Output Analysis

Ans.1) We have created a response variable (hits = (Ratings >=6.0) which will give output of 1 & 0 if rating >=6 or vice-versa respectively.

Response Profile		
Ordered Value	hits	Total Frequency
1	1	167
2	0	65

Ans.2) Using 'Proc logistic' we have created a logistic regression model for our dependent variable 'hits' using variables: Likes, Comments & Screens.

Ans.3) These are the binary logit regression estimates for the Parameters in the model. The logistic regression model models the log odds of a positive response (probability modeled is hits=1) as a linear combination the predictor variables.

log[p / (1-p)] = b0 + b1*Likes + b2*Comments + b3 *Screens

where p is the probability that hits is 1.

The estimates obtained by the model initially are:

Log[P/(1-P)] = 0.9736 + (0.000041*Likes) + (-0.00033*Comments) + (0.000039*Screens)

Interpretation of variable Estimates:

For variable 'Likes' the estimate is 0.000041 which means that for 1 unit increase in the likes score the difference in the logodds for hits score increases by 0.000041 times.

For variable 'Comments' the estimate is -0.00033 which means that for 1 unit increase in the Comments score the difference in the logodds for hits score decreases by -0.00033 times.

For variable 'Screens' the estimate is 0.000039 which means that for 1 unit increase in the Screens score the difference in the logodds for hits score increases by 0.000041 times.

Analysis of Maximum Likelihood Estimates					
Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	1.0484	0.1765	35.2991	<.0001
Likes	1	0.000041	0.000019	4.7488	0.0293
Comments	1	-0.00033	0.000130	6.3868	0.0115

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The P value of the predictors Likes & Comments is less than 0.05 which means they are statistically significant. But predictor Screens has a P Value more than 0.05 (0.7062). Hence we can say that it is statistically not significant. We can drop the variable 'Screens'.

The Odds Ratio is obtained by exponentiating the Estimates. The point estimates for all 2 variables (Dropping Screens) is 1.0 which can be interpreted as for a unit increase in Likes & Comments scores the odds of 'hits' scores increase by 1.00 times respectively.

Odds Ratio Estimates			
Effect	Point Estimate	95% Wald Confidence Limits	
Likes	1.000	1.000	1.000
Comments	1.000	0.999	1.000

Association of Predicted Probabilities and Observed Responses			
Percent Concordant	60.0	Somers' D	0.200
Percent Discordant	40.0	Gamma	0.200
Percent Tied	0.0	Tau-a	0.081
Pairs	10855	c	0.600

The C value is 0.6 in 'Association of Predicted Probabilities & Observed Responses'. A 0.5 C-value corresponds to the model randomly predicting the response. As 0.6 is close to 0.5 C-value we can say that the above statement is true for our model.