

4

DATA FILES

This appendix contains sample data files that may prove useful with some of the exercises in the text: Inventory, Student, StudentUpdate, Users, and LeastSquaresFile. Descriptions of these files and sample listings follow.

INVENTORY

Item number:	an integer
Number currently in stock:	an integer (in the range 0 through 999)
Unit price:	a real value
Minimum inventory level:	an integer (in the range 0 through 999)
Item name:	a character string

File is sorted so that item numbers are in increasing order.



SAMPLE Inventory FILE.

```
1011 20 54.95 15 Telephoto-Pocket-Camera
1012 12 24.95 15 Mini-Pocket-Camera
1021 20 49.95 10 Polaroid-1Step-Camera
1022 13 189.95 12 Sonar-1Step-Camera
1023 15 74.95 5 Pronto-Camera
1031 9 279.99 10 8MM-Zoom-Movie-Camera
1032 15 310.55 10 8MM-Sound/ZoomMovieCamera
1041 10 389.00 12 35MM-Minolta-SLR-XG-7-Camera
1042 11 349.95 12 35MM-Pentax-SLR-AE-1-Camera
1043 20 319.90 12 35MM-Canon-SLR-ME-Camera
1044 13 119.95 12 35MM-Hi-Matic-Camera
1045 20 89.99 12 35MM-Compact-Camera
1511 7 129.95 5 Zoom-Movie-Projector
1512 9 239.99 5 Zoom-Sound-Projector
1521 10 219.99 5 Auto-Carousel-Projector
1522 4 114.95 5 Carousel-Slide-Projector
2011 4 14.95 5 Pocket-Strobe
2012 12 48.55 10 StrobeSX-10
2013 10 28.99 15 Electronic-Flash-SX-10
3011 13 32.99 15 Tele-Converter
3012 14 97.99 15 28MM-Wide-Angle-Lens
3013 13 87.95 15 135MM-Telephoto-Lens
```

3014	8	267.95	5	35-105MM-Zoom-Lens
3015	7	257.95	5	80-200MM-Zoom-Lens
3111	4	67.50	5	Heavy-Duty-Tripod
3112	10	19.95	5	Lightweight-Tripod
3511	10	159.99	5	35MM-Enlarger-Kit
4011	4	35.98	5	40x40-Deluxe-Screen
4012	10	44.98	5	50x50-Deluxe-Screen
5011	17	4.29	25	120-Slide-Tray
5012	33	2.95	25	100-Slide-Tray
5021	12	6.25	15	Slide-Viewer
5031	12	55.95	10	Movie-Editor
6011	10	59.95	5	Condenser-Microphone
6111	80	0.89	100	AA-Alkaline-Battery
7011	19	19.79	20	Gadget-Bag
8011	45	1.49	50	135-24-Color-Film
8021	60	0.99	50	110-12-Color-Film
8022	42	1.45	50	110-24-Color-Film
8023	37	0.59	25	110-12-B/W-Film
8024	43	0.95	25	110-24-B/W-Film
8031	44	0.89	50	126-12-Color-Film
8032	27	0.59	25	126-12-B/W-Film
8041	39	6.89	50	8MM-Film-Cassette
8042	25	11.89	20	16MM-Film-Cassette
9111	10	959.99	12	Combination-Camera-Kit

STUDENT

This is a file of student records, each of which is organized as follows:

Student number:	an integer
Student's name:	two character strings (last, first) and a character (middle-initial)
Hometown:	two character strings of the form city, state
Phone number:	a character string
Gender:	a character (M or F)
Year:	a 1-digit integer (1, 2, 3, 4, or 5 for special)
Major:	a character string
Total credits earned to date:	an integer
Cumulative GPA:	a real value

The file is arranged so that student numbers are in increasing order.



SAMPLE Student FILE.

```
10103 Johnson, James L
Waupun, Wisconsin
7345229
M 1 15 3.15
ENGR
```

10104 Andrews, Peter J
Grand-Rapids, Michigan
9493301
M 2 42 2.78
CPSC

10110 Peters, Andrew J
Lynden, Washington
3239550
M 5 63 2.05
ART

10113 VandenVander, Vanessa V
Fremont, Michigan
5509237
F 4 110 3.74
HIST

10126 Aristotle, Alice A
Chino, California
3330861
F 3 78 3.10
PHIL

10144 Lucky, Lucy L
Grandville, Michigan
7745424
F 5 66 2.29
HIST

10179 Euler, Lennie L
Three_Rivers, Michigan
6290017
M 1 15 3.83
MATH

10191 Nakamura, Toky O
Chicago, Illinois
4249665
F 1 12 1.95
SOCI

10226 Freud, Fred E
Lynden, Washington
8340115
M 1 15 1.85
PSYC

10272 Speareshake, William W
Grand_Rapids, Michigan
2410744
M 5 102 2.95
ENGL

10274 Tchaikovsky, Wolfgang A
Byron-Center, Michigan
8845115
M 3 79 2.75
MUSC

10284 Orange, Dutch V
Graafschaap, Michigan
3141660
M 2 42 2.98
ENGR
10297 Caesar, Julie S
Denver, Colorado
4470338
F 4 117 3.25
HIST
10298 Psycho, Prunella E
De_Motte, Indiana
5384609
F 4 120 2.99
PSYC
10301 Bull, Sitting U
Gallup, New_Mexico
6632997
M 1 14 2.95
EDUC
10302 Custer, General G
Badlands, South_Dakota
5552995
M 3 40 1.95
HIST
10303 Fahrenheit, Felicia O
Sheboygan, Wisconsin
5154997
F 2 40 3.85
CHEM
10304 Deutsch, Sprechen Z
Sparta, Michigan
8861201
F 5 14 3.05
GERM
10307 Mendelssohn, Mozart W
Peoria, Illinois
2410747
M 3 76 2.87
MUSC
10310 Augusta, Ada B
Lakewood, California
7172339
F 2 46 3.83
CPSC
10319 Gauss, Carl F
Yorktown, Pennsylvania
3385494
M 2 41 4.00
MATH

10323 Kronecker, Leo P
Traverse_City, Michigan
6763991

M 3 77 2.75

MATH

10330 Issacson, Jacob A
Silver_Springs, Maryland
4847932

M 5 25 2.99

RELI

10331 Issacson, Esau B
Silver_Springs, Maryland
4847932

M 5 25 2.98

RELI

10339 Dewey, Johanna A
Salt_Lake_City, Utah
6841129

F 2 41 3.83

EDUC

10348 Virus, Vera W
Saginaw, Michigan
6634401

F 4 115 3.25

CPSC

10355 Zylstra, Zelda A
Downs, Kansas
7514008

F 1 16 1.95

ENGL

10377 Porgy, Bess N
Columbus, Ohio
4841771

F 2 44 2.78

MUSI

10389 Newmann, Alfred E
Cheyenne, Wyoming
7712399

M 4 115 0.99

EDUC

10395 Medes, Archie L
Whitinsville, Maryland
9294401

M 3 80 3.10

ENGR

10406 Macdonald, Ronald B
Seattle, Washington
5582911

M 1 15 2.99

CPSC

10415 Aardvark, Anthony A
Grandville, Michigan
5325912
M 2 43 2.79
ENGR
10422 Gestalt, Gloria G
Wheaton, Illinois
6631212
F 2 42 2.48
PSYC
10431 GotoDijkstra, Edgar G
Cawker_City, Kansas
6349971
M 1 15 4.00
CPSC
10448 Rembrandt, Roberta E
Sioux_Center, Iowa
2408113
F 1 77 2.20
ART
10458 Shoemaker, Imelda M
Honolulu, Hawaii
9193001
F 1 15 3.15
POLS
10467 Marx, Karl Z
Hawthorne, New_Jersey
5513915
M 3 78 2.75
ECON
10470 Scrooge, Ebenezer T
Troy, Michigan
8134001
M 4 118 3.25
SOCI
10482 Nightingale, Florence K
Rochester, New_York
7175118
F 1 15 3.15
NURS
10490 Gazelle, Gwendolyn D
Chino, California
3132446
F 2 43 2.78
PE
10501 Pasteur, Louise A
Window_Rock, Arizona
4245170
F 1 16 3.10
BIOL

10519 Elba, Able M
Bozeman, Montana
8183226
M 3 77 3.40
SPEE
10511 Lewis, Clark N
New_Era, Michigan
6461125
M 4 114 3.37
GEOG
10515 Mouse, Michael E
Boise, Idaho
5132771
M 5 87 1.99
EDUC
10523 Pavlov, Bowser T
Farmington, Michigan
9421753
F 1 13 1.77
PSYCH
10530 Chicita, Juanita A
Oklahoma_City, Oklahoma
3714377
F 5 95 2.66
BIOL
10538 Busch, Arch E
St_Louis, Missouri
8354112
M 3 74 2.75
ENGR
10547 Fault, Paige D
Petoskey, Michigan
4543116
F 5 55 2.95
CPSC
10553 Santamaria, Nina P
Plymouth, Massachusetts
2351181
F 1 15 1.77
HIST
10560 Shyster, Samuel D
Everglades, Florida
4421885
M 1 13 1.95
SOCI
10582 Yewliss, Cal C
Rudyard, Michigan
3451220
M 376 2.99
MATH

10590 Atanasoff, Eniac C
Springfield, Illinois
6142449
F 1 14 1.88
CPSC
10597 Rockne, Newton K
New_York, New_York
4631744
M 4 116 1.98
PE
10610 Roosevelt, Rose Y
Spring_Lake, Michigan
9491221
F 5 135 2.95
POLS
10623 Xerxes, Art I
Cincinnati, Ohio
3701228
M 4 119 3.25
GREE
10629 Leibniz, Gottfried W
Boulder, Colorado
5140228
M 1 13 1.95
MATH
10633 Vespucci, Vera D
Ripon, California
4341883
F 5 89 2.29
GEOG
10648 Principal, Pamela P
Albany, New_York
7145513
F 1 14 1.75
EDUC
10652 Cicero, Marsha
Rapid_City, South_Dakota
3335910
F 3 77 2.87
LATI
10657 Weerd, Dewey L
Detroit, Michigan
4841962
M 4 115 2.99
PHIL
10663 Hochschule, Hortense C
Lincoln, Nebraska
7120111
F 5 100 2.70
EDUC

10668 Einstein, Alfred M
 Newark, New_Jersey
 3710225
 M 2 41 2.78
 ENGR
 10675 Fibonacci, Leonard O
 Nashville, Tennessee
 4921107
 M 4 115 3.25
 MATH
 10682 Angelo, Mike L
 Austin, Texas
 5132201
 M 4 117 3.74
 ART
 10688 Pascal, Blaze R
 Brooklyn, New_York
 7412993
 M 1 15 1.98
 CPSC

StudentUpdate

This is a file of student grade records, each of which is organized as follows:

Student number: an integer (same as those used in the file Student)

For each of five courses:

Course name: a seven-character string (e.g., CPSC131)

Letter grade: a two-character string (e.g., A-, B+, C \cancel{B})

Course credit: an integer

The file is sorted so that student numbers are in increasing order. There is one update record for each student in Student.



SAMPLE StudentUpdate FILE.

```
10103 ENGL176 C 4 EDUC268 B 4 EDUC330 B+ 3 PE281 C 3 ENGR317 D 4
10104 CPSC271 D+ 4 ESCI208 D- 3 PHIL340 B+ 2 CPSC146 D+ 4 ENGL432 D+ 4
10110 ART 520 D 3 ESCI259 F 1 ENGL151 D+ 4 MUSC257 B 4 PSYC486 C 4
10113 HIST498 F 3 PE 317 C+ 4 MUSC139 B- 3 PHIL165 D 3 GEOG222 C 3
10126 PHIL367 C- 4 EDUC420 C- 3 EDUC473 C 3 EDUC224 D- 3 GERM257 F 4
10144 HIST559 C+ 3 MATH357 D 3 CPSC323 C- 2 PE246 D- 4 MUSC379 D+ 4
10179 MATH169 C- 4 CHEM163 C+ 4 MUSC436 A- 3 MATH366 D- 2 BIOL213 A- 4
10191 SOCI177 F 4 POLS106 A 4 EDUC495 A- 3 ENGR418 B+ 2 ENGR355 A 4
10226 PSYC116 B 3 GERM323 B- 4 ART350 A 4 HIST269 B+ 4 EDUC214 C+ 3
10272 ENGL558 A- 4 EDUC169 D+ 3 PSYC483 B+ 4 ENGR335 B+ 2 BIOL228 B 4
10274 MUSC351 B 4 PSYC209 C- 4 ENGR400 F 1 ESCI392 A 4 SOCI394 B- 3
10284 ENGR292 D 4 PSYC172 C 4 EDUC140 B 4 MATH274 F 4 MUSC101 D+ 4
10297 HIST464 F 1 HIST205 F 1 ENGR444 F 1 MATH269 F 1 EDUC163 F 1
10298 PSYC452 B 3 MATH170 C+ 4 EDUC344 C- 2 GREE138 C- 2 SPEE303 A- 3
10301 EDUC197 A 4 PE372 B 3 ENGR218 D 4 MATH309 C 4 ESCI405 C- 4
```

52 APPENDIX 4 DATA FILES

10302 CHEM283 F 1 PE440 A 2 MATH399 A- 3 HIST455 C- 4 MATH387 C- 3
10303 HIST111 D- 3 ART151 C+ 3 ENGL100 C- 3 PSYC151 D+ 3 PE104 A- 1
10304 GERM526 C- 2 CHEM243 C 4 POLS331 B- 4 EDUC398 A 3 ENGR479 D+ 4
10307 MUSC323 B+ 3 MATH485 C 4 HIST232 B+ 4 EDUC180 A 3 ENGL130 B+ 4
10310 CPSC264 B 2 POLS227 D+ 3 ENGR467 D- 3 MATH494 D- 4 ART420 C+ 4
10319 MATH276 B 2 ESCI434 A 3 HIST197 B- 4 GERM489 B- 2 ART137 C- 3
10323 MATH377 D- 4 EDUC210 D 4 MATH385 D- 4 ENGR433 C 2 HIST338 A- 4
10330 HIST546 C+ 3 ESCI440 B+ 3 GRE472 C+ 3 BIOL186 B 4 GEOG434 C+ 2
10331 HIST546 C 3 ESCI440 B+ 3 GRE472 C 3 BIOL186 B+ 4 GEOG434 C+ 2
10339 EDUC283 B 3 CPSC150 B 3 ENGR120 D 4 CPSC122 F 4 ART216 B 4
10348 CPSC411 C- 3 HIST480 C+ 4 PSYC459 B 4 BIOL299 B+ 4 ECON276 B+ 3
10355 ENGL130 C- 3 CPSC282 C+ 4 CPSC181 A- 4 CPSC146 C- 4 SOCI113 F 1
10377 SOCI213 D+ 3 PSYC158 D 4 MUSC188 C 3 PSYC281 D- 4 ENGR339 B+ 4
10389 EDUC414 D+ 4 PSYC115 C- 2 PSYC152 D- 4 ART366 D- 3 ENGR366 F 4
10395 ENGR396 B 4 HIST102F 3 ENGL111 A 4 PSYC210 D- 2 GREE128 A 4
10406 CPSC160 C+ 4 CPSC233 C 1 LATI494 C+ 3 ENGL115 C- 3 MATH181 A 3
10415 ENGR287 C 4 EDUC166 B- 4 EDUC106 A- 3 PE190 F 3 MATH171 B- 3
10422 PSYC275 A- 4 MATH497 A 4 EDUC340 F 1 GERM403 C- 4 MATH245 D+ 4
10431 CPSC187 D- 4 CPSC426 F 4 ENGR476 B- 4 BIOL148 B 3 CPSC220 F 3
10448 ART171 D+ 3 CPSC239 C- 3 SOCI499 B- 4 HIST113 D+ 3 PSYC116 C 4
10458 POLS171 F 1 CPSC187 C+ 4 CHEM150 B 2 PHIL438 D- 4 PHIL254 D 4
10467 ECON335 D- 3 ESCI471 B+ 4 MATH457 C+ 3 MATH207 C 2 BIOL429 D 4
10470 MUSC415 C+ 3 POLS177 C 3 CPSC480 A 4 PSYC437 B 3 SOCI276 D 4
10482 ENGL158 D- 4 EDUC475 B 3 HIST172 B- 2 PE316 F 4 ENGR294 A- 3
10490 PE239 F 4 ENGL348 F 3 LATI246 F 4 CPSC350 F 4 MATH114 F 1
10501 BIOL125 F 4 CPSC412 F 3 ESCI279 F 4 ENGR153 F 2 ART293 F 1
10519 SPEE386 B+ 4 HIST479 C 4 PSYC249 B- 2 GREE204 B- 4 PE421 A 1
10511 ESCI416 B 3 MATH316 D- 4 MATH287 C 2 MATH499 A- 4 ESCI288 D 3
10515 EDUC563 D+ 3 PHIL373 D- 3 ART318 B 4 HIST451 F 1 ART476 C+ 3
10523 BIOL183 D- 2 HIST296 D+ 4 HIST380 B+ 4 ENGR216 C 4 MATH412 B- 2
10530 ENGL559 F 1 EDUC457 D+ 4 CPSC306 A 3 ENGR171 B+ 1 CPSC380 A 4
10538 ENGR328 A- 4 ENGR336 C 3 EDUC418 D+ 3 PHIL437 B+ 4 CPSC475 D 4
10547 CPSC537 A- 4 ART386 D 4 HIST292 D- 4 ENGR467 A- 4 PE464 B+ 4
10553 HIST170 A- 4 SOCI496 D- 3 PHIL136 B+ 4 CPSC371 D- 4 CPSC160 A- 1
10560 SOCI153 D+ 3 MATH438 D+ 4 CPSC378 C 4 BIOL266 F 3 EDUC278 D+ 3
10582 MATH388 A- 3 PE311 B 3 ECON143 D 4 MATH304 C+ 3 PE428 C+ 4
10590 CPSC134 B- 3 ESCI114 B+ 3 CPSC492 C 4 ENGL121 C 4 ENGR403 A- 4
10597 PE423 A- 3 BIOL189 D+ 3 PHIL122 D- 4 ENGL194 C- 4 SOCI113 D+ 3
10610 ESCI594 C- 3 PHIL344 F 4 CPSC189 B+ 2 ENGR411 D- 3 MATH241 A 4
10623 GREE412 B- 4 ENGL415 D- 3 ENGL234 D- 4 MATH275 F 1 SOCI124 B+ 3
10629 MATH137 D 2 MATH481 F 3 ESCI445 F 1 MATH339 D 4 ART219 B+ 4
10633 GEOG573 B 4 ENGL149 C+ 4 EDUC113 B+ 4 ENGR458 C- 2 HIST446 D+ 4
10648 EDUC132 D+ 4 MUSC103 D- 4 ENGL263 C 4 ENGL134 B+ 4 ESCI392 A 3
10652 LATI363 F 3 BIOL425 F 1 CPSC267 C 4 EDUC127 C+ 3 MATH338 B 4
10657 PHIL429 F 1 ART412 D- 4 MUSC473 B- 4 SOCI447 C- 4 MATH237 D+ 2
10663 EDUC580 B- 4 ENGR351 B+ 4 SOCI283 D 4 ART340 C 4 PSYC133 D+ 3
10668 ENGR274 B+ 4 SOCI438 C 1 PE327 C 4 BIOL158 A 4 EDUC457 A- 4
10675 MATH457 A 4 ENGR114 C 4 CPSC218 C 3 ESCI433 C- 3 PSYC243 C+ 1
10682 ART483 D+ 3 GERM432 C 3 ENGL103 B+ 4 MUSC169 C- 3 SOCI381 C- 2
10688 CPSC182 F 1 HIST371 C+ 4 PSYC408 F 1 MUSC214 B+ 4 MATH151 C 3

Users

This is a file of computer system user records, each of which is organized as follows:

Identification number:	an integer
User's name:	a string of the form last-name, first-name
Password:	a string
Resource limit (in dollars):	an integer with up to four digits
Resources used to date:	a real value

The file is arranged so that identification numbers are in increasing order.



SAMPLE Users FILE

```

10101 Miltgen, Joseph
moe
750 380.81
10102 Small, Isaac
large
650 598.84
10103 Snyder, Samuel
r2d2
250 193.74
10104 Edmundsen, Edmund
abcde
250 177.93
10105 Braunschweiger, Christopher
brown
850 191.91
10106 Pizzula, Norma
pizza
350 223.95
10107 VanderVan, Henry
dutch
750 168.59
10108 Freeloader, Freddie
red
450 76.61
10109 Alexander, Alvin
great
650 405.04
10110 Mouse, Michael
ears
50 42.57
10111 Lukasewicz, Zzyzk
rpn
350 73.50
10112 Christmas, Mary
noel
850 33.28
10113 Adam, Joe
eve

```

750 327.53
10114 Nijhoff, Laran
kkid
550 382.03
10115 Liestma, Stan
saab
650 38.36
10116 Zwier, Apollos
PJ
350 249.48
10117 Jaeger, Tim
biker
250 246.73
10118 VanZwalenberg, Jorge
egypt
850 466.95
10119 Jester, Courtney
joker
450 281.16
10120 McDonald, Ronald
fries
250 35.00
10121 Nederlander, Benaut
dutch
550 28.82
10122 Haybailer, Homer
farm
850 37.32
10123 Spear, Bill
shake
450 337.01
10124 Romeo, Juliet
XOXOX
150 100.19
10125 Greek, Jimmy
wager
250 0.03
10126 Virus, Vera
worm
750 67.35
10127 Beech, Rocky
wreck
950 256.18
10128 Engel, Angel
wings
150 16.39
10129 Abner, Lil
daisy
950 89.57
10130 Tracy, Richard
crime
550 392.00
10131 McGee, Fibber
molly

750 332.12
10132 Bell, Alex
phone
850 337.43
20101 Cobb, Tyrus
bball
50 32.81
20102 George, Ruth
babe
350 269.93
20103 Descartes, Ronald
horse
250 109.34
0104 Euclid, Ian
greek
350 63.63
20105 Daniels, Ezekiel
lions
350 128.69
20106 Tarzan, Jane
apes
150 100.31
20107 Habbakuk, Jonah
whale
950 183.93
20108 Columbus, Chris
pinta
850 202.24
20109 Byrd, Dick
north
550 168.49
20110 Bunyan, Pauline
babe
550 333.47
20111 Chaucer, Jeff
poem
950 37.02
20112 Stotle, Ari
logic
750 337.74
20113 Harrison, Ben
pres
550 262.97
20114 James, Jesse
guns
250 58.81
20115 Scott, Francine
flag
350 168.11
20116 Phillips, Phyllis
gas66
650 322.22
20117 Doll, Barbara
ken

```

350 26.34
20118 Finn, Huck
tom
350 22.86
20119 Sawyer, Tom
huck
950 460.30
20120 Newmann, Alfred
mad
450 116.00
20121 Simple, Simon
pie
550 486.05
20122 Schmidt, Messer
plane
250 35.31
20124 Luther, Calvin
ref
777 666.66
20125 Yale, Harvard
ivy
150 127.70

```

LeastSquaresFile

This is a text file in which each line contains a pair of real numbers representing the x coordinate and the y coordinate of a point.



SAMPLE LeastSquaresFile FILE

```

2.18 1.06
7.46 12.04
5.75 8.68
3.62 4.18
3.59 3.87
7.5 12.32
7.49 11.74
7.62 12.07
7.39 12.17
1.88 0.58
6.31 10.09
2.53 2.04
5.44 8.25
1.21 -0.76
9.07 15.5
3.95 5.0
9.63 17.01
9.75 16.91
9.99 16.67
3.61 4.69
9.06 15.0
5.03 6.62
4.45 6.12

```

4.54	5.89
0.92	-1.02
0.82	-1.5
2.62	2.1
5.66	8.53
8.05	13.05
8.99	14.85
5.12	7.03
3.85	4.43
6.08	9.21
1.42	0
2.58	2.38
5.99	9.42
0.63	-1.63
9.98	17.25
5.63	8.58
8.94	15.27
7.34	11.48
6.55	9.92
4.89	7.07
9.59	15.82
1.81	0.45
0.99	-0.71
4.82	6.91
9.68	16.24
1.21	-0.22
4.54	5.64
1.48	0.3
6.58	9.8
3.05	3.56
6.19	9.62
6.47	9.83
8.13	10.75
7.31	11.73
0.33	-1.93
5.12	7.41
5.23	7.73
7.14	11.02
1.27	-0.21
2.51	1.59
5.26	7.86
4.74	6.19
2.1	2.12
5.27	7.73
2.85	2.63
1.99	1.09
8.91	15.03
2.19	1.21
1.6	-0.05
8.93	15.12
3.19	3.56
3.37	3.64
