CSC384 Assignment 4
Question 3

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Part A

A = Gender (gd) Y = Hyperlipidemia (hl) C = Diabetes (db)

P(db | hl)

	hl	
	YES	NO
YES	0.645942168	0.385042349
NO	0.645942168	0.385042349

P(db | hl, gd)

	hl, gd			
	YES, Male	NO, Male	YES, Female	NO, Female
YES	0.645942168	0.385042349	0.645942168	0.385042349
NO	0.645942168	0.385042349	0.645942168	0.385042349

It is evident from these two tables that this is an example that shows **Separation**, as gender does not influence probability values

P(hl | db)

	db	
	YES	NO
YES	0.533205861	0.281621918
NO	0.533205861	0.281621918

P(hl | db, gd)

	db, gd			
	YES, Male	NO, Male	YES, Female	NO, Female
YES	0.569024667	0.311830187	0.491985558	0.249457016
NO	0.569024667	0.311830187	0.491985558	0.249457016

However, **Sufficieny** is not satisfied as in this case gender does influence when analyzing probability of Diabetes given evidence of Hyperlipiedmia

Part B

A = Gender (gd) Y = Vegetables (vg) C = Hyperlipidemia (hl)

P(vg | hl)

	hl	
	YES	NO
<400g/d	0.579	0.283
400-500g/d	0.579	0.283
>500g/d	0.579	0.283

hl, gd

	YES, Male	NO, Male	YES, Female	NO, Female
<400g/d	0.579	0.283	0.579	0.283
400-500g/d	0.579	0.283	0.579	0.283
>500g/d	0.579	0.283	0.579	0.283

It is evident from these two tables that this is an example that shows **Sufficiency**, as gender does not influence probability values

P(hl | gd)

	vg		
	<400g/d	400-500g/d	>500g/d
YES	0.582128724	0.373763069	0.191829499
NO	0.582128724	0.373763069	0.191829499

vg, gd

P(hl | vg, gd)

	<400g/d, Male	400-500g/d, Male	>500g/d, Male	<400g/d, Female	400-500g/d, Female	>500g/d, Female
YES	0.616890777	0.408238288	0.215292679	0.541513814	0.335996553	0.167528451
NO	0.616890777	0.408238288	0.215292679	0.541513814	0.335996553	0.167528451

However, **Separation** is not satisfied as in this case gender does influence when analyzing probability of Vegetables given evidence of Hyperlipiedmia