Q3

a) Case a) if we are trying to predict amount of vegetables the person ate with Hyperlipidemia as evidence, then the prediction is Separated from gender, but not sufficient.
    a. P(Vegetables = <400g/d|Hyperlipidemia = YES, Gender = Male) = 57.9
    b. P(Vegetables = <400g/d|Hyperlipidemia = YES, Gender = Female) = 57.9
    c. P(Vegetables = <400g/d|Hyperlipidemia = NO, Gender = Male) = 28.3
    d. P(Vegetables = <400g/d|Hyperlipidemia = NO, Gender = Female) = 28.3
    e. P(Vegetables = 400-500g/d|Hyperlipidemia = YES, Gender = Male) = 28.4
    f. P(Vegetables = 400-500g/d|Hyperlipidemia = YES, Gender = Female) = 28.4
    g. P(Vegetables = 400-500g/d|Hyperlipidemia = NO, Gender = Male) = 32.4
    h. P(Vegetables = 400-500g/d|Hyperlipidemia = NO, Gender = Female) = 32.4
    i. P(Vegetables = >500g/d|Hyperlipidemia = YES, Gender = Male) = 13.7
    j. P(Vegetables = >500g/d|Hyperlipidemia = YES, Gender = Female) = 13.7
    k. P(Vegetables = >500g/d|Hyperlipidemia = NO, Gender = Male) = 39.3
    l. P(Vegetables = >500g/d|Hyperlipidemia = NO, Gender = Female) = 39.3
    m. P(Vegetables = <400g/d|Hyperlipidemia = YES) = 57.9
    n. P(Vegetables = <400g/d|Hyperlipidemia = NO) = 28.3
    o. P(Vegetables = 400-500g/d|Hyperlipidemia = YES) = 28.4
    p. P(Vegetables = 400-500g/d|Hyperlipidemia = NO) = 32.4
    q. P(Vegetables = >500g/d|Hyperlipidemia = YES) = 13.7
    r. P(Vegetables = >500g/d|Hyperlipidemia = NO) = 39.3
    s. P(Hyperlipidemia = YES|Vegetables = <400g/d, Gender = Male) = 61.7
    t. P(Hyperlipidemia = YES|Vegetables = <400g/d, Gender = Female) = 54.2
    u. P(Hyperlipidemia = YES|Vegetables = 400-500g/d, Gender = Male) = 40.8
    v. P(Hyperlipidemia = YES|Vegetables = 400-500g/d, Gender = Female) = 33.6
    w. P(Hyperlipidemia = YES|Vegetables = >500g/d, Gender = Male) = 21.5
    x. P(Hyperlipidemia = YES|Vegetables = >500g/d, Gender = Female) = 16.8
    y. P(Hyperlipidemia = NO|Vegetables = <400g/d, Gender = Male) = 38.3
    z. P(Hyperlipidemia = NO|Vegetables = <400g/d, Gender = Female) = 45.8
    aa. P(Hyperlipidemia = NO|Vegetables = 400-500g/d, Gender = Male) = 59.2
    bb. P(Hyperlipidemia = NO|Vegetables = 400-500g/d, Gender = Female) = 66.4
    cc. P(Hyperlipidemia = NO|Vegetables = >500g/d, Gender = Male) = 78.5
    dd. P(Hyperlipidemia = NO|Vegetables = >500g/d, Gender = Female) = 83.2
    ee. P(Hyperlipidemia = YES|Vegetables = <400g/d) = 58.2
    ff. P(Hyperlipidemia = YES|Vegetables = 400-500g/d) = 37.4
    gg. P(Hyperlipidemia = YES|Vegetables = >500g/d) = 19.2
    hh. P(Hyperlipidemia = NO|Vegetables = <400g/d) = 41.8
    ii. P(Hyperlipidemia = NO|Vegetables = 400-500g/d) = 62.6
    jj. P(Hyperlipidemia = NO|Vegetables = >500g/d) = 80.8

b) Another example is when we want to predict hyperlipidemia base on activity. The prediction is sufficient but not separated from region.
    a. Variable: Hyperlipidemia
    b. P(Hyperlipidemia = YES|Activity = Insufficient, Region = Countryside) = 46.6
    c. P(Hyperlipidemia = YES|Activity = Insufficient, Region = City) = 43.5

d. P(Hyperlipidemia = YES|Activity = Normal, Region = Countryside) = 40.8
e. P(Hyperlipidemia = YES|Activity = Normal, Region = City) = 38.2
f. P(Hyperlipidemia = YES|Activity = Sufficient, Region = Countryside) = 36.8
g. P(Hyperlipidemia = YES|Activity = Sufficient, Region = City) = 34.2
h. P(Hyperlipidemia = NO|Activity = Insufficient, Region = Countryside) = 53.4
i. P(Hyperlipidemia = NO|Activity = Insufficient, Region = City) = 56.5
j. P(Hyperlipidemia = NO|Activity = Normal, Region = Countryside) = 59.2
k. P(Hyperlipidemia = NO|Activity = Normal, Region = City) = 61.8
l. P(Hyperlipidemia = NO|Activity = Sufficient, Region = Countryside) = 63.2
m. P(Hyperlipidemia = NO|Activity = Sufficient, Region = City) = 65.8
n. P(Hyperlipidemia = YES|Activity = Insufficient) = 45.0
o. P(Hyperlipidemia = YES|Activity = Normal) = 39.4
p. P(Hyperlipidemia = YES|Activity = Sufficient) = 35.5
q. P(Hyperlipidemia = NO|Activity = Insufficient) = 55.0
r. P(Hyperlipidemia = NO|Activity = Normal) = 60.6
s. P(Hyperlipidemia = NO|Activity = Sufficient) = 64.5
t. P(Activity = Insufficient|Hyperlipidemia = YES, Region = Countryside) = 43.4
u. P(Activity = Insufficient|Hyperlipidemia = YES, Region = City) = 43.5
v. P(Activity = Insufficient|Hyperlipidemia = NO, Region = Countryside) = 36.1
w. P(Activity = Insufficient|Hyperlipidemia = NO, Region = City) = 36.4
x. P(Activity = Normal|Hyperlipidemia = YES, Region = Countryside) = 32.5
y. P(Activity = Normal|Hyperlipidemia = YES, Region = City) = 32.5
z. P(Activity = Normal|Hyperlipidemia = NO, Region = Countryside) = 34.1
aa. P(Activity = Normal|Hyperlipidemia = NO, Region = City) = 33.9
bb. P(Activity = Sufficient|Hyperlipidemia = YES, Region = Countryside) = 24.0
cc. P(Activity = Sufficient|Hyperlipidemia = YES, Region = City) = 24.0
dd. P(Activity = Sufficient|Hyperlipidemia = NO, Region = Countryside) = 29.8
ee. P(Activity = Sufficient|Hyperlipidemia = NO, Region = City) = 29.7
ff. P(Activity = Insufficient|Hyperlipidemia = YES) = 43.5
gg. P(Activity = Insufficient|Hyperlipidemia = NO) = 36.2
hh. P(Activity = Normal|Hyperlipidemia = YES) = 32.5
ii. P(Activity = Normal|Hyperlipidemia = NO) = 34.0
jj. P(Activity = Sufficient|Hyperlipidemia = YES) = 24.0
kk. P(Activity = Sufficient|Hyperlipidemia = NO) = 29.8