Gini Impurity of the Root Node

$= 1 - (P_0)^2 - (P_1)^2$

$= 1 - (34/80)^2 - (46/80)^2$

$= 0.4888$

Sample data = [34, 46]

If we consider Age < 28 :-

YES → [20, 21]

NO → [14, 25]

Gini Impurity (GI) of YES Node

$= 1 - (20/41)^2 - (21/41)^2$

$= 0.4997$

GI of No Node

$= 1 - (14/39)^2 - (25/39)^2$

$= 0.4602$

Sum of Weighted Gini Impurity (WGI)

$= 0.4997 \times (41/80) + 0.4602 \times (39/80)$

$= 0.4804$

Delivery Number < 2 ?

YES → [19, 22]

NO → [15, 24]

GI of YES Node = 0.4973

GI of No Node = 0.4734

Sum of W.G.I = 0.4856

Blood Pressure < 1?

YES → [5, 15]

NO → ~~[6, 14]~~ [32, 28]

GI of YES = 0.375

GI of NO = 0.4978

Sum of W.G.I. = 0.4671

Delivery Time < 1 ?

YES → [16, 30]

NO → [18, 16]

GI of YES = 0.4537

GI of NO = 0.4983

Sum of WGI = 0.4727

Heart Problem < 0.5 ?

YES → [28, 22]

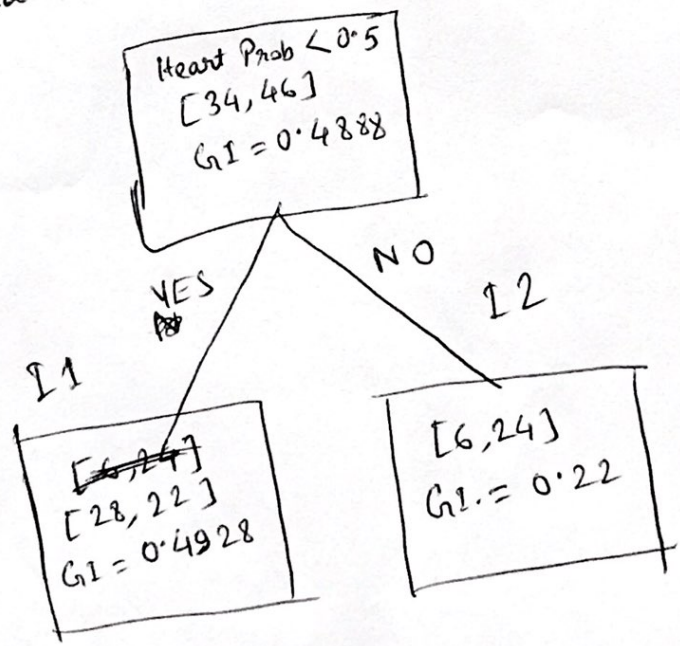
NO → [6, 24]

GI of YES = 0.4928

GI of NO = 0.32

Sum of WGI = 0.428

B Sum of WGI is smallest for Heart Problem question. So, I will use this as my criteria at root Node.



For Node I 1 :-

Age < 27 ?

YES → [15, 12]

NO → [13, 10]

GI of YES = ~~0.1951~~ 0.4938

GI of No = 0.4915

Sum of WGI = 0.4927

Delivery Number < 2 ?

YES → [17, 12]

NO → [11, 10]

G.I. of YES = 0.4851

G.I of NO = 0.4989

Sum of WGI = 0.4909

Delivery Time < 1 ?

YES → [13, 15]

NO → [15, 7]

G I. of YES = 0.4974

GI of NO = 0.4339

Sum of WGI = 0.4959

Blood Pressure < 1 ?

YES → [5, 6]

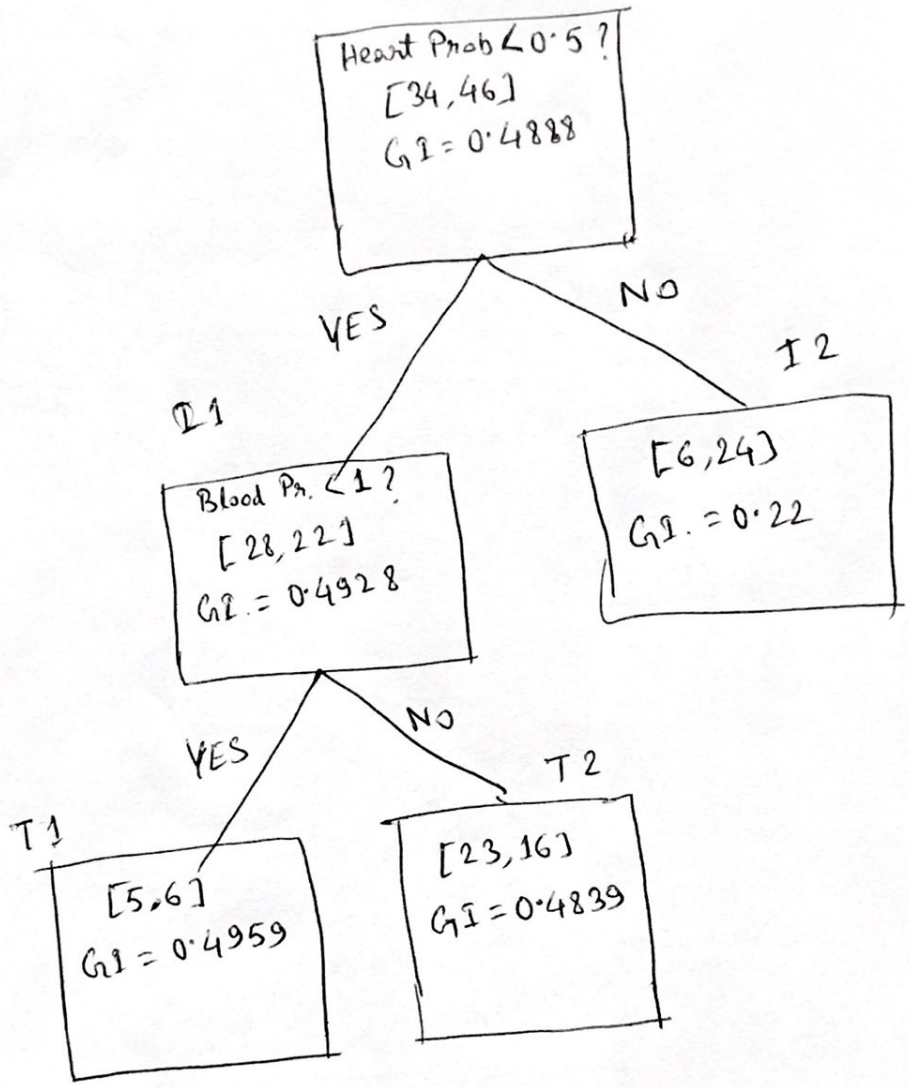
NO → [23, 16]

GI. of YES = 0.4959

GI of NO = 0.4839

Sum of W.G.I = 0.4865

As Sum of weighted Gini Impurity of Blood Pressure is smallest among the group, I will use this as my criteria for I 1 ~~node~~ node split.



For Node I2 :-

Age < 30 ?

YES → [3, 13]

NO → ~~[3, 10]~~ [3, 11]

GI of YES = 0.3047

GI of NO = ~~0.355~~ 0.3367

Sum of W.GI. = ~~0.4009~~ 0.3196

DeliveryNum < 2 ?

YES → [2, 10]

NO → [4, 14]

GI. of YES = 0.2778

GI of NO = 0.3457

Sum of W.G.I = 0.3185

Delivery time < 1 ?

YES → [3, 15]

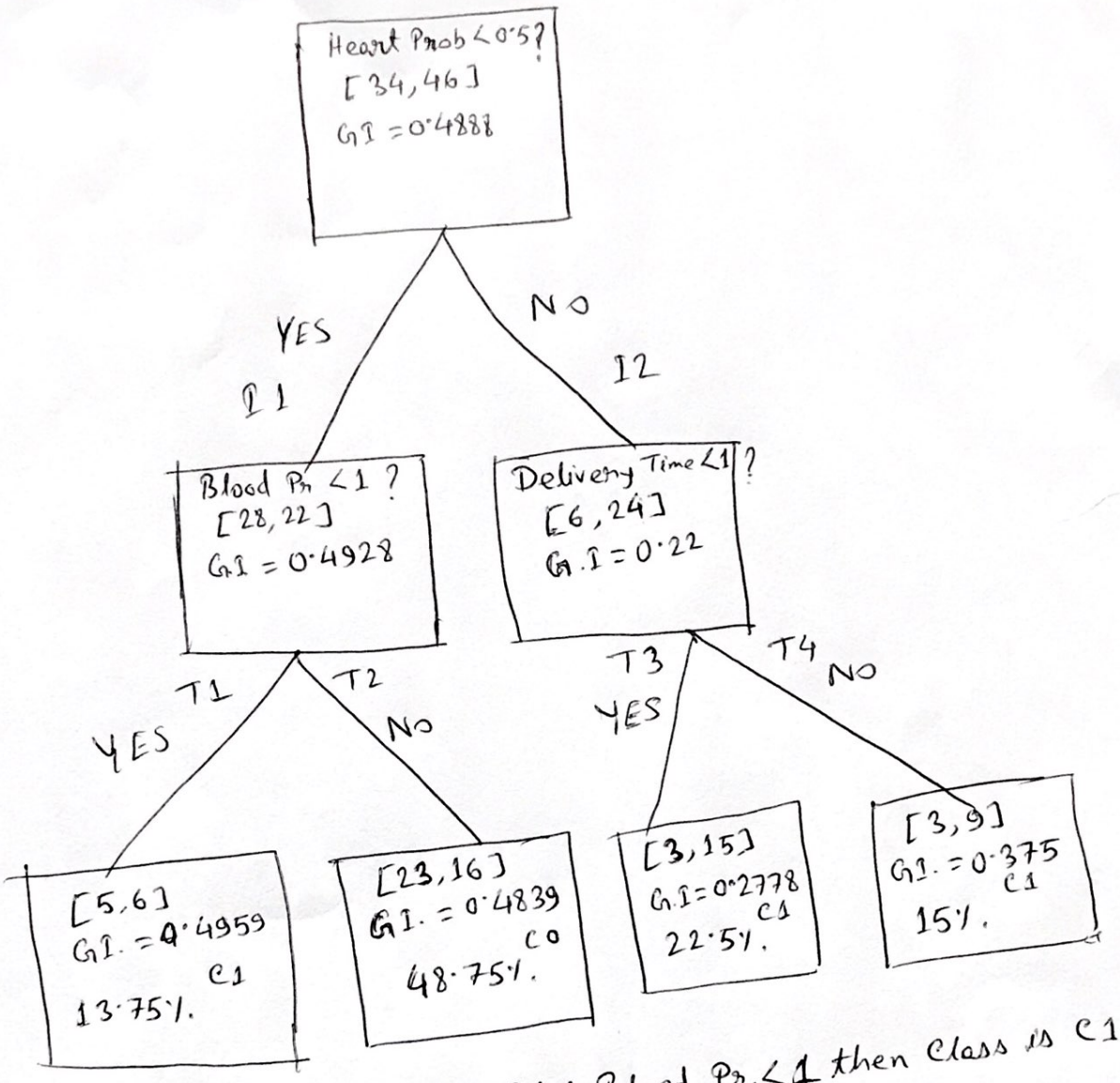
NO → [3, 9]

GI. of YES = 0.2778

G.I of NO = 0.375

Sum of W.G.I = 0.3167

For I2, I'am Selecting Delivery time < 1?



If Heart Prob < 0.5 AND ~~Blood Blood~~ Blood Pr. < 1 then class is C1.

If Heart Prob < 0.5 AND Blood Pr ≥ 1 then class is C0.

If Heart Prob ≥ 0.5 AND Delivery Tm < 1 then class is C1

If Heart Prob ≥ 0.5 AND ~~Delive~~ Delivery Time ≥ 1

then class is C1