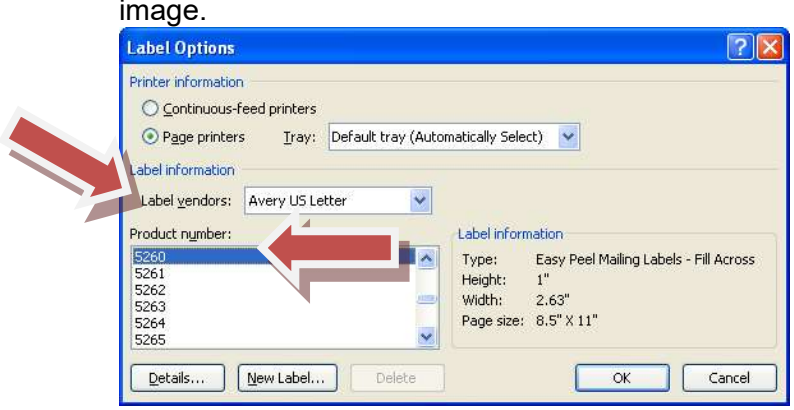
Create Labels for Potential Employers Addresses

Now we will create a Word document that contains all the Potential Employers mailing information formatted perfectly to fit on a sheet of adhesive labels. You can purchase labels at any office supply store. Avery is a leading vendor of these products. Avery assigns a code number to their labels depending on the number, size and placement of the labels on the page. Let's pretend we have purchased Avery 5260 labels which are laid out 3 across the page and 10 down. We want one employer's mailing address to print on each label. We will only use 10 labels since we have 10 employers in our database.

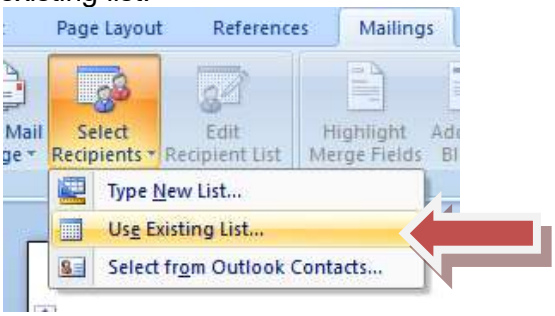
Close any open documents in Word.

Open a new blank document in Word that will hold your labels (File→ New).

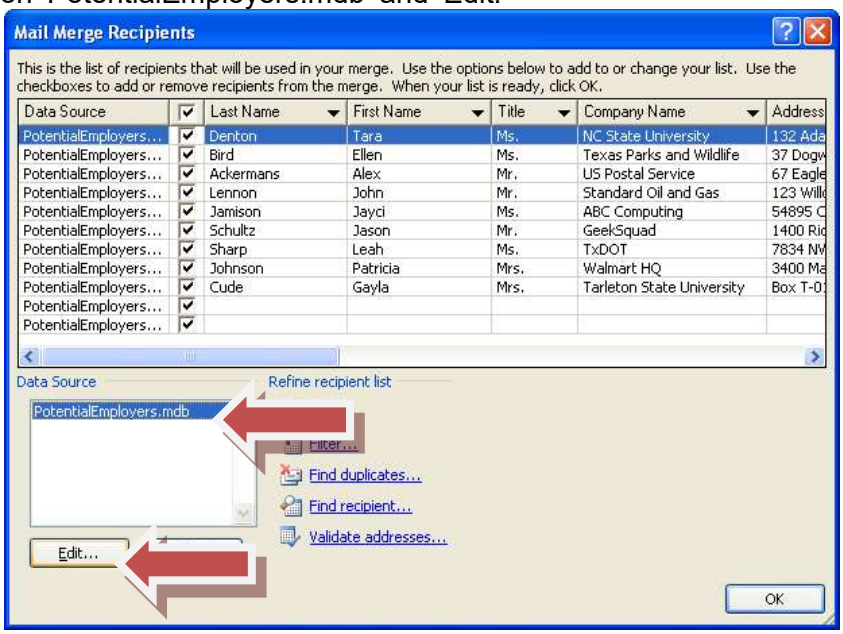
Using the menu at the top of the screen, click Mailings->Start Mail Merge->Labels. The window below appears so that you can make changes. On 'Label vendors,' choose 'Avery US Letter' and under 'Product number,' choose 5262. Click OK when your screen matches this image.



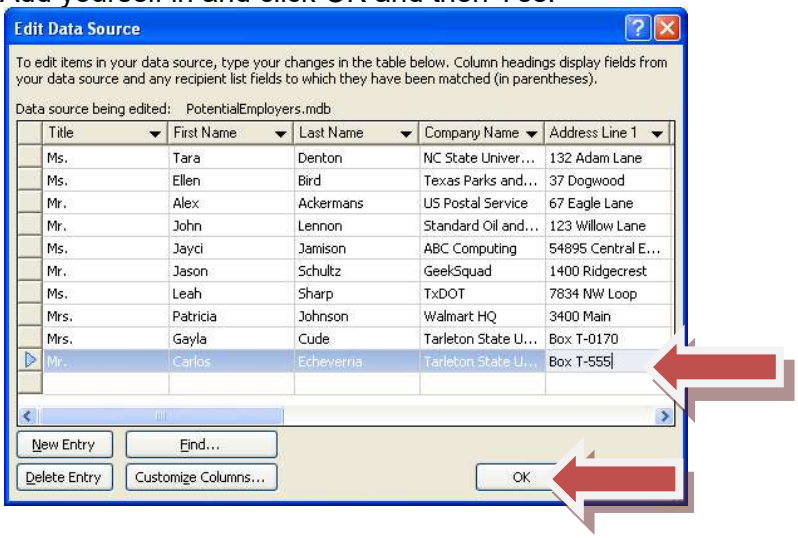
Now click on 'Select Recepients' up at the top on the menu bar. Then click on 'Use existing list.'



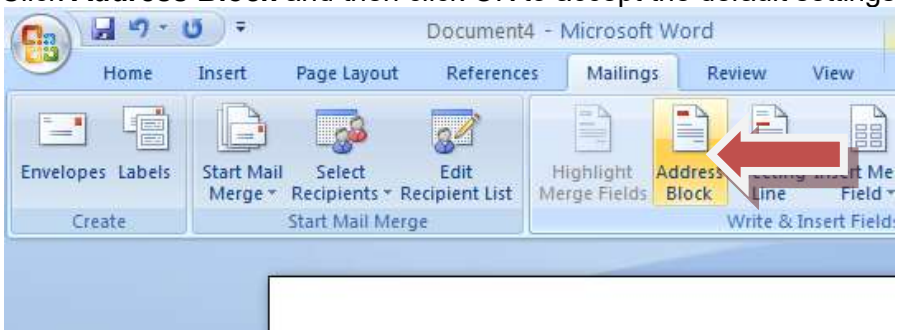
Now we are browsing for the Potential Employers file that you downloaded from the course website. Hopefully you saved it on your H: drive. Now click on 'Edit Recipient List.' Next, click on 'PotentialEmployers.mdb' and 'Edit.'



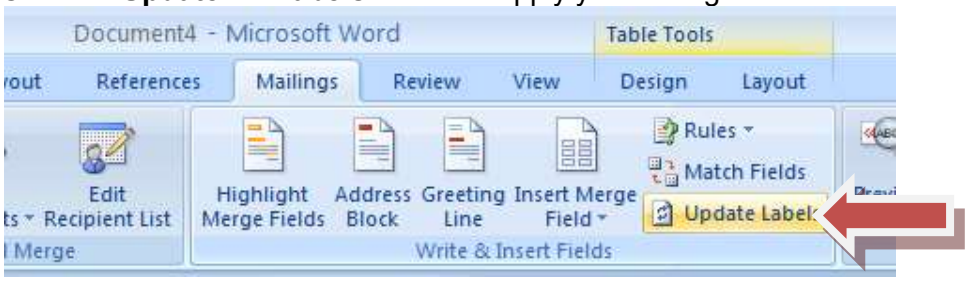
Add yourself in and click OK and then Yes.



Click **Address Block** and then click OK to accept the default settings for the label contents.



Click the **Update All Labels** button to apply your changes to all labels on the sheet.

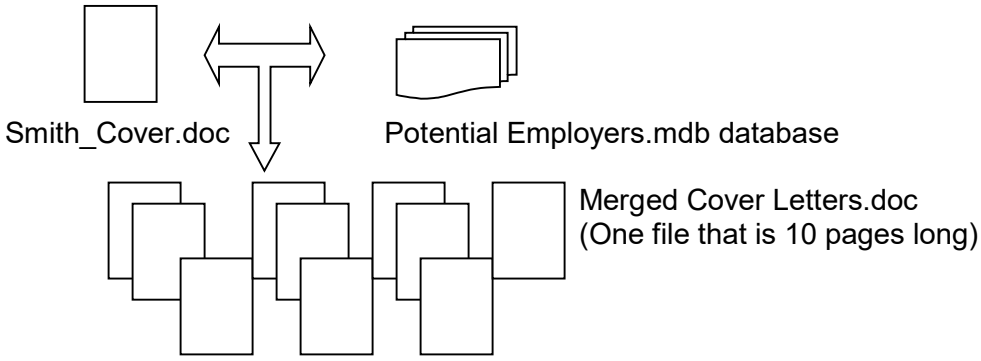


Then click the **Preview Results** button which is right next to the **Update Labels** button**.** If you like your results click on **Finish & Merge->Edit Individual Documents->All -> OK.**

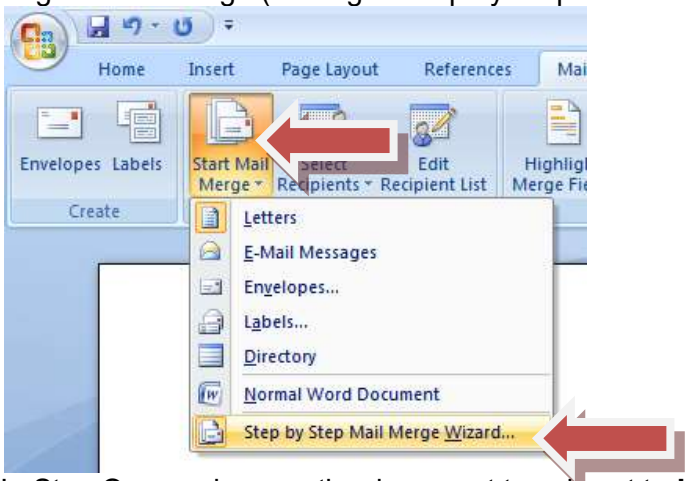
This document should be saved now. Use the filename **Smith_Labels.doc** (replacing Smith with your own last name). Make sure you save this file on your H: drive along with all your other work for Lab #2. Close the document.

Merge the Cover Letter with the Potential Employers Addresses

In this last part of the assignment we will run the Mail Merge Wizard again to merge the cover letter with our database of Potential Employers. When the merge works successfully we will have created 10 versions of the cover letter, each addressed to a different Potential Employer. This is much more efficient than typing the cover letter 10 times or even manually editing the cover letter and replacing the mailing information for each employer.

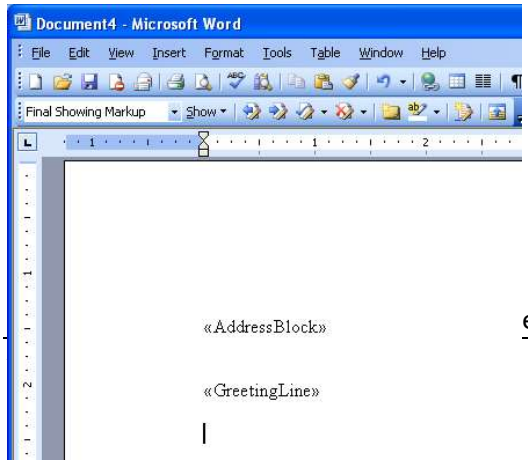


You should have the **Smith_Cover.doc** file open in Word. All other files should be closed. Begin a Mail Merge (Mailings->Step by Step Mail Merge Wizard)



In Step One, make sure the document type is set to **Letters.** Click **Next: Starting Document.** In Step Two, select **Use the Current Document** and then click **Next: Select Recipients**. You will have to browse again to find your recipients list. Use **PotentialEmployers.mdb** as the address list. You should still be in the list as the tenth recipient. If not, add yourself back in. Click **Next: Write Your Letter**.

At the top of your letter, highlight the inside address and delete it. Over in the wizard, click Address Block to force a "placeholder" in your cover letter where the inside address will go. You will see it displayed in your letter like this:



In your cover letter, delete the Dear Mr. Smith greeting line and insert a greeting line from the wizard in its place. There should be two blank lines between the inside address and the greeting line.

Back in the wizard, click **Next: Preview Your Letters** and then click N**ext: Complete the Merge.** Then click **Edit Individual Letters** and click **OK** to accept **ALL**.

You should see one really long document that is actually ten copies of the same cover letter but each is addressed to a different Potential Employer from the list!

This document should be saved now! Use the filename: **Smith_Merged_CoverLetters.doc** (replace Smith with your own last name) and save it in the same folder as the rest of your work for lab #2.

Now Turn in Your Work for Grading
You can totally close Word and launch Internet Explorer. Get yourself logged in to WebMail. (Remember there is a link from the course website and from Tarleton's main page.)

Subject Line should be CIS 103 Lab 2 Word [SECTION NUMBER]
In the TO: line put instructor@pune.uni.org

Also be sure to CC: a copy to yourself, and keep the copy!

Attach the following files:

YOURLASTNAME_Labels.doc
YOURLASTNAME_CoverLetter.doc
YOURLASTNAME_Merged_CoverLetter.doc
YOURLASTNAME_Resume.doc

2. Start a blank word document, change the left & right margins to 1.25" and type the following text.

Word processing is a software package that enables you to create, edit, print and save documents for future use and reference. Create a document involves typing using a keyboard and saving it. Editing a document involves correcting spelling mistakes, if any, deleting or moving words sentences or paragraphs. Word processing is used to create professions documents such as letters and reports etc. The full form of MS Word is Microsoft Word. The basic functions of MS Word include: Typing, Saving a document, Opening a document, Editing a document, Printing, Spelling Check.

There are many software packages to do the job of word processing. Some of them work in DOS environment. Examples are WordStar, Word Perfect and Professional Write. But these days working with Windows is becoming more and more popular. So let us consider the software for word processing, which works in Windows. MS Word can do much more than word process.

Basic features of the Word Window

- Microsoft Office Button
- The Quick Access Toolbar
- The Title Bar
- The Ruler
- The Text Area
- The Vertical and Horizontal Scroll Bars

Picture 1

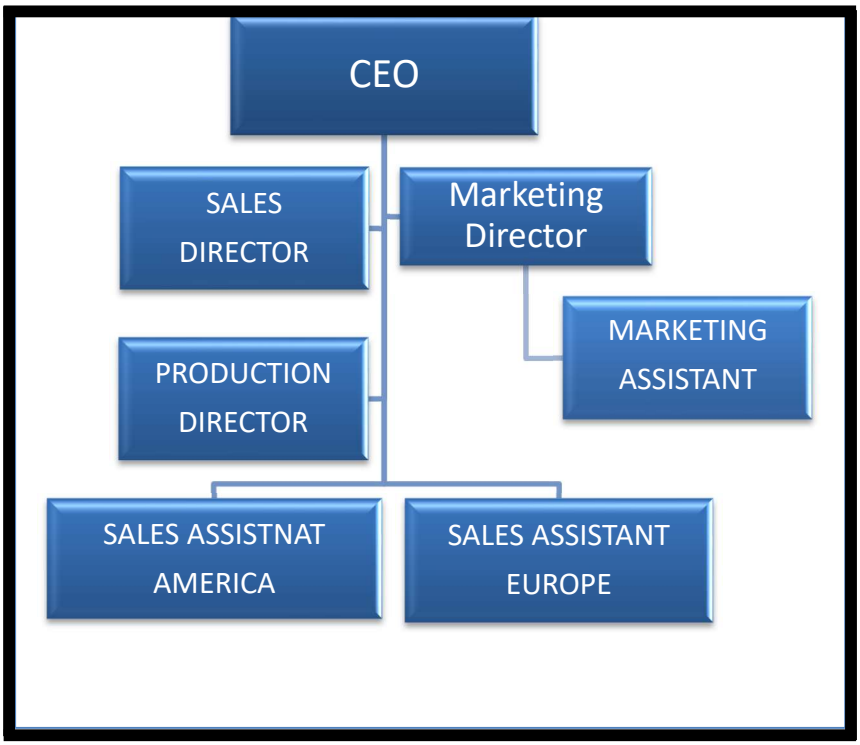
1. Format the entire document Century Gothic, 12pt.
2. Change line spacing 1.5".
3. Copy the text "Word processing" and paste it as a title to the text.
4. Select the heading WORD PROCESSING and apply the style Heading 1.
5. Underline the text.
6. Make the text Word Processing in the first sentence Italic & Red.
7. Use the format painter to copy this formatting to the heading "**Basic features of the Word Window".**
8. Select the last paragraph and move it to the next page.
9. Replace the text MS Word with Microsoft Word using search and replace facility.
10. Add "MS WORD 2010" as a Word Art at the bottom of the document.
11. Insert clipart caption as Picture 1.
12. Type your name at the bottom of the document and add it to the dictionary.
13. Apply the page border into your document.
14. Save it as Word Processing in the default location.
15. Print previews the document.

3. Open the new blank document and type the heading **Organization Chart.**

Create the below diagram and apply the changes.

Colour - Gradient Loop – Accent 1

Smart Art style - 3D Polished



4. Use table to design the below applications

International Computer Driving License (ICDL) Student Examination Marks					
Student Name	**MS Word**	**MS Excel**	**MS Access**	**MS Power Point**	**Total**
Priya	45	85	56	80	
Dinesha	60	53	45	85	
Yamuna	98	100	78	69	
Kamani	55	99	70	56	
Apsara	96	99	86	89	
Grand Total					

1. Calculate the total using Formula.
2. Using the Table style apply the design to the table.
3. Insert a new column on the right of the table and label it as Average. Find the average marks.
4. Sort the above table according to the alphabetical order of the Student Name.
5. Delete the Average column from the table.
6. Adjust the width of the columns if necessary.

5. Prepare an invoice using the following data in a new document.
Change the paper orientation to landscape.
Insert the company name **"Dialog Company"** in the header and do the necessary formatting.
Type the following in the footer area.
No.221, Union Place, 2nd Circular, Colombo 03
Tel:2562653, Fax: 2856985, email:dialog@slt.com

Set the following tab stops.

No	Description	Quantity	Unit Price	Amount
1.	80 GB SATA	05	7500.00	37,500.00
2.	Intel Core processor	05	20000.00	10,0000.00
3.	Micro Tower	05	3000.00	15,000.00
4.	512 MB RAM	10	2500.00	250,000.00
5.	D 800 Main Board	05	20,000.00	100,000.00
6.	Floppy Drive	05	800.00	40000.00

0.5 Left
3.0 Left
4.5 Decimal
5.5 Decimal

Create the following content page using the tabs.

International Computer Driving Licenses
Ms Word……...1-20
Ms Excel……..…..21-35
Ms Access……..…..36-49
Ms Power Point……..….50-62
Internet & E-Mail……63-72

6. Create the following letters using mail merge facility.

Title	First Name	Address Line 1	City	Job Title	Time
Mr	A.Perera	No.13,Main Street	Petta	Programmer	10.00 A.M
Ms	W.Silva	No:14,Galle Road	Bambalapitiya	Data Entry Operator	10.30A.M
Mr	L.Senevirathne	High Level Road	Nugegoda	Sales Manager	11.00A.M
Mr	S.Wijesinghe	Pepiliyana Road	Boralesgamuwa	Marketing Executive	1.30P.M
Ms	L.Alwis	Maya Avenue	Kirulapone	Telephone Operator	2.00P.M

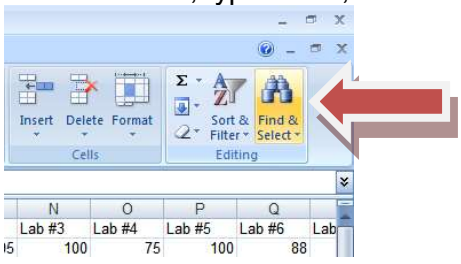
(Today's Date)
(Address)
Dear Sir/Madam,
I have received your inquiry about any opportunity, which may be available at this Dialog Company for you to act in the capacity of **(Job Title).**
I am pleased to tell you that there is, in fact, such a vacancy at the moment and should like you to visit the company to discuss the matter with me as soon as possible.
This would be on Sunday, 20th March, and I should be grateful if you could in then, preferably at **(Time).**
Could you let me know if you come at that time?
Sincerely,
……
(Secretary)

7. We will use Excel to create a weighted-average gradebook based on the weights provided in our course syllabus. Student will add a worksheet to the file and calculate the weighted average for another course they are enrolled in and provide a hyperlink to (or attach an electronic copy of) the syllabus for that course.

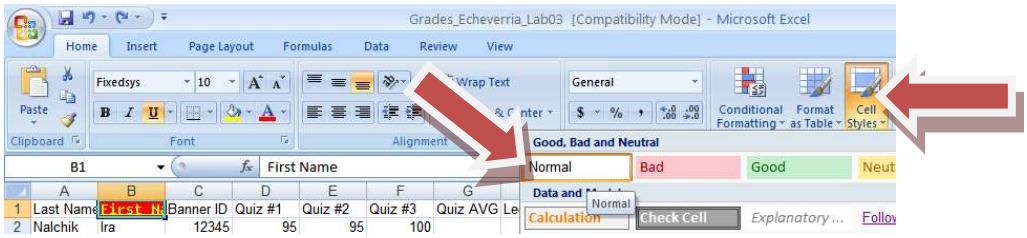
File You Need: Please use the file "Gradebook_Excel_Assignment for Business Computing"

Modify and Save the Gradebook

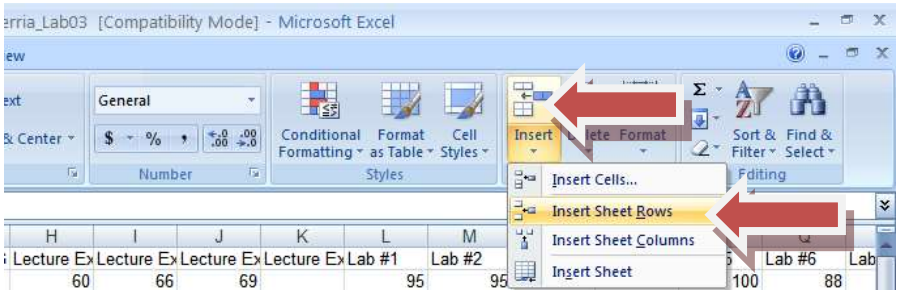
1. Start Microsoft Excel
2. Open the file you just downloaded.
3. Save the file under a new name: **Grades_YOURLASTANDFIRSTNAMES_Lab03** (for example: **Grades_Smith_Mike_Lab03**) in your Lab 3 folder.
4. Use the 'Go to' method to move to cell A28 (On the Menu bar at the top, click Find & Select->Go To, type "A28", click OK).



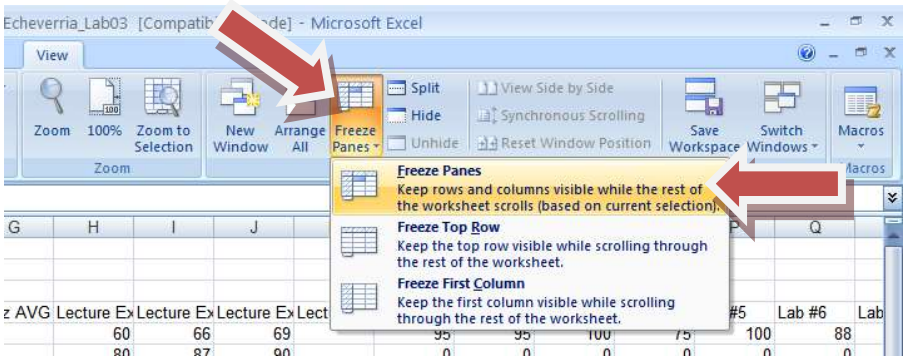
5. Clear the contents of cell A28 (Click on it and then hit the Delete key). Notice how this leaves the formatting.
6. Clear the formatting of cell B1 (Select it, click Cell Styles->Normal).



7. Clear the formatting of cell A28. (Same as step 7).
8. Insert three rows above the grades table (select A1:A3, click on Insert->Insert **Sheet** Rows).



9. Type your full name in A1.
10. Type “CIS 1033-030” in A2 (don’t type the quotation marks).
11. Freeze the column headings and the student names so that they stay onscreen even when you scroll down or over to the far right.
    (Select C5, click the ‘View’ tab up at the top, ‘Freeze Panes’ and ‘Freeze Panes’ again).



(Note that clicking repeating step 12 and clicking ‘Unfreeze Panes’ will undo this option).

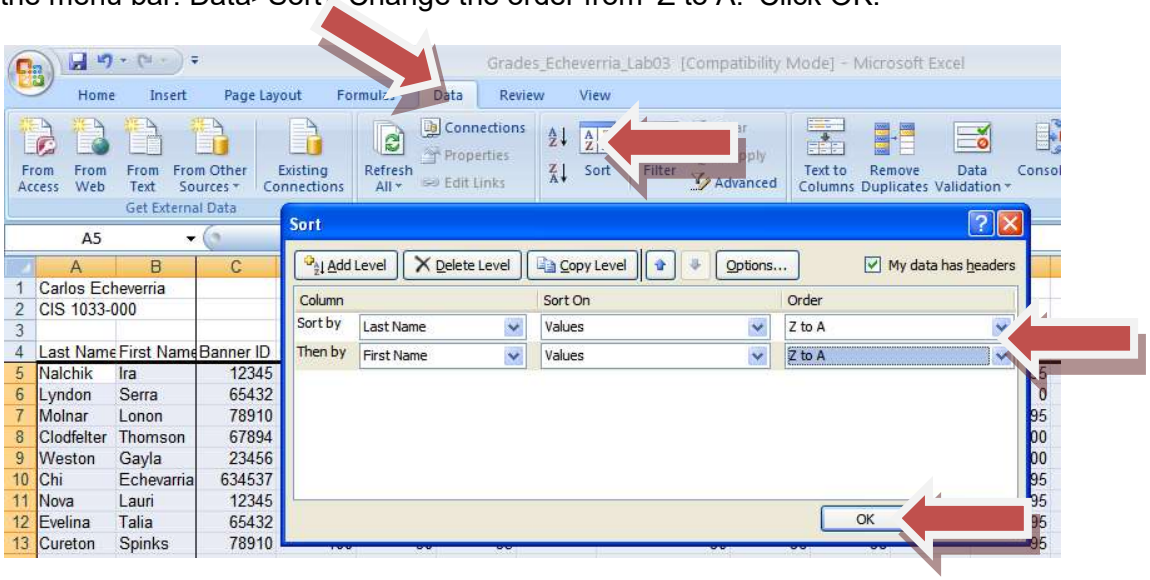
12. Insert a row between Cureton and Cobb. Repeat step 9, but instead of selecting cells, simply click on A14 ‘Cobb.’ Make sure to select ‘Insert **Sheet** Row.’
13. Type Michael Crichton as the student name in the new blank row. (Make sure to put the last name in the last name column and the first name in the first name column).
14. In that new row type the following data for Michael Crichton’s grades: (make up a Banner ID)

15. Insert another new row and add YOURSELF as a student. Make up grades for yourself. (Skip over the columns that will hold formulas to calculate averages.)

Last Name	*First Name*	*Quiz #1*	*Quiz #2*	*Quiz #3*	*Lecture Exam #1*	*Lecture Exam #2*	*Lecture Exam #3*	*Lab #1*	*Lab #2*	*Lab #3*	*Lab #4*	*Lab #5*
Crichton	**Michael**	**100**	**100**	**100**	**98**	**92**	**100**	**99**	**89**	**93**	**90**	**100**

Lab #6	*Lab #7*	*Lab Exam #1*	*Lab Exam #2*	*Lab Exam #3*	*Final Exam*
96	**90**	**98**	**92**	**94**	**97**

16. Insert another new row and add YOURSELF as a student. Make up grades for yourself. (Skip over the columns that will hold formulas to calculate averages.)
17. SAVE THE FILE NOW, BEFORE GOING TO THE NEXT STEP!!!
18. Sort the grade book by last name descending, and then by first name descending (This is reverse alphabetical order.)(Select the student names AND THEIR GRADES then on the menu bar: Data>Sort). Change the order from 'Z to A.' Click OK.

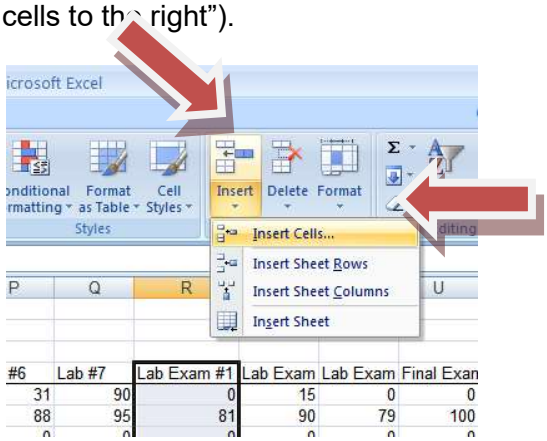


19. If the sort worked correctly Chandra Zimmerman is at the top of your student list. Her quiz grades were 100, 90 and 95. MAKE YOUR YOU CHECK THIS BEFORE PROCEEDING!!!
20. Delete the column (not just the data in the column) which contains Banner ID. (Right-Click the column label (C) to select the entire column, then delete it.)
21. Type the following reference table beginning in cell **D32** (Weight will be in **cell E32**).

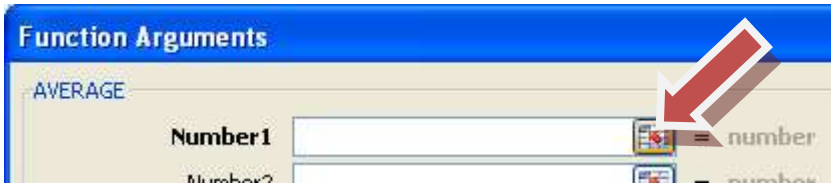
Item Description	**Weight**
Lecture Exam Average	.30
Daily Quizzes and Out-of-Class Assignments	.10
Final Exam (comprehensive)	.10
Lab Assignments	.25
Lab Exam Average	.25

Calculate Lab Assignment Averages

22. Insert **cells** (NOT insert columns) for a column of data from between “Lab #7” and “Lab Exam #1” (Select “Lab Exam #1” R4 and all its grades, click Insert->Cells, pick “shift cells to the right”).



23. Type “Lab Asmt AVG” (don’t type the quotation marks) as the heading for this new column.
24. Insert a formula to calculate the average lab assignment grade of the first student. (Click on the cell where the answer should display. Click on the function button ( ), type “average”, click Go, select AVERAGE, click OK,
Click on the box for ‘Number 1’



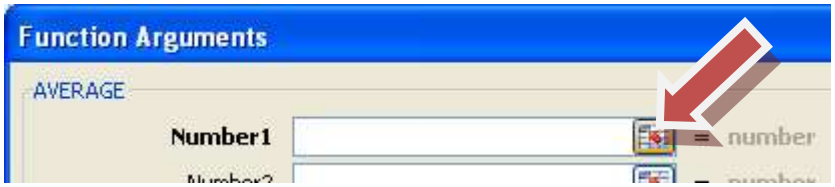
Select the cells that contain the 7 lab assignment scores which are from K5 to Q5. Press Enter twice.).
Chandra Zimmerman’s Lab Asmt AVG is 63.28.

25. Copy the formula down to the rest of the students by dragging the “fill handle” down through the last student.

Calculate the Lab Exam Averages

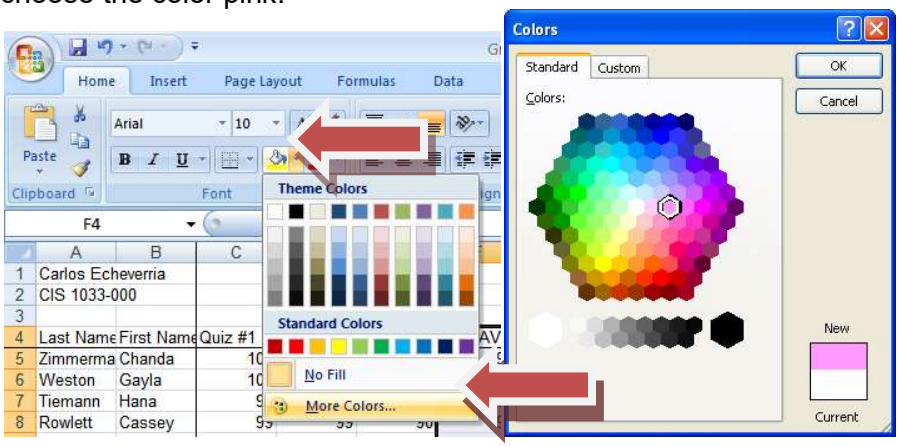
26. Insert a column between “Lab Exam #3” and “Final Exam”. (Select the Final Exam V4 column and then Insert -> Sheet Column)
27. Type “Lab Exam AVG” (don’t type the quotation marks) as the heading for this new column.

28. Insert a formula to calculate the lab exam average of the first student. (Click on the cell where the answer should display. Click on the function button ( ), type “average”, click Go, select AVERAGE, click OK
    Click on the box for ‘Number 1’



    select the cells that contain the 3 lab exam grades, click OK).
    Chandra Zimmerman’s Lab Exam AVG is **5.**
29. Make sure you’ve got the correct answer for Lab Asmt AVG and then copy the formula down to the rest of the students by dragging the “fill handle” down through the last student.

30. What is JC Holsinger’s Lab Assignment Average?_____ write it down. (should be 99.7)
31. Change JC Holsinger’s Lab #6 from a 100 to a 0. Notice how his Lab Assignment Average changes from 99.7 to 85.42
32. Now insert the formula to calculate Quiz Average and Lecture Exam Average for Chandra Zimmerman. Then use the fill handle to copy the formulas down for each student.
33. In column F, highlight Quiz AVG and all the results in that column, and shade them pink. Repeat this process for Lecture Exam AVG, Lab Asmt AVG, Lab Exam AVG and Final Exam but shade each column a different color.
    For pink: Click on the background color button and then select ‘More Colors.’ Then choose the color pink.



34. Save your work. The file name of this gradebook should still be **Grades_YOURLASTANDFIRSTNAMES_Lab03** (for example: **Grades_Smith_Mike_Lab03**) in your Lab 3 folder.

Calculate the Weighted Class Average

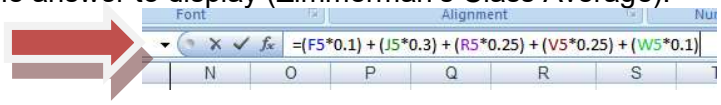
35. Insert a column between Final Exam and Letter Grade. (It should be column X. If necessary, clear the formats (shading) in that new column.
36. Type "Class Average" (don't type the quotation marks) as the column heading on this new column. This is where the weighted-average calculation will go.
    It's important to understand how to calculate the answer by hand so you will be able to recognize errors in your formula. Take a minute to calculate BY HAND the class average for Chandra Zimmerman. The grade weights come from our CIS 103 SYLLABUS.

    Her quiz average is _____ multiply that by the weight 10% = _____ pts
    Her lecture exam avg is _____ multiply that by the weight 30% = _____ pts
    Her lab asmt avg is _____ multiply that by the weight 25%= _____ pts
    Her lab exam average is _____ multiply that by the weight 25% = _____ pts
    Her final exam grade is _____ multiply that by the weight 10% = _____ pts

    Now add the points together to see how many points she has earned in the course.

    _____
    Check your answers on the board in Lab 208.
    Now that we know how to build it ourselves, let's go make Excel do the work FOR US!

37. Click in the cell where you want the answer to display (Zimmerman's Class Average).



38. Start the formula in the formula panel
    with an equal sign (=) then enter this formula: WATCH FOR ERRORS!
    =(F5*0.1) + (J5*0.3) + (R5*0.25) + (V5*0.25) + (W5*0.1)

    This is the F5 Quiz Avg * 10% PLUS the J5 Lecture Exam Avg * 30% PLUS the R5 Lab Asmt Avg * 25% PLUS the V5 Lab Exam Avg * 25% PLUS the W5 Final Exam * 10%

    Chandra Zimmerman's class average is 54.97
39. Use the fill handle to copy the formula JUST TO THE NEXT STUDENT.
40. Notice the weights for the class average are in the reference table you built WAY back in step 21. Rather than using the actual numbers (like .10 or .30) in our formula, we will now **alter the formula** for this second student to "point to" the **cell** that holds the weight amount.
41. The formula should already be calculating this second student's class average. Write it down so we will know if our changes are successful._____ (might be Gayla Weston 93.73 unless it's YOU.)
42. When you click the second student's class average the formula displays in the formula bar near the top of the screen. We will edit this formula by typing over the numeric weights and replacing them with cell references like E33. Get help from your lab assistant on this step if it troubles you!
43. The altered formula for the second student should be:

=(F6*E34) + (J6*E33) + (R6*E36) + (V6*E37) + (W6*E35)

44. Check the new answer with the class average you wrote down in step 41 above.
45. Use the fill handle to copy the formula JUST TO THE NEXT STUDENT.
46. There ARE errors in this student's class average. Click their class average and observe what happened when you copied the formula down one row….all the cell references to column E changed the row number by one…BUT WE DIDN'T WANT THEM TO!
47. To "lock" a cell reference before copying, you must place a $ dollar sign before the column and row number. So that B14 becomes $B$14.
48. To fix the problem click on Gayla Weston's class average. We must put $ dollar signs before all of the references to E33, E34, E35, E36, and E37. You can edit the class average formula and insert the dollar signs manually or remember this shortcut: click the cell reference within the formula and hit the F4 key on your keyboard. The F4 key places $ dollar signs before the row and column numbers.
49. Once corrected, Gayla's class average formula looks like this:

    =(F6*$E$34) + (J6*$E$33) + (R6*$E$36) + (V6*$E$37) + (W6*$E$35)

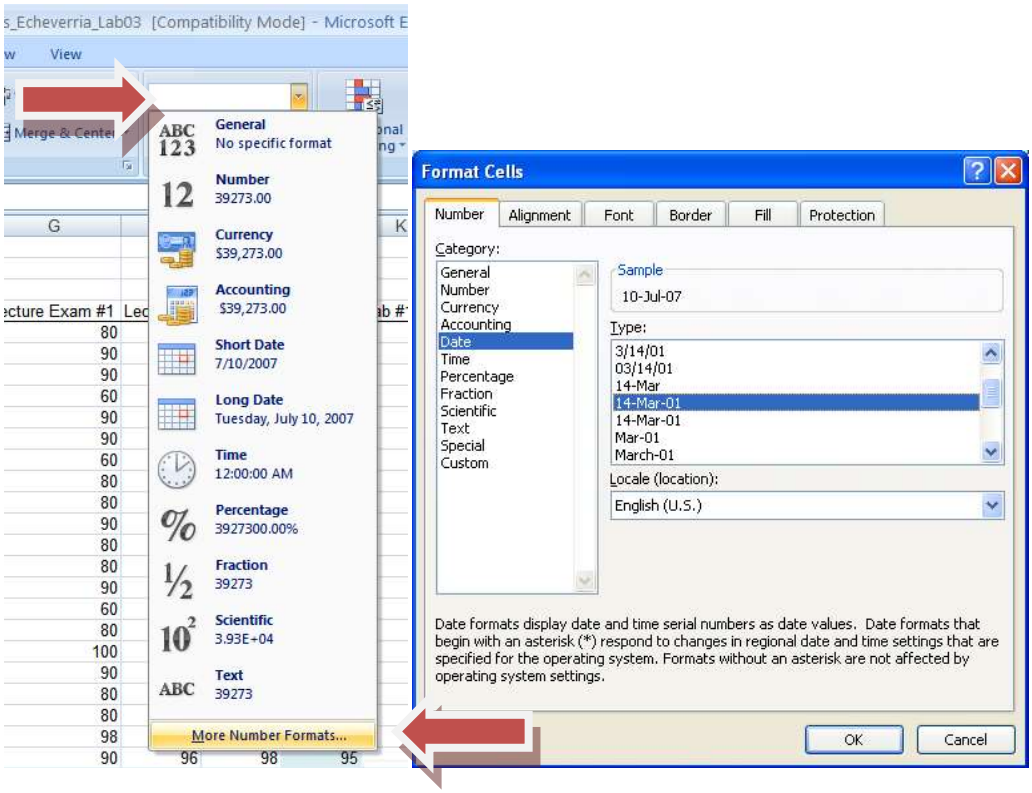
50. The correct class average for Gayla Weston is 93.73
51. Once you get the dollar signs inserted, use the fill handle to copy the formula down to all the other students in the gradebook. DO NOT COPY THE FORMULA UP TO THE FIRST STUDENT IN THE GRADEBOOK.
52. At the bottom of the Class Average column, calculate the average of all the students' class averages (should be cell X30). Answers will vary because of your made-up grades.
53. BOLD your answer and then insert a comment behind it. (right click the cell, Insert comment) Comment should read: Total Class Average

Additional Modifications to the Gradebook's Appearance

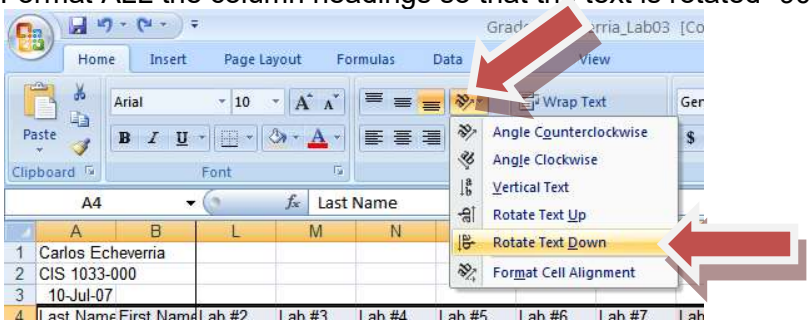
54. Decrease the decimals in all columns so that there are no decimal places showing (Select the rows and columns, click on ).

    Note that the  button increases the number of decimal places. If you can not find the button, make sure you are under the 'Home' tab under the menu bar.

55. Format E33:E37 (the grade weight table's numbers) as percent (Select them, click on ).
56. To insert a date that updates automatically to the day that it is opened you must place it as a formula. To do this type in the formula panel the following =TODAY() (after today type an open and a close parenthesis and press enter).
57. Format the date like 23-Feb-05 (Select it, click 'Date' in the menu panel and 'More Number Formats', in the Date category, select the date that looks like 23-Feb-05)



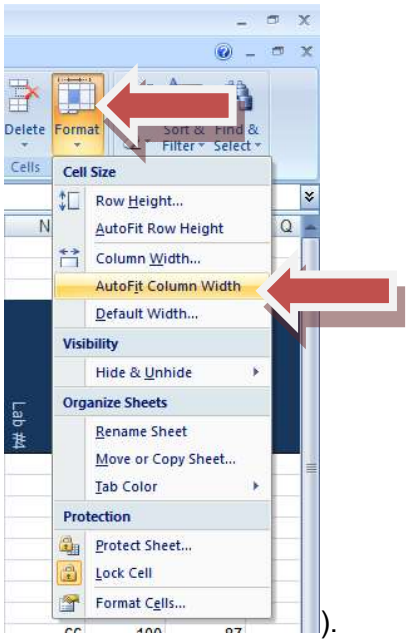
58. Format ALL the column headings so that the text is rotated -90



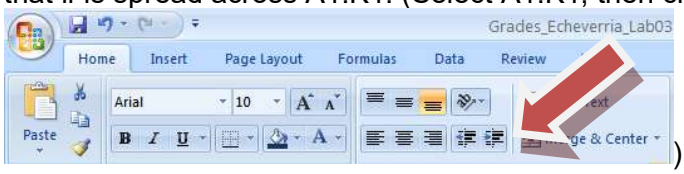
59. Format the Total Class Average (in row 30) so that the bottom border is a double line

    (Select it, click the border button  and then the double line () style, then

    click on the bottom border button ().
60. Format the column headings so that they are displayed on multiple lines (Select them; click the “Wrap Text” button right next to the bottom borderline found in step 59).
61. Format the column headings so that they have a dark background (Repeat step 33).
62. Format the column headings so that they have a light font color (click on the font color button located next to the background button which you just used for step 62).
63. Modify column width so that the student’s last and first names are visible (Select A5:B29, under the ‘Home’ tab click on ‘Format’ ‘Autofit Column Width’



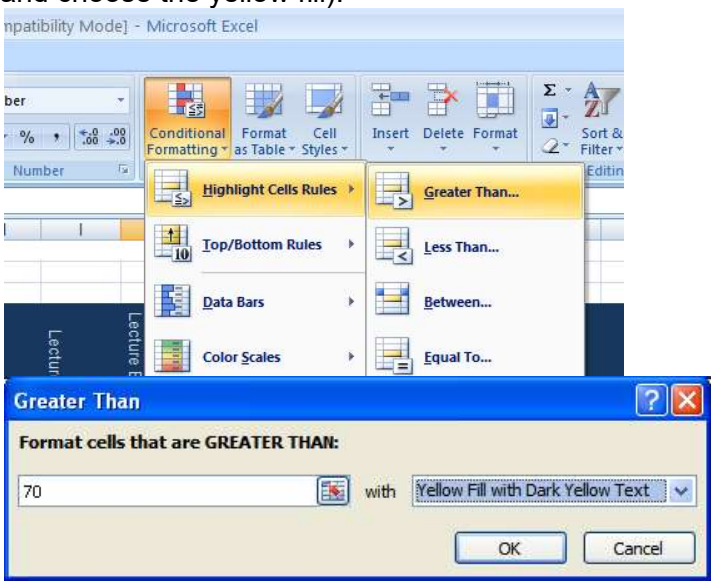
).

64. Format the A1 so that if is spread across A1:K1. (Select A1:K1, then click on the 'Merge & Center' button (

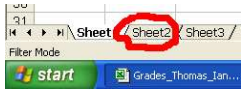
)).

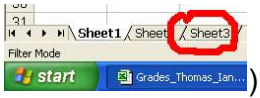
    Note that you can undo the merging of the cells by selecting the merged cell, then clicking on the Merge and Center button.

65. Conditionally format the Lecture Exam Averages so that those **greater than** 70 are formatted with yellow shading (Select the Lecture Exam averages, click the Conditional Formatting button and choose "greater than," when it asks you what number type in 70 and choose the yellow fill).



66. Hide column G (click on a cell in column G, then click Format->Hide & Unhide->Hide Columns).

67. Hide column O (click on a cell in column O, then click Format->Hide & Unhide->Hide Columns).
68. Unhide column G (Select F3:H3 (a selection that includes column G), then click Format->Hide & Unhide->Unhide Columns).
69. Format the row height of row 3 to a height of 70 (select a cell on row 3, click Format->Row Height, type 70 and press enter).
70. Save NOW. The next step can ruin your work, because deleting worksheets cannot be undone.
71. Delete Sheet2 and Sheet3. (right click on the sheet tab (

or 

) and pick “delete”).
72. Make sure you didn’t delete the wrong worksheet, and all your work is still there.
73. Rename Sheet1 as “103 Grade Book” (right click on Sheet1 and pick “rename”).
74. Insert a worksheet in front of the Grade Book worksheet (click on the insert worksheet button next to the worksheet. Next, click and drag the worksheet to the left).
75. Name the new sheet “My Other Class” (right click on the new tab and pick “rename”).
76. Format the “My Other Class” worksheet tab color as orange (right click on the tab and pick “Tab Color”, then pick orange (

).

YOU MAY STOP HERE FOR FULL CREDIT ON THIS ASSIGNMENT. GO TO THE END OF THE INSTRUCTION SHEET FOR EMAILING DIRECTIONS IF YOU STILL NEED HELP WITH THAT. THE TWO REMAINING SECTIONS OF THIS INSTRUCTION SHEET WILL EARN YOU 20 POINTS OF EXTRA CREDIT ON THIS LAB ASSIGNMENT.

Modify the “My Other Class” Worksheet

77. In cell A3 of the “My Other Class” worksheet, type the COURSE NAME. This will be a worksheet for a new course. Pick any other course you are enrolled in this semester.
78. Starting in cell B2, type column headings for each grade item and a column for Class Average.
79. Put some values in for the grades.
80. Insert a formula in the Class Average column to calculate the class average. The grade weights will not be the same as the weights for the CIS 1033 course. Use the syllabus for the course you are calculating!
81. Insert a hyperlink to the course syllabus for the course you are using as your example. (Right click the cell, select Hyperlink, type in the address including http://)
82. Display formula contents (ctrl + `). Note: the ` key is in the upper-left corner of the keyboard.
83. Save the file again.
84. Close Excel.

Lookup Letter Grades from a Table

Next we will use a function to display the letter grade for each student. Rather than typing in the letter grade manually, based on each student’s class average, we will use a LOOKUP function to lookup the letter grade based on the numeric class average number. Here’s how:

85. The rightmost column of the gradebook will display each student's letter grade.
86. Starting in cell J32 type the following: (Letter should go in K32, Total Found should go in L32, etc) (The worksheet should be '103 Grade Book').

Minimum Grade	Letter
0	F
60	D
70	C
80	B
90	A

87. Click the first student's Letter Grade cell, where you want the letter grade to display. **Remember to use an absolute reference for the reference table so that copying will work correctly. (Hint: F4 key inserts the dollar signs.) (Should be cell Y5).**
    (Click on the function button ( ), type "vlookup", click Go, select VLOOKUP, click OK, set the Lookup_value to the cell holding Zimmerman's Class Average.
    For the Table_array select J32:L37 (the Grade Letter table) and immediately press F4 after each so that the formula reads $J$32:$L$37. Set the Col_index_num to 2 (so it returns the letter grade).

88. Copy the Letter Grade formula to the other students by using the fill handle. Check your results to make sure a class average numbers are displaying with the proper letter grade.

Email the Finished Gradebook to the Lab Section Email Account

89. In Tarleton Webmail send the following email:
    a. **Subject** line should be **CIS 103 Lab #3 Excel.**
    b. **Attach** the file you named **Grades_YOURLASTANDFIRSTNAMES_Lab03** (for example: **Grades_Smith_Mike_Lab03**) in your Lab 3 folder on your H: drive.
    c. **To:** line should be your lab section email address
    (for example, CIS1033_XXX@tarleton.edu, where "XXX" is your lab section. Make sure you send it to the CORRECT section, which would be the one you are officially signed up for).
    DO NOT SEND TO YOUR LECTURER.
    d. **CC:** a copy to yourself (for example, type your Tarleton email address in the CC box)

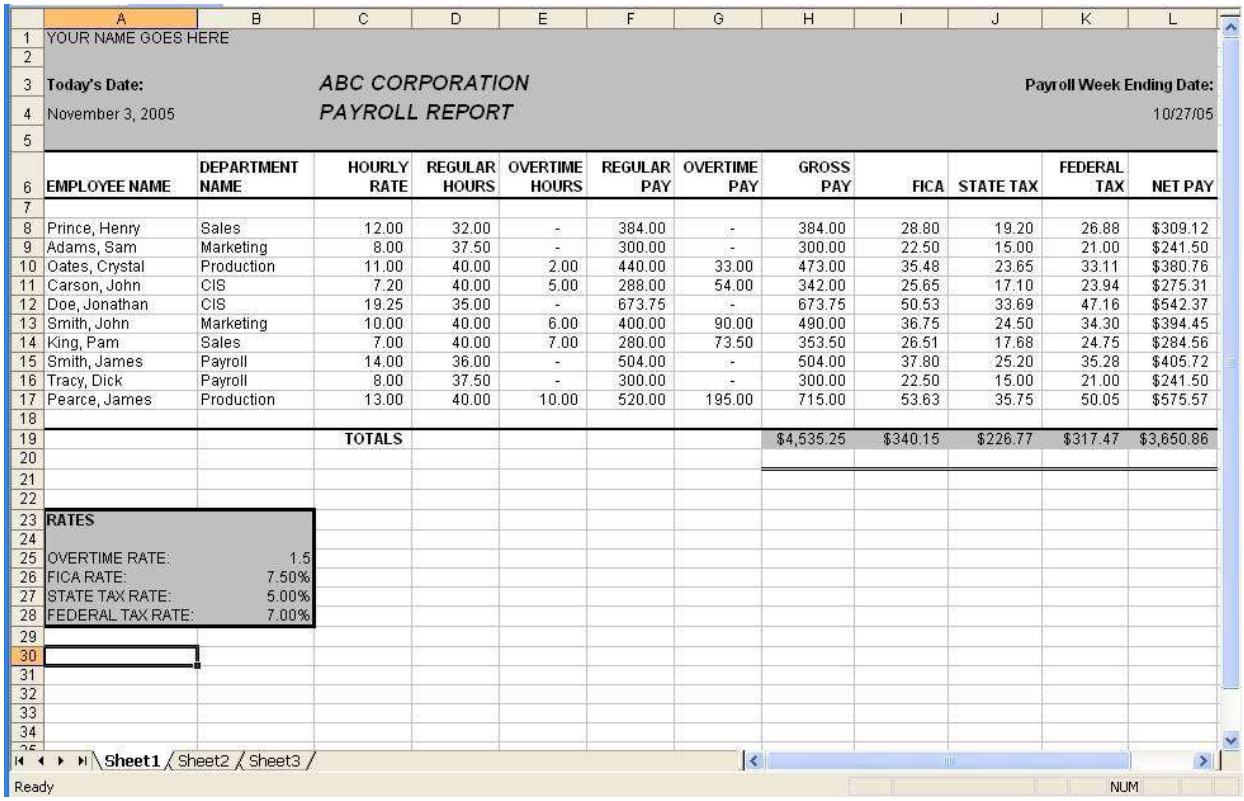
8. Payroll Spreadsheet Assignment

- In this assignment you must create a payroll worksheet.
- Please refer to the instructions below for the assignment requirements.

Getting Started: Creating The Workbook

1. Create the payroll report displayed below.
2. Use formatting as displayed in the below report; columns must be widened as needed, cell wrapping must be used for the column headings, dates must be formatted as displayed, numeric values must be formatted as displayed.
3. Use cell bordering where I've used bordering and use cell patterns (fill color) where I have. You don't have to use the same border or the same color, but you must use this formatting feature in the spreadsheet. Make it appealing to the eye.

4. Be sure to use the appropriate numeric formatting for all numeric values; i.e., notice that when a cell has a value of zero it displays as a dash; some of the numbers have dollar signs and some don't; all numeric values are displayed with two decimal positions, etc.
5. Be sure to use copying whenever possible and absolute cell referencing whenever necessary. (Efficiency will be considered in the grading process)
6. The today function must be used to display the current date in the upper left corner of the spreadsheet
7. The columns that must contain calculations are:
   - **Column F**: Regular Pay is calculated by multiplying the regular hours by the hourly rate.
   - **Column G**: Overtime Pay is calculated by multiplying the hourly rate by the overtime rate and then multiplying that by the overtime hours.
   - **Column H**: Gross Pay is calculated by adding the regular pay and the overtime pay
   - **Column I**: FICA is calculated by multiplying the FICA rate by the Gross Pay. This calculation should be rounded to two decimal positions (you'll need to use the =Round function in this formula).
   - **Column J**: State Tax is calculated by multiplying the State Tax Rate by the Gross Pay. This calculation should be rounded to two decimal positions (you'll need to use the =Round function in this formula).
   - **Column K**: Federal Tax is calculated by multiplying the Federal Tax Rate by the Gross Pay. This calculation should be rounded to two decimal positions (you'll need to use the =Round function in this formula).
   - **Column L**: Net Pay is calculated by subtracting all deductions (FICA, State and Federal Tax) from Gross Pay
8. The lower left corner of the sheet contains rates. When calculating Overtime Pay, FICA, State Tax and Federal tax, use the rates specified in this area. Your formulas must reference the cell, they must not contain the actual rate.
9. (For example, when calculating FICA for Crystal Oates you should be multiplying her gross pay (cell I8) by the cell that contains the FICA rate (cell B26) =I8*B26. You must also apply absolute cell references in this formula so that it can easily be copied. Do NOT use the actual number – i.e., =I8*7.5%)
10. Apply conditional formatting to the Hourly Rate Column. The hourly rate should be displayed in Red if it's less than $10 per hour and in Blue if it's $10.00 per hour or more.
11. Print the worksheet. (Tip: since you don't actually have to hand-in a hard copy, but you do have to send me the file with the appropriate print settings, you can save paper by using Print Preview.) Make sure that
    1. the sheet fits on one page, and
    2. the sheet includes gridlines on the printout.
12. Sort the worksheet by **department name** and within department -- by **employee's name**.
13. Save the spreadsheet and name it PayrollByDept
14. Worksheet Example (an unsorted version is shown):



	A	B	C	D	E	F	G	H	I	J	K	L
1	YOUR NAME GOES HERE											
2												
3	Today's Date:		ABC CORPORATION								Payroll Week Ending Date:	
4	November 3, 2005		PAYROLL REPORT								10/27/05	
5												
6	EMPLOYEE NAME	DEPARTMENT NAME	HOURLY RATE	REGULAR HOURS	OVERTIME HOURS	REGULAR PAY	OVERTIME PAY	GROSS PAY	FICA	STATE TAX	FEDERAL TAX	NET PAY
7												
8	Prince, Henry	Sales	12.00	32.00	-	384.00	-	384.00	28.80	19.20	26.88	$309.12
9	Adams, Sam	Marketing	8.00	37.50	-	300.00	-	300.00	22.50	15.00	21.00	$241.50
10	Oates, Crystal	Production	11.00	40.00	2.00	440.00	33.00	473.00	35.48	23.65	33.11	$380.76
11	Carson, John	CIS	7.20	40.00	5.00	288.00	54.00	342.00	25.65	17.10	23.94	$275.31
12	Doe, Jonathan	CIS	19.25	35.00	-	673.75	-	673.75	50.53	33.69	47.16	$542.37
13	Smith, John	Marketing	10.00	40.00	6.00	400.00	90.00	490.00	36.75	24.50	34.30	$394.45
14	King, Pam	Sales	7.00	40.00	7.00	280.00	73.50	353.50	26.51	17.68	24.75	$284.56
15	Smith, James	Payroll	14.00	36.00	-	504.00	-	504.00	37.80	25.20	35.28	$405.72
16	Tracy, Dick	Payroll	8.00	37.50	-	300.00	-	300.00	22.50	15.00	21.00	$241.50
17	Pearce, James	Production	13.00	40.00	10.00	520.00	195.00	715.00	53.63	35.75	50.05	$575.57
18												
19			TOTALS					$4,535.25	$340.15	$226.77	$317.47	$3,650.86
20												
21												
22												
23	RATES											
24												
25	OVERTIME RATE:	1.5										
26	FICA RATE:	7.50%										
27	STATE TAX RATE:	5.00%										
28	FEDERAL TAX RATE:	7.00%										
29												
30												
31												
32												
33												
34												

Sheet1 / Sheet2 / Sheet3

Ready NUM

9. 9th Assignment:

1. Open Excel and create a new file.
2. Title the spreadsheet as follows:
   Ramsey University Library
   Circulation Center
   Operating Budget
3. Enter labels and data exactly as they appear below these assignment instructions into appropriate cells. The column width for each cell may be adjusted to allow all text and data to be visible.
4. To get the total costs for professional and non-professional salaries, multiply the quantity of units (hours) by the unit costs. This will need a simple formula multiplying two cells. As soon as the formula is entered, you will see the result in the total cell. However, we want to round the figure in that cell (and also figures in any other cells in the same column) to “forget” the “cents.” Select the column. Under Format on the menu bar choose Cells. On the Number tab of the displayed dialog box, select Currency and choose an appropriate format to round your entries.
5. The formula for the total of non-professional salaries is the same as that for professional salaries, so you can simply copy the formula and paste it into the appropriate cell.
6. To enter the cost of fringe benefits, you need to add all the salary costs and then multiply them by 35%.
7. Sum all salary-related costs to get a subtotal for this particular cost category. Make a new row titled subtotal.
8. Enter the figures for the equipment costs, and enter the formula to add those four figures.

9. The utility costs for Ramsey University Library are allocated among the departments. The circulation department's share is 5%. By using a formula we can change the circulation department's utility cost as the utility cost for the entire library changes. To accomplish this, go to a cell "outside" of the spreadsheet (the cell adjacent to the cell for the circulation department's utility cost is preferred) and enter the entire library's current utility cost (4900). Now go back to the cell for the circulation department's utility cost and enter a formula that will calculate the utility cost (5% of the entire library's utility cost). (Whenever utility charges change, you can simply edit the formula, and the value will be recalculated for you.)
10. Enter the rest of the administrative costs and get a sub-total.
11. Enter 75 for miscellaneous.
12. The allocated indirect costs are 150% of the estimated salaries, not including the fringe benefits.
13. To add the sub-totals, use addition signs and type in the appropriate cell addresses.
14. The last task for this spreadsheet is to put all the figures into currency or "dollar" format and make the spreadsheet look more attractive by using such tools as borders, alignment, and styles.
15. Now print the spreadsheet twice, once to show the values and the other time to show the formulae. When printing for the formulae, include the row numbers, column numbers and the cell for utility costs (as mentioned in item 10) in the printout. Display formulae by selecting Options from the Tools menu, and then set the appropriate option on the View tab. Display row and column numbers by selecting Page Setup from the File menu, and then set the appropriate options on the Sheet tab.
16. Save your spreadsheet to the floppy or Zip disk.
17. Exit Microsoft Excel.
18. Staple the two printouts together, print your name at the top, and turn them in to your instructor.

Item	Units	Quantity	Unit Cost	Total
10.1 Salaries				
10.1 Professional Salaries	hours	134	$11.28	$1,512
10.2 Nonprofessional Salaries	hours	749	$7.52	$5,632
10.3 Other Salaries	hours			$0
10.4 Overtime	hours			$0
10.5 Fringe Benefits				
20.0 Materials				
20.6 Processing Services				
20.7 Binding Services				
20.8 Film Rental				
30.0 Equipment				
30.6 Depreciation				$623
30.7 Equipment Repair and Maintenance				$75
30.8 Equipment Rental				$0
30.9 Computer Services				$190
40.0 Administration				
40.1 Rent				
40.2 Utilities				$245
40.3 Facilities Maintenance and Repair				$117
40.4 Telephone				$61
40.5 Insurance				$68
40.6 Bookmobile Operation and Maintenance				
40.7 Library Supplies				$184
40.8 Audiovisual Supplies				
40.9 Travel				$0
40.10 Memberships				$0
40.11 Computer Software				$350
50.0 Miscellaneous				
50.1 Miscellaneous				$75
60.0 Allocated Indirect Cost				
60.1 Allocated Indirect Cost				$10,716
100.0 Total				$22,348

10. Assignment on Power point:

This assignment will reuse much of the content created for the Microsoft Word Lab Assignment, but shortened and formatted properly for a presentation.

This presentation should:

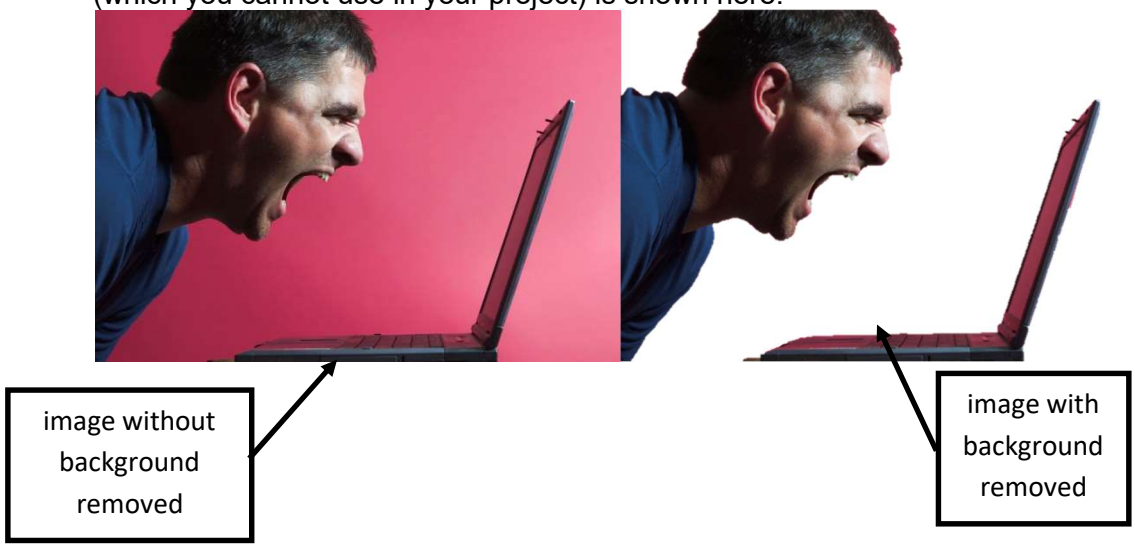
- contain a title slide including your full name, title of presentation (which may or may not be different than the title of your paper for the Microsoft Word Lab Assignment), course and lab section number, lab instructor's name, and the date
- include at least ten slides of content (this does not include the title slide, bibliography slide, or final closing slide of the presentation). This content should:
    - include one or more slides introducing the topic you wrote about in the Microsoft Word Lab Assignment
    - include slides that you feel can adequately teach the topic you learned about in Assignment 3
    - follow good presentation design principles. Search the Web for credible resources that identify guidelines for creating good presentations, and adhere to those guidelines.
    - include at least one image (a photo or clipart) that helps explain a concept in your presentation and add visual appeal. *Please note that images should not be used to replace information that should be conveyed in text format, but instead to help supplement the text in your slides*
- include citations, where appropriate, for content you pull from other sources (*please note that Microsoft PowerPoint does not have a References tab, so you will need to enter the citations manually)*
- include a Works Cited (or Bibliography) slide that lists your sources. These sources most likely will be the same as your sources for the Microsoft Word Lab Assignment. In addition, you must cite the source you used to research good presentation design principles. Please note that Microsoft PowerPoint does not have a References tab, so you will need to enter the information on this slide manually. Do not copy and paste this information from your Word document.
- include a final, closing slide in your presentation wrapping up the presentation. This should appear as the last slide, after the Works Cited/Bibliography slide

Technical Requirements

In addition to meeting the content requirements for this assignment, you also will need to demonstrate your proficiency of Microsoft PowerPoint by applying the following formatting:

- Apply the Title Slide layout to the first (title) slide in your presentation
- For the ten (or more) content slides, use a combination of at least three different slide layouts (not including the Title Slide layout) for your content. All presentation content should be added to the existing placeholders in the slides – blank slides should not be used.
- Choose an appropriate Theme (from the Design tab) for this presentation. Do not use the default Office Theme
- Use the tools on the Design tab in PowerPoint to change the Theme Colors and Theme Fonts in the presentation from the defaults
- Display and use the Slide Master (use the VIEW tab) to change the default bullet style for the master slide and conform the bullets change for the entire presentation
- Format all images in your presentation with an appropriate Picture Style. *Also,* add a Picture Border to the image
- Insert an additional clipart image (be sure to use clipart and not a picture from a file on your hard disk) that applies to the content of your presentation. Use the Remove

Background tool to remove the background elements of the clipart, and only display what's in the foreground. Please note that you may have to use the tools on the Background Removal tab (which will show when you select the image and enable the Remove Background tool) to perfect the background removal. The background cannot be removed from all clipart; you should insert a photograph from the Clipart gallery instead of an illustration, so that you will be able to remove the background. An example (which you cannot use in your project) is shown here:



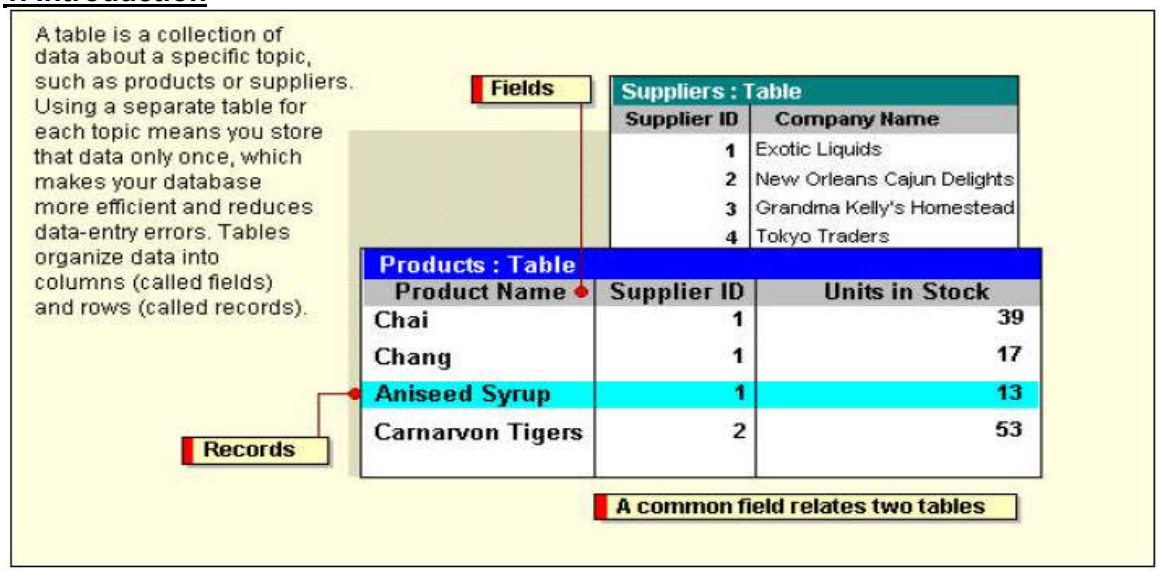
- Copy and paste information from your Microsoft Word Lab Assignment document into the Notes Pane in PowerPoint that will help you explain each slide (as if you were to present it). All content slides should have related information from your Microsoft Word Lab Assignment in the Notes Pane
- Include the slide number and presentation title (*hint: insert the presentation title as the Footer*) on every slide but the title slide
- Include the fixed date (use the assignment due date as the fixed date) and presentation title (*hint: insert the presentation title as the Footer*) for Notes and Handouts. Be sure the page number is still selected.
- All Web sites referenced throughout your presentation should be formatted as hyperlinks (you will have at least two of these on your Works Cited / Bibliography slide)
- Apply an appropriate slide transition to each slide in the presentation
- Apply appropriate animation effects so that bulleted items display by 1st Level Paragraphs
- Slides should advance and animations should display on mouse click only, and not automatically (do not add any timings to your presentation)
- Run a Spelling & Grammar check to make sure your presentation is free of spelling and grammatical errors
- In the Properties for this presentation, make sure your full name appears in the Author property (if it does not, change it), and that the title of this presentation appears in the Title property

11. Assignment on MS Access

- Introduction to Tables and How to Build a New Database
- Creating Tables in Datasheet View and Design View

- Working with Data on Sorting and Filtering

1. Introduction



Creating a New Database

First, open MS Access 2007. To build a new database, choose **New Blank Database.** By selecting **New Blank Database**, a panel will show up on the right, which allows us to create a blank database by entering the database name and choosing the location where on the computer we want to create the new database. We can also create a new database from other database template. For this session, we will focus on creating a database from a blank one, so click **New Blank Database Blank Database**.

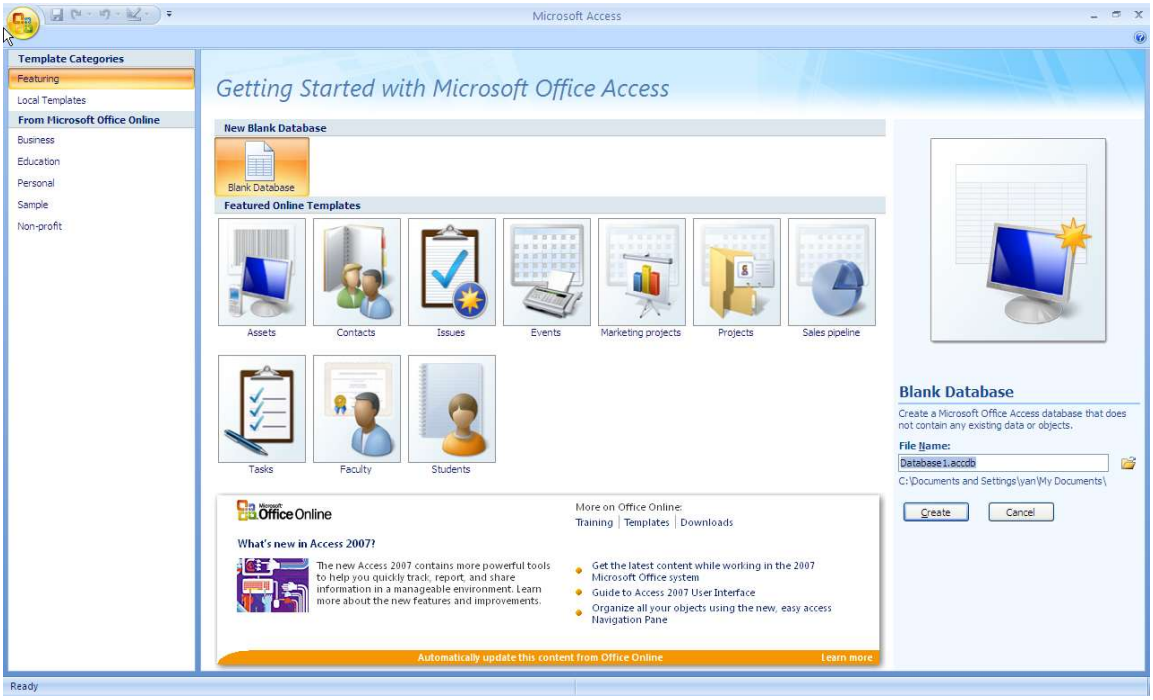


Fig. 1: Creating a New Database

Once you created a blank database and type the database name, you can create the following six objects as shown in Fig. 2, they are briefly described as follows,

- **Tables** - a collection of data about a specific topic, such as products or suppliers.
- **Queries** - a command for viewing or analyzing data in different ways or a result of the command.
- **Forms** - a friendly interface to add a new record
- **Reports** - an object that present data in a organized way according to your specification. Examples are telephone bills, sales summary etc.
- **Macros** - a set of one or more actions that each performs a particular operation, such as opening a form or printing a report. Macros can help you to automate common tasks. For example, you can run a macro that prints a report when a user clicks a command button.
- **Module** - a collection of Visual Basic for Applications declarations and procedures that are stored together as a unit.

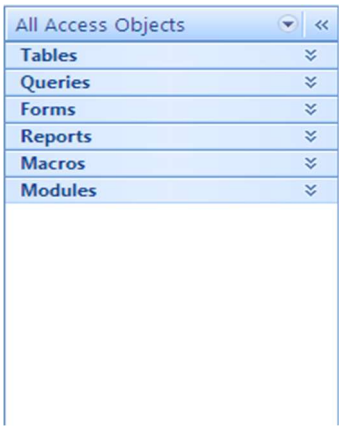


Fig. 2 New Database Database1.accdb

2. Creating a Table:

There are three ways to create a table:

- Use Datasheet View, i.e. enter data directly
- Use Design View
- Use a Table Template

2.1 Create a Table in Datasheet View

To create a blank (empty) table in datasheet view, on the **Ribbon** you can:

- Click **Create→Table** in Fig. 3.

You are then given a Datasheet View with column headings ID and Add New Field across the top of the datasheet as shown in Fig. 4. You can enter data directly into it. After entering data and hit the Enter key, the column heading - Add New Field automatically changes to Field1 and the next column's heading becomes Add New Field. At the same time, an ID number will be assigned to that row. When you save the new datasheet, Microsoft Access will analyze your data and automatically assign the appropriate data type and format for each field. Because the names of each field are not descriptive, you may want to rename the fields.

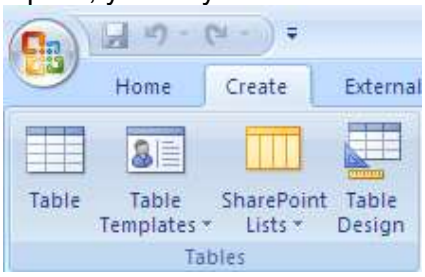


Fig. 3 Ribbon for Creating New Table

Renaming Fields:

1. Place the cursor over the column heading you want to rename and double click. The column heading will appear highlighted and the cursor will be blinking (you are now in edit mode)
2. Type the name you want to use and then press the Enter key.
3. Repeat the first two steps for the second column, and so on.

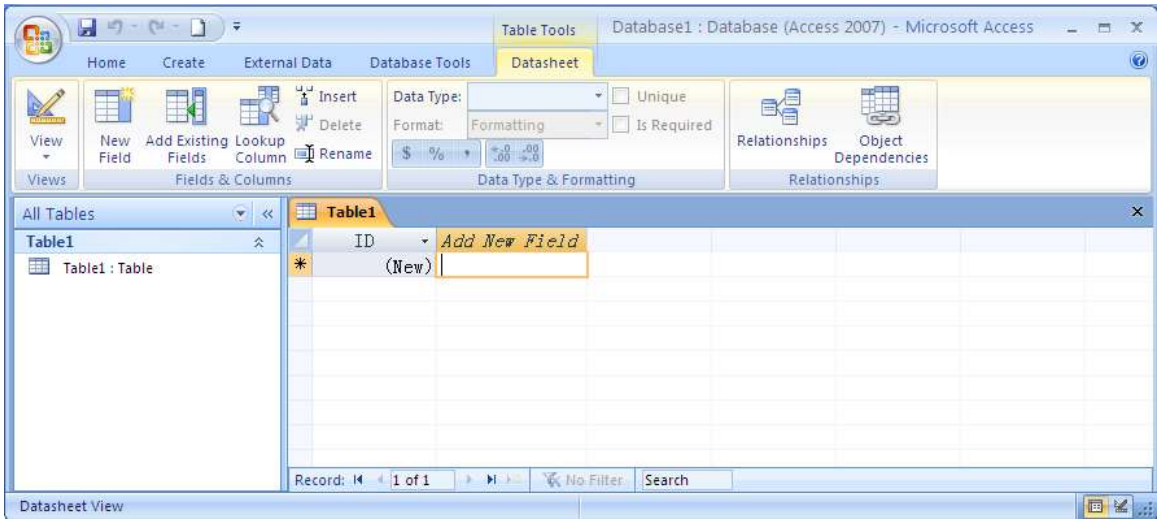


Fig. 4: Creating a Table in Datasheet View (Renaming Fields)

As the column corresponds to the field, the row corresponds to the record. Now we are ready to add the information. Say that, if we are doing a database of a company, the first table we may have is ***Employee***. And the fields of Employee may contain SSN, LastName, FirstName, and so on. Please refer to Fig. 5 for the example Employee table.

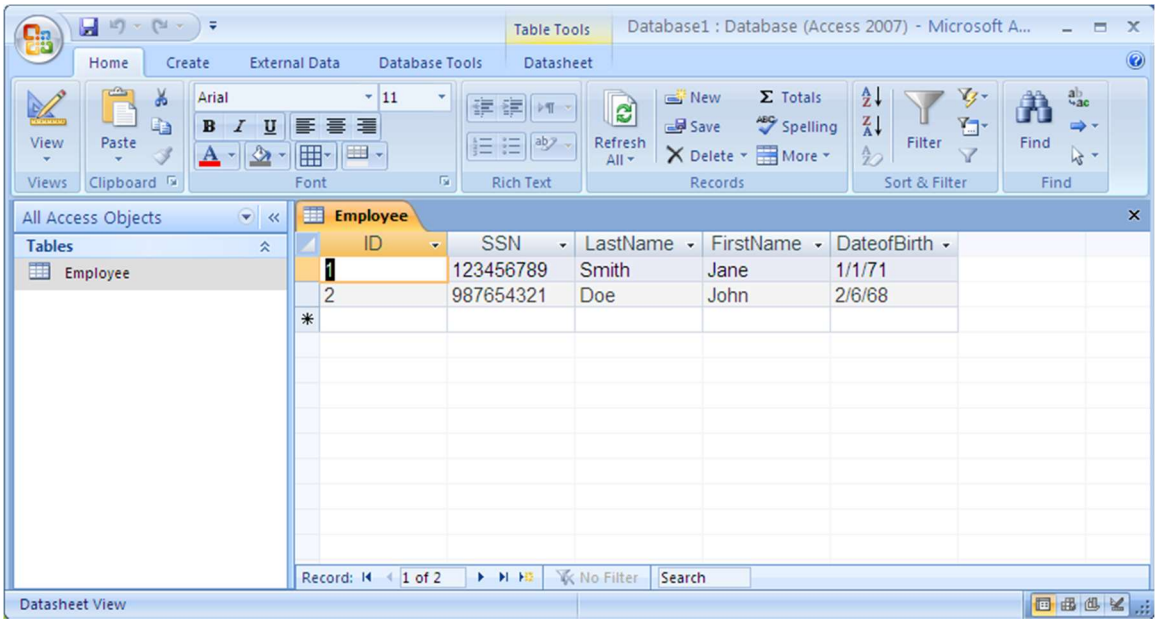
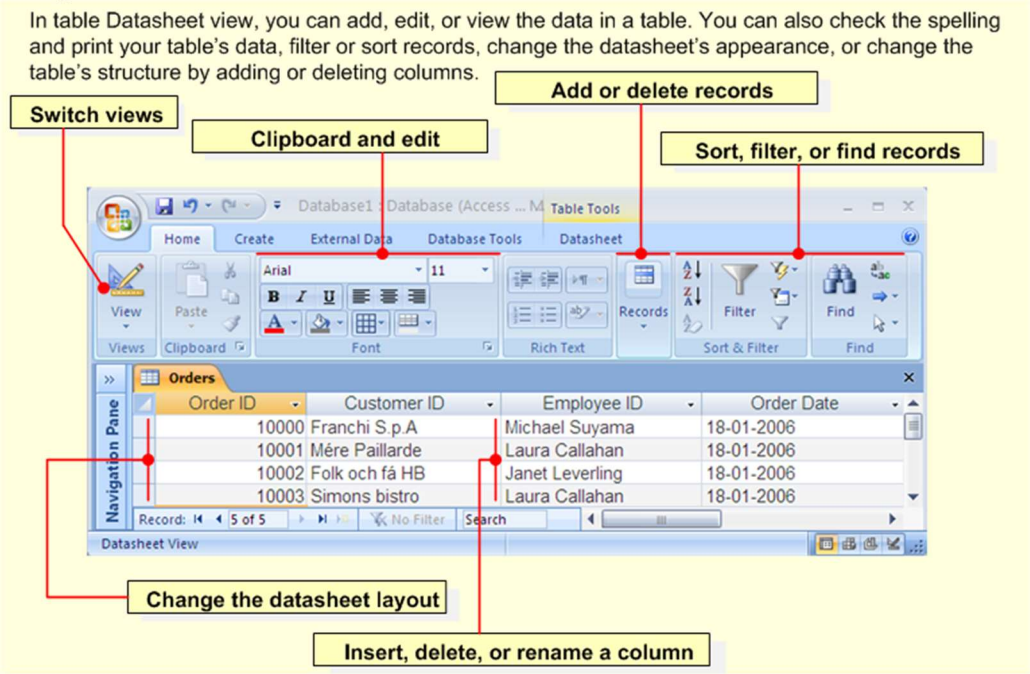


Fig. 5: Datasheet View (Employee Table)

Summarizing Datasheet View



2.2 Create a Table in Design View

In Design View you can add fields, define how each field appears or handles data, and create a primary key. To create a blank (empty) table in design view, you can:

- Click **Create→Table Design** in Fig. 3.

You are then given a Design View as shown in Fig. 6.

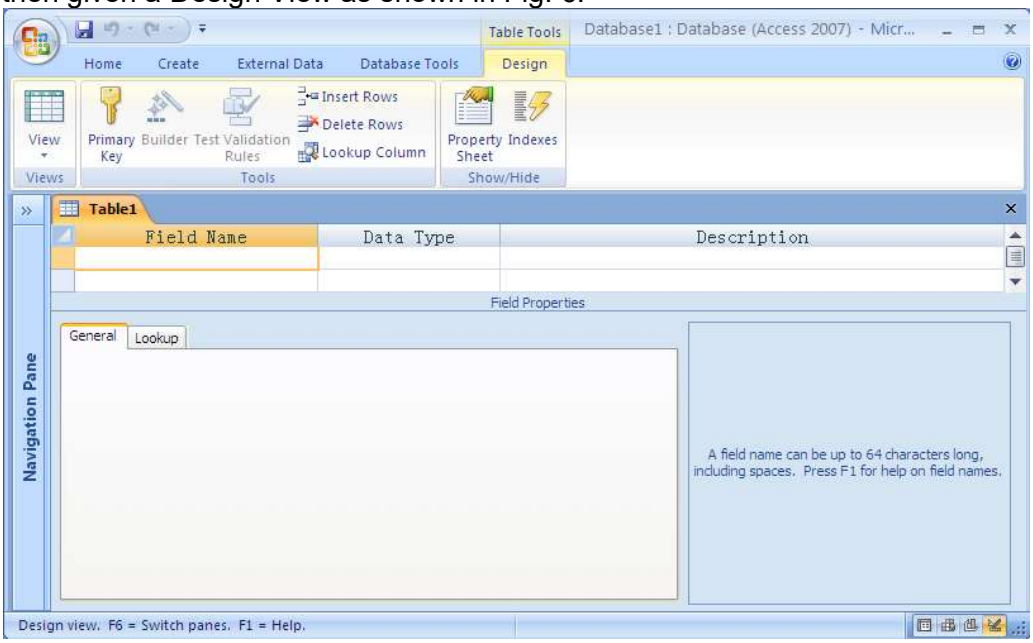


Fig. 6 Design View

In this view, we can specify detailed properties for each field. This includes the length and type of information used in the field. But if we were to *enter data* into the table, we must use **Datasheet View** or **Forms**. The design view for the example Employee table mentioned before will look like Fig. 7.

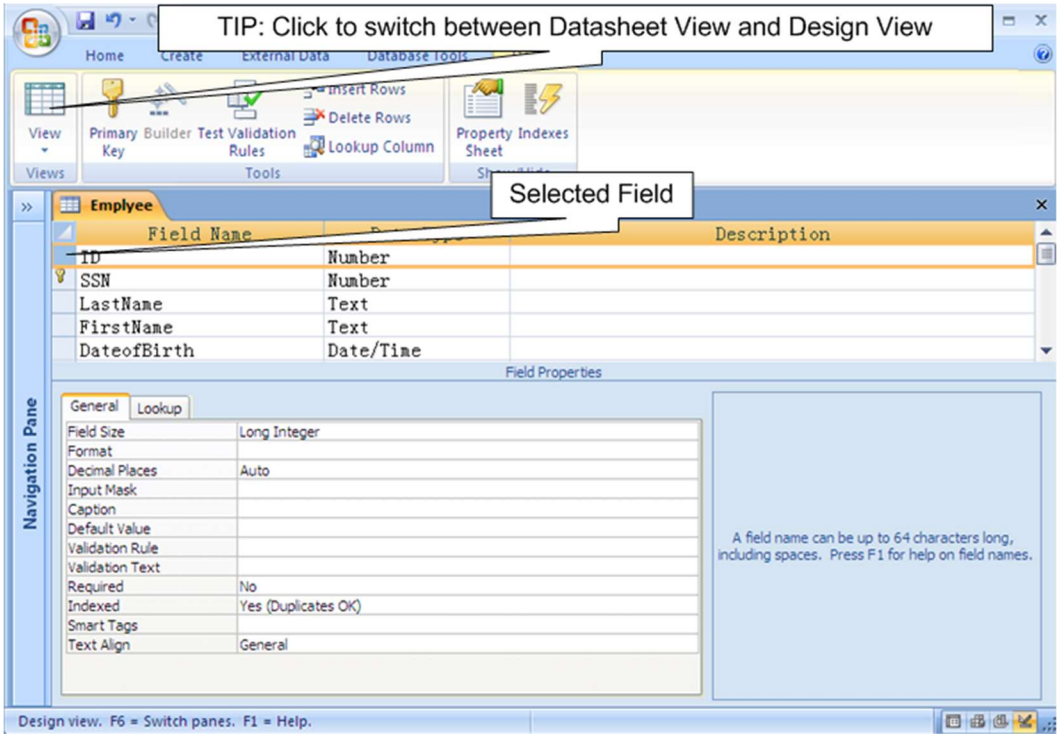


Fig. 7 Design View (Employee Table)

There are three columns on the top portion of the window. The **Field Name** is the name of the fields. For example, SSN, FirstName, LastName are proper field names for the Employee table. The name for a field must follow MS Access **object-naming rules**[1]. The **Data Type** is like the domain of an attribute. It provides a list of data types that we can choose from, including Text, Memo, Number, Date, and so on. The **Description** column allows us to describe the field and it is optional. *It is always good practice to be descriptive in your comments.* This allows new users to easily understand the specifications and meaning of your fields. Table 2 summarizes all data types available in MS Access.

You can set up properties of fields in the **Field Properties** window at the bottom half pane. Table 1 describes all properties available for setup.

Before we save the table and quit, we need to specify the **primary key**. In our Employee table, SSN will be good for primary key. To define SSN as the primary key, click the **Field Selector** as shown in Fig. 7 for the SSN field. Field Selector is the gray bar on the left side of the Table Design grid by each field. When we click here, the whole row appears highlighted. Then click menu **Edit→Primary Key** or click the Primary Key button (i.e. the key symbol, shown in Fig. 7) on the toolbar in design view, a key symbol will appear on the Field Selector. Save the table as Employee. Now we have created one table.2

[1] Object-naming rules are a set of specific rules for naming Microsoft Access objects. In Microsoft Access, names can be up to 64 characters long and can include any combination of letters, numbers, spaces, and special characters except a period (.), an exclamation point (!), an accent grave (`), and brackets ([ ]). Note that you also can't use leading spaces or control characters (ASCII values 0 to 31). For information on Visual Basic naming conventions, search the Help index for "naming conventions."
Tips
· Avoid including spaces in object names if you'll frequently refer to the objects in expressions or Visual Basic code.
· Avoid using extremely long names because they are difficult to remember and refer to.

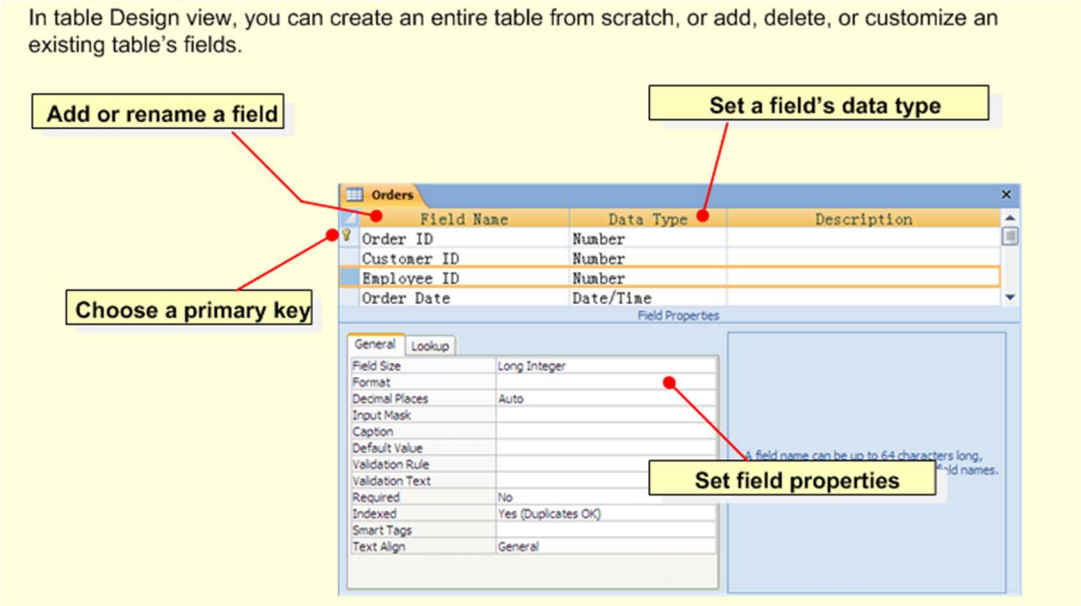
Field Property	Description
Field Size	The maximum number of characters you can enter in the field. The largest maximum you can set is 255.
Format	The display layout for the field. Select a pre-defined format or enter a custom format.
Input Mask	A pattern for all data to be entered in the field.
Caption	The label for the field when used on a form. If you don't enter a caption, the field name is used as the label.
Default Value	A value that is automatically entered in the field for new records.
Validation Rule	An expression that limits the values that can be entered in the field.
Validation Text	The error message that appears when you enter a value prohibited by the validation rule.
Required	Specify whether the field is required data entry.
Allow Zero Length	Specify whether allow zero-length strings in the field.
Indexed	An index speeds up searches and sorting on the field, but may slow updates. Selecting "Yes - No Duplicates" prohibits duplicate values in the field.

Table 1 Field Properties in Design View

Setting	Type of data	Size
Text	(Default) Text or combinations of text and numbers, as well as numbers that don't require calculations, such as phone numbers.	Up to 255 characters or the length set by the FieldSize property, whichever is less. Access does not reserve space for unused portions of a text field
Memo	Lengthy text or combinations of text and numbers.	Up to 65,535 characters.
Number	Numeric data used in mathematical calculations.	1, 2, 4, or 8 bytes (16 bytes if the FieldSize property is set to Replication ID).
Date/Time	Date and time values for the years 100 through 9999.	8 bytes.
Currency	Currency values and numeric data used in mathematical calculations involving data with one to four decimal places. Accurate to 15 digits on the left side of the decimal separator and to 4 digits on the right side.	8 bytes.
AutoNumber	A unique sequential (incremented by 1) number or random number assigned by Microsoft Access whenever a new record is added to a table. AutoNumber fields can't be updated.	4 bytes (16 bytes if the FieldSize Property is set to Replication ID).
Yes/No	Yes and No values and fields that contain only one of two values (Yes/No, True/False, or On/Off).	1 bit.
OLE Object	An object (such as a Microsoft Excel spreadsheet, a Microsoft Word document graphics, sounds, or other binary data) linked to or embedded in.	Up to 1 gigabytes (limited by available disk space).
Hyper Link	Text or combinations of text and numbers stored as text and used as a hyperlink address. The easiest way to insert a hyperlink address in a field or control is to click Hyperlink on the insert menu in the datasheet view.	Each part of the three parts of a Hyperlink data type can contain up to 2048 characters.
Attachment	Many types of files can be stored in a column which has the attachment data type. Someone can add bitmap files, jpg files, sound files, word documents, etc. to a column without increasing the size of the database.	Up to 256 megabytes.
Lookup Wizard	Creates a field that allows you to choose a value from another table or from a list of values by using a list box or combo box. Clicking this option starts the Lookup Wizard, which creates a Lookup field. After	The same size as the primary key field used to perform the lookup, typically 4 bytes.

Table 2 Data Types in MS Access

Summarizing Design View[2]



2.3 Create a Table Based on a Table Template

To create a Contacts, Tasks, Issues, Events or Assets table, you might want to start with the table templates for these subjects that come with Office Access 2007. To choose a template for your table from the above predefined templates you can:

- Click **Create→Table Templates** in Fig. 3,
- Select one of the available templates from the dropdown list.

3. Working with Data

In this section, we will learn how to work with existing data. The sample database file used here is "Northwind 2007.accdb". It is a sample database comes with Microsoft Access. You can find it in by:

- Open MS Access; click **Sample** under the category listed in the left task pane on the **Getting Started with Office Access** page; then click on the **Northwind 2007** icon, enter the name and location on the right task pane and click the Download button.

or

- Go to directory **C:\Program Files\Microsoft Office\Templates\1033\Access** and double click **Northwind.accdb**.

Choose **Object Type** on the **Navigation Pane** after Northwind 2007.accdb is launched, Open "**Orders**" under "**Tables**".

3.1 Sorting

In the **Datasheet View**, we can sort the records in ascending or descending orders. To sort a single column, click anywhere in the column desired. Simply click either the Sort Ascending button or Sort Descending button on the **Ribbon**. We can also click the arrow on the right of the desired column heading and choose Sort Ascending or Sort Descending from the popup window.

[2] You can set combination of more than two attributes as a primary key. To do so, first highlight attributes you wish to set as primary key, and click Primary Key button in design view.

If we want to sort *multiple columns*, we need to do a little more work. The two columns we want to sort by must be adjacent to each other; the one that we want to sort by first must be to the left of the other. Let's work with "**Orders**" table in **Northwind Database**. Now we will try sorting by ' **Shipped Date'** then by **'Order Date**', we must first move 'Shipped Date' column to the left of 'Order Date' column. Here are the steps,

1. Highlight the **'Shipped Date**' column by clicking the **'Shipped Date**' column heading.
2. Let go of the mouse button and then press it again, holding it this time.
3. Now drag the **'Shipped Date'** column over the **'Required Date'** column. When we get just to the left of the **'Order Date'**, let go of the mouse button. Then **'Shipped Date'** and **'Order Date'** should sit side by side now.
4. Click the mouse button on the **'Shipped Date'** header, highlighting the column. Holding the mouse button down, drag it over the **'Order Date'** column so that both the **'Shipped Date' and 'Order Date'** columns appear highlighted.
5. Click on **Sort Ascending**. The sorted table is shown in Fig. 8.

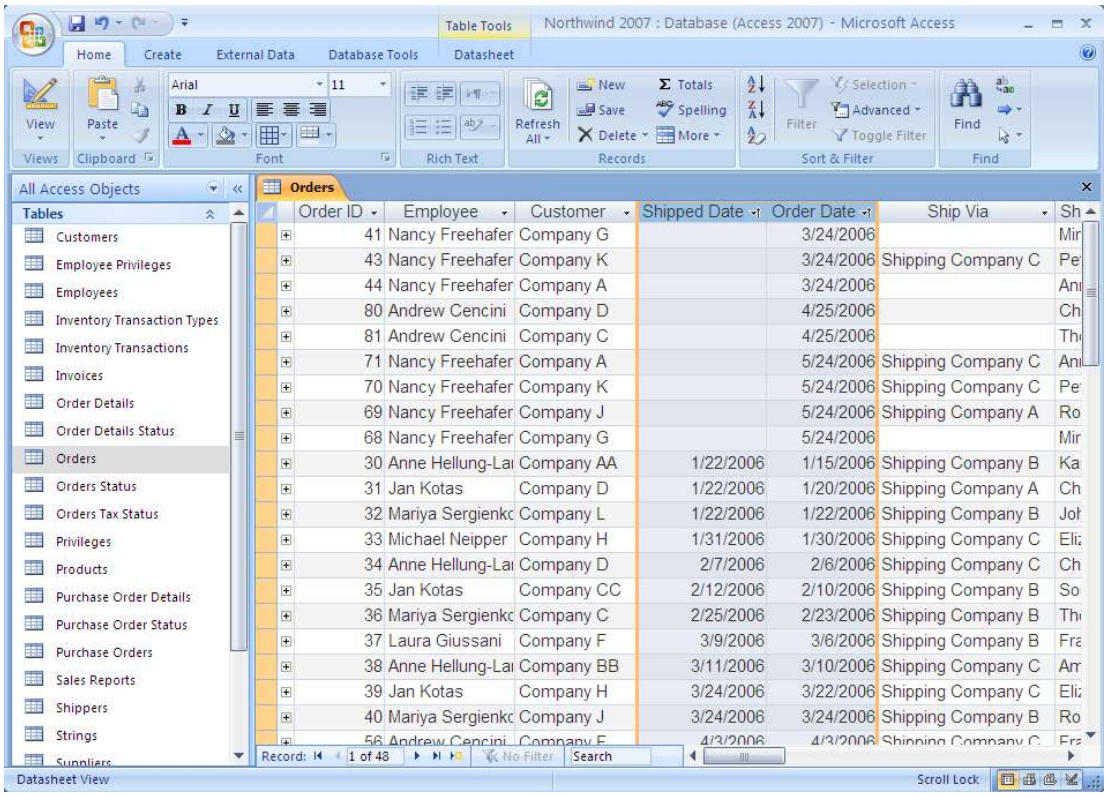


Fig. 8: Northwind Database: Sort Result

3.2 Filters

By using ***Filter by Selection***, you tell Access that you want to see only certain records, based on the value in the field in which the cursor currently resides. For example, say that we want to see those orders shipped via Shipping Company B. To do this,

1. In the **'Ship Via'** column, click a field that has **"Shipping Company B**" in this field.
2. Click the right button of mouse and select **Equals "Shipping Company B"**. Or, you may click **Selections** button in the Ribbon and select **Equals "Shipping Company B"**. Only those records that were shipped via Shipping Company B appear.

3. Click the right button again and select "**Clear filter from Ship Via**" button to remove the filter.

With **Filter by Selection**, you were filtering records based on a field you selected in the datasheet, and then selected another field in the subset to narrow it further. When using **Filter by Form**, Access takes you to a different screen to specify the criteria you want to filter with. Using **Filter by Form**, although more complicated, allows you to be more specific and filter your data based on a combination of selected values from multiple fields. To do this,

1. On the **Ribbon** click on **Advanced Filter Options** **Filter by Form**
2. The datasheet will suddenly look as if you deleted all the records. Refer to Fig. 9 for example. Now you can pick the fields you want to filter and display your information.
3. Click **Ship Via** field to see the drop-down list. You can use =, >, <, >=, and <= to specify your criteria.
4. Finally, on the Ribbon click on **Toggle Filter** to see the result.

Fig. 9 Filter by Form

In the end, we will see how to use **AND** and **OR** criterion in a filter. The **AND** operator allows you to filter records based on two or more criteria. When you apply a filter using the AND operator, only those records that meet both (or all) criteria appear. To show how to use the AND operator, we will choose all orders shipped before 02/12/2006 **AND** shipped via Shipping Company B. To do this,

1. On the **Ribbon**, click **Advanced Filter Options** **Filter by Form** to return to the **Filter by Form** screen. The screen should be blank.
2. Click **Shipped Date**, select **2/12/2006** and add **"<"** before the date so that it looks like **"<#2/12/2006#"**.
3. Click **Ship Via** and select **"Shipping Company B"** (without quotation mark).
4. Click the **Toggle Filter** button on the **Ribbon**. Now those orders shipped before 02/12/2006 **AND** shipped via Shipping Company B will appear. The resulting table contains 2 records. Please check your answer.

To show all the orders which is either shipped before 02/12/2006 **OR** shipped via Shipping Company B, you can .

1. On the **Ribbon,** click **Advanced Filter Options** **Clear All Filters**.
2. On the **Ribbon**, click **Advanced Filter Options** **Filter by Form** to return to the **Filter by Form** screen. The screen should be blank.
3. Click **Shipped Date** and select "**2/16/2006**" and add **"<"** before the date.
4. Click the **Or** tab at the bottom of the **Filter by Form** screen.
5. Click **Ship Via** and select **"Shipping Company B"** (without quotation mark).

6. Press **Toggle Filter** on the **Ribbon**. Now those orders that are either shipped before 02/12/2006 or shipped via Shipping Company B will appear. The resulting table contains 36 records.

12. You want to create database for a library. The library recently received a large collection of new books and would like to develop a database. The library is still using traditional method for cataloging most of its book. You have been ask to create a databases named Kerdau Library Database which containing catalog number, title, author and copyright date of each of the new books using Microsoft Access 2010. In order to complete the task, please follow instructions below:

1. Open Microsoft Access 2010.
2. Create a blank Access database and save as Kerdau Library Database.
3. Create a new table named **Catalog** that contains these fields and its attributes:

Field Name	Data Type
ID	Autonumber
Title	Text
Description	Text
Acquired Date	Date/Time
ISBN	Number
Location	Text
Condition	Memo

Tip: *Use* ***Design View*** *to create this table.*

4. Change Primary Key field's name as **Catalog ID**.
5. Enter these data into Notebook table:

Field Name	Record 1	Record 2	Record 3
Title	Outstanding books for the college bound	Freak the Mighty	Best Books for Young Adults
Description	Paperback	Hardcover	Paperback
Acquired Date	10/11/2011	11/11/2011	18/11/2011
ISBN	0652358974	0439286069	0838935699
Location	Building	Bookmobile	Bookmobile
Condition	Binding loose	Good	Dust

6. Close **Catalog** table.
7. Create a form to able insert new data into **Catalog** table.
8. Save the insert form as **New Book Form**.
9. Enter **five** catalog data using **New Book Form**.
10. Create a query that able to retrieve these information: **Title**, **ISBN**, **Condition**
11. Save the query as **Quick Book Info**.
12. Run the query.
13. Create a report that will show all fields and sort the records according to Title.
14. Save the report as **Book Inventory**.
15. Adjust every column in report design to ensure **all** data are showed in a proper manner.
16. Close the report.
17. Exit MS Access 2010.

C Programming

Theory 16 hours + Lab 14 hours

Session 1:

- Introduction to Programming Language
- History of C
- Importance of C
- Basic structure of C program
- Programming style
- Types, Operators and Expressions
- Variable Names
- Data Types and Sizes
- Constants
- Declarations
- Executing a `C` program

Session 2:

- Arithmetic Operators
- Relational and Logical Operators
- Type Conversions
- Increment and Decrement Operators
- Bit wise Operators
- Assignment Operators and Expressions
- Conditional Expressions
- Precedence and Order of Evaluation

Session 3:

- Statements and Blocks
- If-Else
- Else-If
- Switch
- Loops - While and For
- Loops - Do-While
- Break and Continue
- Array
- One–dimensional and two–dimensional arrays
- Multi dimensional arrays
- Dynamic arrays
- Character Array and string
- Declaring and initializing String variables.
- Writing string to screen
- Comparison of strings
- String handling function

Session 4:

- Pointers
- Arrays using Pointers
- Function pointers
- Pointer to structure
- Functions, Call–by–value, Call–by–reference

- Recursion, Factorial Function
- Passing Arrays to Function, Function call and Run–time Stack

Session 5:

- The C Preprocessor
- File Inclusion
- File, File Access modes, File Input /Output
- Macro Substitution
- Conditional Inclusion

Session 6:

- User–defined data types
- Basics of Structures
  - Structures and Functions
  - Arrays of Structures
  - Array with in structure
  - Self-referential Structures
  - Bit field

Session 7:

- Union
- Enumeration
- Typedef

Session 8:

- Variable length list,
- Command line arguments
- Low–level interaction in C

Lab Assignments:

1. Write program, which finds the number of digits before the first even digit. If number is 1372465 then answer is 3 since the first even digit is 2.
2. Write program to print following pictures.
   i. AAAAAA
   ii. AAABBBCCCDDD
   iii. ABBCCCDDDD
   iv. AAAABBBCCD
   v. ACEGIKM
   vi. ABCDEF
   ABCDE
   ABCD
   ABC
   AB
   A
   vii. A
   AB
   ABC
   ABCD
   ABCDE
   ABCDEF
   viii. A
   BC
   CDE
   DEFG

EFGHI
FGHIJK

ix. A
BC
DEF
GHIJ
KLMNO
PQRSTU

x. ABCDEF
BCDEF
CDEF
DEF
EF
F

xi. Aabcde
ABabcd
ABCabc
ABCDab
ABCDEa
ABCDEF

3. Write program, which reads 2 numbers and prints the sum of square of the first and cube of the second. Exa- input 5 3 output 5*5 + 3*3*3 = 52
4. Write program, which reads a, b, c, p, q and r. Let ax+by+c=0 and px+qy+r=0 be equation of lines. Print their point of intersection.
5. Write program, which reads three numbers. The program outputs the middle of these. Example- input 5 2 4 output 4, input 5 6 2 output 5.
6. Write program, which will print all numbers, which are even but not a multiple of either 3 or 5. e. g. 2 4 8 14 16 22 ….
7. Write program, which will print all numbers, which are either a multiple of 3 or 5 but not both.
8. $1 + 2x + 3x^2 + 4x^3 + \ldots\ldots + (n+1)x^n$
9. $1 - x + x^2 - x^3 + \ldots\ldots + (-1)^n x^n$
10. Write program to print the last digit, which is multiple of 3. e.g. input 23617 output 6.
11. Write program to print the second last even digit. e.g. input 23863 output 8(do not use if condition).
12. Write program, which reads a number the finds special product. If number is 2314 then output is 4 + 1*4 + 3*1*4 + 2*3*1*4 = 44.
13. Write program, which reads a number and finds the location of last even digit. If the number is 18263 then the output is 4 since the last even digit 6 occurs at 4th place.
14. Write program, which reads a number and finds how many times the first digit occurs. If the number is 34533253 then the answer is 4 since the first digit (3) occurs 4 times. [Hint: declare long int x; and Read number using scanf("%ld",&x);]

Software Development Life Cycle

Theory 16 hours

Session 1:

- Introduction to Software and Software Engineering
- Software Process
- SDLC and Process Models
- Agile Development model
- Case study on Agile

Session 2:

- Requirement Engineering
- Requirement analysis
- Use case approach
  - Use cases & usage scenarios
  - Identifying use cases
  - Use cases & functional requirements
  - Benefits of Use cases

Session 3:

- Design concepts
- Component Definitions
- Class-based Component Design
- Class-based Component Design Principles
- Component-Level Design Guidelines
- Components

Session 4:

- Introduction to Coding Standards
- Best Coding Practices
- Commenting and Code understanding
- Documents on Coding

Session 5:

- Testing Strategies and Tactics
- Writing Test Cases
- Different Testing methods
- Software implementation
- Phased wise deployment
- Software maintenance
- SLA on maintenance

Session 6:

- Software Project Management
- Project Management Definition
- Distinctive characteristics of Software
- Scope, Organizing, Planning,
- Scheduling, Graphical Schedule representations
- Activity Organization, Milestones, Deliverables

Session 7:

- Task Dependencies,
- Staffing, Communication
- Project Risk identification, analysis, planning monitoring
- Monitoring, Reviews,
- Control, Reporting
- Project Closure

Session 8:

- Function-Oriented Software Design
- Object-Oriented Software Development
- Software Reuse
- Emerging Trends
- Case studies

CASE STUDY- I

Communities as well as non- profit and charitable organizations promoting reuse as an alternative to discarding unwanted items. It also covers market place functionality. User can buy and sell various products. Companies can also post details of the stuff they want to get rid of in bulk. This is a secure site where SSL has been used. Site traffic analyzer is also available to the site admin. It also has a blog associated with it where the admin can post case studies of the user experience.

The admin has the ability to create admin roles of various levels, view monthly transactions, create communities, hauling company details, customize email template and specify content, also give the feature in which to the admin where any corporate can contact the admin and they can provide details of the various goods that they want to get rid of in bulk.

For analysis of project please include followings documents:

1. SRS (software requirement specification)
2. SDLC (software development life cycle)
3. Database & technologies required
4. Project Mangement
5. Quality Management
6. Cost evaluation
7. Time requirement for the completion
8. Training ,Maintance & Documentation

Design a system which will meet all the above needs of the organization. The system should be flexible and should provide growth in the organizational activities.

CASE STUDY II

Objective

The objective of the project is to develop a software to assist ABC foundation in making decisions regarding home loans .The product will allow the client to add modify and delete information regarding the foundation investment, operating expenses and individual information. The product will perform the required calculations in the areas and produce the listing investment.

Assumptions & constraints

1. The deadline must be decided and met
2. validation and fulfillment of all documents for processing
3. the product must be reliable
4. The architecture must be open so that additional functionality may be added later

5. The product must be user friendly.

For analysis of project please include followings documents:

1. SRS (software requirement specification)
2. SDLC (software development life cycle)
3. Database & technologies required
4. Project Management
5. Quality Management
6. Cost evaluation
7. Time requirement for the completion
8. Training , Maintance & Documentation

Design a system which will meet all the above needs of the organization. The system should be flexible and should provide growth in the organizational activities

Objected Oriented Programming Concepts Using C++ & Data Structures

Theory 20 hours + Lab 20 hours

Session 1:

- Difference between C and C++
- Introduction to C++: Identifier, Keywords, Constants,
- Operators: Arithmetic, relational, logical, conditional and assignment. Sizeof operator, Operator precedence and associativity.
- Type conversion, Variable declaration, expressions, statements, manipulators
- Input and output statements, stream I/O, Conditional and Iterative statements, breaking control statements.
- OOP Concepts
- Class and Objects
- Executing sample C++ programs

Session 2:

- Static Member
- Inline Function
- Access specifiers
- String & Streams
- Constructors and Destructors
- Properties
- Types of constructors & destructors
- Inheritance
- Types of inheritance

Session 3:

- Friend functions
- Friend Classes
- Polymorphism
- Types of polymorphism
- Overloading functions
- Overloading Operators
- Copy Constructors
- Run Time Polymorphism
- Virtual Functions

Session 4:

- Exception Handling
- Namespaces
- File Handling
- Classes for file stream operations,
- opening and closing a file
- detecting end of file, file modes
- file pointers and their manipulations
- Sequential input and output operations
- Random access
- File operations error handling
- Command line argument

Session 5:

- Class and Function Templates
- subclass templates
- passing template classes to template parameters

Session 6:

- Dynamic memory allocation
- Allocating a block of memory: MALLOC
- Allocating a Multiple blocks of memory: CALLOC
- Introduction of REALLOC, Free

Session 7:

- Introduction to algorithm
- Analysis of algorithm
- Space complexity of algorithm
- Time complexity of algorithm
- Lists (Stacks)
- Lists (queues)

Session 8:

- Lists (Singly, Doubly and Circular)

Session 9:

- Searching (Sequential & Binary)
- Analysis of sorting & searching algorithms

Session 10:

- Sorting (Selection, Insertion, Bubble sort)
- Sorting (Merge, Heap & Quick)

Lab Assignments:

1. Write a program which accept two numbers and print their sum.
2. Write a program which accept principle, rate and time from user and print the simple interest.
3. Write a program to check whether the given number is even or odd (using ? : ternary operator)
4. Write a Student class and use it in your program. Store the data of ten students and display the sorted data according to their roll numbers, date of births, and total marks.
5. Write the definition for a class called **time** that has hours and minutes as integer. The class has the following member functions:
   void settime(int, int) to set the specified value in object void showtime() to display time object time sum(time) to sum two time object and return time.

a. Write the definitions for each of the above member functions.
b. Write main function to create three time objects. Set the value in two objects and call sum() to calculate sum and assign it in third object. Display all time objects.

6. Write a program using basic concept of objects and classes to check whether given number is prime or not.
7. Using virtual and pure virtual functions implement hierarchy of computer printers.
8. Design a hierarchy of computer printers. Use multiple inheritances in your hierarchy. Also use friend functions and classes in your program.
9. Write Date and Time classes that allows you to add, subtract, read and print simple dates in dd/mm/yyyy and time in hh:mm:ss forms. Use function overloading in your program.
10. Write programs to overload =, ==, +, ++, --, <<, >> and [ ] operators
11. Write a template class for sorting method. Using this class, write a test program for sorting using different data types. Also implement exception handling.
12. Create a text file using any simple editor. Write a program that will reverse each line in the input file and store it in another file.
13. Create a C++ class named Grade that has the same functionality as the old struct Grade and associated functions in the original C file. When you are finished, your C++ file should only have one function definition outside of the class: main().
14. Write a menu driven program in C++, which consist followings:
    - To read and display the transpose of MxN matrix
    - To sum of two MxN matrix
    - To product of two MxN matrix
15. Write a C++ Program to construct a stack of integers and to perform the following Operations on it.
    - push
    - pop
    - display

    The program should print appropriate messages for stack overflow, stack underflow and stack empty.
16. Write a single C++ program to perform each of the following:
    - Create a queue of N elements
    - Reverse the queue so that last element becomes first & so on
17. Using pointers write your own functions for the following;
    - String comparison
    - String concatenate
    - String copy
    - String length.

    Note: Do not include <string.h> in your program
18. Write a program to cyclically permute a string one character at a time.
    E.g.: If space is the input the output should produce
    - space
    - paces
    - acesp
    - cespa
    - espac
19. Define a structure called cricket that will describe the following information

- Player name
- Team name
- Batting average

Using cricket, declare an array player with 10 elements and write a program to read the information about all the 10 players and print a team wise list containing names of players with their batting average.

20. Write a preprocessor directive to accomplish each of the following:
    - Define symbolic constant YES to have the value 1.
    - Define symbolic constant NO to have the value 0.
    - Include the header file common.h The header is found in the same directory as the file being compiled.
    - Renumber the remaining line in the file beginning with line number 3000.
    - If symbolic constant TRUE is defined, undefined it and redefine it as1. Do not use #ifdef preprocessor directive.
    - If symbolic constant TRUE is defined, undefined it and redefine it as 1. Use #ifdef preprocessor directive.
21. Write a C++ program to maintain a singly linked list having the following functions:
    - Creation of the list
    - Displaying the list.
    - Delete a node from given location.
22. Write a C++ program to maintain a doubly linked list having the following functions:
    - Creation of the list.
    - Displaying the list by traversing from both ends.
    - Counting the number of nodes in the list.
23. Given an array of sorted list of integer numbers, write a function to search for a particular item using the method of binary search. And also show how this function may be used in a program. Use pointers and pointer arithmetic

Database Technology

Theory 10 hours + Lab 10 hours

Session 1:

- Introduction to DBMS – What is DBMS, Its need
- Areas where DBMS are used
- Types of DBMS: Introduction to Hierarchical Model, Network and Relational Models
- Data models (conceptual physical and logical)
- Data Integrity & integrity rules

Session 2:

- Introduction to Oracle
- SQL* Plus
- DDL Commands
- DML & DCL Commands
- Inbuilt Functions
- Grouping Things Together (Group By, Having Clause)
- Advance Subqueries (Correlated Sub query, Outer Joins)

Session 3:

- Set Operators (UNION, UNION ALL, INTERSECT, MINUS)
- Types of Views
- Creating Complex View
- Using Temporary Tables

Session 4:

- Introduction to PL/SQL
- PL/SQL Programming style
- PL/SQL Program blocks
- Cursors

Session 5:

- Procedures & Functions
- Triggers

Lab Assignments:

1. Write a program that computes the perimeter and the area of a rectangle. Define your own values for the length and width. (Assuming that L and W are the length and width of the rectangle, Perimeter = 2*(L+W) and Area = L*W. Display the output on the screen using dbms_output.put_line.
2. Write a program that declares an integer variable called num, assigns a value to it, and computes and inserts into the tempp table the value of the variable itself, its square, and its cube.
3. Convert a temperature in Fahrenheit (F) to its equivalent in Celsius (C) and vice versa. The required formulae are:-
   C= (F-32)*5/9
   F= 9/5*C + 32
   Display the output on the screen using dbms_output.put_line. Data has to be input by the user.
4. Convert a number of inches into yards, feet, and inches. For example, 124 inches equals 3 yards, 1 foot, and 4 inches. Display the output on the screen using dbms_output.put_line. Data has to be input by the user.
5. Write a program that enables a user to input an integer. The program should then state whether the integer is evenly divisible by 5. (Use decode instead of IF statement where required). Display the output on the screen using dbms_output.put_line. Data has to be input by the user.
6. Your block should read in two real numbers and tell whether the product of the two numbers is equal to or greater than 100. Display the output on the screen using dbms_output.put_line. (Use decode instead of IF statement where required). Data has to be input by the user.
7. In a PL*SQL block, create a datatype by the name of addr_type. It should contain the following components:-
   - name varchar2 (20)
   - street varchar2 (30)
   - city varchar2 (20)
   - state varchar2 (15)
8. Your block should accept the names and addresses of 4 employees in 4 different variables of datatype addr_type. Output the names and addresses of the 4 employees on the screen in the form of Labels as shown below:-
   ****
   * Name:- Jack ** Name:- Scott *

```
* Street:-     M.G. Road          **    Street:-     Bhosale Marg *
* City:- Mumbai                  **    City:-          Chennai      *
* State:-      Maharashtra        **    State:-      Tamil Nadu      *
************************************************************
************************************************************
* Name:-       King               **    Name:-       Adams           *
* Street:-     Lane No:-2         **    Street:-     P. M. Road      *
* City:- Nagpur                   **    City:-       Bangalore       *
* State:-      Maharashtra        **    State:-      Karnataka       *
************************************************************
```

9. Input a number and determine whether it is within a given range (for example, between 1 and 10). The low and high values of the range may be input by the user rather than be fixed by the program. Display the output on the screen using dbms_output.put_line.
10. Input three positive integers representing the sides of a triangle, and determine whether they form a valid triangle. Hint: In a triangle, the sum of any two sides must always be greater than the third side. Display the output on the screen using dbms_output.put_line.
11. Check if a given a year is a leap year. The condition is:-
    year should be (divisible by 4 and not divisible by 100) or (divisible by 4 and divisible by 400.) Display the output on the screen using dbms_output.put_line. The year should be input by the user.
12. Write a program that examines all the numbers from 1 to 999, displaying all those for which the sum of the cubes of the digits equal the number itself. Display the output on the screen using dbms_output.put_line.
13. Write a PL*SQL block that reads in a minimum and maximum value for a radius, along with an increment factor, and generates a series of radii by repeatedly adding the increment to the minimum until the maximum is reached. For each value of the radius, compute and display the circumference, area, and volume of the sphere. (Be sure to include both the maximum and the minimum values.). Validate each of the input values to be sure they are positive. If the minimum is typed in place of the maximum, swap the values within the program, and continue execution. Display the results on the screen using dbms_output.put_line.
14. A table consists of the following fields:-

Invoice Number	Varchar2	4
Invoice Date	Date	
Customer Code	Number	1
Product Code	Number	1
Quantity Sold	Number	3

    There are ten customers with codes 0 to 9 and five products with codes 0 to 4. The rates of products are Rs. 15, 35, 42, 51 and 60 respectively. Write a program to find the total purchase in Rs. of each customer and total sale of each product using this table and insert these values in two other tables.
15. Write a PL*SQL block to accept a character string from the user. The user should enter a number spelt out. With the help of PL*SQL arrays, write a program for Word to number conversion up to 99 crores. The program should cater to Rs. and paise also.
    For example, if the user enters:-
    Rs. Twelve crores, Thirty Four lakhs, Fifty One thousand, Two hundred and Fifty and Seventy five paise only

The output of your program should be: - 123451250.75
If the user enters:-
Rs. Nine thousand, Seven hundred and Twenty Eight only
The output of your program should be: - 9728

16. Create the following 3 tables and insert sample data as shown:-

Ord_mst

Ord_no	Cust_cd	Status
1	C1	P

Ord_dtl

Ord_no	Prod_cd	Qty
1	P1	100
1	P2	200

Prod_mst

Prod_cd	Prod_name	Qty_in_stock	Booked_qty
P1	Floppies	10000	1000
P2	Printers	5000	600
P3	Modems	3000	200

- Write a Before Insert trigger on Ord_dtl. Anytime a row is inserted in Ord_dtl, the Booked_qty in Prod_mst should be increased accordingly.
- Write a Before Delete trigger on Ord_dtl. Anytime a row is deleted from Ord_dtl, the Booked_qty in Prod_mst should be decreased accordingly.

17. Write a stored procedure by the name of Comp_intr to calculate the amount of interest on a bank account that compounds interest yearly. The formula is:-

$$I = p\,(1+ r)^{y} – p$$

where:-

I is the total interest earned.
p is the principal.
r is the rate of interest as a decimal less than 1, and
y is the number of years the money is earning interest.

Your stored procedure should accept the values of *p*, *r* and *y* as parameters and insert the Interest and Total amount into tempp table.

18. Create a stored function by the name of Age_calc. Your stored function should accept the date of birth of a person as a parameter. The stored function should calculate the age of the person in years, months and days e.g. 35 years, 3 months, 17 days. The stored function should return the age in years directly (with the help of Return statement). The months and days are to be returned indirectly in the form of OUT parameters. Write a PL*SQL block to accept the date of birth of an employee from the user, call the stored function, and display the age of the employee on the screen. Display the above results on the screen using dbms_output.put_line.
19. Write a SELECT statement to display the experience of all the employees (Sysdate – Hiredate). Your output should be as follows:-

5 years 7 months 11 days
9 years 3 months 16 days etc

Don't assume that there are 365 days in a year or that there are 30 days in a month. Your solution should even take care of leap years.

20. Create a view of the Salespeople table called Commissions. This view will include only the snum and comm fields. Through this view, someone could enter or change commissions, but only to values between .10 and .20.

21. Some SQL implementations have a built-in constant representing the current date, sometimes called “CURDATE” or “SYSDATE”. The word CURDATE can therefore be used in a SQL statement, and be replaced by the current date when the value is accessed by commands such as Select or Insert. We will use a view of the Orders table called Entryorders to insert rows into the Orders table. Create the Orders table, so that CURDATE is automatically inserted for odate if no value is given. Then create the Entryorders view so that no values can be given.
22. Write a command that will enable a user to pull orders grouped by date out of the Orders table quickly.
23. Write a command that puts the following values, in their given order, into the salespeople table: city – San Jose, name – Blanco, comm – NULL, cnum – 1100.
24. Write a command that removes all orders from customer Clemens from the Orders table.

VB.NET as Front–End

Theory 28 hours + Lab 26 hours

Session 1:

- Introduction to .Net Framework
- Discussion on VB.NET
- Essential Visual Basic. NET
- Event driven programming
- The Visual Basic Language:
- Data Types, Operators, Conditionals and Loops

Session 2:

- The Visual Basic Language:
- Basic User Interface and control names
- Procedures,
- Modules and Scope

Session 3 & 4:

- Form object
- Windows Forms: Text Boxes, Rich Text Boxes, Labels, and Link Labels, Buttons, Check-boxes, Radio Buttons, Panels and Group Boxes, List Boxes, Checked List Boxes , Combo Boxes, and Picture Boxes, Scroll Bars, Sp-liters, Track Bars, Pickers, Notify Icons, Tool Tips, and Timers, menus, Built-in Dialog Boxes, and printing, Image Lists, Tree and List Views, Tool bars, Status and Progress Bars, and Tab Controls

Session 5 & 6:

- VB.Net Objects and Methods
- Exception Handling
- User interface design (MDI & SDI Models)
- Dates, Strings, Array, Collections
- Structures

Session 7 & 8:

- Object-Oriented Programming Concepts
- Classes Inheritance
- Polymorphism
- Class Libraries Interfaces & Abstract Classes
- File Handling

Session 9:
- Delegates and Events
- Intrinsic controls in VB .NET
- Common controls in VB

Session 10 & 11:
- .NET Assembles
- Web Forms: Buttons, Text Boxes, Labels, Literals, and Place Holders Check boxes, Radio Buttons, Tables and Panels
- Images Buttons, List Boxes, Drop-down Lists, Hyper links and Link Buttons
- Validation Controls, Calendars
- Web form: HTML Controls

Session 12 & 13:
- Working with Databases
- Data Access with ADO. NET
- Binding Controls to Databases
- Handing Database in Code
- Database Access in Web Applications
- Creating User Controls, Web User Controls and Multi threading
- Creating Windows Services and Deploying Applications

Session 14:
- Web Services, Caching Techniques and Web Application Deployment
- Security In .NET

Lab Assignments:
1. Write a simple VB.NET program, like hello world.
2. Write a program in VB.NET to generate prime numbers between 1 and 1000.
3. Write a VB.NET program to calculate the Simple interest by taking input as console.
4. Write a VB.NET program an illustrate the iteration Statement all
5. Write a VB.NET program for control Statements implement all the possible ways?
6. Implement the Matrix
   - Addition
   - Subtraction
   - Multiplication
7. Implement the constant keyword and find the area of Circle.
8. Implement all the operators in the single program.
9. Write the VB.NET program for static class in implementation of Currency Conversion
   a. India Rupees to USA Dollar and Vice versa also
   b. Indian Rupees to Myanmar Kyats and Vice versa also

c. India Rupees to UK Pound and Vice versa also

10. Implement looping statement for showing the Student Attendance calculation
11. Write a VB.NET program to implement the addition and subtraction of Complex number
12. Write a VB.NET program to implement the Multiplication of Complex number
13. Write the VB.NET program to implement the all unary operator
14. Show the minimum value and maximum values for the data types
15. Implantation of Enumeration application for the Months and Display the names who burn in the particular month
16. Implementation of Structures display the student information
17. Implement through a program to show the Nested classes
18. Display the student information using Encapsulation concept
19. Display the Employee Details using indexer
20. Display the Library information by using the inheritance concept
21. Write the VB.NET program to implement the interface concept
22. Write a VB.NET program to implement the Abstract class and methods, show the student information
23. Write a VB.NET program to implement the Method Overloading concept
24. Create a Simple application in VB.NET in which use all web and server control with all validation.
25. Create a Simple application in VB.NET in which use Master Page
26. Create a Simple application in VB.NET in which use Theme and skin
27. Create a Simple application in VB.NET in which use CSS file
28. Create a Simple application in VB.NET in which we use all following Authentication
    - Windows Authentication
    - Passport Authentication
    - Form Based Authentication

Management Development Program

Theory 30 hours + Practice 30 hours

Session 1:

- Introduction to communication
- Barriers to communication, Kind of communication,
- Confidence building Non-verbal Communication

Session 2:

- Fluency and vocabulary
- Synonyms
- Antonyms
- Grammar, Noun Pronoun,
- Verb, Adjective, Preposition, Conjunction

Session 3:

- Words of Idioms & phrases
- Sentence Construction
  Pronunciation,

Session 4:

Greeting,
Conversation practice,

Polite Conversation,

Session 5:

Resume Writing,
Covering letter,
Email,

Session 6:

Presentation Skill,
What is group discussion?
Interview skills, Mock interview

Session 7:

- Analogy, Series Completion (Number, Alphabet, Letter Series)
- Coding-Decoding for Number
- Alphabet and Letter
- Blood Relations

Session 8:

- Puzzle Test: Classification Type questions
- Compression Type questions
- Sequential order questions
- Section based on given conditions
- Questions involving family members

Session 9:

- Alphabet test
- Order of words
- Letter words problems
- Rule detection
- Alphabetical quibble
- Word formation
- Number
- Ranking
- Time Sequence Test
- Mathematical operations
- Logical sequence of words

Session 10:

- Arithmetic reasoning
- Logical reasoning
- Statement-Arguments
- Statement-Assumptions
- Statement-courses of Action
- Statement-Conclusions
- Deriving conclusion from passages

Session 11:

- General Aptitude
- Addition
- Multiplication
- Divisibility
- Squaring
- Cube
- HCF and LCM
- Fraction

Session 12:

- Number system
- Permutation & combination
- Probability
- Ratio & Preparation

Session 13:

- Partnership
- Percentage
- Average
- Problem on Ages
- Profit and loss

Session 14:

- Simple Interest
- Compound Interest
- Time and work
- Work and Wages

Session 15:

- Trains
- Streams Pronoun
- Alligation
- Clock
- Pipes and cisterns

Lab Practice:

- Faculty needs to conduct GD, presentation for speaking, conducting mock interviews etc.
- Faculty needs to conduct tests, Surprise tests, assignments etc.

7. List of Reference Books

Name of the Module	Title of the Book	Author/Publication	Edition	ISBN
Fundamentals of Computer & OS Concepts	Fundamentals of Computers	V. Rajaraman / PHI	5th Edition	9788120340114
	Computer Fundamentals (With CD)	Pradeep Sinha, Priti Sinha / BPB	6th Edition	9788176567527
	Operating System Concepts	Silberschatz Galvin Gagne / Wiley	8th	9788126520510
Advanced MS Office with Access	Microsoft Office 2013 Bible: The Comprehensive Tutorial Resource	L. A. Bucki, J Walkenbach, M Alexander, F Wempen, D Kusleika / Wiley	1st	9788126543625
	Microsoft Office 2013: All-in-One for Dummies	Peter Weverka / Wiley	2013	9788126541751
	KB (WIN7 ED.) 7 : Windows 7 and MS Office 2007 with MS Office 2010 updates	Alka Shabharwal / Oxford University Press	2nd	9780198081524
	MOS 2010 Study Guide For Microsoft Word Excel Powerpoint & Outlook	Joan Lambert, Joyce Cox / PHI Learning	2011 Printing	9788120344556
C Programming	The C programming Language	Kernighan, Retchie / PHI Learning	2nd Edition	9788120305960
	Programming in ANSI C	E. Balaguruswamy / Tata Mc-Graw Hill Publishing	6th Edition	9781259004612
	Let Us C	Yashavant Kanetkar / BPB Publication	13th Edition	9788183331630
Software Development Life Cycle	Fundamentals of Software Engineering	Rajib Mall / PHI Learning	3rd Edition	9788120338197
	Software Engineering: A Practitioner's Approach	Roger S. Pressman / Tata McGraw – Hill Publication	7th Edition	9780071267823
	Software Engineering	Ian Sommerville / Pearson Publication	9th Edition	9788131762165
	Software Engineering: A Precise Approach	Pankaj Jalote / Wiley Publication	2010 Printing	9788126523115
Objected Oriented Programming Concepts Using C++ and Data Structures	Thinking in C++ : Introduction to Standard C++ Vol - 1	Bruce Eckel / Pearson	2nd Edition	9788131706619
	Object-oriented Programming Using	Dehuri Satchidananda,	1st Edition	9788120330856

	C++	Jagadev Alok Kumar, Rath Amiya Kumar / PHI Learning		
	Object - Oriented Programming Using C++	Gopalan N. P., Sivaselvan B., Mala C / PHI Learning Private Limited	1st Edition	9788120339231
	Data Structures through C++	ISRD Group/Tata McGraw - Hill Education	1st Edition	9780071072779
	Fundamentals of Computer Algorithms	Sartaj Sahni, Sanguthevar Rajasekaran, Ellis Horowitz / Universities Press	2nd Edition	9788173716126
Database Technology	Oracle Database 11g The Complete Reference	Kevin Loney / Tata McGraw - Hill Education	1st Edition	0070140790
	Mastering Database Technologies	Ivan Bayross / BPB Publication	2005 Edition	9788183331302
	Database Management Systems	Raghu Ramakrishnan, Johannes Gehrke / Tata McGraw – Hill	3rd Edition	9780071231510
VB.NET as Front–End	VB .NET Made Simple: Programs and Project (With CD)	Soma Dasgupta / BPB Publications	2012 Printing	9788183334792
	Visual Basic .NET Programming: Black Book (With CD)	Steven Holzner / Wiley	1st	9788177226096
	Beginning ASP.NET 4.5 In C# and VB	Imar Spaanjaars / Wiley	2012 Printing	9788126539130
	ASP.Net 4.5 Covers C# and VB Codes: Black Book	Kogent Learning Solutions Inc. / Dreamtech Press	2013 Printing	9789351190806
Management Development Program	High School English Grammar & Composition Revised Edition	Wren, Martin / S. Chand Publisher	2011 Edition	9788121900096
	Communication Skills Publication Year 2011	Sanjay Kumar, Pushp Lata / Oxford University Press	2011 Edition	9780198069324
	Professional Communication Skills	Praveen S R Bhatia / S.Chand Publishing	2011 Edition	9788121920926
	Quantitative Aptitude For Competitive Examinations	R. S. Aggarwal / S. Chand Publishing	17th Edition	9788121924986

	A Modern Approach To Verbal & Non-Verbal Reasoning	R. S. Aggarwal / S.Chand Publishing	Year 2012 Edition	9788121905510
	How to Prepare for GD and Interview (With CD)	Hari Mohan Prasad, Rajnish Mohan/TMH	3rd Edition	9780070706347

8. Evaluation Guidelines

8.1 Evaluation

Evaluation is a necessary and essential part of conducting the Certificate Course in Business Computing programme, as it provides important feedback and inputs to both the institute as well as the student. The institute gets an idea about the relative performance of each student, which also serves as feedback about the design and conduct of the programme. The student gets a clear picture of his academic standing, individually and in comparison to his fellow students.

In order to ensure timely and efficient evaluation and certification of all students, the following guidelines are being issued and should be followed religiously.

8.2 Evaluation Methodology

8.2.1 Each centre should have a Designated Responsible Member (DRM) for Evaluation.

8.2.2 The DRM Evaluation would be responsible for coordinating all activities relating to evaluation at the training centre and for communicating with CDAC ACTS, Pune.

8.2.3 Evaluation is a compulsory part of the process of obtaining Certificate Course in Business Computing. All students are required to pass in each subject of the course in order to be eligible to receive the C-DAC Certificate.

8.2.4 The faculty of every subject should outline the objectives of the evaluation to be conducted for that particular subject, so as to enable the student to prepare himself/ herself properly.

8.2.5 The performance of students is constantly evaluated through surprise quizzes, hourly examinations, assignments throughout the term, submission of term reports, presentations and final examinations at the end of the course.

8.2.6 Mode of exams will be in online / offline, but prior information will be given by C-DAC, ACTS about the mode of the exam and it will be final.

8.3 EVALUATION METHODS

8.3.1 Course End Evaluation

After completion of the all subjects, a written examination CEE (Course End Examination) will be held, which will test the knowledge of the students of each subject and it is a compulsory part of the evaluation. Conducting CEE involves performing duty with responsibility. A small mistake in the process may hamper the whole system. Everyone has to play their role in an effective manner. It is a joint effort work which has to be carried out in a combined way. Right from receiving question paper from ACTS, C-DAC to sending the OMR answer sheet (in case of offline exam) and the response file (in case of online exam) for evaluation dealt with lot of responsibility.

ACTS, C-DAC in its pursuit of excellence, believes in providing a congenial atmosphere to the students during all exams in order to get them to perform at their optimum level. However, there are certain norms which the students are expected to be aware of and observe both in letter and spirit. These norms are:

3.1.1 Impersonation may lead to permanent expulsion from the Institute.

3.1.2 Cell phones are strictly prohibited in the exam hall/room.

3.1.3 Valid ID card is mandatory for entry to the exam room / hall.

3.1.4 Punctuality is most important at all times. Students are expected to check their exam location and be seated at least 10 minutes prior to the exam time.

3.1.5 In case of offline exam, as per ACTS, C-DAC policy all question papers are to be returned along with the answer script.
3.1.6 Students are required to bring their own stationary as no lending or borrowing is permitted during examination.
3.1.7 Programmable calculators or any other kind of electronic devices are strictly prohibited inside the exam area.
3.1.8 Indiscipline in the exam hall/ room will not be tolerated.
3.1.9 Possession of any written material related to the subject or communication with their fellow students, will result in disciplinary actions.
3.1.10 A student must score a minimum of 40 percent marks, in order to successfully clear the course.
3.1.11 It is recommended that the students should ensure 100% attendance for each course. 10% absences are permissible, only in case of illness, or emergencies. These have to be approved by the Centre Head. Approval is contingent upon the evidence provided.
3.1.12 There will be 150 questions to answer in 3 hours duration in CEE as per the following distribution mentioned in Table – 1.

Table – 1

Sl. No.	Module Name	Hours	No. of Questions
1	Fundamentals of Computer & OS Concepts	20	10
2	Advanced MS Office with Access	30	20
3	C Programming	30	15
4	Software Development Life Cycle	16	10
5	OOP with C++ with DS	40	20
6	Database Technology	30	15
7	VB.NET as Front–End	54	30
8	Management Development Program	60	30
9	Project	40	Grade
	Total	**320**	**150**

8.3.2 GENERAL GUIDELINES FOR AWARD OF GRADES:

The marks of obtained in the CCEE shall be calculated to get total marks out of 100. The rounding off shall be done on the higher side. The grades shall be awarded on the basis of cut off in the absolute marks, as mentioned in Table – 2.

Table 2

Lower range of marks	Grade	Upper range of marks
91	≤ A+ <	100
81	≤ A <	90
71	≤ B+ <	80
61	≤ B <	70
51	≤ C+ <	60
41	≤ C <	50
0	≤ F <	40

8.3.3 Guidelines of CEE:

CEE will be conducted normally before the commencement of Project work of the course. The written examination should be of 180 minutes duration. It should consist of objective questions. A typical objective type exam paper should contain the following types of questions: –

- Multiple choice
- Yes or No
- True or False

Objective questions are useful in testing the recognition and recall abilities of students. They also help in keeping the exam short and easier to evaluate.

For the pure objective type question papers, there will be 150 objective type questions with 4 maximum answer options having only one correct option. The value of each objective type question is of one mark only. There will not be any negative marks for the wrong answers given by the students.

8.3.4 Guidelines for setting Question Papers:

While setting the question papers for theory Exam the following weightages should be assigned as per the difficulty level of the questions.

Levels	Requirements	Weightage
Level A – Easy	Requires elementary knowledge which may be obtained by attending all lectures and completion of mandatory lab assignments	25%
Level B – Intermediate	Requires thorough study of all course material, attendance at all lectures and completion of mandatory assignments	50%
Level C – Difficult	Requires study and lab work beyond the prescribed course material and mandatory assignments	25%

8.4 Guidelines for generating questions:

8.4.1.1 Question paper setter has to use sample paper format provided by C-DAC, ACTS Pune

8.4.1.2 Mention the subject name without fail.

8.4.1.3 Language of the question should be easy to understand.

8.4.1.4 The answers must have relevant objective type choices and “only one” correct answer.

8.4.1.5 The questions must be prepared by referring appropriate books, reference books, reference material, and course material having good information.

8.4.1.6 The question must be created by the domain expert afresh and should not be copied directly from any book, website, existing previous question papers etc.

8.4.1.7 The question should be unique and should have not been published anywhere.

8.4.1.8 Please mention the source of the question wherever possible, as it may help us in referring the same for detailing if required.

8.4.1.9 The caliber of the question should suffice the growing need of competition.

8.4.1.10 The question paper should have questions covering the entire syllabus.

8.4.1.11 The questions have to be typed in MS Word with “Arial” having letter size 12 point. Do not bold any letter, word or sentence in any part of the question paper.

8.4.1.12 It is essential to give password to the word document and send/tell the password separately.

8.4.1.13 It is essential that utmost care is taken at your end to maintain the secrecy of the soft copy at all time.

8.4.1.14 An expert team will review all questions. The questions will be filtered as per following:

- If the question is incomplete
- If the answer of the question is wrong
- If the question is not there in the syllabus
- If the question appears more than once
- If the question is too lengthy
- If the question is irrelevant
- If the options to the questions are irrelevant

8.4.1 Template for generation of Questions

Date:

Question generated by: Mr. /Ms.

Subject Name:

Q. No.
Question: <Text of the question>

Answer Choices
A:
B:
C:
D:

Difficulty Level: Easy / Intermediate / Difficult

Reference: (Name of books)
(If question taken from book) (Mention name of the book, author, ISBN)
Total Number of Questions Generated: _____

8.4.2 Template for Answer Key:

Module name:	**<Name of the Module>**		
Question No.	**Answer Keys**	**Question No.**	**Answer Keys**
1		76	
2		77	
3		78	
4		79	
5		80	
6		81	
7		82	
8		83	
9		84	
10		85	

11		86	
12		87	
13		88	
14		89	
15		90	
16		91	
17		92	
18		93	
19		94	
20		95	
21		96	
22		97	
23		98	
24		99	
25		100	
26		101	
27		102	
28		103	
29		104	
30		105	
31		106	
32		107	
33		108	
34		109	
35		110	
36		111	
37		112	
38		113	
39		114	
40		115	
41		116	
42		117	
43		118	
44		119	
45		120	
46		121	
47		122	
48		123	
49		124	
50		125	
51		126	
52		127	
53		128	
54		129	
55		130	
56		131	
57		132	
58		133	
59		134	

60		135	
61		136	
62		137	
63		138	
64		139	
65		140	
66		141	
67		142	
68		143	
69		144	
70		145	
71		146	
72		147	
73		148	
74		149	
75		150	

8.4.3 Evaluation of answer papers:

For Offline mode: Use of OMR sheets will be useful for processing the result of multiple choice exams. OMR is an effective way to collect data, process for the result and also it takes less time with greater accuracy in less effort. Centres need to follow the best way for scanning the OMR sheets, process the result and publish the result. Centres which are not using OMR can user OCR to conduct the exams and evaluate the students. Centre which are not using OMR or OCR can evaluate the students manually and process the result.

For Online mode: Course end exam will be through online s/w. Evaluation will be through that Exam s/w.

If a student requests for re-evaluation then the student has to pay `150 /- and it should be routed through training centre. The Re-evaluation fee should be paid to respective C-DAC training Centres, in case of Authorized Training Centres associated to C-DAC, Pune, payment to be made in favour of "C-DAC, ACTS" and payable at Pune. (This is applicable only for theory exam)

8.5 Moderation:

Grace marks would be awarded as per the methodology below:

8.5.1. Maximum of 4% of total term end theory exam marks can be awarded to a candidate.

Sr. No.	Name of the course	Total Marks	Maximum grace marks
1	Certificate Course in Business Computing	150	6

On completion of the moderation exercise the revised marks should be updated in the marks database.

8.6 Re-examinations:

The following conditions will be applicable for the course end re-exam:

8.6.1. Students who do not appear for an exam on the scheduled date will not have an automatic right to re-examination. Only those students who, in the opinion of the

centre/course coordinator have a genuine reason for being absent may be allowed to appear for a re-exam.

8.6.2. Students who have failed an exam may be allowed to appear for a re-exam.

8.6.3. The re-exam should be conducted following the same process as the regular examination.

8.6.4. Students, who failed/remained absent in the Course End Examination conducted by C-DAC, shall be allowed to appear in the re-examination only once.

8.6.5. Students who remain absent or fail in the re-examination will not get any further chance for appearing for a third attempt or further. In such case the candidate can receive the Performance Statement and the certificate of participation without any grade.

8.6.6. On evaluation of their answer sheets 20% of the marks obtained by the students will be deducted (towards de-rating for re-examination) for arriving at the final score, i.e. in order to clear the module test the student has to score a minimum of 50% marks instead of 40%.

8.7 Project Module:

8.7.1. Project work should be start at the time of Software Engg. Module and database design should be complete at the time of Database Technology Module.

8.7.2. After that students should be ready with all mandatory documents with database design and then completion of all teaching modules they can do the project.

8.7.3. Performance in the Project module will be awarded in grade. The Project grade will be mentioned separately on the certificate & will have no effect on the overall grade obtained by a student.

8.7.4. Students may do industry-sponsored projects, but will be required to do the project work within the centre.

8.7.5. Evaluation of the Project module will take place as following:

8.7.5.1. Internal evaluation will be take place at mid of the module

8.7.5.2. External evaluation will take place at the end of the module

Based on both evaluations, final grade will be awarded & communicated to C-DAC ACTS, Pune

8.7.6. **Guidelines for Project Evaluation**

Evaluation of Project work needs to be carried out as per the following guidelines:

a. Literature study.
b. Submission of abstract for their colloquium/seminar/project work along with the references.
c. Submission of the detailed work report
d. Two presentations each for 15 minutes on the work done restricted to 15 – 20 slides followed by evaluation.
e. The evaluation for 100 marks will be splited up as follows:
   i. Literature survey – 10
   ii. Contents of the project work – 20
   iii. Contents Flow of Presentation – 15
   iv. Communication and Presentation Skills – 20
   v. Depth of Knowledge in the topic – 15
   vi. Viva Voce – 15
   vii. Attendance – 5
f. Soft copy of the presentation should be submitted to C-DAC.

8.8 Ensuring Security of Evaluation data/records:

8.8.1. Ensure that all data relating to evaluation of students is stored in a secure place that cannot be accessed by unauthorized personnel.

8.8.2. All question papers must be prepared and stored in a separate area specifically designated for the purpose.

8.8.3. Whenever any external faculty sets a question paper, ensures that he should follows the guidelines given by C-DAC ACTS Pune.

8.8.4. Ensure that only one copy of any question paper is prepared in physical (printed) form for review and revision.

8.8.5. When the question paper is finalized, print out one master copy and gets it signed by the paper setter, Reviewer and DRM Evaluation.

8.8.6. Prepare required number of photocopies of the question paper and store them in a safe and secure location before the exam.

8.8.7. The data relating to evaluation of students, such as soft copies of question papers and answer keys, student marks database and performance statements etc. must be kept in a separate domain/directory which is accessible only to authorized personnel. Ensure that the data is regularly backed up.

8.8.8. The question papers for the theory as well as the laboratory examinations at all the centres will be set by CDAC, ACTS Pune. The centres according to guidelines provided by C-DAC, ACTS Pune, will conduct the evaluation of the laboratory and assignments locally.

Note: The Evaluation Guidelines, Rules and Regulations issued by C-DAC, ACTS – Pune from time to time shall be binding on all the centers and all the students. C-DAC, ACTS, Pune reserves the right to add, modifies or deletes any or entire contents of this document at any point of time without giving any notice. It's the responsibility of the centre coordinator to inform such changes to the students in form of a formal notice with a duly signed copy to C-DAC, ACTS, Pune.

9. Requirements (S/W and H/W)

Computing Facilities for C-DAC Certificate Course in Business Computing	
A. Servers	
1. Unix / Linux / Server	
2. Windows 2008	
3. Application / Dummy Servers Configured for various modules	
Severs Configuration	
1. Processor (min 3.2 Ghz)	
2. RAM (min 8 GB)	
3 HDD (min 500 GB)	
4. Network Card	
5. AGP Card with 4/8 MB VRAM	
6. 2 Serial ports, 1 parallel port, 104 Keys Keyboard.	
7. DVD RW Drive	
B. Clients Machines Configuration	
1. Processor (Min 3.2 GHz)	
2. RAM (Min 4 GB)	
3. HDD IDE / EIDE (min 250 GB)	
4. AGP-64 bit Card with 8 MB / 4MB VRAM	
5. PCI Network Card 10/100 Base T, UTP Ethernet	
6. Multimedia Kit	
C. Network	
1. 10/100 Base T UTP Hub(s)	
2. UTP CAT-5 Cabling with RJ-45 connectors	
3. UTP Patch Cables	
D. Communication and Internet	
1 Internet Access	
2. ISDN Connectivity	
3. Modem 512 KBPS	
E. Printers	
1. Laser Printer	
F. Additional Lab Equipments	
1. Amplified Speakers, Headphones & Mikes	
2. Hi-Lumen OHP	
3. Video Projector (XGA / SVGA Compatible)	
4. TWAIN Compliant Color Scanner	
G. Module Specific Software Environments, Operating Systems and Hardware	
Fundamentals of Computer & OS Concepts	Open Suse 13.1 / Windows 7
Advanced MS Office with Access	MS Office 2010 (Per user license)
C Programming	gcc 4.9.0 compiler
Software Development Life Cycle	MS Project 2007
OOP with C++ with DS	gcc 4.9.0 compiler
Database Technology	Oracle 11g
VB.NET as Front–End	MS Visual Studio 2013 (Per user license)