Evaluation of Models.

Model 1

P(A)	P(B)	P(C)	GT(A)	GT(B)	GT(C)
0.55	0.35	0.1	1	0	0
0.3	0.5	0.2	0	1	0
0.6	0.35	0.05	1	0	0
0.3	0.3	0.4	0	0	1
0.3	0.5	0.2	0	1	0
0.01	0.45	0.54	0	1	0

Model 2

P(A)	P(B)	P(C)
0.8	0.1	0.1
0.5	0.4	0.1
0.75	0.2	0.05
0.05	0.2	0.75
0.2	0.7	0.1
0.05	0.9	0.05

Model 3

P(A)	P(B)	P(C)
0.92	0.07	0.01
0.15	0.75	0.1
0.88	0.11	0.01
0.2	0.13	0.67
0.06	0.77	0.17
0.51	0.48	0.01

Categorical Cross Entropy Loss $= -\sum_{i=1}^{c} y_i \log \hat{y}_i$

$y \rightarrow$ Ground Truth
$\hat{y} \rightarrow$ Predicted
$c \rightarrow$ Classes

Model 1

Actual	Predicted	Result
A	A	$-[GT(A) \times \log P(A) + GT(B) \times \log P(B) + GT(C) \times \log P(C)] = 0.26$
B	B	$-0 \times \log(0.3) - 1 \times \log(0.5) - 0 \times \log(0.2) = 0.301$
A	A	$-1 \times \log(0.6) - 0 \times \log(0.35) - 0 \times \log(0.05) = 0.222$
C	C	0.398
B	B	0.301
B	C	0.347

loss = 1.829

Model 2

Actual	Predicted	Result
A	A	0.097
B	A	0.398
A	A	0.125
C	C	0.125
B	B	0.155
B	B	0.046

loss = 0.946

Model 3 is best since loss is least.

Model 3

Actual	Predicted	Result
A	A	0.036
B	B	0.125
A	A	0.056
C	C	0.174
B	B	0.114
B	A	0.319

loss = 0.824