Case Analysis – Rob's Market
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This report analyzes the purchasing behavior of customers who use the RM Loyalty card (a card that's scanned at checkout and allows customers to qualify for discounted prices). It focuses on buying behavior of customers with regard to bread, jelly, and peanut butter.

The data set contains purchases by 1000 customers over a one-week period with the following variables:
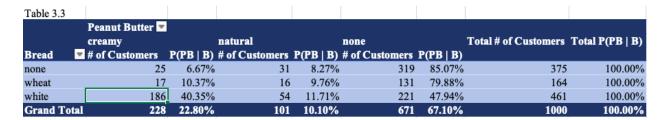
*Bread – wheat, white, or none
*Jelly – grape, strawberry, or none
*Peanut butter – creamy, natural, or none

Each row in the dataset represents an individual customer's purchase of the three items.

1. The probability that a random customer does not purchase any of the three items is **27.8%.**

2-3. The probability that a random customer purchase white bread and wheat bread is
___**46.10%**__ and _**16.40%**____ respectively as shown in Table 3.1 below.

Table 3.1

Bread Types ▼	Percentage of Customers
none	37.50%
wheat	16.40%
white	46.10%
Grand Total	**100.00%**

Reference Table 3.2 below for questions 4 - 5.

4. The probability that a random customer purchases grape jelly given that he or she purchases white bread is _**66.38%**____.

5. The probability that a random customer purchases strawberry jelly given that he or she purchases white bread _**8.24%**___.

Table 3.2

Bread	Jelly ▼						Total # of Customers	Total P(J|B)
	grape		none		strawberry			
	▼ # of Customers	P(J|B)	# of Customers	P(J|B)	# of Customers	P(J|B)		
none	32	8.53%	325	86.67%	18	4.80%	375	100.00%
wheat	10	6.10%	132	80.49%	22	13.41%	164	100.00%
white	306	66.38%	117	25.38%	38	8.24%	461	100.00%
Grand Total	348	34.80%	574	57.40%	78	7.80%	1000	100.00%

6. The probability that a random customer purchases creamy peanut butter given that he or she purchases white bread is **40.35%.**

7. The probability that a random customer purchases natural peanut butter given that he or she purchases white bread is **11.71%.**

8. The probability that a random customer purchases creamy peanut butter given that he or she purchases wheat bread is **10.37%.**

9. The probability that a random customer purchases natural peanut butter given that he or she purchases wheat bread is **9.76%.**

Table 3.3

| Bread | Peanut Butter | | | | | | Total # of Customers | Total P(PB \| B) |
| | creamy | | natural | | none | | | |
	# of Customers	P(PB | B)	# of Customers	P(PB | B)	# of Customers	P(PB | B)		
none	25	6.67%	31	8.27%	319	85.07%	375	100.00%
wheat	17	10.37%	16	9.76%	131	79.88%	164	100.00%
white	186	40.35%	54	11.71%	221	47.94%	461	100.00%
Grand Total	228	22.80%	101	10.10%	671	67.10%	1000	100.00%

10. The probability that a random customer purchases white bread, grape jelly, and creamy peanut butter is **12.4%.**