

Statistika

5. vježbe

Primjeri najčešće korištenih testova u statistici

PARAMETRIJSKI	NEPARAMETRIJSKI	SVRHA
Studentov t-test za nezavisne uzorke	Mann-Whitney U-test	usporedba dva nezavisna uzorka
t-test za zavisne uzorke	Wilcoxonov test sume rangova	usporedba 2 zavisna uzorka (2 seta opažanja na istom uzorku)
Jednosmjerna ANOVA	Kruskall-Wallisova analiza varijance	Usporedba više od 2 nezavisna uzorka
ANOVA Repeated Measures	Freedman-ova analiza varijance	Usporedba više od 2 zavisna uzorka (više opažanja na istom uzorku)

Statistica

- ◆ Kolmogorov-Smirnov test normalnosti raspodjele
- ◆ Studentov T-test
- ◆ Mann-Whitney U test

- ◆ Hi-kvadrat test

Unos podataka:

- ◆ Unutar tri skupine prasadi promatrali smo porodnu težinu, težinu 21. dana života (prije odbića), broj leukocita te aktivnost enzima alanin aminotransferaze (ALT) u perifernoj krvi. Promatranje smo provodili na farmi XY, od 1. do 21. svibnja 2004. godine. Prasad je svrstana u tri skupine s obzirom na porodnu masu:
 - 1. skupina (M): prasad porodne mase do 1000 g
 - 2. skupina (S): prasad porodne mase 1001-1900 g
 - 3. skupina (T): prasad porodne mase veće od 1901 g
- ◆ Postavljanje nul-hipoteze

Kolmogorov-Smirnov test

- ◆ Utvrditi normalnost raspodjele za pojedina obilježja u 1. (M) i 2. (S) skupini prasadi
- ◆ Odlučiti koji ćemo test koristiti za provjeru hipoteze

The image shows a Windows XP desktop with the Start menu open. The desktop background is a landscape with Stonehenge. The Start menu is divided into several sections: Desktop shortcuts (My Documents, My Computer, Recycle Bin, Ad-Aware SE Personal, Spybot - Search & Destroy, AVG Free), User profile (User), Internet Explorer, E-mail (Microsoft Office Outlook), Microsoft Office Word, Nero Burning ROM, Windows Media Player, InterVideo MSIPVS, Microsoft Office Excel, Microsoft Office PowerPoint 2003, and an All Programs button. The All Programs list includes: PowerArchiver, Set Program Access and Defaults, Windows Catalog, Windows Update, AC3Filter, Accessories, CDEX, ChronoShutDown, CorelDRAW Graphics Suite 12, CyberLink PowerDVD, DivxG400, DVD Decrypter, DVD Shrink, ffdshow, Games, IrfanView, Lavasoft Ad-Aware SE Personal, MadOnion.com, Microsoft Office, Nero, PowerArchiver, PrintMe Internet Printing, QuickTime, REALTEK Gigabit and Fast Ethernet NIC Driver, Spybot - Search & Destroy, Startup, TuneUp Utilities 2004, Webteh, Adobe Reader 6.0, Internet Explorer, MSN, Outlook Express, Remote Assistance, and TuneUp Utilities 2004. A secondary list of programs is shown to the right of the main list, including: Windows Media Player, Windows Messenger, Windows Movie Maker, InterVideo MSIPVS, Canon PhotoRecord, Canon PIXMA iP2000, Canon PIXMA iP2000 Manual, Canon Utilities, DivX Repair, DigiBookShelf Freeware, Firefly Studios, Guitar Pro 4 Demo, Post-it@ Software Notes Lite, Rainbow Islands - Candyland (Demo), Microsoft Plus! Dancer LE, STATISTICA 7, Digital Cam, AVG Free Edition, Kao - 2nd round (demo), and Učilica 2003. The STATISTICA 7 program is highlighted in blue, and a sub-menu is open showing STATISTICA and STATISTICA Electronic Manual.

Otvaranje programa



- File
 - View
 - Statistics
 - Graphs
 - Tools
 - Help
- New Ctrl+N
- Open... Ctrl+O
- Open URL...
 - Open Examples...
 - Get External Data
- Print Setup...
-
- 1 mjere_ovaca
 - 2 eritroblasti svi
 - 3 neparametrijska
 - 4 d:\My Documents\... \eritrobl
 - 5 NK_1_4_sve_obra
 - 6 REPEATED_ENZIMI_CA
 - 7 korelacije za rad
 - 8 REPEATED_metaboliti_uredjeni graf
 - 9 REPEATED_MAGI_uredjeni graf
 - 10 stat_zn_razl_eo
 - 11 REPEATED_MAGI_uredjeni graf14
 - 12 REPEATED_eritroc_odred_uredjeni graf
 - 13 repeated_mag_i_ostalo
 - 14 REPEATED_porod_tez_uredjeni graf
 - 15 repeated_mag_i_metaboliti
 - 16 d:\My Documents\... \regresija
- Exit

Otvaranje
postojećeg
dokumenta

File Edit View Insert Format Statistics Graphs Tools Data Window Help

Arial 10 B I U ...

	1	2	3	4	5																
	kod	porod.tež(g)	tež.21d	leukoc.(10 ⁹ /l)	ALT																
1	M	800	4200	7,3	70																
2	M	970	5010	12,7	30																
3	M	825	2560	7,7	60																
4	M	985	6500	7,1	40																
5	M	990	6200	11,4	74																
6	M	825	4800	6,2	58																
7	M	995	5000	8,6	39																
8	M	860	5200	4,1	45																
9	M	705	3930	7,8	60																
10	M	805	6000	7,6	41																
11	M	965	5600	9,6	46																
12	M	820	3900	9,2	48																
13	M	960	2690	19,3	38																
14	M	780	3950	20,8	52																
15	M	857	2110	11,8	67																
16	M	798	4800	10,2	50																
17	M	806	4420	8,7	57																
18	M	930	4560	11,9	52																
19	M	906	4740	16,8	51																
20	M	750	4960	31,9	44																
21	M	770	4880	11,5	38																
22	M	840	4320	31,3	61																
23	M	808	3200	11,1	57																
24	M	801	3870	12,1	61																
25	M	925	4100	6,1	44																
26	M	835	4000	15,1	41																
27	M	750	1700	8,9	66																
28	M	825	5400	8,3	39																
29	M	822	3500	11,1	51																
30	M	970	4600	10,2	34																
31	S	1225	5900	12,2	40																
32	S	1250	5100	7,1	43																
33	S	1670	8600	15	51																
34	S	1810	7400	32,8	41																
35	S	1500	6800	11,9	39																
36	S	1645	7030	9,6	40																
37	S	1565	7700	6,2	39																
38	S	1845	5950	7,2	37																
39	S	1375	5000	10,9	54																
40	S	1555	6450	5,8	46																
41	S	1610	6500	8,2	46																
42	S	1325	7100	27,6	41																
43	S	1560	6800	7,6	66																
44	S	1650	6840	9,7	35																

Descriptive Statistics: pras... Product-Moment and ...

	1	2	3	4	5
	kod	porod.tež(g)	tež.21d	leukoc.(10 ⁹ /l)	ALT
1	M	800	4200	7,3	70
2	M	970	5010	12,7	30
3	M	825	2560	7,7	60
4	M	985	6500	7,1	40
5	M	990	6200	11,4	74
6	M	825	4800	6,2	58
7	M	995	5000	8,6	39
8	M	860	5200	4,1	45
9	M	705	3930	7,8	60
10	M	805	6000	7,6	41
11	M	965	5600	9,6	46
12	M	820	3900	9,2	48
13	M	960	2690	19,3	38
14	M	780	3950	20,8	52
15	M	857	2110	11,8	67
16	M	798	4800	10,2	50
17	M	806	4420	8,7	57
18	M	930	4560	11,9	52
19	M	906	4740	16,8	51
20	M	750	4960	31,9	44
21	M	770	4880	11,5	38
22	M	840	4320	31,3	61
23	M	808	3200	11,1	57
24	M	801	3870	12,1	61
25	M	925	4100	6,1	44
26	M	835	4000	15,1	41
27	M	750	1700	8,9	66
28	M	825	5400	8,3	39
29	M	822	3500	11,1	51
30	M	970	4600	10,2	34
31	S	1225	5900	12,2	40
32	S	1250	5100	7,1	43
33	S	1670	8600	15	51
34	S	1810	7400	32,8	41
35	S	1500	6800	11,9	39
36	S	1645	7030	9,6	40
37	S	1565	7700	6,2	39
38	S	1845	5950	7,2	37
39	S	1375	5000	10,9	54
40	S	1555	6450	5,8	46
41	S	1610	6500	8,2	46
42	S	1325	7100	27,6	41
43	S	1560	6800	7,6	66
44	S	1650	6840	9,7	35

Basic Statistics and Tabl ? - X

Quick

- Descriptive statistics
- Correlation matrices
- t-test, independent, by groups
- t-test, independent, by variables
- t-test, dependent samples
- t-test, single sample
- Breakdown & one-way ANOVA
- Breakdown; non-factorial tables
- Frequency tables
- Tables and banners
- Multiple response tables
- Difference tests: t, %, means
- Probability calculator

Buttons: OK, Cancel, Options, Open Data, SELECT CASES, W

	1	2	3	4	5
	kod	porod.tež(g)	tež.21d	leukoc.(10 ⁹ /l)	ALT
1	M	800	4200	7,3	70
2	M	970	5010	12,7	30
3	M	825	2560	7,7	60
4	M	985	6500	7,1	40
5	M	990	6200	11,4	74
6	M	825	4800	6,2	58
7	M	995	5000	8,6	39
8	M	860	5200	4,1	45
9	M	705	3930	7,8	60
10	M	805	6000		
11	M	965	5600		
12	M	820	3900		
13	M	960	2690		
14	M	780	3950		
15	M	857	2110		
16	M	798	4800		
17	M	806	4420		
18	M	930	4560		
19	M	906	4740		
20	M	750	4960		
21	M	770	4880		
22	M	840	4320		
23	M	808	3200		
24	M	801	3870		
25	M	925	4100		
26	M	835	4000		
27	M	750	1700		
28	M	825	5400		
29	M	822	3500		
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40	S	1555	6450	5,8	46
41	S	1610	6500	8,2	46
42	S	1325	7100	27,6	41
43	S	1560	6800	7,6	66
44	S	1650	6840	9,7	35

Descriptive Statistics: prasad.vj.3_5_leuk

Select the variables for the ...

Variable

Quick Advan

Summ

Location, va

Valid N

Mean

Sum

Median

Mode

Geom. m

Harm. me

1-kod

2-porod.tež(g)

3-tež.21d

4-leukoc.(109/l)

5-ALT

OK

Cancel

Options

Use the "Show appropriate variables only" option to pre-screen variable lists and show categorical and continuous variables. Press F1 for more information.

Select variables:

2-5

Show appropriate variables only

Select All Spread Zoom

Save settings as default

	1	2	3	4	5
	kod	porod.tež(g)	tež.21d	eozin.	ALT
1	M	800	4200	0	70
2	M	970	5010	1	30
3	M	825	2560	0	60
4	M	985	6500	0	40
5	M	990	6200	0	74
6	M	825	4800	1	58
7	M	995	5000	0	39
8	M	860	5200	0	45
9	M	705	3930	1	60
10	M	805	6000	0	30
11	M	965	5600	0	30
12	M	820	3900	0	30
13	M	960	2690	0	30
14	M	780	3950	0	30
15	M	857	2110	0	30
16	M	798	4800	0	30
17	M	806	4420	0	30
18	M	930	4560	0	30
19	M	906	4740	0	30
20	M	750	4960	0	30
21	M	770	4880	0	30
22	M	840	4320	0	30
23	M	808	3200	0	30
24	M	801	3870	0	30
25	M	925	4100	0	30
26	M	835	4000	0	30
27	M	750	1700	0	30
28	M	825	5400	0	30
29	M	822	3500	0	30
30	M	970	4600	0	30
31	S	1225	5900	0	30
32	S	1250	5100	0	43
33	S	1670	8600	0	51
34	S	1810	7400	0	41
35	S	1500	6800	0	39
36	S	1645	7030	0	40
37	S	1565	7700	0	39
38	S	1845	5950	0	37
39	S	1375	5000	0	54
40	S	1555	6450	0	46
41	S	1610	6500	0	46
42	S	1325	7100	0	41
43	S	1560	6800	3	66
44	S	1650	6840	0	35
45	S	1655	6800	4	30

Descriptive Statistics: prasad.vj.3_5_ok

Variables: porod.tež(g)-ALT

Summary

Quick Advanced Normality Prob. & Scatterplots Categ. plots Options

Summary: Descriptive statistics Compute statistics:

Location, valid N

- Valid N
- Mean
- Sum
- Median
- Mode
- Geom. mean
- Harm. mean

Variation, moments

- Standard Deviation
- Variance
- Std. err. of mean
- Conf. limits for means
- Interval: 95,00 %
- Skewness
- Std. err., Skewness
- Kurtosis
- Std. err., Kurtosis

Percentiles, ranges

- Minimum & maximum
- Lower & upper quartiles
- Percentile boundaries
- First: 10,00 %
- Second: 90,00 %
- Range
- Quartile range

Select all stats Reset

Save settings as default

Options

SELECT CASES

Wghtd moments

DF =

W-1 N-1

MD deletion

- Casewise
- Pairwise

Ukoliko u jednom dokumentu imamo podatke za više grupa životinja, odabrati od kojeg do kojeg promatranja se obrađuju podaci

File Edit View Insert Format Statistics Graphs Tools Data Workbook Window Help

Arial 10 B I U [Text alignment icons] [Color icons] [Language icons] [Case icons]

Workbook3*

- Basic Statistics/Tables
- Descriptive statistic
- Descriptive Stat

Descriptive Statistics (prasad.vj.3_5_leuk)
Include cases: 1:30

Variable	Valid N	Mean	Minimum	Maximum	Std.Dev.
porod.tez(g)	30	855,933	705,000	995,000	82,372
tez.21d	30	4356,667	1700,000	6500,000	1134,960
leukoc.(10 ⁹ /l)	30	11,837	4,100	31,900	6,544
ALT	30	50,467	30,000	74,000	11,285

Descriptive Statistics: prasad.vj.3_5_leuk

Variables: porod.tez(g)-ALT

Quick | Advanced | Normality | Prob. & Scatterplots | Categ. plots | Options

Distribution: Frequency tables Histograms

Categorization: Number of intervals: 10 Integer intervals (categories)

Normal expected frequencies

Kolmogorov-Smirnov & Lilliefors test for normality

Shapiro-Wilk's W test

Stem and leaf: Stem & leaf plot Compressed

3D histograms, bivariate distributions Categorized histograms

Use Distribution Fitting, Process Analysis, or Graphs (P-P or Q-Q) to fit other distributions; use Survival Analysis to fit distributions to censored data.

SELECT CASES [icon] [icon]

Wghtd momnts

DF = W-1 N-1

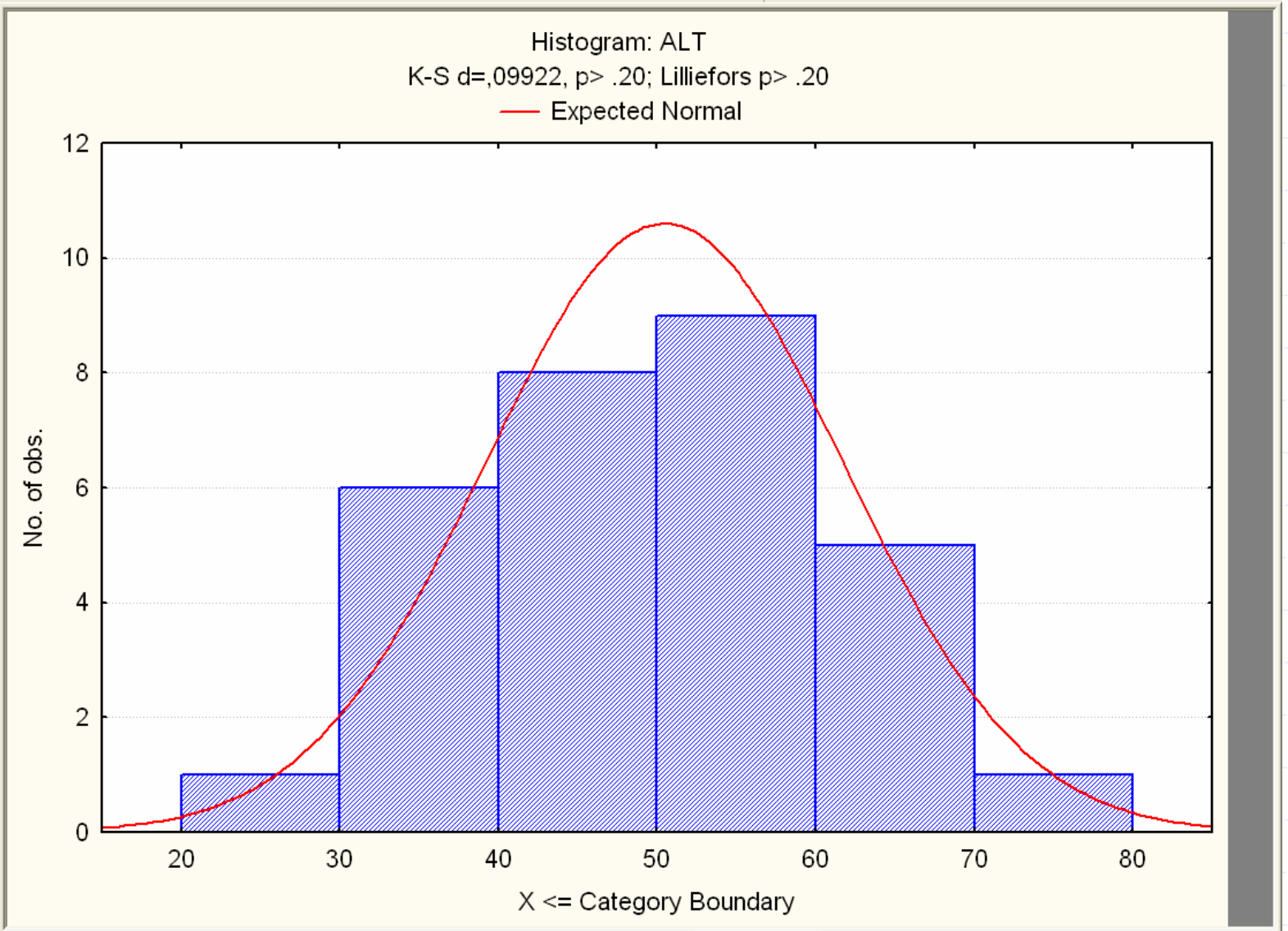
MD deletion: Casewise Pairwise

Summary [icon] Cancel Options [icon]

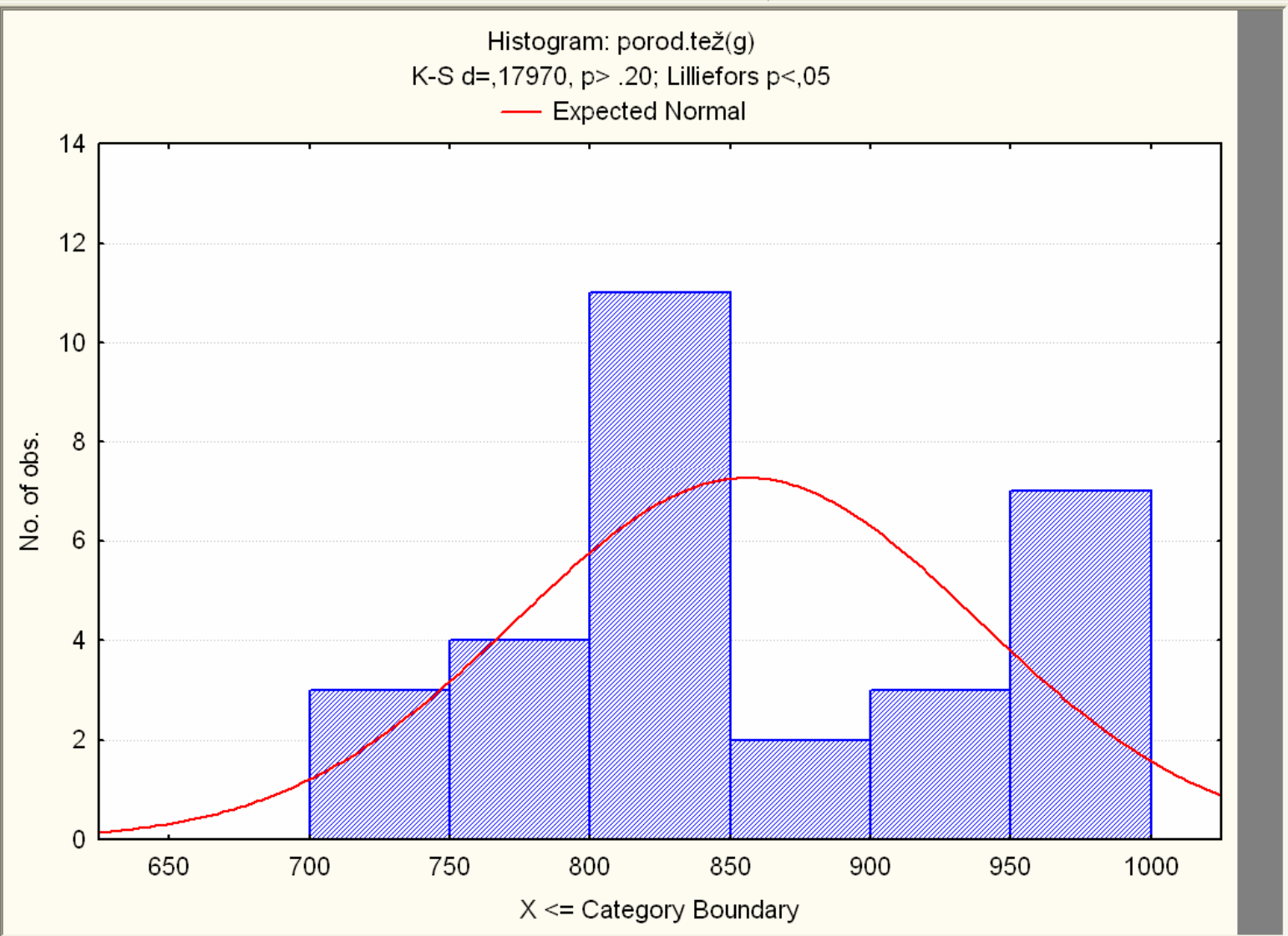
Descriptive Statistics (prasad.vj.3_5_leuk)

Descriptive Statistics...

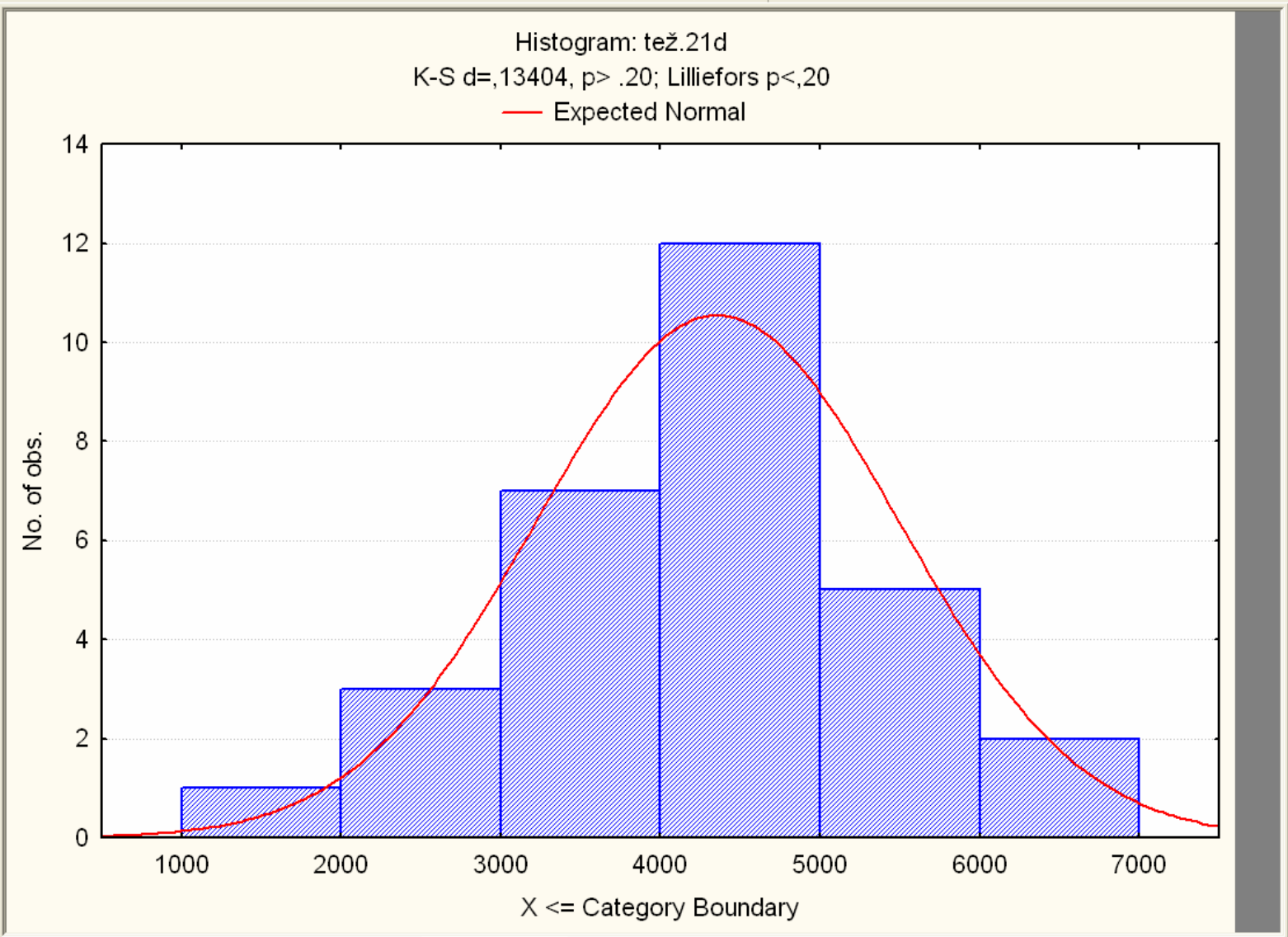
- Workbook1*
- Basic Statistics/Tables
 - Descriptive statistic
 - Descriptive Stat
 - Histogram: porod
 - Histogram: tež.
 - Histogram: eoz
 - Histogram: ALT



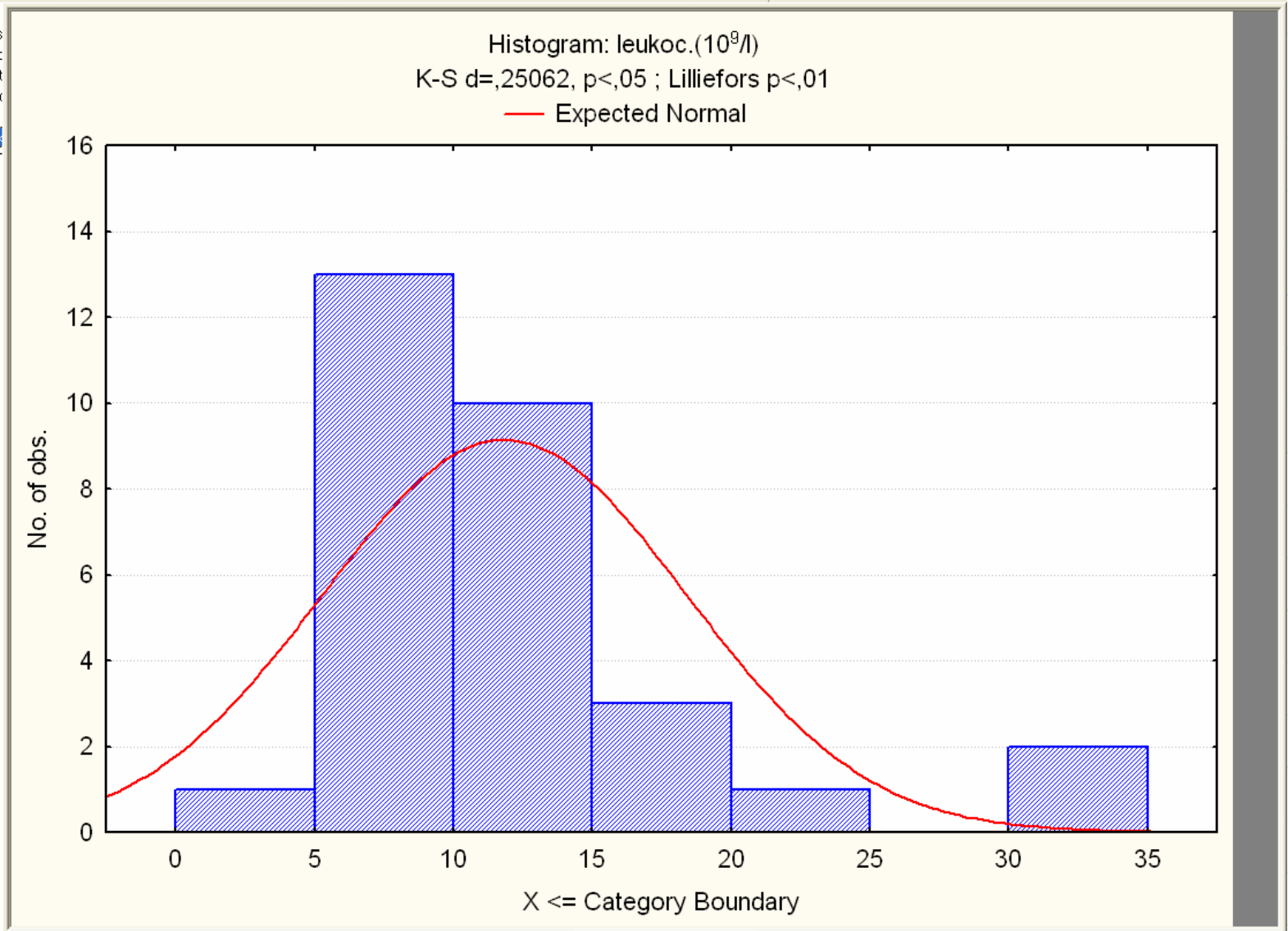
- Basic Statistics/Tables
 - Descriptive statistic
 - Descriptive Stat
 - Histogram: porod.tež(g)
 - Histogram: tež.
 - Histogram: eoz
 - Histogram: ALT
 - Descriptive Stat
 - Histogram: porod.tež(g)
 - Histogram: tež.
 - Histogram: eoz
 - Histogram: ALT
 - Descriptive Stat
 - Histogram: porod.tež(g)
 - Histogram: tež.
 - Histogram: eoz
 - Histogram: ALT



- Workbook1*
- Basic Statistics/Tables
- Descriptive statistic
 - Descriptive Stat
 - Histogram: por
 - Histogram: tež.
 - Histogram: eoz
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 - Descriptive Stat
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 - Histogram: tež.
 - Histogram: eoz
 - Histogram: ALT
 - Descriptive Stat
 - Histogram: por
 - Histogram: tež.
 - Histogram: eoz
 - Histogram: ALT

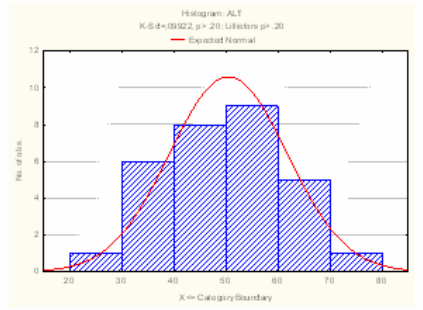
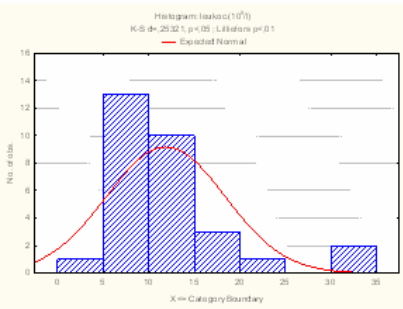
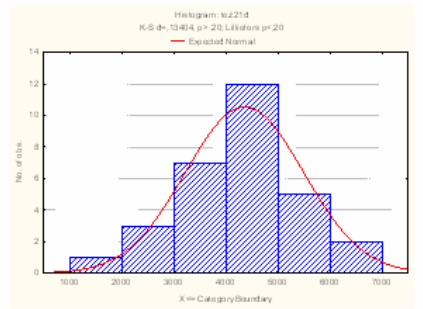
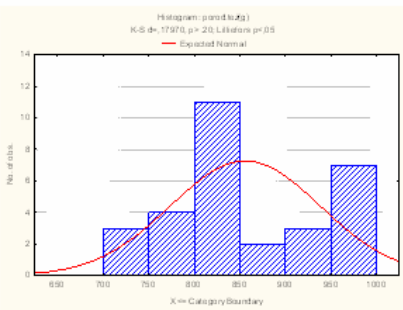


- Workbook3*
- Basic Statistics/Tables
- Descriptive statistic
 - Descriptive Stat
 - Histogram: por
 - Histogram: tež.
 - Histogram: leuk
 - Histogram: ALT



- Basic Statistics/Tables
- Descriptive statistic
- Descriptive Stat
- Histogram: porod.tež(g)
- Histogram: tež.21d
- Histogram: leuk
- Histogram: ALT
- Descriptive Stat

Descriptive Statistics (prasad.vj.3)				
Include cases: 1:30				
Variable	Valid N	Mean	Minimum	M
porod.tež(g)	30	855,933	705,000	
tež.21d	30	4356,667	1700,000	
leukoc.(10 ⁹ /l)	30	11,880	4,100	
ALT	30	50,467	30,000	

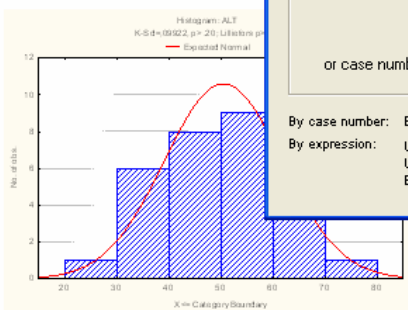
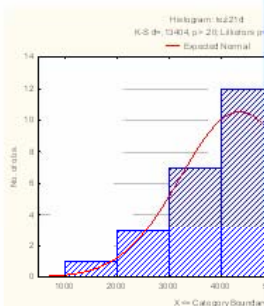
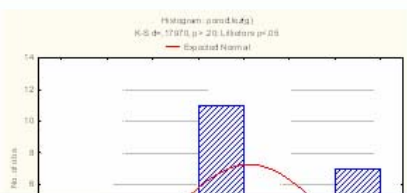


Descriptive Statistics (prasad.vj.3)				
Include cases: 1:30				
Variable	Valid N	Mean	Median	M
leukoc.(10 ⁹ /l)	30	11,88000	10,20000	M



- Workbook1*
- Basic Statistics/Tables
- Descriptive statistic
 - Descriptive Stat
 - Histogram: porod.
 - Histogram: tež.
 - Histogram: eozin.
 - Histogram: ALT

Variable	Descriptive Statistics (prasad.vj.3)			
	Valid N	Mean	Minimum	Maximum
porod.tež(g)	30	855,933	705,000	1700,000
tež.21d	30	4356,667	1700,000	1700,000
eozin.	30	0,267	0,000	0,000
ALT	30	50,467	30,000	30,000



Analysis/Graph Case Selection Conditions

Use current Spreadsheet selection conditions
 Use selection conditions for this Analysis/Graph only

Enable Selection Conditions
 Review Variables
Clear All
OK

Include cases
 Cancel

All
 Open...

Specific, selected by:
 Save As...

By Expression:

or case number:

Exclude cases (from the set of cases defined in the 'Include cases' section)

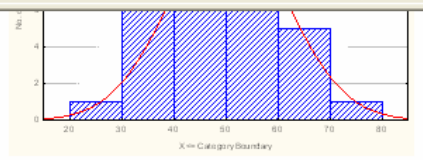
By expression:

or case number:

By case number: Enter case numbers and/or ranges. Example: 1, 3, 5-12

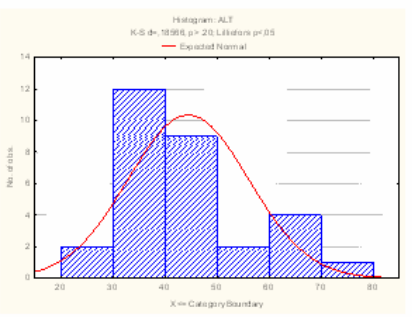
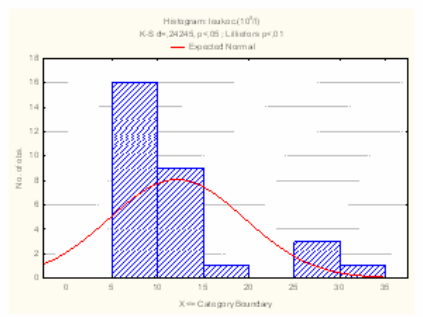
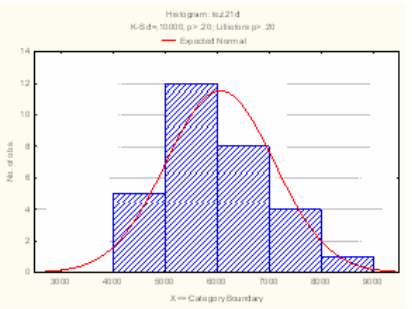
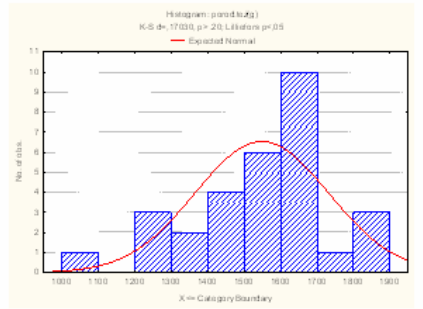
By expression: Use the same operators, functions, and syntax as in the spreadsheet formulas:
 Use variable names or v1, v2... v0 is the case number (v0<4 means cases 1-3)
 Examples: (a) v1=0 OR age>18 (b) gender=MALE AND v4<>(v5+v6)

- basic Statistics/Tables (prasad.v.j.3)
- Descriptive statistics dialog
- Descriptive Statistics (prasad.v.j.3)
- Histogram: porod.tez(g)
- Histogram: tez.21d
- Histogram: leukoc.(10⁹/l)
- Histogram: ALT
- Descriptive Statistics (prasad.v.j.3)
- Descriptive Statistics (prasad.v.j.3)
- Descriptive Statistics (prasad.v.j.3)
- Histogram: porod.tez(g)
- Histogram: tez.21d
- Histogram: leukoc.(10⁹/l)
- Histogram: ALT



Descriptive Statistics (prasad.v.j.3)				
Include cases: 31:60				
Variable	Valid N	Mean	Median	N
leukoc.(10 ⁹ /l)	30	12,12667	9,650000	6,1

Descriptive Statistics (prasad.v.j.3)				
Include cases: 31:60				
Variable	Valid N	Mean	Median	N
porod.tez(g)	30	1548,333	1577,500	N
tez.21d	30	6060,000	5975,000	N
leukoc.(10 ⁹ /l)	30	12,127	9,650	6,1
ALT	30	44,500	41,000	N



Kolmogorov-Smirnov test

- ◆ Normalna raspodjela (Studentov T-test):
 - Porodna težina
 - Težina 21. dana starosti
 - ALT
- ◆ Distribucija vrijednosti broja leukocita u krvi prasadi obiju skupina nije slijedila normalnu raspodjelu (Mann-Whitney U test)

Resume... Ctrl+R
 Add to Report
 Arial 10
 100 200 400 800

	1	2				
	kod	porod. te:				
1	M					
2	M					
3	M					
4	M					
5	M					
6	M					
7	M					
8	M					
9	M					
10	M					
11	M					
12	M					
13	M					
14	M					
15	M					
16	M					
17	M					
18	M		930	4560	11,9	52
19	M		906	4740	16,8	51
20	M		750	4960	31,9	44
21	M		770	4880	11,5	38
22	M		840	4320	31,3	61
23	M		808	3200	11,1	57
24	M		801	3870	12,1	61
25	M		925	4100	6,1	44
26	M		835	4000	15,1	41
27	M		750	1700	8,9	66
28	M		825	5400	7,8	39
29	M		822	3500	11,1	51
30	M		970	4600	10,2	34
31	S		1225	5900	12,2	40
32	S		1250	5100	7,1	43
33	S		1670	8600	15	51
34	S		1810	7400	32,8	41
35	S		1500	6800	11,9	39
36	S		1645	7030	9,6	40
37	S		1565	7700	6,2	39
38	S		1845	5950	7,2	37
39	S		1375	5000	10,9	54
40	S		1555	6450	5,8	46
41	S		1610	6500	8,2	46
42	S		1325	7100	27,6	41
43	S		1560	6800	8,2	66
44	S		1650	6840	9,7	35
45	S		1655	6060	12,1	30
46	S		1635	5780	13,2	34

- Basic Statistics/Tables
- Multiple Regression
- ANOVA
- Nonparametrics
- Distribution Fitting
- Advanced Linear/Nonlinear Models
- Multivariate Exploratory Techniques
- Industrial Statistics & Six Sigma
- Power Analysis
- Neural Networks
- Data-Mining
- QC Data Mining & Root Cause Analysis
- Text & Document Mining, Web Crawling
- Statistics of Block Data
- STATISTICA Visual Basic
- Probability Calculator

	1	2	3	4	5
	kod	porod.tež(g)	tež.21d	leukoc.(10 ⁹ /l)	ALT
1	M	800	4200	7,3	70
2	M	970	5010	12,7	30
3	M	825	2560	7,8	60
4	M	985	6500	7,1	40
5	M	990	6200	11,4	74
6	M	825	4800	6,2	58
7	M	995	5000	8,6	39
8	M	860	5200	4,1	45
9	M	705	3930	7,8	60
10	M	805	6000	7,6	41
11	M	965	5600	9,6	46
12	M	820	3900	9,2	48
13	M	960	2690	19,3	38
14	M	780	3950	20,8	52
15	M	857	2110	11,8	67
16	M	798	4800	10,2	50
17	M	806	4420	7,8	57
18	M	930	4560	11,9	52
19	M	906	4740	16,8	51
20	M	750	4960	31,9	44
21	M	770	4880	11,5	38
22	M	840	4320	31,3	61
23	M	808	3200	11,1	57
24	M	801	3870	12,1	61
25	M	925	4100	6,1	44
26	M	835	4000	15,1	41
27	M	750	1700	8,9	66
28	M	825	5400	7,8	39
29	M	822	3500	11,1	51
30	M	970	4600	10,2	34
31	S	1225	5900	12,2	40
32	S	1250	5100	7,1	43
33	S	1670	8600	15	51
34	S	1810	7400	32,8	41
35	S	1500	6800	11,9	39
36	S	1645	7030	9,6	40
37	S	1565	7700	6,2	39
38	S	1845	5950	7,2	37
39	S	1375	5000	10,9	54
40	S	1555	6450	5,8	46
41	S	1610	6500	8,2	46
42	S	1325	7100	27,6	41
43	S	1560	6800	8,2	66
44	S	1650	6840	9,7	35
45	S	1655	6060	12,1	30
46	S	1635	5780	13,2	34

Basic Statistics and Tables: prasad.vj.3_5_Le ?

Quick

- Descriptive statistics
- Correlation matrices
- t-test, independent, by groups**
- t-test, independent, by variables
- t-test, dependent samples
- t-test, single sample
- Breakdown & one-way ANOVA
- Breakdown; non-factorial tables
- Frequency tables
- Tables and banners
- Multiple response tables
- Difference tests: r, %, means
- Probability calculator

OK

Cancel

Options

Open Data

SELECT CASES

	1	2	3	4	5
	kod	porod.tež(g)	tež.21d	leukoc.(10 ⁹ /l)	ALT
1	M	800	4200	7,3	70
2	M	970	5010	12,7	30
3	M	825	2560	7,8	60
4	M	985	6500	7,1	40
5	M	990	6200	11,4	74
6	M	825	4800	6,2	58
7	M	995	5000	8,6	39
8	M	860	5200	4,1	45
9	M	705	3930	7,8	60
10	M	805	6000	7,6	41
11	M	965	5600	9,6	46
12	M	820	3900	9,2	34
13	M	960	2690	19,3	40
14	M	780	3950	20,8	43
15	M	857	2110	11,8	51
16	M	798	4800	10,2	41
17	M	806	4420	7,8	39
18	M	930	4560	11,9	46
19	M	906	4740	16,8	39
20	M	750	4960	31,9	46
21	M	770	4880	11,8	37
22	M	840	4320	31,3	41
23	M	808	3200	11,1	39
24	M	801	3870	12,1	46
25	M	925	4100	6,1	37
26	M	835	4000	15,1	46
27	M	750	1700	8,9	37
28	M	825	5400	7,8	54
29	M	822	3500	11,1	46
30	M	970	4600	10,2	34
31	S	1225	5900	12,2	40
32	S	1250	5100	7,1	43
33	S	1670	8600	15	51
34	S	1810	7400	32,8	41
35	S	1500	6800	11,9	39
36	S	1645	7030	9,6	40
37	S	1565	7700	6,2	39
38	S	1845	5950	7,2	37
39	S	1375	5000	10,9	54
40	S	1555	6450	5,8	46
41	S	1610	6500	8,2	46
42	S	1325	7100	27,6	41
43	S	1560	6800	8,2	66
44	S	1650	6840	9,7	35
45	S	1655	6060	12,1	30
46	S	1635	5780	13,2	34

T-Test for Independent Samples by Groups: prasad.vj.3_5_leuk

Variables: Dependent: none
Grouping: none

Code for Group 1: Code for Group 2:

Quick | Advanced | Options

Summary: I-tests

Box & whisker plot

Weighted moments:

DF =

MD deletion: Casewise Pairwise

	1	2	3	4	5															
	kod	porod.tez(g)	tez.21d	leukoc.(10 ⁹ /l)	ALT															
1	M	800	4200	7,3	70															
2	M	970	5010	12,7	30															
3	M	825	2560	7,8	60															
4	M	985	6500	7,1	40															
5	M	990	6200	11,4	74															
6	M	825	4800	6,2	58															
7	M	995	5000	8,6	39															
8	M	860	5200																	
9	M	705	3930																	
10	M	805	6000																	
11	M	965	5600																	
12	M	820	3900																	
13	M	960	2690																	
14	M	780	3950																	
15	M	857	2110																	
16	M	798	4800																	
17	M	806	4420																	
18	M	930	4560																	
19	M	906	4740																	
20	M	750	4960																	
21	M	770	4880																	
22	M	840	4320																	
23	M	808	3200																	
24	M	801	3870																	
25	M	925	4100																	
26	M	835	4000																	
27	M	750	1700																	
28	M	825	5400																	
29	M	822	3500																	
30	M	970	4600																	
31	S	1225	5900																	
32	S	1250	5100																	
33	S	1670	8600																	
34	S	1810	7400																	
35	S	1500	6800	11,9	39															
36	S	1645	7030	9,6	40															
37	S	1565	7700	6,2	39															
38	S	1845	5950	7,2	37															
39	S	1375	5000	10,9	54															
40	S	1555	6450	5,8	46															
41	S	1610	6500	8,2	46															
42	S	1325	7100	27,6	41															
43	S	1560	6800	8,2	66															
44	S	1650	6840	9,7	35															
45	S	1655	6060	12,1	30															
46	S	1635	5780	13,2	34															

Analysis/Graph Case Selection Conditions

Use current Spreadsheet selection conditions
 Use selection conditions for this Analysis/Graph only

Enable Selection Conditions
 Review Variables
Clear All
OK

Include cases:

All
 Specific, selected by:

By Expression:

or case number:

Exclude cases (from the set of cases defined in the 'Include cases' section):

By expression:

or case number:

By case number: Enter case numbers and/or ranges. Example: 1, 3, 5-12

By expression: Use the same operators, functions, and syntax as in the spreadsheet formulas:
 Use variable names or v1, v2... v0 is the case number (v0:4 means cases 1-3)
 Examples: (a) v1=0 OR age>18 (b) gender=MALE AND v4<>(v5+v6)

Cancel
Open...
Save As...

- Workbook2*
- Basic Statistics/Tables (prasad.vj.3_5_leuk)
- T-test for independent samples
- T-tests; Grouping: kod (prasad.vj.3_5_leuk)

T-tests; Grouping: kod (prasad.vj.3_5_leuk)
 Group 1: M
 Group 2: S
 Include cases: 1:60

Variable	Mean M	Mean S	t-value	df	p	Valid N M	Valid N S	Std.Dev. M	Std.Dev. S	F-ratio Variances	p Variances
porod.tež(g)	855,933	1548,333	-18,8847	58	0,000000	30	30	82,372	183,149	4,943727	0,000047
tež.21d	4356,667	6060,000	-6,0676	58	0,000000	30	30	1134,960	1037,331	1,197089	0,631300
ALT	50,467	44,500	2,0232	58	0,047674	30	30	11,285	11,557	1,048744	0,898907

STATISTICA - [Workbook2* - T-tests; Grouping: kod (prasad.vj.3_5_leuk)]

File Edit View Insert Format Statistics Graphs Tools Data Workbook Window Help

Resume... Ctrl+R

Add to Report

ByGroup Analysis

Basic Statistics/Tables

Multiple Regression

ANOVA

Nonparametrics

Distribution Fitting

Advanced Linear/Nonlinear Models

Multivariate Exploratory Techniques

Industrial Statistics & Six Sigma

Power Analysis

Neural Networks

Data-Mining

QC Data Mining & Root Cause Analysis

Text & Document Mining, Web Crawling

Statistics of Block Data

STATISTICA Visual Basic

Probability Calculator

ad.vj.3_5_leuk)

	df	p	Valid N M	Valid N S	Std.Dev. M	Std.Dev. S	F-ratio Variances	p Variances	
po	47	58	0,000000	30	30	82,372	183,149	4,943727	0,000047
tež	76	58	0,000000	30	30	1134,960	1037,331	1,197089	0,631300
AL	82	58	0,047674	30	30	11,285	11,557	1,048744	0,898907

T-tests; Grouping: kod (prasad.vj.3_5_leuk)

T-Test for Independen...

Starts up Nonparametrics

C1.V1 855,933333333333 CAP NUM REC

Start Microsoft Windows

Inbox - Outlook E... t-com - Google pr... statistika raspored sati II. ... Microsoft PowerP... Statistika,3.vj. - ... STATISTICA - [... HR

11:27

	1 kod	2 porod.tež(g)	3 tež.21d	4 leukoc.(10 ⁹ /l)	5 ALT
1	M	800	4200	7,3	70
2	M	970	5010	12,7	30
3	M	825	2560	7,8	60
4	M	985	6500	7,1	40
5	M	990	6200	11,4	74
6	M	825	4800	6,2	58
7	M	995	5000	8,6	39
8	M	860	5200	4,1	45
9	M	705	3930	7,8	60
10	M	805	6000	7,6	41
11	M	965	5600	9,6	
12	M	820	3900	9,2	
13	M	960	2690	19,3	
14	M	780	3950	20,8	
15	M	857	2110	11,8	
16	M	798	4800	10,2	
17	M	806	4420	7,8	
18	M	930	4560	11,9	
19	M	906	4740	16,8	
20	M	750	4960	31,9	
21	M	770	4880	11,5	
22	M	840	4320	31,3	
23	M	808	3200	11,1	
24	M	801	3870	12,1	
25	M	925	4100	6,1	
26	M	835	4000	15,1	
27	M	750	1700	8,9	
28	M	825	5400	7,8	
29	M	822	3500	11,1	
30	M	970	4600	10,2	
31	S	1225	5900	12,2	
32	S	1250	5100	7,1	
33	S	1670	8600	15	51
34	S	1810	7400	32,8	41
35	S	1500	6800	11,9	39
36	S	1645	7030	9,6	40
37	S	1565	7700	6,2	39
38	S	1845	5950	7,2	37
39	S	1375	5000	10,9	54
40	S	1555	6450	5,8	46
41	S	1610	6500	8,2	46
42	S	1325	7100	27,6	41
43	S	1560	6800	8,2	66
44	S	1650	6840	9,7	35
45	S	1655	6060	12,1	30
46	S	1635	5780	13,2	34

Comparing Two Groups: prasad.vj.3_5_leuk

Variables M-W U test

Select dep. variables and an indep. (grouping) variable

Dependent variable list: 4-leukoc.(109/l)

Indep. (grouping) variable: 1-kod

Show appropriate variables only

Use the "Show appropriate variables only" option to pre-screen variable lists and show categorical and continuous variables. Press F1 for more information.

- Workbook2*
- Basic Statistics/Tables (prasad.vj.3_5_leuk)
 - T-test for independent samples
 - T-tests; Grouping: kod
- Nonparametrics (prasad.vj.3_5_leuk)
 - Nonparametric comparison
 - Mann-Whitney U Test

Mann-Whitney U Test (prasad.vj.3_5_leuk)
 By variable kod
 Marked tests are significant at p < .05000
 Include cases: 1:60

variable	Rank Sum M	Rank Sum S	U	Z	p-level	Z adjusted	p-level	Valid N M	Valid N S	2*1 sided exact p
leukoc.(10 ⁹ /l)	928,0000	902,0000	437,0000	0,192198	0,847588	0,192267	0,847533	30	30	0,854466

Studentov T-test: ALT kod 2. (S) i 3. (T) skupine prasadi

The screenshot displays the SPSS interface for a Mann-Whitney U Test. The main window shows the test results for the variable 'leukoc.(10^9/l)'. A dialog box titled 'Analysis/Graph Case Selection Conditions' is open, allowing for the selection of cases to include or exclude from the analysis. The results table below the dialog box provides statistical data for the test.

variable	Rank Sum M	Rank Sum S	U	Z	p-level	Z adjusted	p-level	Valid N M	Valid N S	2*1 sided exact p
leukoc.(10 ⁹ /l)	928,0000	902,0000	437,0000	0,192198	0,847588	0,192267	0,847533	30	30	0,854466

Analysis/Graph Case Selection Conditions

Use current Spreadsheet selection conditions
 Use selection conditions for this Analysis/Graph only

Enable Selection Conditions

Include cases:

All
 Specific, selected by:

By Expression:
or case number:

Exclude cases (from the set of cases defined in the 'Include cases' section)

By expression:
or case number:

By case number: Enter case numbers and/or ranges. Example: 1, 3, 5-12
By expression: Use the same operators, functions, and syntax as in the spreadsheet formulas:
Use variable names or v1, v2, ... v0 is the case number (v0-4 means cases 1-3)
Examples: (a) v1=0 OR age>18 (b) gender=MALE AND v4<v5+v6

- Workbook2*
 - Basic Statistics/Tables (prasad.vj.3_5_leuk)
 - T-test for independent samples
 - T-tests; Grouping: kod
 - Nonparametrics (prasad.vj.3_5_leuk)
 - Nonparametric comparison
 - Mann-Whitney U Test

Mann-Whitney U Test (prasad.vj.3_5_leuk)
 By variable kod
 Marked tests are significant at $p < .05000$
 Include cases: 1:60

variable	Rank Sum M	Rank Sum S	U	Z	p-level	Z adjusted	p-level	Valid N M	Valid N S	2*1 sided exact p
leukoc.(10 ⁹ /l)	928,0000	902,0000	437,0000	0,192198	0,847588	0,192267	0,847533	30	30	0,854466

T-Test for Independent Samples by Groups: prasad.vj.3_5_leuk

Select the dependent variables and one grouping variable

1-kod 2-porod.tež(g) 3-tež.21d 4-leukoc.(109/l) 5-ALT	1-kod 2-porod.tež(g) 3-tež.21d 4-leukoc.(109/l) 5-ALT
---	---

Select All Spread Zoom Select All Spread Zoom

Dependent variables: Grouping variable:

Show appropriate variables only

Use the "Show appropriate variables only" option to pre-screen variable lists and show categorical and continuous variables. Press F1 for more information.

OK Cancel

Workbook2*

- Basic Statistics/Tables (prasad.vj.3_5_leuk)
 - T-test for independent samples
 - T-tests; Grouping: kod
- Nonparametrics (prasad.vj.3_5_leuk)
 - Nonparametric comparisons
 - Mann-Whitney U Test

Mann-Whitney U Test (prasad.vj.3_5_leuk)
 By variable kod
 Marked tests are significant at $p < .05000$
 Include cases: 1:60

variable	Rank Sum M	Rank Sum S	U	Z	p-level	Z adjusted	p-level	Valid N M	Valid N S	2*1 sided exact p
leukoc.(10 ⁹ /l)	928,0000	902,0000	437,0000	0,192198	0,847588	0,192267	0,847533	30	30	0,854466

T-Test for Independent Samples by Groups: prasad.vj.3_5_leuk

Variables: Dependent: ALT
 Grouping: kod

Code for Group 1: S Code for Group 2: T

Quick | Advanced | Options

Summary: I-tests
 Box & whisker plot

Summary

Cancel

Options

Weighted moments
 DF =
 W1 N1

MD deletion
 Casewise
 Pairwise

- Basic Statistics/Tables
- Multiple Regression
- ANOVA
- Nonparametrics**
- Distribution Fitting
- Advanced Linear/Nonlinear Models
- Multivariate Exploratory Techniques
- Industrial Statistics & Six Sigma
- Power Analysis
- Neural Networks
- Data-Mining
- QC Data Mining & Root Cause Analysis
- Text & Document Mining, Web Crawling
- Statistics of Block Data
- STATISTICA Visual Basic
- Probability Calculator

Data: NK_1_...

2 x 2 Tables: NK_1_4...

Starts up Nonparametrics Set:OFF Weight:OFF CAP NUM REC

Nonparametric Statistics: NK_1_4_sve_obrada

Quick

- 2 x 2 Tables ($\chi^2/N/2/Phi^2$, McNemar, Fisher exact)
- Observed versus expected χ^2
- Correlations (Spearman, Kendall tau, gamma)
- Comparing two independent samples (groups)
- Comparing multiple indep. samples (groups)
- Comparing two dependent samples (variables)
- Comparing multiple dep. samples (variables)
- Cochran Q test
- Ordinal descriptive statistics (median, mode, ...)

Buttons: OK, Cancel, Options, Open Data, SELECT CASES, W

Data: NK_1_4_sve_obrada

2 x 2 Tables: NK_1_4_sve_obrada Nonparametric Statist...

2 x 2 Tables: NK_1_4_sve_obrada

Quick

70	30
6000	4000

Summary: 2x2 Table

Specify the frequencies for the two-by-two frequency table; then click Summary: 2x2 Table

Summary

Cancel

Options

