# Free University of Bolzano Bozen

# School of Economics and Management

# Computer Science and Information Processing exam

# prof. Paolo Coletti – 31 August 2009 – updated

## Rules

* + No communication with other people or among students is allowed. Phones and every other means of communication must be turned off. Opening any communication program on the computer is not allowed and is considered cheating.
  + Opening the Basic Computer course book or simply having it on your disk space is not allowed and is considered cheating.
  + You are responsible for the correct copy of your files.

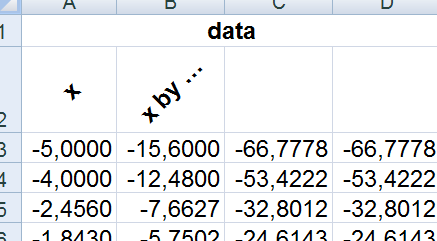
Enter Windows with your login. You have 1 hour starting from now.

Copy all the files in **\\ubz01fst\courses\exam\_coletti\YOURNAME** on your Desktop. At the end of each exercise copy here only the files you are required to return.

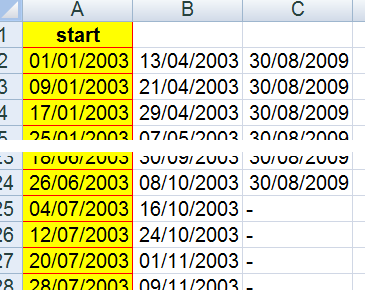
## Exercise File handling

* Build directory **exam1** on your desktop
* Download from http://www.paolocoletti.it/test   
  files **test.gif**, **test.pdf** and **test.xls** and save them in directory exam1;
* duplicate directory exam1 with all its content calling it **exam2;**
* compress directory exam2 with all its content as **exam2.zip** and remove directory exam2;
* return directory **exam1** and file **exam2.zip**.

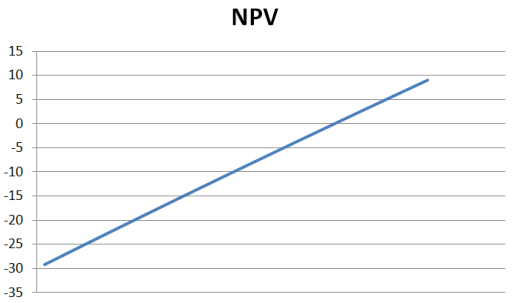
## Exercise Excel

Open file **lab.xlsx** with Excel 2007.

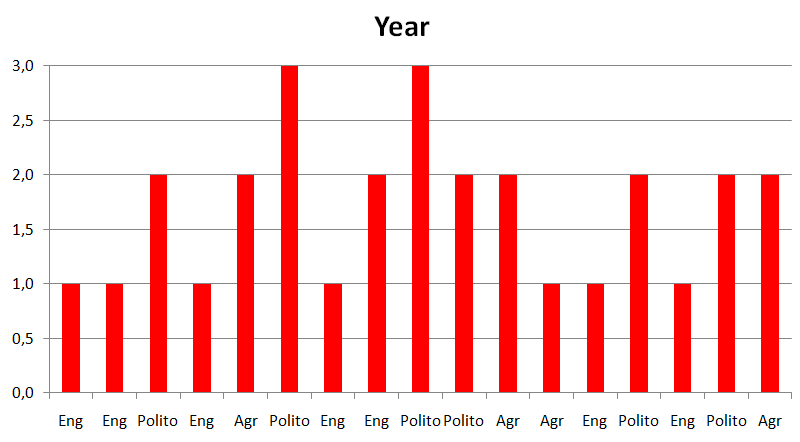
In sheet **Sheet1**

* change the format of column A to date, ~~with yellow background and a red border for every cell;~~
* in column B build a date corresponding to column A plus 3 months and 12 days;
* in column C build a date corresponding to automatically yesterday if the month of column A is before June and a dash otherwise;
* in each cell of column H build the net present value for an investment which uses the corresponding rate in column G, the dates in column A and the cash flows in column E;
* using an entire new sheet build the NPV by rate graph without legend and without horizontal labels;
* produce file **lab.pdf** with the first 5 lines of Sheet1 with gridlines, a centered header with your name, landscape and centered in the page.

In sheet **Sheet5**

* build a column B equal to column A multiplied for value A1 in Sheet6;
* in row 26 insert the two averages of column A and B values;
* in columns C and D insert, using appropriate partial absolute references, the values of columns A and B divided by their respective averages;
* ~~insert a new row 1 with text “data” which spans column A to D;~~
* ~~put row 2 titles diagonally and centered~~.

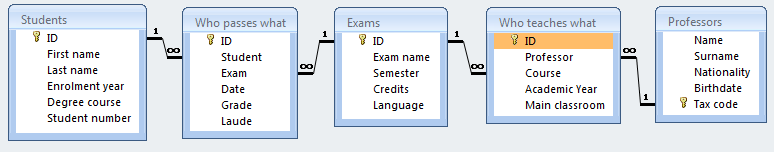
In sheet **First**

* freeze the first two rows;
* using Year and Course build this column plot with horizontal axis’ labels written horizontally, vertical axis with 1 decimal digits and a maximum of 3 and with red bars.
* In a new sheet **Sheet2** import data from tab delimited file tab.txt.
* ~~In sheet Sheet6 write the price to pay on 1/1/2010 to get 5% from a BTP with coupon 4% and expiration 31/7/2014.~~

Return the files **lab.pdf** and **lab.xlsx**.

## Exercise Access

Open database **studentsandexams2.accdb** and



* build a table validation rule to ensure that only students with grade 30 may have a laude;
* build query **query2** which calculates for each student his average grade (do not keep into account the fact that exams may have different credits);
* build query **query3** which asks for a semester and displays the courses held in that semester with their professor.

Return file **studentsandexams2.accdb**.

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You have 40 minutes starting from now.

## Exercise Theoretical questions

For each sentence, check either the TRUE or the FALSE box.

## This program is a mailreader ~~TRUE FALSE Windows Vista Home TRUE FALSE Eudora~~ TRUE FALSE Microsoft Outlook TRUE FALSE Notepad TRUE FALSE Mozilla Thunderbird

**Freeware software:**

TRUE  FALSE  may be very expensive

TRUE  FALSE  stops working after some time if you do not pay a small fee

TRUE  FALSE  is illegal  
TRUE  FALSE  is always open source

**~~A PSTN home connection’s maximum speed is~~**~~TRUE  FALSE  56 Kbps  
TRUE  FALSE  128 Kbps  
TRUE  FALSE  640 Kbps~~

~~TRUE  FALSE  PSTN connection is faster than ADSL  
TRUE  FALSE  ISDN connection is faster than ADSL  
TRUE  FALSE  ISDN connection is the fastest you may have using a home telephone  
TRUE  FALSE  GPRS connection is used only on cellular phones  
TRUE  FALSE  GPRS connection is usually faster than ADSL connection  
TRUE  FALSE  GPRS connection is faster than T3 connection  
TRUE  FALSE  GPRS connection can reach 7 Mbps~~TRUE  FALSE  UMTS connection can reach 7 Mbps  
TRUE  FALSE  A wireless network is, practically, faster than an Ethernet network  
  
**~~This is a mail communication protocol~~**~~TRUE  FALSE  POP3  
TRUE  FALSE  FTP  
TRUE  FALSE  DSL  
TRUE  FALSE  SMTP~~

**~~This IP number is valid~~**~~TRUE  FALSE  0.0.0.1.0  
TRUE  FALSE  127.0.0.1  
TRUE  FALSE  258.34.54.3.56  
TRUE  FALSE  258.34.54.56~~

**A firewall usually**TRUE  FALSE  protects the network from outside attacks  
TRUE  FALSE  checks every incoming data  
TRUE  FALSE  scans files for viruses  
TRUE  FALSE  scans email attachments for viruses

**A good place to backup your hard disk data are**TRUE  FALSE  another directory of the same hard disk  
TRUE  FALSE  another hard disk  
TRUE  FALSE  floppy disks  
TRUE  FALSE  rewritable CDs and DVDs  
TRUE  FALSE  send everything via email to your free email address

**This behaviour helps a lot to prevent virus infections**TRUE  FALSE  have an updated antivirus always running  
TRUE  FALSE  scan suspect files with an updated antivirus  
TRUE  FALSE  never connect to the Internet  
TRUE  FALSE  have a webserver running  
TRUE  FALSE  scan periodically the whole hard disk with an updated antivirus  
TRUE  FALSE  compress every old directory  
TRUE  FALSE  delete unused files  
TRUE  FALSE  change files permissions

**Phishing is:**

TRUE  FALSE  a virus

TRUE  FALSE  a mailreader program

TRUE  FALSE  a technique to steal passwords through email

# Write your name here: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# Your signature here: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## Exercise Relational databases

Draw the architecture of this database, using at least (more if necessary): 3 tables, a junction table, 5 fields per table. Try to make the database as complete as possible, keeping it simple and not contorted. You must indicate very clearly field names, field types (numeric, text, memo, date, yes/no), primary keys, relations with their “1” and “many” sides and the fields involved in the relations, required fields. For all the fields whose name is not obvious, you must also include a small comment that lets everybody understand what the field should contain. You must also justify non standard choices.

Moreover, suggest a new query which involves at least two tables and suggest another new query which needs a summary query to be implemented.

**Animal shop**: this temporal database handles data on each single animal, its daily food and the buyer. Each animal eats more than one type of food and can have only one buyer. The database should be able to answer to the question “how much corn per day do animals currently present in shop eat?”.