

# Computer Science for Food Industry

Lab 2: information management by Excel  
advanced use  
Date and time functions

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## Date and time functions:

Excel assigns serial values to days, hours, minutes and seconds, starting as of 1/1/1900 and assigning value 1 (integer) to each day that has elapsed. Fractions of day are considered in proportion (e.g. 1 hour=1/24, 1 minute=1/(24\*60)). For convenience, dates are displayed in a format selected by the user.

To make calculations on dates you can proceed as if they were numbers:

	A	B	C	D	E	F
1		<b>Date 1</b>	<b>Date 2</b>	<b>Time interval = Date 1 - Date 2</b>	<b>Date 3 = Date 1 + 30 days</b>	<b>Date 4 = Date 1 + 2 hours</b>
2	Date format	16/5/2019	9/5/2019		15/6/2019	16/5/19 2.00
3	Number format	43601,00	43594,00	7	43631,00	43601,083

## Date and time functions :

- ❑ TODAY(): Returns the serial number of the current date
- ❑ NOW(): Returns the serial number of the current date and time
- ❑ WEEKDAY(): Returns the day of the week corresponding to a date.  
The day is given as an integer, ranging from 1 (Sunday) to 7 (Saturday), by default.
- ❑ DAY(), MONTH(), YEAR(), HOUR(), MINUTE(), SECOND(): Converts a serial number to a day, month, year, hour, minute and second.
- ❑ DATE(): returns the sequential serial number that represents a particular date. Syntax: DATE(year; month; day)

## Date and time functions (ITA):

- ❑ TODAY() [ita: OGGI()]
- ❑ NOW [ita: ADESSO()]
- ❑ giorno.settimana(): Returns the day of the week corresponding to a date. The day is given as an integer, ranging from 1 (Sunday) to 7 (Saturday), by default.
- ❑ DAY(), MONTH(), YEAR(), HOUR(), MINUTE(), SECOND() [ita: GIORNO(), MESE(), ANNO(), ORA(), MINUTO(), SECONDO()]
- ❑ DATE [ita: DATA()]
- ❑ TIME [ita: ORARIO()]

## Exercise L2.E01.a

Calculate the number of hours spent between the 23/11/19 at 13.32 and the 25/11/2019 at 23.59.

Tip: distinguish the format “hh:mm:ss” from “[hh]:mm:ss”

	A	B	C
1			
2	Date 1	23/11/19 13:32	
3	Date 2	25/11/19 23:59	
4			
5	Delta T	2,435 [Days]	
6	Delta T	58:27 [Hours:Minutes]	

## Exercise 2.01.b (ex 17.b)

Calculate the date which is 200 days after the 20/02/2019.

	A	B
1		
2	Date 1	20/02/19
3	Date 2	08/09/19

## Exercise L2.E01.c

Calculate the number of weeks between October 31, 2019 and May 13, 2018.

	A	B
1		
2	Date 1	31/10/19
3	Date 2	13/05/18
4		
5	Number of weeks	76
6	[and days]	4

## Exercise L2.E01.d

It's 13:35:23. Calculate the exact time in 2 hours, 23 minutes and 17 seconds.

	A	B
1		
2	Time 1	13:35:23
3	delta T	0,10
4		
5	Time 2	15:58:40

## Exercise L2.E02

using the CSFI\_L2\_E02.xlsx file and fill, in the "Expiration" field, random dates between today and the next 30 days. Then, highlight in red the invoices expiring in the next 15 days.

Tip: use the command `RAND()` [ita: `CASUALE()`] to randomly generate the dates.

With reference to the previous point, add a new column with the last date of the month within which the invoice will expiry

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Invoice number	Amount	Expiration	Month End
150	€ 134,23	28/05/19	31/05/19
151	€ 56,87	27/05/19	31/05/19
152	€ 230,00	07/06/19	30/06/19
153	€ 80,50	08/06/19	30/06/19
154	€ 238,50	06/06/19	30/06/19
155	€ 119,00	19/05/19	31/05/19
156	€ 431,68	30/05/19	31/05/19
157	€ 140,40	16/05/19	31/05/19
158	€ 12,40	26/05/19	31/05/19
159	€ 88,60	02/06/19	30/06/19
160	€ 234,60	29/05/19	31/05/19
161	€ 341,40	24/05/19	31/05/19
162	€ 43,00	09/06/19	30/06/19
163	€ 450,40	20/05/19	31/05/19
164	€ 210,00	25/05/19	31/05/19
165	€ 670,50	04/06/19	30/06/19
166	€ 56,00	03/06/19	30/06/19
167	€ 90,50	26/05/19	31/05/19
168	€ 110,40	25/05/19	31/05/19
169	€ 379,50	22/05/19	31/05/19
170	€ 45,00	09/06/19	30/06/19
171	€ 66,40	02/06/19	30/06/19
172	€ 87,60	30/05/19	31/05/19
173	€ 43,20	01/06/19	30/06/19
174	€ 90,00	20/05/19	31/05/19
175	€ 85,00	10/06/19	30/06/19
176	€ 47,60	17/05/19	31/05/19
177	€ 37,88	14/05/19	31/05/19
178	€ 42,10	21/05/19	31/05/19
179	€ 80,40	08/06/19	30/06/19
180	€ 59,00	31/05/19	31/05/19
181	€ 220,50	30/05/19	31/05/19
182	€ 465,50	17/05/19	31/05/19

## Exercise L2.E03

The CSFI\_L2\_E03.xlsx file contains the times of arrival at a storage station and the duration of the unloading process of vehicles for the transport of cereals.

Knowing that the survey started on 27/04/2019 at 6.00 pm, complete the table with the date and time information for each vehicle.

Arrival (min)	Cereal type	Service time (min)	Truck	Arrival date	Arrival time	Exit date	Exit time
0,0000	1	6,3344	1	27/04/19	18:00:00	27/04/19	18:06:20
6,3847	1	5,9563	2	27/04/19	18:06:23	27/04/19	18:12:20
8,4537	2	9,9555	3	27/04/19	18:08:27	27/04/19	18:18:25
12,7829	2	10,1259	4	27/04/19	18:12:47	27/04/19	18:22:55
18,1436	2	6,8785	5	27/04/19	18:18:09	27/04/19	18:25:01
21,3838	1	7,1260	6	27/04/19	18:21:23	27/04/19	18:28:31
24,0926	1	9,1901	7	27/04/19	18:24:06	27/04/19	18:33:17
32,1242	2	5,5465	8	27/04/19	18:32:07	27/04/19	18:37:40
40,2169	3	6,9459	9	27/04/19	18:40:13	27/04/19	18:47:10
48,8428	2	6,4782	10	27/04/19	18:48:51	27/04/19	18:55:19
55,6683	2	6,3343	11	27/04/19	18:55:40	27/04/19	19:02:00

## Exercise L2.E04

The periods of use of three machineries (called “A”, “B” and “C”) for the preparation of ready-to-eat salads are shown in file CSFI\_L2\_E04.xlsx. The table shows the product for which the machinery was used, the machinery name and the period of use (start time and end time). Each machine has its own operating hours cost. In order to determine the production costs, please determine the costs, for each processed product, related to the machineries usage.

Product	Machine	Start time	End time	Machine	Hourly cost
Lattuga	A	13.30	17.30	A	€ 25,00
Rucola	B	9.30	12.00	B	€ 30,00
Sorgino	A	10.00	19.00	C	€ 52,00
Radicchio	A	8.00	11.35		
Valerianella	C	14.20	18.40		
Lattuga	B	16.10	19.00		
Sorgino	C	8.20	14.00		
Lattuga	A	15.10	18.20	Product	Cost
Sorgino	B	11.00	14.30	Lattuga	€ 1.673,17
Radicchio	B	9.30	12.20	Rucola	€ 912,83
Sorgino	A	10.20	15.45	Sorgino	€ 2.819,75
Rucola	C	10.00	14.00	Radicchio	€ 723,75
Valerianella	C	14.50	18.30	Valerianella	€ 727,50
Radicchio	A	16.10	19.00		