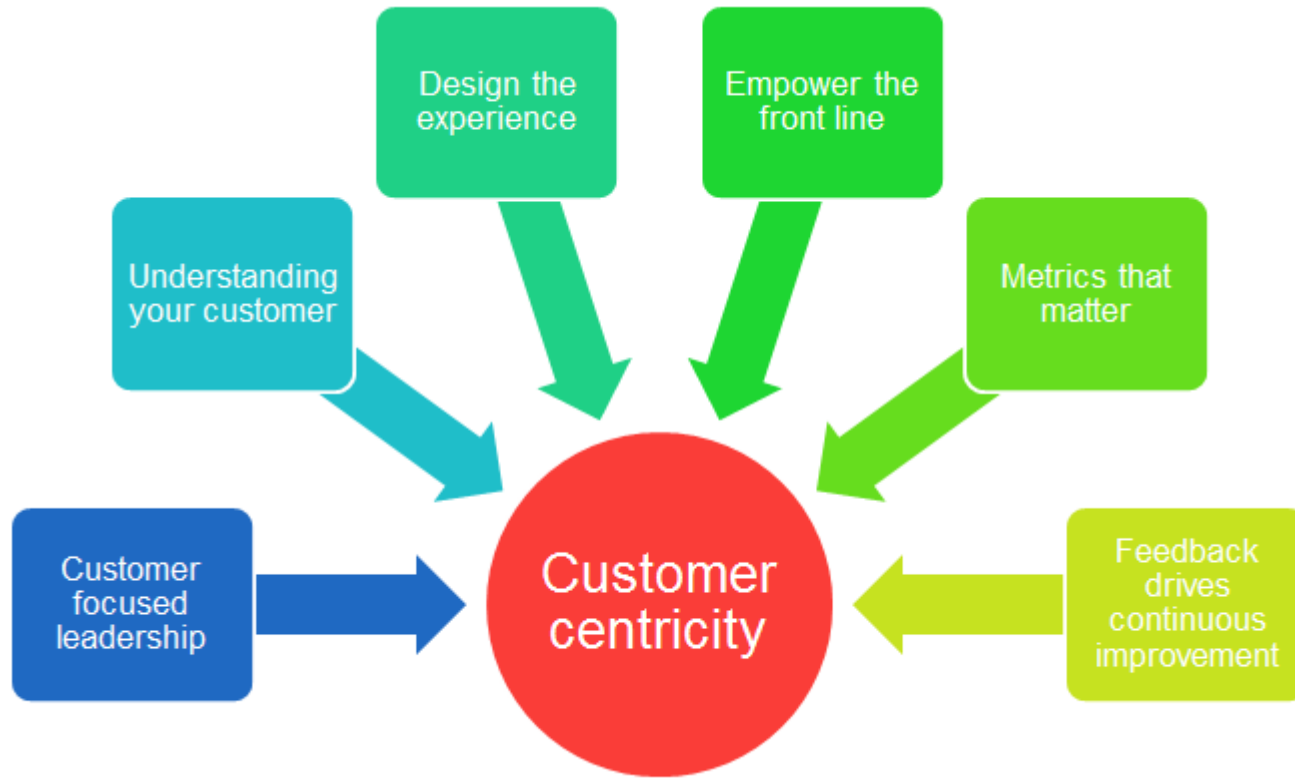


WORKSHOP PAI 'DATA ANALYTICS'



TARGET MARKETING & LEAD GENERATION

PREPARED BY: MORTALITY TEAM



Deloitte and Touche found that customer-centric companies were **60% more profitable** compared to companies that were not focused on the customer.

Source: <https://www.superoffice.com/blog/how-to-create-a-customer-centric-strategy/>



Objectives

- Customer Centricity
- Cross/Up Sales
- Expenses Optimization

Methodology

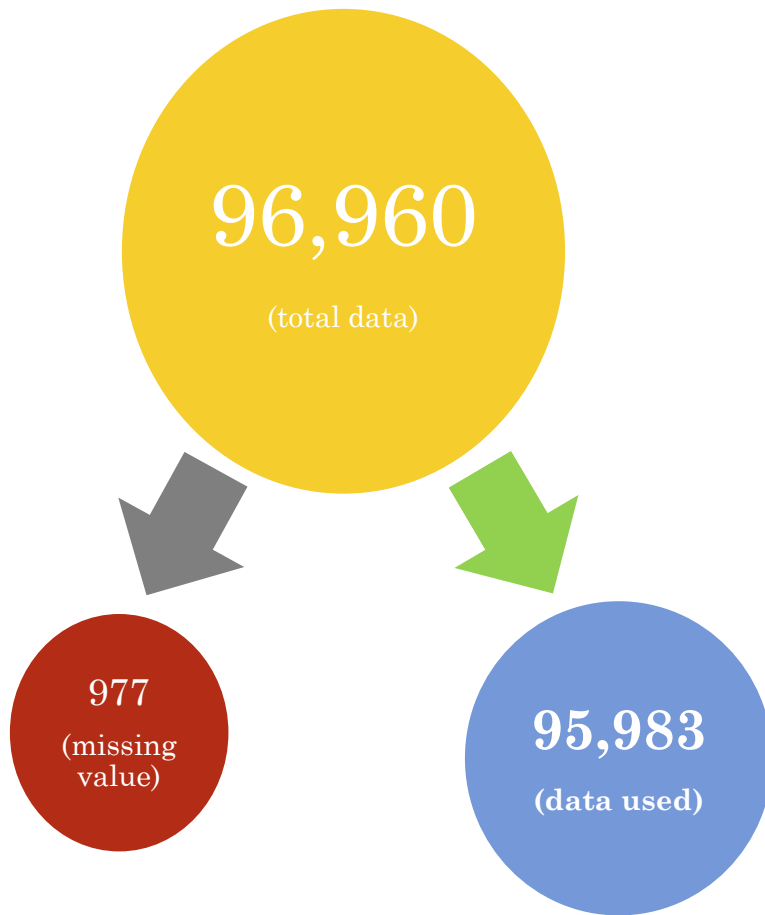
- Classification → Decision Tree

Output

- Product guidelines for sales force to identify opportunities to provide products and services for costumers best interest



PRE-PROCESSING



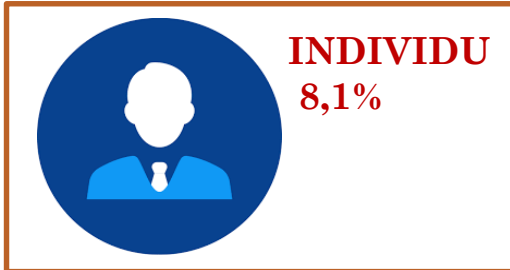
From 22 variables, We used 8 variables which is related to the purpose, such as:

- Medical/Non-Medical Status
- Occupation
- Entry Age
- Sex
- Extra Mortality
- Product Name
- Policy Term
- Sum Assured

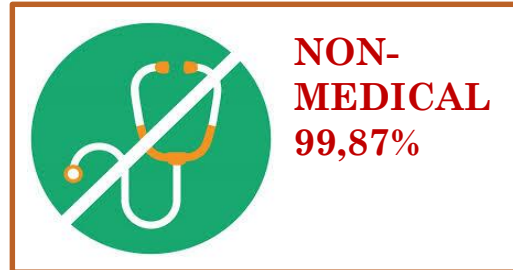
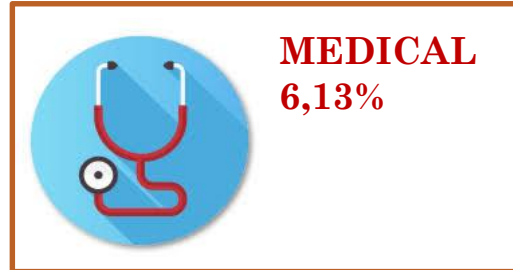


DATA EXPLORATION

LINE BUSINESS



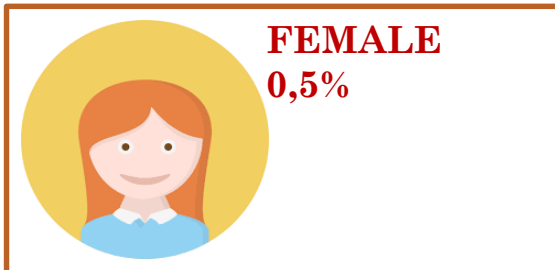
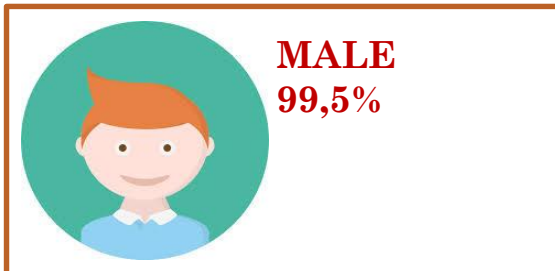
BUSINESS CLASS



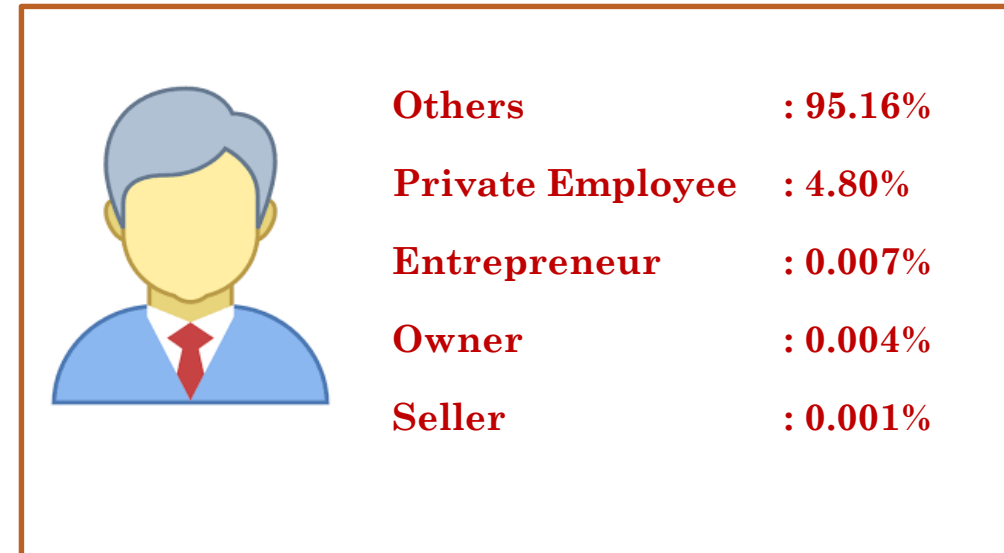
SMOKING STATUS



SEX



JOB



DATA EXPLORATION

AGE

Age	Mix
<17 y.o	0.002%
18 – 25 y.o	5.35%
26 – 35 y.o	25.37%
36 – 45 y.o	27.72%
46 – 55 y.o	23.22%
>55 y.o	18.31%

SUM ASSURED

SA	Mix
<50 Mio	38%
50 – 100 Mio	23%
100 – 150 Mio	17%
150 – 200 Mio	9%
200 – 250 Mio	6%
>250 Mio	7%

EXTRA MORTALITY

EM	Mix
Yes	1%
No	99%

COVERAGE PERIOD

Period	Mix
<=5 years	71%
> 5 years	39%



DATA EXPLORATION

AGE

Age	Mix
<17 y.o	0.002%
18 – 25 y.o	5.35%
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>55 y.o	18.31%

SUM ASSURED

SA	Mix
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150 – 200 Mio	9%
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EXTRA MORTALITY

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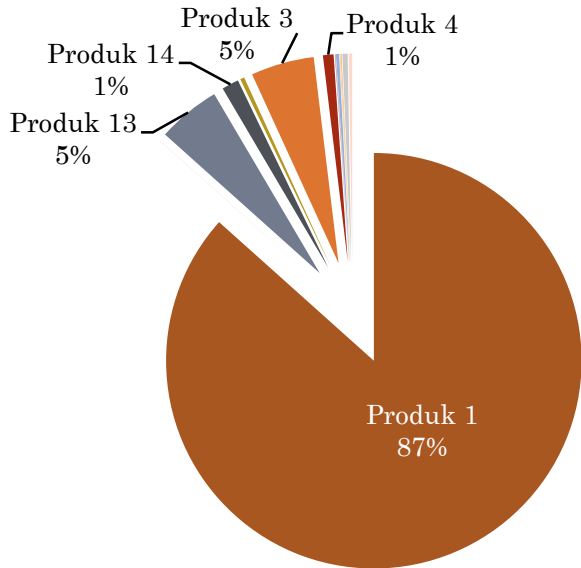
COVERAGE PERIOD

Period	Mix
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>= 5 years	39%



DATA EXPLORATION

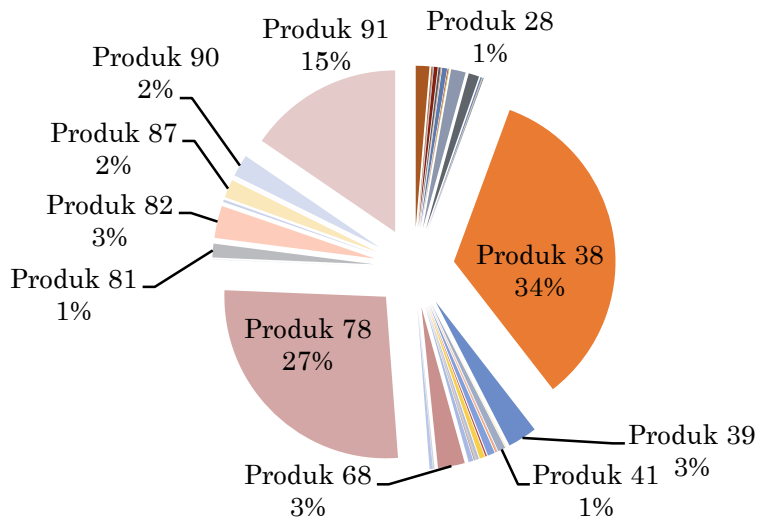
GROUP



Notes:

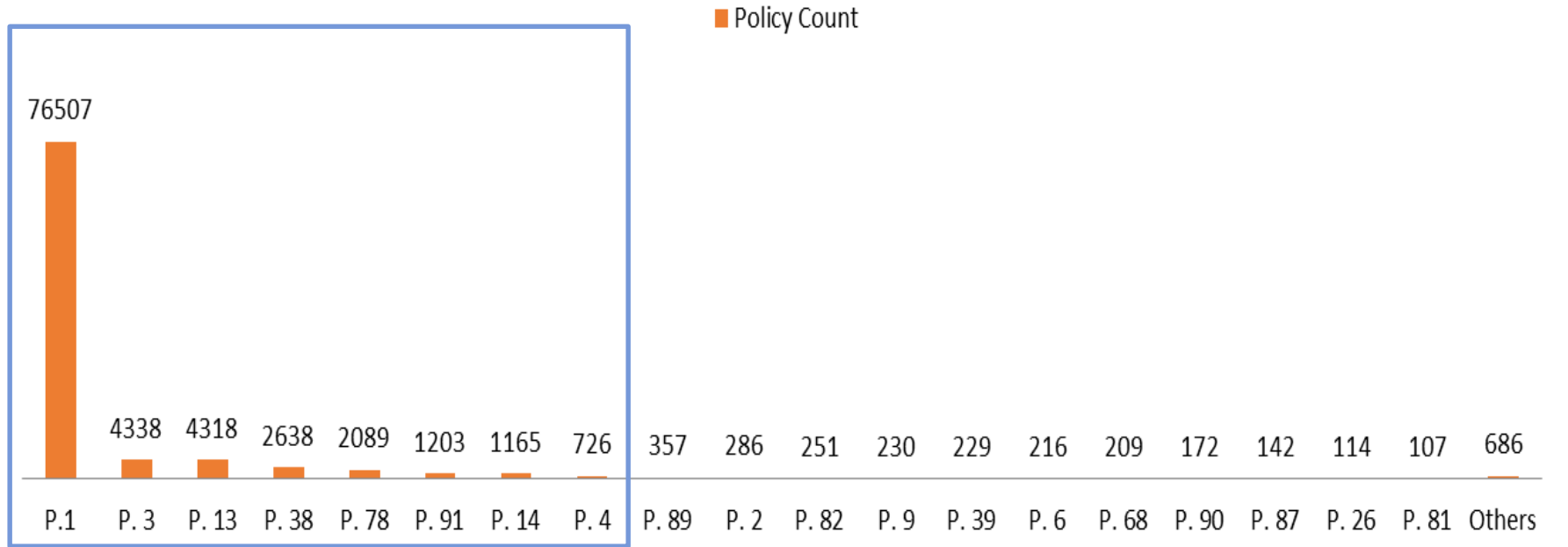
- Product distribution for each line business has different pattern.
- Commonly in the market, product features between group and individual is different

INDIVIDU



DATA EXPLORATION

Product Distribution



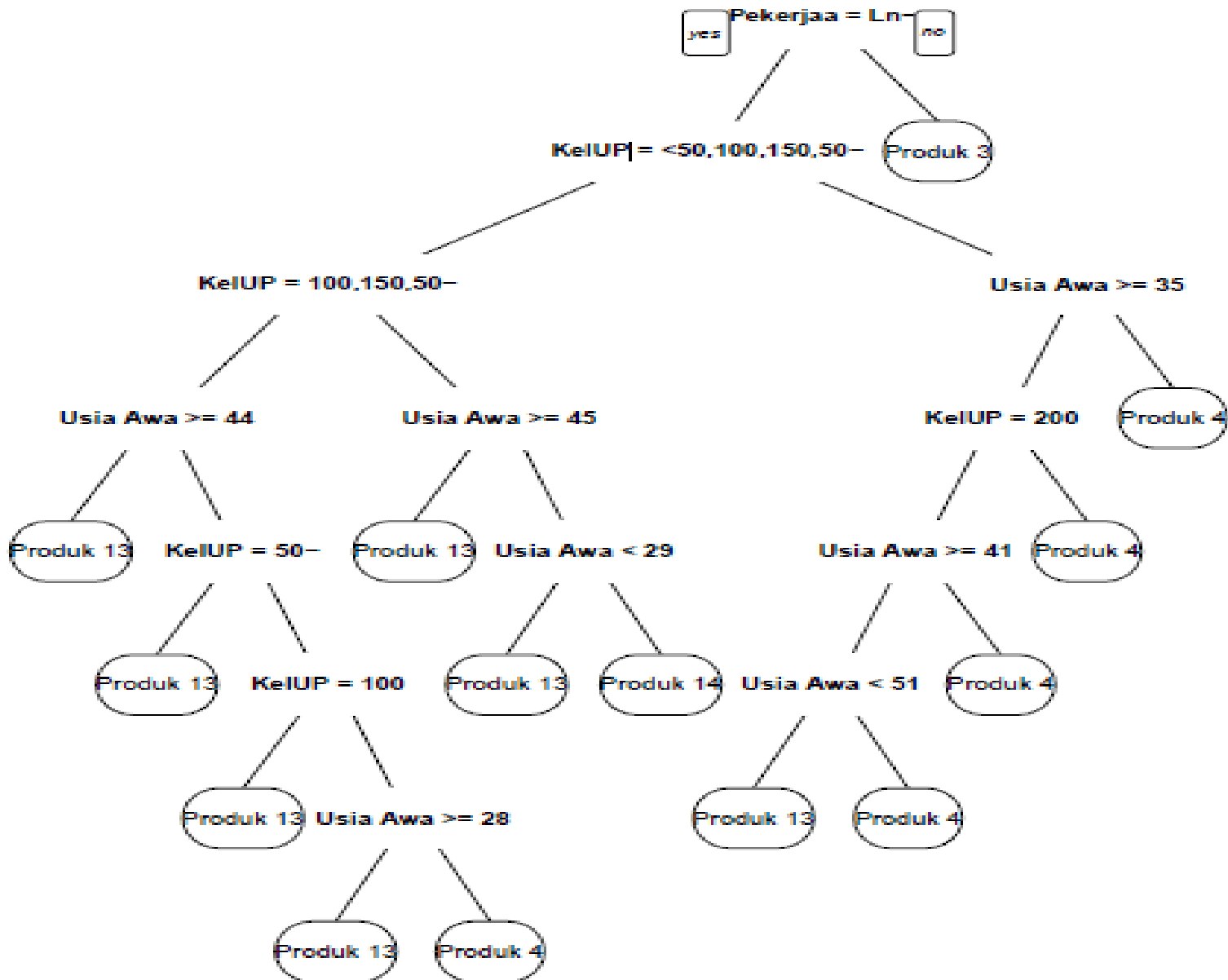
P = Product

Notes:

Based on graph above, we take 8 products with higher policy count with 97% portion.



DECISION TREE OF GROUP



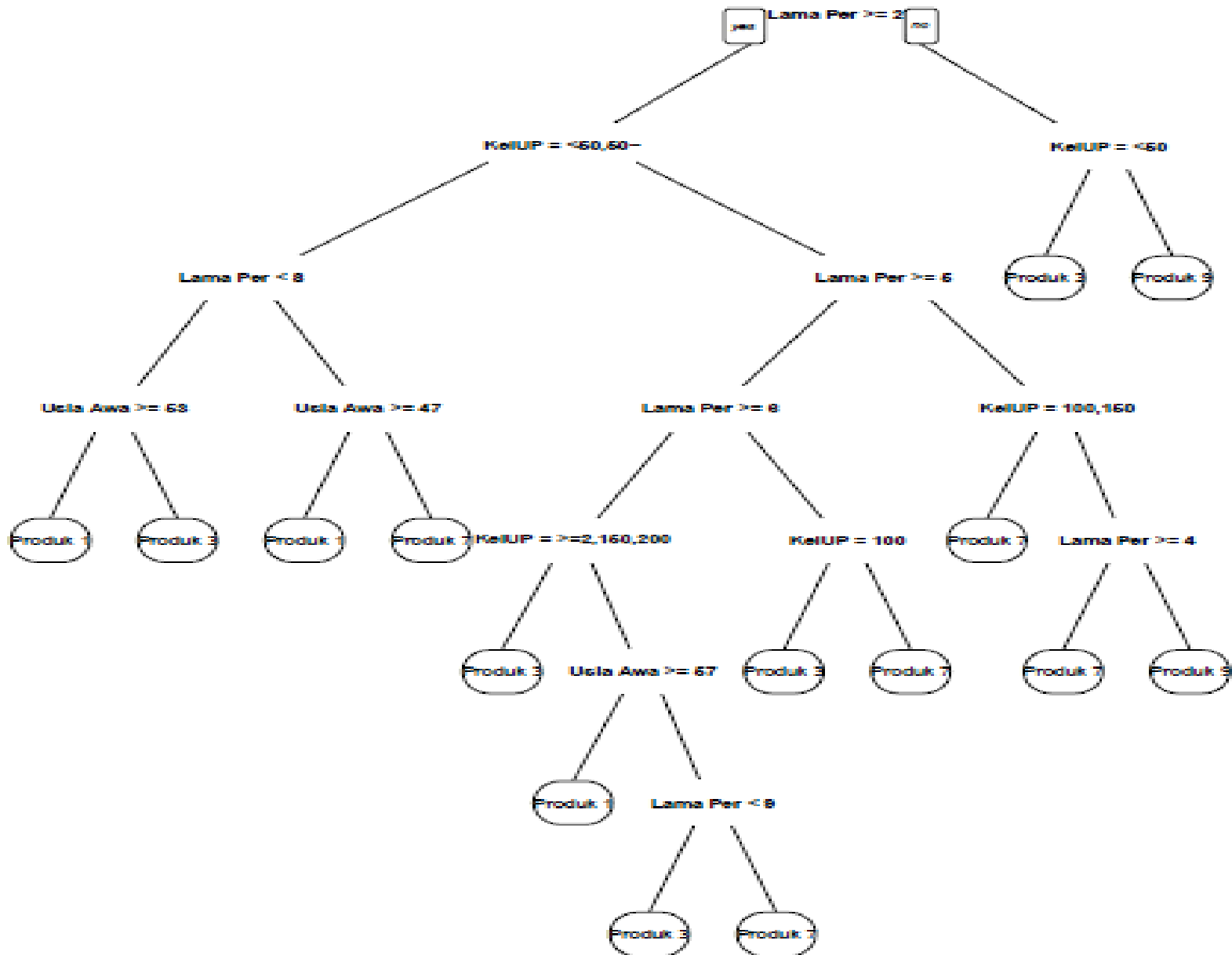
CONFUSION MATRIX & ACCURACY OF GROUP

	pred_group_prior			
	Produk 13	Produk 14	Produk 3	Produk 4
Produk 13	1163	90	0	43
Produk 14	185	165	0	0
Produk 3	0	0	1302	0
Produk 4	104	2	0	112

1. Accuracy Group = 86.6%
2. Accuracy of Each Product
 - Prod 13 = 89.7%
 - Prod 14 = 47.1%
 - Prod 3 = 100%
 - Prod 4 = 51.3%



DECISION TREE OF INDIVIDU



CONFUSION MATRIX & ACCURACY OF INDIVIDU

	pred_ind_prior			
	Produk 1	Produk 38	Produk 78	Produk 91
Produk 1	27	4	1	0
Produk 38	11	661	113	7
Produk 78	11	168	388	60
Produk 91	0	11	55	295

1. Accuracy Individu = 75.6%

2. Accuracy of Each Product

- Prod 1 = 84.3%
- Prod 38 = 83.4%
- Prod 78 = 61.8%
- Prod 91 = 81.7%



OUTPUT OF GROUP

a. Occupation : Non Others

Recommended Products:

- Product 1 and,
- Product 3

b. Occupation : Others

Recommended Products:

- Product 1 and,
- As per table below:

Entry Age (years old)	SA (in IDR Million)				
	<50	50-150	150-200	200-250	>250
<28	P.4	P.13	P.4	P.4	P.4
28	P.13	P.13	P.13	P.4	P.4
29 - 34	P.14	P.13	P.13	P.4	P.4
>=35 - 40	P.14	P.13	P.13	P.4	P.4
>=41-44	P.14	P.13	P.13	P.13	P.4
45-51	P.13	P.13	P.13	P.13	P.4
>51	P.13	P.13	P.13	P.4	P.4

P = Product



OUTPUT OF INDIVIDU

Coverage Period < 2 years

SA (in IDR Million)	Product
<50	P.38
>50	P.91

2 years <= Coverage Period < 4 years

Age (years old)	SA (in IDR Million)			
	<50	50-100	100-200	>200
<47	P.38	P.38	P.78	P.91
47-52	P.38	P.38	P.78	P.91
53-57	P.1	P.1	P.78	P.91
>57	P.1	P.1	P.78	P.91

4 years <= Coverage Period < 5 years

Age (years old)	SA (in IDR Million)		
	<50	50-100	>100
<47	P.38	P.38	P.78
47-52	P.38	P.38	P.78
53-57	P.1	P.1	P.78
>57	P.1	P.1	P.78

P = Product



OUTPUT OF INDIVIDU

5 years <= Coverage Period < 8 years

Age (years old)	SA (in IDR Million)			
	<50	50-100	100-200	>200
<47	P.38	P.38	P.38	P.38
47-52	P.38	P.38	P.38	P.38
53-57	P.1	P.1	P.38	P.38
>57	P.1	P.1	P.1	P.38

8 years <= Coverage Period < 9 years

Age (years old)	SA (in IDR Million)			
	<50	50-100	100-200	>200
<47	P.78	P.78	P.38	P.38
47-52	P.1	P.1	P.38	P.38
53-57	P.1	P.1	P.38	P.38
>57	P.1	P.1	P.1	P.38

Coverage Period > 9 years

Age (years old)	SA (in IDR Million)			
	<50	50-100	100-200	>200
<47	P.78	P.78	P.78	P.38
47-52	P.1	P.1	P.78	P.38
53-57	P.1	P.1	P.78	P.38
>57	P.1	P.1	P.1	P.38

P = Product

