ID	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
1	1	0	0	0	5	1	75	7
2	0	0	1	0	1	1	58	6
3	1	0	0	0	3	4	76	5
4	0	1	1	1	3	2	89	6
5	0	1	1	1	4	4	77	7
6	1	0	1	0	3	4	73	6
7	1	0	0	0	4	1	72	6
8	1	0	0	0	4	1	88	6
9	1	0	0	0	4	3	90	6
10	1	0	0	0	3	4	39	5
11	1	0	0	0	5	2	40	4
12	1	1	1	0	5	5	68	9
13	1	1	1	1	5	1	71	8
14	1	0	1	0	3	1	98	4
15	1	1	0	1	3	1	80	7
16	0	0	1	0	4	1	93	6
17	0	0	1	0	3	1	41	6
18	1	0	1	1	4	2	42	8
19	1	0	0	0	3	3	39	6
20	0	1	0	0	4	2	65	7
21	0	0	0	0	4	2	70	6
22	1	0	1	0	5	4	55	6
23	1	1	0	0	4	2	74	6
24	1	0	1	0	5	2	36	4
25	0	0	1	0	4	4	65	5
26	1	1	1	1	5	2	49	7
27	0	1	1	1	1	2	89	7
28	0	1	1	1	4	4	64	4
29	0	0	0	0	5	3	82	5
30	0	1	1	0	4	1	82	4
31	1	1	0	0	5	1	76	6
32	1	0	0	0	3	1	92	4
33	0	1	1	1	3	4	75	7
34	1	0	0	0	5	5	62	4
35	1	0	0	0	5	4	54	7
36	1	0	0	0	5	5	68	5
37	0	1	1	1	3	1	80	5
38	1	1	0	1	5	5	60	6
39	0	0	0	0	4	2	83	6
40	1	1	0	0	4	2	61	8

AverageQ1	63%	=AVERAGE(B$4:B$43)	1
AverageQ2	40%	=AVERAGE(C$4:C$43)	2
AverageQ3	48%	=AVERAGE(D$4:D$43)	3
AverageQ4	28%	=AVERAGE(E$4:E$43)	4
AverageQ5	3.90	=AVERAGE(F$4:F$43)	5
AverageQ6	2.50	=AVERAGE(G$4:G$43)	6
AverageQ7	68.78	=AVERAGE(H$4:H$43)	7
AverageQ8	5.93	=AVERAGE(I$4:I$43)	8

Line numbers (right margin): 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42

Project requirements: P3A
This demo uses the symbols (row #1, Q2, etc) ..
       and the practice questions

Q1-Q4 are binary with values of zero and one.
       1 stands for YES; 0 stands for NO

1) Generate averages shown above.

2) Create these pivot tables using demo data.

3) Describe specified cell values using question shown below.
       Do not show symbols such as row #1 or Q2.

Population: Students
 Questions
      Q1 Are you female?
      Q2 Are you a senior?
      Q3 Do you live on campus?
      Q4 Are you a business major?
      Q7 What is your height
      Q8 Years in college?

Total cell: the cell in the total column and total row
Margin cell: a cell in a total column or total row.
Body cell: a cell not in a total col and not in total row.

Symbolic 1: Uses question #, row# and col#
Symbolic #2: Uses answers by question #,
Actual: Uses answers to actual questions

P3-Demo: Practice-Run Instruction

1 Obtain PR3 Demo data.   Create averages for all 8 variables (columns)   44
2 Create pivot tables and describe selected values.   45
    Two group table of counts as shown. Two-way table of counts as shown.   46
    Two-group table of averages as shown. Two-way table of averages as shown.   47
    Two-group table of statistics as shown.   48
    Two 100% tables: % of Row and % of Col as shown.   49
    Two-way half table: Average that said Yes to those shown [Format as percentages]   50
3 Describe selected cells using survey questions without symbols (row #1, Q2).   51

Describe a total cell and a body cell

TWO-GROUP COUNT TABLE

Construct a two-group count table on Q1

Count of Q1	
Q1	Total
0	15
1	25
Total	40

Symbolic1: 40 subjects are in the Total row

Symbolic2: 40 subjects took this survey

Actual: 40 subjects took this survey

Symbolic1: 25 subjects are in row #1

Symbolic2: 25 [respondents] said Yes to Q1

Actual: 25 respondents are females

TWO-GROUP TABLE OF AVERAGES

Construct average table for Q7 indexed by Q1

Average of Q7	
Q1	Total
0	74.2
1	65.5
Total	68.8

Symnbolic1: 68.8 is mean of Q7 in row #3

Symbolic: 68.8 is mean of Q7 for these respondents

Actual: The average height of these students is 68.8"

Sym: 65.5 is mean of Q7 among populiation in row #2

Symbol: 65.5 is mean of Q7 of those saying Yes to Q1

Among women students, the average height is 65.5"

TWO-GROUP TABLE: SUMMARY STATISTICS

Construct statistics table for Q2 indexed by Q1

Q1	Data	Total
0	Average of Q2	0.53
	Count of Q2_2	15
1	Average of Q2	0.32
	Count of Q2_2	25
Total Average of Q2		0.4
Total Count of Q2_2		40

[Just describe the average]

Average of zero-one binary gives percentage of ones.

Drag Q2 into the body area twice.

Of those in row #3, the average of Q2 is 0.40 (40%)

Of all respondents, 40% are Seniors

Of those in row #2, the average of Q2 is 0.32 (32%)

Of the females, 32% are seniors

Describe a total cell and a body cell

TWO-WAY COUNT TABLE

Construct a two-way count table on Q1 and Q2

Count of Q1	Q2		
Q1	0	1	Total
0	7	8	15
1	**17**	8	**25**
Total	24	16	40

Symbolic1: 16 of those in column #2 are in row #3.

Symbolic2: 16 [respondents] said Yes to Q2.

Actual: 16 respondents are seniors.

Symbolic1: 8 of these are in row #2 and in column #2.

Symbolic2: 8 of those said Yes to Q1 and Yes to Q2.

Actual: 8 respondents are female seniors.

TWO-WAY TABLE OF AVERAGES

Construct average table for Q7 indexed by Q1 and Q2

Average of Q7	Q2		
Q1	0	1	Total
0	70.3	77.6	74.2
1	64.6	67.4	65.5
Total	66.3	72.5	68.8

Symbolic: 72.5 is mean of Q7 among those in col #2

S2: 72.5 is mean of Q7 among those saying Yes to Q2

Among seniors, the average height is 72.5"

S: 67.4 is mean of Q7 for those in row #2 and column #2

S: 67.4 is mean of Q7 among those saying Yes to Q1 & Q2

A: Among female seniors, mean height is 67.4 yrs

TWO-GROUP TABLE: SUMMARY STATISTICS

Construct statistics table for Q7 indexed by Q1

Q1	Data	Total
0	Average of Q7	74.20
	Count of Q7_2	15
	StdDev of Q7_3	13.86
1	Average of Q7	65.52
	Count of Q7_2	25
	StdDev of Q7_3	17.86
Total Average of Q7		68.78
Total Count of Q7_2		40
Total StdDev of Q7_3		16.83

Of those in row #3, the average of Q7 is 66.78"

Average height of all subjects is 68.78"

Of those in row #1, the average of Q7 is 74.20"

Average height for males is 74.2"

Describe a total cell (not 100%) and a body cell. | Describe a total cell (not 100%) and a body cell.

FULL 100% ROW TABLE

Construct row table for Q1 (row) vs Q2 (col)

Count of Q1	Q2		
Q1	0	1	Total
0	47%	53%	100%
1	68%	**32%**	100%
Total	60%	**40%**	100%

Note: Cloest 100% gives the whole (pie)

Symbolic1: 40% of those in row #3 are in column #2.
Symbolic2: 40% [of respondents] said Yes to Q2
Actual: 40% of respondents are seniors.

32% of those in row #2 are in column #2.
32% of those saying Yes to Q1 said Yes to Q2.
32% of women are seniors.

FULL 100% COLUMN TABLE

Construct column table for Q1 (row) vs Q2 (col)

Count of Q1	Q2		
Q1	0	1	Total
0	29%	50%	38%
1	**71%**	50%	**63%**
Total	100%	100%	100%

Note: Cloest 100% gives the whole (pie)

Symbolic1: 63% of those in column #3 are in row #2.
Symbolic2: 63% [of respondents] said Yes to Q1.
Actual: 63% of respondents are female

71% of those in column #1 are in row #2.
71% of those saying No to Q2 said Yes to Q1.
71% of non-seniors are female

TWO-WAY HALF-TABLES OF PERCENTAGES

Construct average table for Q3 indexed by Q1 and Q2. | Construct average table for Q4 indexed by Q1 and Q2.
Average of binary gives percentage who said Yes. | Average of binary gives percentage who said Yes.
Saying Yes to Q3 is the common part in all cells | Saying Yes to Q4 is the common part in all cells

Average of Q3	Q2		
Q1	0	1	Total
0	57%	88%	73%
1	29%	38%	32%
Total	38%	63%	48%

Average of Q4	Q2		
Q1	0	1	Total
0	0%	75%	40%
1	6%	50%	20%
Total	4%	63%	28%

Sym: Of those saying Yes to Q1, 32% said Yes to Q3
Among women students, 32% live on campus.

Of those saying Yes to Q1 & Q2, 32% said Yes to Q3.
Actual: 38% of female seniors live on campus.

Symbolic: Of those saying Yes to Q2, 63% said Yes to Q4
Symbolic: Among seniors, 20% are business majors.

Sym: Of those saying Yes to Q1 & Q2, 50% said Yes to Q4
Actual: 50% of female seniors are business majors.