

**ÉRETTSÉGI VIZSGA • 2010. október 22.**

**INFORMATIKA  
ANGOL NYELVEN**

**KÖZÉPSZINTŰ  
GYAKORLATI VIZSGA**

**2010. október 22. 8:00**

A gyakorlati vizsga időtartama: 180 perc

Beadott dokumentumok	
Piszkozati pótlapok száma	
Beadott fájlok száma	

A beadott fájlok neve

**NEMZETI ERŐFORRÁS  
MINISZTERIUM**

## Important information

You have **180 minutes** to solve the practical exercises.

**Devices allowed** for the exam: computer assigned to the student, paper, pen, pencil, ruler, sealed notepaper.

You can take **notes** on the internal sides of the exercise sheet and the notepaper, these should be submitted at the end of the exam but their content will not be evaluated.

The exercises **can be solved in any order**.

Please pay attention to **frequent saving** (every 10 minutes); it is suggested that you save your work every time you start a new exercise.

You should save your exam work in the **exam directory** that **corresponds with your name**. Check that this directory is accessible; if it is not accessible, notify the supervising teacher at the beginning of the exam.

**Save** your works **in the exam directory** and at the end of the exam **check** that every solution is in the given directory because only those solutions can be evaluated. Check that the files to be submitted are readable because files that can not be opened can not be evaluated.

The **source files** can be found in the exam directory.

It is suggested that you **read through** the exercises first, then solve the individual exercises one by one.

If your computer has **technical problems**, indicate it to the supervising teacher. The fact of indication and the observed problem will be recorded. The lost time will be added to the duration of the exam. If the problem is not of computer nature, the examiner should take the description of the case in the record into consideration. (The system administrator can not help the candidate with the solution of the exercises.)

At the end of the exam you should indicate **the number and name of files created and submitted by you and located in the exam directory and its subdirectories** on the first page of the exam document. When finishing the exam, do not leave the room until you have done so and have shown it to the supervising teacher.

## 1. Szigetvár

An acquaintance of yours has to prepare a home essay about Szigetvár using a word processor. The essay should be submitted both in printed and in electronic form. The person printed out the final version, but he/she did not save the document in the correct format, so the electronic version has to be created again. Create the home essay using the source according to the following instructions and the example.

Use the following files for your solution: text file *sziget.txt*, which is UTF-8 encoded, and pictures *szigetvar.jpg*, *zrinyi.jpg* and *bullet.png*.

1. Import the text from file *sziget.txt* into a document. Save the document in the default format of the word processor as *szigetvar*.
2. Because of the incorrect saving mentioned in the introduction several text input errors (indent through spaces, empty paragraphs) can be found in the text. Correct these. The kindred of Zrínyi is also incorrect in the source, it contains Subic but correctly it is Šubić. Correct it as well.
3. Set the page size to A4, the top and bottom margins to 2 cm, the left and right margins to 2.5 cm.
4. The text of the header is shown in the example. The part with the page number and the number of pages should be in the centre of the page and the other two parts should be aligned to the correct margins. Set a sans-serif font type in the header according to the example.
5. With the exception of the header and the footnote use Times New Roman (Nimbus Roman) font type throughout the document. The applied font sizes should be 28, 16 and 11 points.
6. The title of the document is a two-line paragraph. Format the text according to the example.
7. The paragraphs of the text body should be formatted in the same way according to the example. You can make use of this in your solution. Highlight the quotation in the text according to the example.
8. Set the characteristics of the subtitles in the same way. Ensure that subtitle “***The memory of the siege***” appears on a new page for sure. Place the double-line border further from the text than the default value.
9. Place picture *szigetvar.jpg* on the first page into the place shown in the example. Set the width of the picture to half of the original maintaining the aspect ratio. Set a double-line border for the picture.
10. Place the data of the works into a suitably created table that is aligned centered. The width of the last column is 3 cm, the width of the other columns is 4 cm. The height of the rows is exactly 0.7 cm. Format the table and its contents according to the example.
11. Create the footnote for the title of the first work in the table. Copy the text of the footnote from the example. Use a sans-serif font type.

*This exercise continues on the next page.*

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12. Format the verses according to the example treating them as separate paragraphs. (Consider the ordinal numbers as parts of the paragraphs as well.)
13. Place picture *zrinyi.jpg* next to the excerpt from the poem according to the example. Decrease the height of the picture keeping the aspect ratio so that it becomes the same as the height of the excerpt. Set the border of the picture as of the previous one.
14. When creating the bulleted list, use picture *bullet.png* as bullet.

40 marks

**Example:**

Home essay
1/2
Educated Rita

## SZIGETVÁR

### 1566

After the collapse of the southern border fortress system (1521) the building of a new border fortress system started in the mid-1500s. Through the stretched work of the serfs of the neighbouring areas a new line of defence, a whole fortress system was created from baronian castles, castles, mansions, churches and cloisters, which stretched from the Adriatic Sea through Szigetvár, Kanizsa, Győr, Komárom, Érsekújvár, Eger, Szatmár, Várad and Temesvár to the lower Danube and surrounded the areas that had fallen under Turkish rule. From the birth of the new border fortress system mostly position warfare characterised by fortress fights dominated in the battle against the Turks.

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### The fortress of Szigetvár

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The defence of the fortress of Szigetvár was taken over by Miklós Zrínyi in 1567. The fortress was fortified with the help of the War Council of Vienna and unfortunately he started the construction of the New City (1564–1565) despite the strength of the fortress being more favourable due to natural barriers without the New City. In 1566 Szigetvár consisted of three parts: the outer, the middle and the inner fortresses and the Old City, the New City and the Fortress. Ditches run around all three parts, which were connected by bridges. The fortress was fortified with five bastions. The 4 to 5-m, at some places 7-m wide fortress walls were built by ramming soil between clamped oak beams. The belfries and the houses of the defending soldiers were built of bricks. The War Council of Vienna set the number of soldiers to 3000 – without the New City –, as Zrínyi informs us in his letter dated 21 March 1566, in which he urges the augmenting of the military staff to 6000.

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### The siege of 1566

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In his campaign of 1566 Sultan Suleiman set siege on Szigetvár, which was led by Zrínyi, on 9 August. For a long time the Turks tried in vain to take the fortress through force or make Zrínyi abandon the fortress through promises, their attempts were unsuccessful.

However, the long-lasting drought dried out the swamps and ditches that defended the fortress and the captain realised that he could not hold the New City. He moved the food and weapons stored there into the fortress and retreated in a planned way, thus avoiding the unnecessary loss of soldiers. The 300 soldiers who fall in the New City were followed into heroic death by another 1200 soldiers, who fall in the Old City in the 15 days of the siege. With his remaining 800 soldiers Zrínyi held out in the fortress for another 17 days, resisting the Turkish siege. A pasha of the janissaries managed to undermine and blow the powder-magazine. The explosion caused serious damage to the walls, through the gaps several charges were led against the defenders.

On 8 September 1566 with his 300 remaining soldiers Zrínyi broke out of the inner fortress, which was in flames. According to the Croatian author Anonymus the captain tells his soldiers the followings: *“Let us set out jolly, my dear brothers, / Do not let ourselves be captured easily, / They would gather us like quails, / But let us draw our swords jolly / Because this way we can remember our God...”* Zrínyi was captured and beheaded by the Turks. His head was struck on a spear and sent as an intimidation to the Emperor's troops.



**Example for the Szigetvár exercise:**

Home essay
2/2
Educated Rita

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### The memory of the siege

The siege and the heroic resistance of the defenders inspired many authors. Several works of not only Hungarian, but also Croatian literature entertain the siege in diverse genres.

author	title	genre	year of creation
<i>unknown</i>	<i>Baj pod Sigetom<sup>1</sup></i>	<i>epic folk song</i>	<i>unknown</i>
<i>Miklós Zrínyi</i>	<i>Obcidio Szigetiana</i>	<i>epic</i>	<i>1648</i>
<i>Pál Kirdíyi</i>	<i>Szigetvár 1566-ban</i>	<i>historic novel</i>	<i>1838</i>
<i>Levente Moravetz</i>	<i>Zrínyi 1566</i>	<i>rock musical</i>	<i>2009</i>

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### Zrínyi – the poet



2.

Fegyvert, s vitézt éneklek, török hatalmát  
 Ki meg merte várni, Szulimán haragját,  
 Ama nagy Szulimánnak hatalmas karját,  
 Az kinek Europa rettegte szabályját.

5.

Adj pennámnak erőt, úgy írhassek mint volt,  
 Arrol, ki fiad szent nevéjért bátran holt,  
 Megvetvén világot, kiban sok java volt;  
 Kiért él szent lelke, ha teste meg is holt.

6.

Engedd meg, hogy neve, mely mast is köztünk él,  
 Búvüljön jó híra, valahól nap jár-kél,  
 Lássák pogány ebek: az ki Istentől fél,  
 Soha meg nem halhat, hanem örökkén él.

Miklós Zrínyi, count (in Croatian: Nikola Zrinski) (Ozalj, 1 May 1620 - Kúrsáncz, 18 November 1664) of the Croatian Šubić kindred, Croatian ban, Lord-Lieutenant of Zala and Somogy counties, an aristocrat with large estates, poet, general and politician. He wished to fight against the Osman Empire through cooperation, organisation of a national party. He achieved great military successes in 1663-64, but the Vienna Court ignored his achievements and concluded peace with the sultan. Zrínyi's confidence in the Habsburgs was shaken by this act, but his political ascension was prevented by his sudden death in a hunting accident near Csáktornya in 1664.

His important works are:

- ☞ *Mátyás király életéről való elmélkedések (Reflections on the life of King Matthias)*
- ☞ *Szigeti veszedelem (Peril of Sziget)*
- ☞ *Az török áfium ellen való orvosság (An antidote for the Turkish poison)*

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<sup>1</sup> The battle of Sziget

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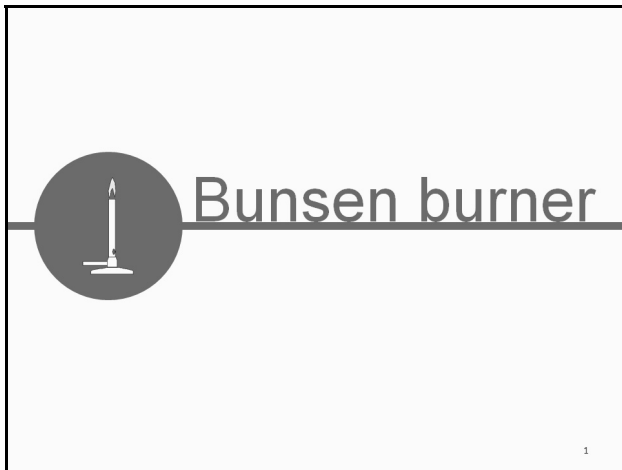
## 2. Bunsen burner

The Bunsen burner is the most well-known laboratory heating instrument. Create a presentation of this instrument according to the example and the description. Save your work in the default format of the program as *bunsen*. The text of the presentation can be found in file *text.txt*. The pictures required for the presentation are in files *blago.png*, *structure.png*, *lithium.png*, *sodium.png* and *potassium.png*.

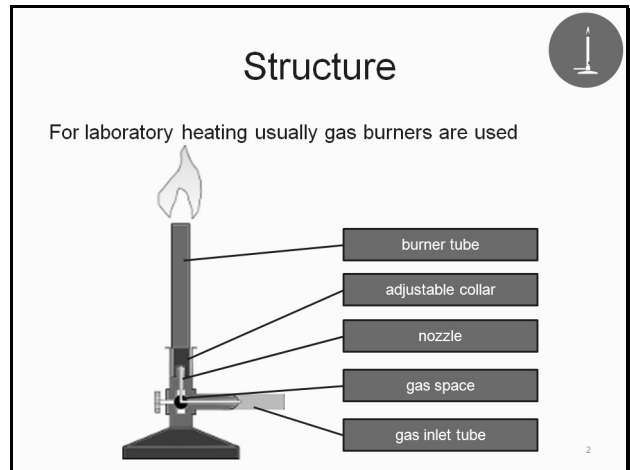
1. The background colour of each slide is light yellow, colour with RGB code (255, 255, 200) and the text colour is dark blue, colour with RGB code (0, 32, 96). The footer should contain the slide number on the right.
2. Each text of the presentation should have font type Arial (Nimbus Sans). Type in the text of the slides based on the example or copy it from file *text.txt*.
3. The first slide, the title slide contains graphical elements. Create this in the way shown in the example. Create a horizontal line of width 9 points and of reddish brown colour, colour with RGB code (205, 85, 35) through the whole width of the slide. Place a circle of diameter 6 cm and of the same colour on it. The line should pass through the centre of the circle.
4. The text on the line should also have reddish brown colour and a font size of 72 points. The letters of the text should touch the line. The line should not cross any letter.
5. Insert picture *blago.png* into the circle and decrease its height to 4 cm keeping the aspect ratio.
6. Group the circle and the picture of the Bunsen burner and place it into the upper right corner of the other slides decreasing its height to 3 cm keeping the aspect ratio.
7. The second slide contains the structure of the Bunsen burner, *structure.png* together with the explanatory texts written into the boxes according to the example.
  - a. The picture should be aligned according to the example and the lines belonging to the boxes of the explanatory texts should point to the corresponding parts.
  - b. The boxes of the labels should have the same size, they are filled with the reddish brown colour and their borders are of the dark blue colour already in use. The text colour in them is the same as the background colour of the slide. Place the labels centered within the boxes.
8. The text of the third slide should form a bulleted list.
9. The fourth slide should contain the three photos of the flame colouring experiment performed with the Bunsen burner. Insert files *lithium.png*, *sodium.png* and *potassium.png* together with the captions. Align the pictures centered vertically and space them evenly horizontally according to the example. Place the captions under the pictures centered relative to the pictures. Set the horizontal and vertical alignments according to the example.
10. Create an animation for all four slides so that the titles and the paragraphs float in after each other automatically from the left, slower than the default value. The labels of the second slide and the captions of the fourth slide should appear with an animation different from this.

<b>30 marks</b>
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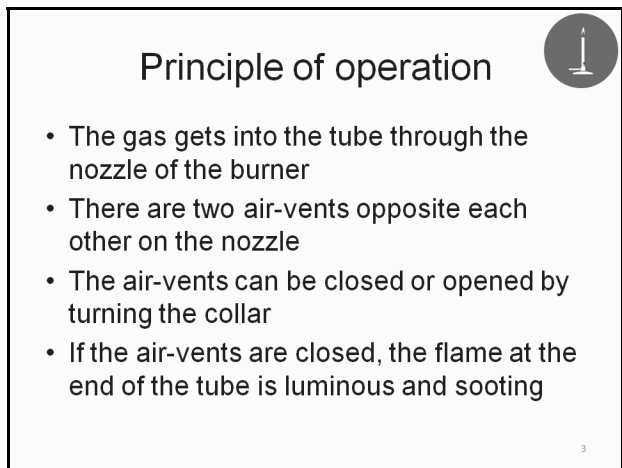
**Example for the Bunsen burner exercise:**



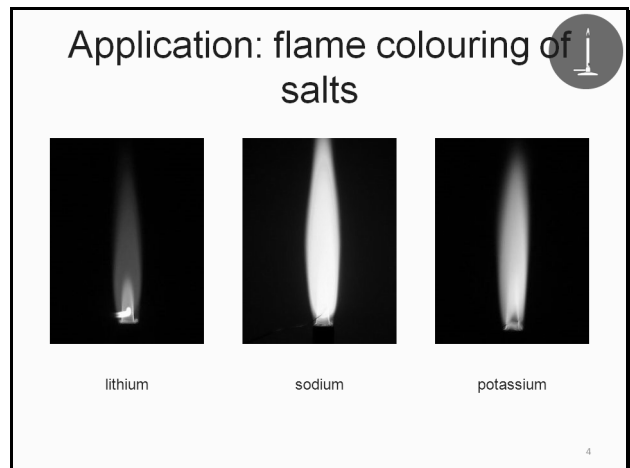
1<sup>st</sup> slide



2<sup>nd</sup> slide



3<sup>rd</sup> slide



4<sup>th</sup> slide

### 3. Combino

On the tram line on Nagykörút (Greater Ring), whose traffic is the highest in Budapest, Budapest Transport Company Ltd. operates Combino trams numbered 4 and 6. The load and utilisation of the trams is examined through passenger countings. During these the number of passengers getting on and off through each of the eight doors of the vehicle in the individual stops is counted. The data can be found in file *counting.txt* (a UTF-8 encoded text file tagged by tabs).

*During the solution take the followings into consideration.*

- *Whenever possible, use a formula, function or reference in the solution.*
- *There are parts in the exercise that use the results of a previous question. If you could not solve the previous part completely, use its solution as it is, or instead of a formula resulting in a number enter an arbitrary integer and work on with this value. This way you can receive marks for that exercise part as well.*
- *If required, you can perform auxiliary calculations to the right of column P.*

1. Open file *counting.txt* using a spreadsheet processing program so that the first imported data gets into cell *A1*. Save the table in the default format of the spreadsheet processor as *combino*.
2. Combinos have eight doors on one side. In range *B2:I2* create the numbering according to the example and then copy it into cells *B26:I26* as well.
3. In cells *J2* and *J26* enter “Total” and in ranges *J3:J20* and *J27:J44* give the total number of passengers getting on and off the tram.
4. The capacity of the tram is 353 passengers; out of these 64 can be seated. Using this information create the heading in range *L1:O2* according to the example. Copy the names of the stops under it.
5. Perform an analysis of the results of the passenger counting based on the followings:
  - a. In cells *M3:M19* calculate the number of passengers on the tram starting from the given stop.
  - b. In range *N3:N19* display the minimum number of standing passengers considering the number of seats. If everybody can be seated, then display 0.
  - c. In cells *O3:O19* determine the utilisation of the vehicle between the stops as a percent of the capacity, which is in cell *M1*. Display the results to one decimal digit.
6. In cells *L22:L25* enter texts “Maximum passenger number”, “Average passenger number”, “High utilisation” and “Most passengers getting on” according to the example.



7. Determine the values in the cells next to these texts based on the followings:
  - a. In cell *M22* give the maximum number of passengers during the run of the tram.
  - b. In cell *M23* determine the average number of passengers during the run of the tram to two decimal digits.
  - c. In cell *M24* count the stops after which there were more passengers on the tram than the average.
  - d. In cell *M25* determine the maximum number of passengers getting on the tram during the run and in cell *N25* determine the corresponding stop.
8. Use blue font colour in the cells that contain calculated values.
9. Format the first row and cells *A2*, *A26* and *L2* according to the example. The font size should be 20 points. Set the column widths so that each data is visible. Wrap the text in cell *N2* into three lines.
10. Create a column chart on the worksheet that shows the percent of utilisation of the tram after the individual stops.
  - a. The chart should not have a legend.
  - b. The title is “Utilisation of tram number 6”.
  - c. On the horizontal axis the name of each stop should be visible.

**30 marks**

**Example:**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	<b>Combino tram on line number 6</b>											<b>Capacity</b>	<b>353</b>	<b>Seats</b>	<b>64</b>
2	<b>Getting on</b>	Door 1	Door 2	Door 3	Door 4	Door 5	Door 6	Door 7	Door 8	Total		<b>Stop</b>	Passengers	Minimum of standing passengers	Utilisation
3	Móricz Zsigmond körtér	23	18	10	5	12	8	9	35	120		Móricz Zsigmond körtér			
4	Budafoki út											Budafoki út			
5	Petőfi híd, budai hídfő											Petőfi híd, budai hídfő			
6	Boráros tér											Boráros tér			
7	Mester utca											Mester utca			
8	Baross utca											Baross utca			
9	Rákóczi tér											Rákóczi tér			
10	Blaha Lujza tér											Blaha Lujza tér			
11	Wesselényi utca											Wesselényi utca			
12	Király utca											Király utca			
13	Oktogon											Oktogon			
14	Nyugati pályaudvar											Nyugati pályaudvar			
15	Jászai Mari tér											Jászai Mari tér			
16	Margitsziget											Margitsziget			
17	Margit híd											Margit híd			
18	Mechwart liget											Mechwart liget			
19	Széna tér											Széna tér			
20	Moszkva tér											Moszkva tér			
21															
22															
23															
24															
25															
26	<b>Getting off</b>	Door 1	Door 2	Door 3	Door 4	Door 5	Door 6	Door 7	Door 8	Total					
27	Móricz Zsigmond körtér	0													
28	Budafoki út	7													
29	Petőfi híd, budai hídfő	17													
30	Boráros tér	12													
31	Mester utca	8													

**Utilisation of tram number 6**

## 4. Notebook

ReNew Ltd., which sells only company refurbished notebooks at favourable price, operates in the capital of Nowhereland.

The data stored in the database are real with the exception of the prices.

1. Create a new database with name *notebook*. Import the three data tables provided (*notebook.txt*, *processor.txt*, *opsystem.txt*) into the database with table names that correspond to the file names (***notebook***, ***processor***, ***opsystem***). The files are text files with UTF-8 encoding tabbed by tabs, whose first lines contain the field names. Upon creation set the suitable types in each table and indicate the field that is a suitable key. Add a unique key named *id* to table ***notebook***.

### Tables

***notebook*** (*id*, *manufacturer*, *type*, *display*, *memory*, *harddisk*, *videocontroller*, *price*, *processorid*, *opsystemid*, *pieces*)

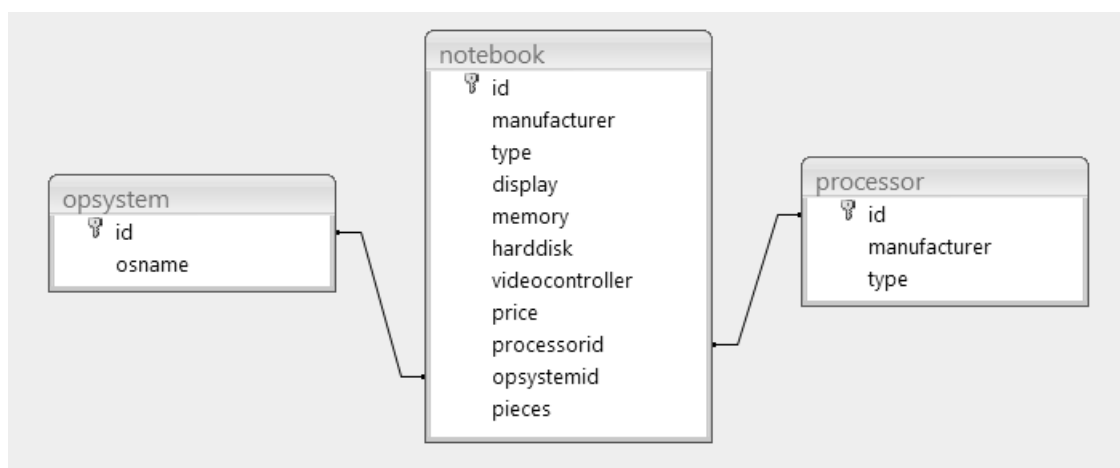
<i>id</i>	the identifier of the notebook (autonumber), this is the key
<i>manufacturer</i>	its manufacturer (text)
<i>type</i>	its type (text)
<i>display</i>	the size of the display (number)
<i>memory</i>	the size of the memory in MiB (number)
<i>harddisk</i>	the size of the hard disk drive in GB (number)
<i>videocontroller</i>	the type of the graphic controller (text)
<i>price</i>	the price in pounds (number)
<i>processorid</i>	the identifier of the processor (number)
<i>opsystemid</i>	the identifier of the operating system (number)
<i>pieces</i>	the number of machines in stock (number)

***processor*** (*id*, *manufacturer*, *type*)

<i>id</i>	the identifier of the processor (number), this is the key
<i>manufacturer</i>	its manufacturer (text)
<i>type</i>	its type (text)

***opsystem*** (*id*, *osname*)

<i>id</i>	the identifier of the operating system (number), this is the key
<i>osname</i>	the name of the operating system (text)



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When solving the following exercises, save the queries and the report with the name given in brackets. Pay attention to display exactly the required fields, expressions in the solution, do not display extra fields.

2. Create a query that gives the manufacturer, type and display size of notebooks that have a hard disk drive of at least 300 GB and of which there is at least one available in stock. (**2thereis**)
3. Create a query that gives the number of the different types of notebooks of different manufacturers in the database of the store. (It is not required that they are currently in stock!) (**3manufacturer**)
4. Create a query that gives the value of the whole stock. Display the value in million pounds. (**4total**)
5. We plan to purchase an Asus or Dell notebook that has some kind of Windows 7 operating system. Create a query that gives the cheapest notebook that satisfies these conditions. As we do not want to purchase it immediately, it is not required to have the notebook currently in stock. Display the manufacturer and the type of the notebook. (**5purchase**)
6. The organiser of a large-scale event purchases each notebook in stock whose display is greater than 14" and whose memory is greater than 2 GiB (1 GiB = 1024 MiB). Create a query that modifies the number of pieces of such notebooks to 0. You do not have to run the query. (**6null**)
7. Create a report that displays the notebooks with Intel processor grouped according to the manufacturer of the notebook, in descending order according to price. Besides the abovementioned fields, the report should contain the type number of the notebook, the type of the processor and the memory size. Create the report on a page with landscape orientation; the names of the columns should be the followings starting with capital letters: **Manufacturer**, **Type**, **Processor**, **Memory**, **Price**. Prepare the report through a query that contains the suitable fields or through a temporary table. (**7intel**)

<b>20 marks</b>
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## Sources:

### 1. Szigetvár

<http://www.mult-kor.hu/attachments/16746/szigetvar2.jpg>  
[http://upload.wikimedia.org/wikipedia/commons/1/13/Mikl%C3%B3s\\_Zr%C3%ADnyi\\_poet.jpg](http://upload.wikimedia.org/wikipedia/commons/1/13/Mikl%C3%B3s_Zr%C3%ADnyi_poet.jpg)  
The text was created based on the following pages:  
[http://hu.wikipedia.org/wiki/T%C3%B6r%C3%B6k\\_h%C3%A1bor%C3%BAk\\_Magyarorsz%C3%A1gon](http://hu.wikipedia.org/wiki/T%C3%B6r%C3%B6k_h%C3%A1bor%C3%BAk_Magyarorsz%C3%A1gon)  
<http://hu.wikipedia.org/wiki/V%C3%A9g%C3%A1r>  
<http://www.vjrkf.hu/carus/honisme/Ho990535.htm>  
[http://hu.wikipedia.org/wiki/Zr%C3%ADnyi\\_Mikl%C3%B3s](http://hu.wikipedia.org/wiki/Zr%C3%ADnyi_Mikl%C3%B3s)  
[http://hu.wikipedia.org/wiki/Zr%C3%ADnyi\\_Mikl%C3%B3s\\_%28k%C3%B6lt%C5%91%29](http://hu.wikipedia.org/wiki/Zr%C3%ADnyi_Mikl%C3%B3s_%28k%C3%B6lt%C5%91%29)

### 4. Notebook

The data of the notebooks are from page <http://www.notebook.hu/>.

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	maximum mark	achieved mark
Word processing <b>1. Szigetvár</b>	40	
Presentation, graphics and web page creation <b>2. Bunsen burner</b>	30	
Spreadsheet processing <b>3. Combino</b>	30	
Database management <b>4. Notebook</b>	20	
<b>Mark of the practical exam part</b>	<b>120</b>	

\_\_\_\_\_ examiner

Date: .....

	elért pontszám <b>egész számra</b> kerekítve / achieved mark rounded <b>to an integer</b>	programba beírt <b>egész</b> pontszám / mark written into program <b>as an integer</b>
Szövegszerkesztés / Word processing		
Prezentáció, grafika és weblapkészítés/ Presentation, graphics and web page creation		
Táblázatkezelés / Spreadsheet processing		
Adatbázis-kezelés / Database management		

\_\_\_\_\_ javító tanár / examiner

\_\_\_\_\_ jegyző / registrar of the  
Board of Examiners

Dátum / Date: .....

Dátum / Date: .....